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Gazprom in Europe – two “*Anni Mirabiles*”, but can it continue?

Introduction

Gazprom has enjoyed two stunning years of gas export sales to Europe, delivering record volumes in 2016 and 2017. This outcome was largely unexpected as, previously, Gazprom's sales to Europe had been under some pressure¹ and many commentators expected competitive and political forces to restrict its opportunities. However, a number of external factors have catalysed a rebound, including delays in new LNG start-ups, higher coal prices, restrictions on gas production at the Groningen field in Holland, a recovery in overall European gas demand, and the company's marketing strategy which has been adjusted to ensure that its gas remains competitive while it also, increasingly, complies with European gas market regulations.

Nevertheless, although the past two years would appear to justify Gazprom's assertion that it is not only the largest but also the most competitive source of supply for Europe, its success has also inspired a debate that could potentially undermine its future prospects. Not least, the increasing share of Russian gas in the European supply mix has underlined security of supply concerns that had already been prompted by the continuing conflict in Ukraine. The reaction of some European countries and politicians has been to push for restrictions on Russian gas export infrastructure, in particular focused on Nord Stream 2, while US sanctions policy has also been focused on limiting any further growth in Russian exports. To compound this, the February 2018 decision of the Stockholm arbitration court has provoked a furious response from Gazprom,² which appears to have put the gas transit contract with Ukraine, which governs almost half of Russia's gas exports to Europe, at risk. In addition to these political and legal problems, the long-anticipated “LNG supply surge” is likely to occur over the next two to three years and could cause increased competition just as oil prices rise and push Russian contract gas prices, some of which retain an oil-linked component, higher.

This *Oxford Energy Insight* assesses the sources of Gazprom's success over the past two years, addresses the key issues that the company faces over the next two years, and outlines the key challenges faced by both the company and by European customers and politicians as they address the dilemma of Russian gas. In particular, the main quandary is how to balance the obvious demand for a large and low-cost source of gas for Europe with the concern that Russia's share of the European gas market could approach 40 per cent in the foreseeable future. Even ignoring the political risk, this raises an obvious question of over-dependence which needs an answer by the end of 2019 as the future of

¹ Reuters, 19 Feb 2015, 'Russia's Gazprom faces falling gas sales to Europe'.

² Platts, 2 March 2018, 'Gazprom begins procedure to 'terminate' Naftogaz supply, transit contract'.

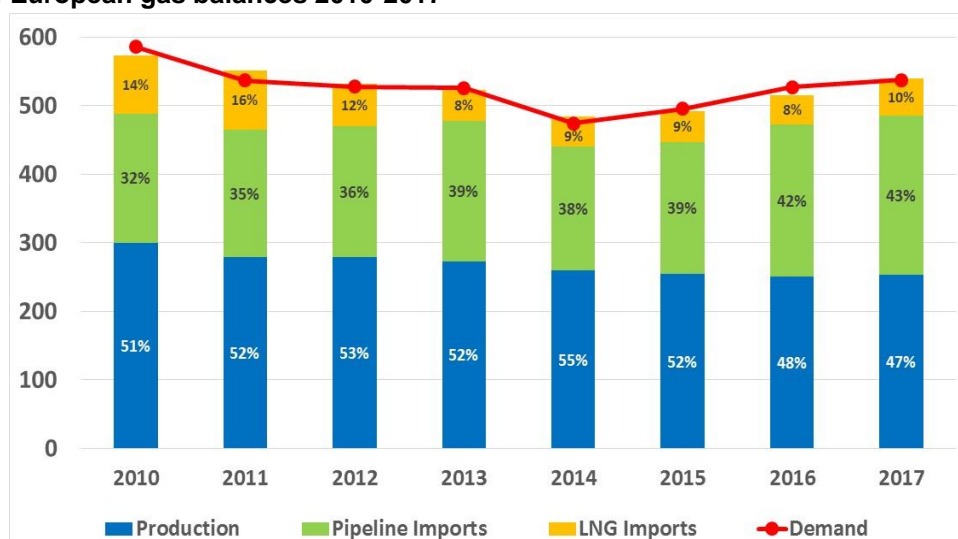


gas transit through Ukraine and the construction and use of the Nord Stream 2³ and TurkStream⁴ pipelines is decided.

Gas exports to Europe in 2016 and 2017 – golden years for Gazprom

The position of gas in Europe has been improving for the past three years, as can be seen in Figure 1. After a decline in demand of approximately 100 Bcm between 2010 and 2014, the rebound started in 2015 and then accelerated in 2016 and 2017, with year-on-year demand growth of six per cent and seven per cent respectively. This has been driven by a number of factors, including economic recovery across Europe, cold winter temperatures, and increased coal to gas switching. This latter trend has been particularly pronounced in the UK, where the impact of the carbon floor price has, on occasion, removed coal from the power generation mix altogether.⁵ Furthermore, in a number of other European countries the rising influence of the Industrial Emissions Directive and the policy commitments of some governments have seen the closure of coal-fired power plants, which have been replaced, primarily, by renewables but which has also boosted gas demand.

Figure 1: European gas balances 2010-2017



Source: Data from Platts LNG Service, IEA

In addition to this accelerating policy shift away from coal, the economics of coal-to-gas switching have also been improving thanks to a rising coal price. This has mainly been driven by a change in Chinese energy policy, with environmental pressures encouraging the government to reduce coal production from its least efficient mines and thus causing an increase in imports.⁶ The impact on global coal markets has caused a sharp increase in prices, which have risen from a low of below \$40/tonne in February 2016 to a high of \$89/tonne in November 2017.⁷ Combined with an equally significant rise in the carbon price in Europe, from a low of below €5 per tonne in March 2016 to a high of €7.60 per tonne in December 2017, then the impact on the economics of coal to gas switching has been transformed in continental Europe, as well as the UK.⁸ Figure 2 shows the range of coal prices (in \$/MMBtu) at which

³ Nord Stream 2 is the expansion of the Nord Stream pipeline that runs from NW Russia to the German coast via the Baltic Sea. Details about the project can be found at <https://www.nord-stream2.com/>.

⁴ Gazprom refers to the latest gas export pipeline project from Russia to Turkey as 'TurkStream' and details about the project can be found at <http://www.gazprom.com/about/production/projects/pipelines/built/turk-stream/>.

⁵ Financial Times, 22 April 2017, 'UK generates a day's electricity without coal'.

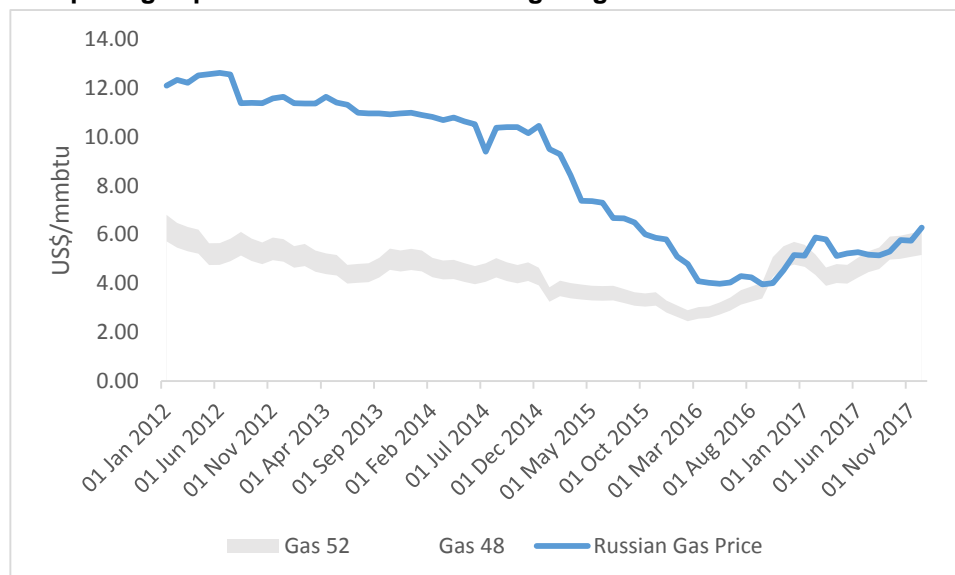
⁶ Financial Times, 22 Sept 2016, 'Surging price of coking coal reflects China's muscle'.

⁷ Data from Argus Media for Coal Price in the Baltic Ports, quoted in London.

⁸ Reuters, 11 Oct 2017, 'Analysts raise EU carbon price forecasts on expectations of market reform: survey'.

it is economic for existing power utilities to switch to gas, depending on the efficiency of their coal and gas plants, and it also shows the Russian gas price in Germany in comparison. As is abundantly clear, despite the recent rise in the gas price, it has moved from being much more expensive than coal in power generation to being very competitive, meaning that there has been a commercial as well as a policy incentive to increase gas demand at the expense of coal.

Figure 2: European gas price versus coal-switching range



Source: Authors' analysis from Argus and Energy Intelligence data

Gazprom has also been adjusting its pricing strategy in response to demands from customers, as well as increasing pressure from the European Commission. Over the past few years, many of Gazprom's customers have demanded renegotiations of pricing terms and methodology, as the historic oil-linked formula preferred by the Russians has been overtaken by the market-based pricing that is now prevalent in Europe, especially in the north-west of the continent. Companies such as Uniper, RWE, DONG and Engie have all used arbitration to renegotiate with Gazprom, and although many of the cases were settled in advance of legal proceedings, all effectively resulted in a more market-based pricing structure.⁹ Indeed, at its recent Investor Day in London, Gazprom revealed that although one third of its contracts are still oil-linked, one third are now hub-price linked and another third are hybrid contracts which effectively offer the lower of oil or hub-linked prices.¹⁰ As a result, Gazprom has essentially accepted that, in order to thrive in Europe, it must offer its gas at a competitive price, and as can be seen from Figure 3, the Russian gas price to Germany and the European spot price (TTF)¹¹ are now almost indistinguishable.

Indeed, Gazprom has been encouraged to use more competitive pricing by the European Commission, not only through implementation of the Third Energy Package but also as a result of the DG COMP¹² investigation into the company's business activities in Central and Eastern Europe.¹³ The preliminary

⁹ For example, see Stern, J. & Rogers, H. 2014. 'The Dynamics of a Liberalised European Gas Market: Key determinants of hub prices, and roles and risks of major players', NG94, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/12/NG-94.pdf>.

¹⁰ Figures quoted in Reuters, 6 Feb 2018, 'Russia's Gazprom calls Nord Stream 2 pipeline risks'.

¹¹ TTF is the natural gas hub (full name - Title Transfer Facility) in the Netherlands, and the gas price there is generally regarded as a benchmark for Europe

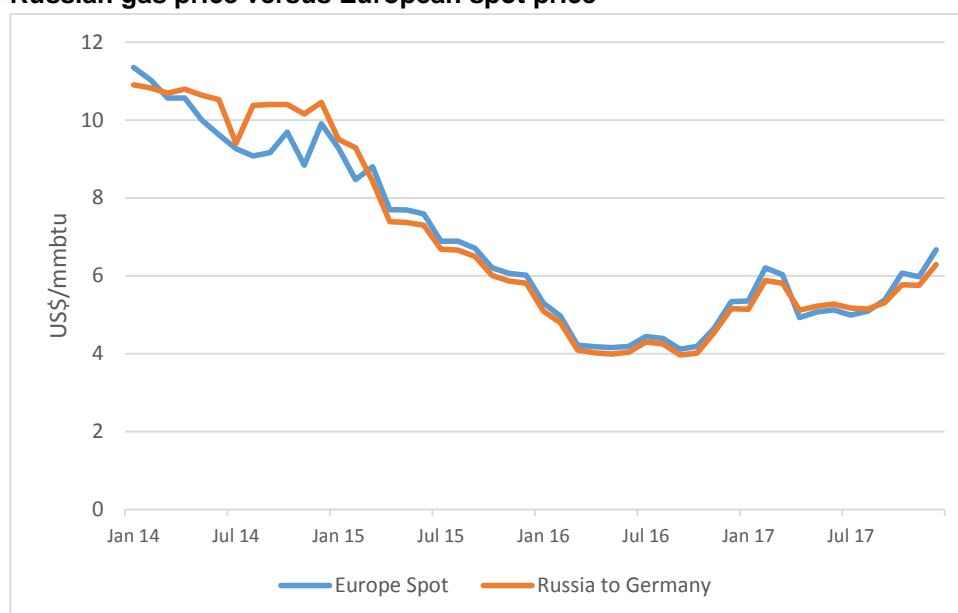
¹² DG COMP – the Directorate General for Competition at the European Commission

¹³ For details see Stern, J. & Yafimava, K. 2017. 'The EU Competition Investigation into Gazprom's Sales to Central and Eastern Europe: a detailed analysis of the commitments and the way forward', NG121, OIES,



results of the investigation, in terms of the commitments proposed by Gazprom in response to the European Commission's concerns, appear to herald an end to the use of destination clauses and the linking of gas price negotiations to questions of infrastructure, but more importantly appear to have forced Gazprom to reconsider its pricing strategy and to reduce the share of oil-linked pricing in its contracts in order to reduce any 'unfair' differentiation between markets. While Gazprom has not offered to remove oil-price indexation entirely, it has offered to "introduce competitive benchmarks, including Western European hub prices, into its price review clauses" and to make those price reviews more frequent for its customers in Estonia, Latvia, Lithuania, Poland, and Bulgaria.¹⁴ Although a final resolution has been delayed by on-going negotiations over the finer details,¹⁵ it would appear that Gazprom has been prepared to accede to many of the Commission's demands and, by doing so, has made its gas more attractive to consumers in many European countries.¹⁶

Figure 3: Russian gas price versus European spot price



Source: Data from Argus Media

As a result of this increased competitiveness, and the fact that demand has been rising in Europe, Russian gas has found itself in a very beneficial position, which has been further enhanced by events on the supply side of the equation. European indigenous production has been in decline for some years, falling from 300 Bcm in 2010 to 250 Bcm in 2016, as the key source of production – the North Sea – becomes more mature.¹⁷ Furthermore, the serious problems at the Groningen field in Holland,¹⁸ where production is being limited and reduced due to related seismic activity, has caused an unexpected additional reduction in supply that has increased the need for imports. Although there was a small rebound in European gas production in 2017, mainly thanks to improved performance by the UK, the

<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/07/The-EU-Competition-investigation-of-Gazproms-sales-in-central-and-eastern-Europe-a-detailed-analysis-of-the-commitments-and-the-way-forward-NG-121.pdf>.

¹⁴ European Commission, 2017. Antitrust: Commission invites comments on Gazprom commitments concerning Central and Eastern European gas markets. *Press Release*, 13 March.

¹⁵ CNBC, 28 Feb 2017, 'It's tricky to foresee when EU will end probe into Gazprom, says EU's Vestager'.

¹⁶ Financial Times, 13 March 2017, 'Gazprom reaches draft antitrust deal with EU'.

¹⁷ Financial Times, 3 Aug 2017, 'US and Russia step up fight to supply Europe's gas'.

¹⁸ See Honoré, A. 2017. 'The Dutch Gas Market: Trials, tribulations and crisis', NG118, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/05/The-Dutch-Gas-Market-trials-tribulations-and-trends-NG-118.pdf>.



long-term trend remains one of decline, especially as pressure is increasing in the Netherlands to take firmer action at Groningen following new earthquakes in early 2018 and the recommendation of further production cuts by the Dutch regulator.¹⁹

LNG has failed to materialise in the expected volumes

This trend in indigenous production has widened the window for gas imports to Europe, with obvious implications for exporters of gas via pipelines and LNG. At the beginning of 2016, as the wave of new LNG projects from the US and Australia appeared imminent, there had been some speculation that ship-borne gas would be the key source of expanded European imports, causing significant competition with pipeline gas (especially from Russia) and the potential for a price war.²⁰ However, the past two years have actually resulted in something of a phoney war, as the share of imported pipeline gas in Europe's supply has risen faster than the share of LNG. Gazprom's competitive pricing has certainly played a role, but delays in key LNG projects and higher gas demand in Asia, which is the natural primary market for LNG, have also been important factors. As detailed by Rogers (2017), LNG imports to Europe were in fact down by 3.3 per cent in 2016 due to a number of issues at new LNG projects, including commissioning problems, feed gas supply issues and construction slippage linked to escalating costs, with the result that overall LNG supply has not increased as fast as expected.²¹ These problems started to be resolved in 2017, with the result that global LNG supply jumped by nine per cent in 2017 to reach 382 Bcm, meaning that the supply available to Europe rose by 10 Bcm to reach almost 60 Bcm.

Although this increased availability of LNG for Europe may mark the start of a new trend as more projects come online, it is important to note that the most significant demand growth for LNG has come from Asia, where a 10 Bcm decline in demand in 2015 has been followed by a 15 Bcm increase in 2016 and a 25 Bcm increase in 2017. This has largely been driven by China, where a campaign to improve air quality in many cities has led demand for LNG imports to almost double in only two years to reach 50 Bcm in 2017, while demand in India and Pakistan has also shown noteworthy growth.²² As a result, competition between LNG and pipeline gas in Europe has not been as intense as expected, with volumes of pipeline imports growing by 40 Bcm since 2015 and with their share of overall European consumption rising from 39 per cent to 43 per cent.

As if this were not good enough news for Russia, an additional boost has been provided by the fact that other suppliers of pipeline gas have been struggling to maintain their export momentum. Algeria surprised many commentators in 2016 with a dramatic jump in exports, which was believed to be a result of diverting gas that would normally have been reinjected into the country's main oilfields to the export market,²³ but 2017 saw a 14 per cent decline in pipeline exports which perhaps reflected the unsustainable nature of this scheme if the country wishes to maintain its oil output. Figure 4 shows the other main non-Russian sources of pipeline gas into Europe, and it is clear that all of them remained largely flat or slightly declined. In contrast, supplies from Russia increased by 10 per cent in 2017 following a similar increase in 2016.

¹⁹ Reuters, 1 Feb 2018, 'Dutch aim for major cut in gas production at earthquake-prone Groningen field'.

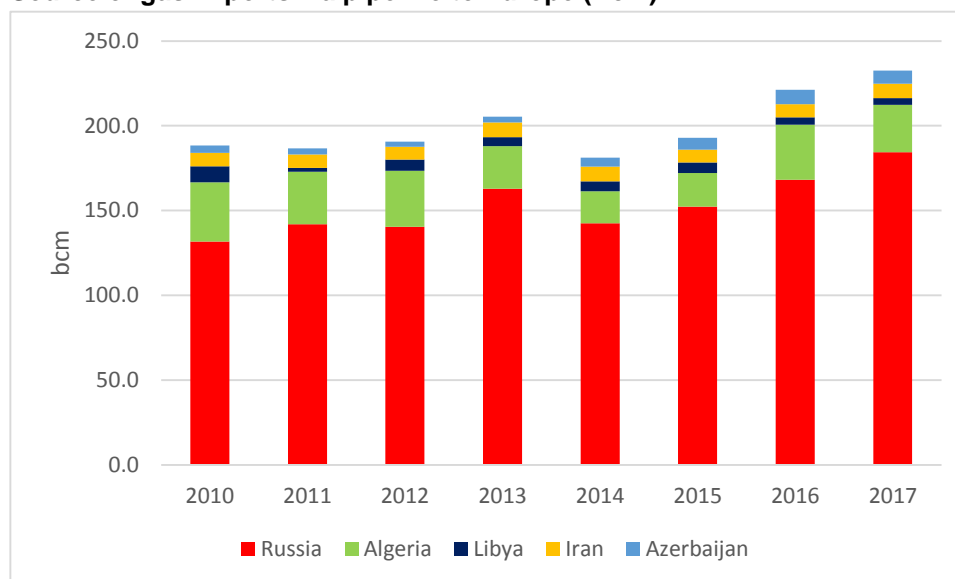
²⁰ Bloomberg, 21 April 2016, 'Shale War's Collateral Damage: Europe's Gas Prices'.

²¹ Rogers, H. 2017. 'The Forthcoming LNG Supply Wave: A case of 'Crying Wolf'' *Oxford Energy Insight* No.4, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/02/The-Forthcoming-LNG-Supply-Wave-OIES-Energy-Insight.pdf>.

²² Financial Times, 7 Nov 2017, 'China and India drive Asian LNG price to 10-month high'.

²³ See Aissaoui, A. 2016. 'Algerian Gas: Troubling Trends, Troubled Policies', NG108, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/05/Algerian-Gas-Troubling-Trends-Troubled-Policies-NG-108.pdf>.

Figure 4: Source of gas imports via pipeline to Europe (Bcm)



Source: Data from IEA

Calculating Russian Gas Export Volumes

At this point it is worth noting some statistical issues concerning the accounting for Russian gas exports to Europe. The figures provided by Gazprom (for example 179.3 Bcm in 2016 and 194.4 Bcm in 2017)²⁴ are quoted in standard Russian Bcm, which are measured at a different pressure and temperature to gas volumes in Europe. As a result, a cubic metre of standard Russian gas provides less heat intensity than a cubic metre of gas consumed in Europe, meaning that Russian volumes should be adjusted downwards to make them comparable. Stern (2014) suggests that the conversion to European units should be calculated by reducing the Russian figures by 7.97 per cent.²⁵ However, a further complication is that Gazprom does not include the Baltic States as part of Europe, whereas they are, of course, members of the EU.²⁶ As a result, the figures for Latvia, Lithuania and Estonia should be added to Russian gas exports to Europe. Although the figures for 2017 have not yet been released, in 2016 the total volumes to these three countries were 2.6 Bcm. Assuming the 2017 figure is similar, the figure for total Russian exports to Europe in 2017, adjusted to European measurements, was $(194.4 + 2.6) \times (1 - 0.0797)$, which equals 181.3 Bcm. One final complication is that some of these Russian volumes are assumed to have been sold to Ukraine via reverse flow. Direct sales from Russia to Ukraine ceased in November 2015, but it is likely that some of the extra Russian gas deliveries to Europe in 2016 and 2017 have been sent there via European third parties. It is impossible to say exactly how much of Ukrainian reverse flow is Russian gas, of course, but making an assumption that total Ukrainian gas imports in 2017 of 14.05 Bcm were effectively re-directed Russian gas from Europe, then the actual figure for consumption of Russian gas in Europe in European units could be as low as 181.3 Bcm – 14.05 Bcm which equals 167.25 Bcm.

As a result of this combination of factors, Gazprom has had two *anni mirabiles* for European gas export sales, with its own more competitive marketing strategy complementing the lack of competition from other suppliers and the rebound in European gas demand. Indeed, the relative tightness of the market

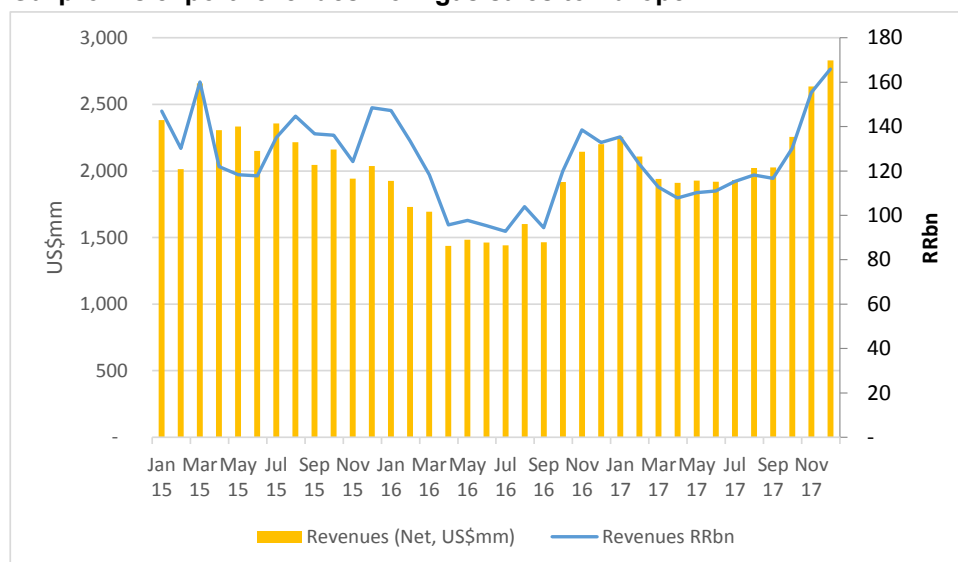
²⁴ Gazprom Investor Day Presentation 2018, slide 29, <http://www.gazprom.com/f/posts/41/295497/investor-day-2018-en.pdf>.

²⁵ Stern, J. 2014. 'Reducing European Dependence on Russian Gas: distinguishing natural gas security from geopolitics', NG92, p3, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/10/NG-92.pdf>.

²⁶ Gazprom still accounts for the Baltic States as part of the Former Soviet Union (FSU), as shown in its Databook for 2012-2016, "The Power Within", page 75, <http://www.gazprom.com/f/posts/44/307258/gazprom-in-figures-2012-2016-en.pdf>.

has even seen this overall supply-demand picture resulting in a gradual recovery of gas prices, meaning that Gazprom's revenues from export sales have been boosted even further. Figure 5 shows the impact in US dollars and Russian roubles, and underlines that having reached a low point in early 2016, when the impact in rouble terms was largely offset by the weakening of the currency, the overall trend has been in an upward direction, with a significant boost towards the end of 2017. Contract prices are generally affected by oil prices, to the extent that they are still linked, with a six to nine-month lag, and so the upward trend is set to continue into the first half of 2018.

Figure 5: Gazprom's export revenues from gas sales to Europe



Source: Data from Argus Media

One final point can be made about Russian gas in Europe in 2016 and 2017, which is that Gazprom's share of supply has inevitably increased. Gazprom has calculated that its share of the European market has increased from 27 per cent in 2011 to 30 per cent in 2014, 31 per cent in 2015, 33 per cent in 2016 and 35 per cent in 2017.²⁷ As a result, it has already met the target that it outlined in its 2017 Investor Day presentation of 'up to 35 per cent by 2025',²⁸ and although it presented the same forecast in 2018, company representatives talked about a share exceeding 40 per cent beyond 2030. Adjusting the figures for Gazprom exports, as outlined in the Box above, it can be argued that Gazprom's current share of the European gas market (including Turkey) is around 34 per cent, but in reality this is mere detail. The fact remains that Gazprom's success over the past two years has underlined how important Russian gas is to Europe, and Gazprom's claim that it 'will keep further strengthening its market position in Europe'²⁹ seems hard to deny, at least over the medium to long-term.

Can the good times continue? Commercial and political challenges ahead

Significant production capacity is available

As Gazprom has responded to growing demand for its gas, another positive feature of the company's performance has been its ability to reinvigorate its upstream production on a relatively rapid short-term basis. When production hit its post-Soviet low of 419 Bcm in 2015, Gazprom's CEO Alexei Miller

²⁷ Gazprom Investor Day Presentation 2018, slide 28

²⁸ Gazprom Investor Day Presentation 2017, slide 10.

²⁹ Gazprom Investor Day Presentation 2018, slide 12

claimed that the company's production capacity remained high thanks to the significant investment it had made in new fields on the Yamal peninsula and the continuing potential of its core West Siberia assets. Indeed, he stated that Gazprom could produce as much as 600 Bcm per annum if required to do so,³⁰ implying a 'gas bubble' in Russia of 180 Bcm from its own fields alone. This level has always seemed rather high and likely to be based on the 'annualisation' of a peak daily figure. Indeed, Miller himself appeared to downgrade the potential at his annual meeting with Vladimir Putin in November 2017, when a capacity of 550 Bcm was mentioned.³¹ This figure was also confirmed by the head of Gazprom's upstream business, Vsevolod Cherepanov, at the Gazprom Investor Day in February 2018, when he saw this level as achievable on a short-term basis at comparatively modest cost. As such, having proved that its production is flexible enough to increase by 50 Bcm in one year (from 420 Bcm to 470 Bcm in 2017), it would appear that Gazprom has a further 80 Bcm of production capacity available at short-run marginal cost if required. In the longer term, of course, Gazprom has vast reserves available across its geographic portfolio that could see output rise much further than this, albeit at a higher long-run marginal cost.

This is relevant because it is fairly safe to assert that, for the foreseeable future, any constraint on Russian gas exports to Europe will not be caused by a lack of available gas. Overall, Russia has the second largest proved gas reserves in the world, behind Iran,³² and arguably the largest source of accessible gas for export, given the limits on Iranian gas export potential at present. Therefore, the determining factors for the future role of Russian gas in Europe will largely be external and will involve the level of future demand for gas in Europe, the trends in indigenous production, the availability of alternative sources of imports and, perhaps most importantly, the reaction of politicians to the perceived security of supply threat caused by Russia's share of the region's gas supply. Gazprom's marketing strategy and rhetoric will, of course, also play a role, but the key question is whether recent market-related trends will continue and whether European politicians will seek to interfere in commercial outcomes.

The outlook for European gas import requirements

Looking to the future of Russian gas in Europe, the first question is the overall context of the European gas market itself. After two years of robust growth, the demand picture would appear to be surprisingly rosy, but in both the medium and long-term there are various forces at play which, as analysed by Honoré (2014, updated),³³ suggest a relatively mixed outcome for gas. On the positive side, the shift away from coal in the power sector appears to be accelerating, driven by the EU's Industrial Emissions Directive (IED) and by more specific government policy on air quality and CO₂ emissions.³⁴ With as much as 80GW of coal-fired capacity not yet compliant with the IED rules, OIES foresees as much as 50GW of coal-fired plant closures in the next five years (equivalent to approximately one third of the available coal-fired capacity in the EU as of February 2018),³⁵ opening a gap for alternative fuels including gas. Furthermore, the phase out of nuclear plants in countries such as Germany and Sweden for either political or commercial reasons, plus delays in new nuclear plants elsewhere (for example, in the UK), means that the opportunity could be even larger, although the role of gas as a replacement fuel will depend on the specific circumstances of individual countries. In many of them renewables will be the preferred source of power generation and there may be as much as 146GW of new capacity by

³⁰ Speech by Alexei Miller at Valdai International Discussion Club in Berlin, 13 April 2015, <http://www.gazprom.com/press/miller-journal/029076/>.

³¹ Quote from Alexei Miller cited on the Gazprom Export, <http://www.gazpromexport.ru/en/presscenter/information/2073/>. Sourced on 12 Feb 2018

³² BP Statistical Review of World Energy 2017, <https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of-world-energy-2017-full-report.pdf>.

³³ Forecasts are based on analysis by Honoré, A. and are updates from her 2014 paper 'The Outlook for Natural Gas Demand in Europe', NG87, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/06/NG-87.pdf>.

³⁴ Reuters, 28 April 2017, 'EU states approve plans for stricter limits on pollutants from power plants'.

³⁵ European Beyond Coal, 2018. *European Coal Plant Database* (15/02/2018). <https://beyond-coal.eu/data/>. Sourced on 1 Mar 2018.



2030, and in this context the real opportunity for gas is not in new power plants but in the greater utilisation of existing capacity. Indeed, we see no net increase in gas capacity by 2030, although we do foresee an increase in gas demand for power generation of around 30 Bcm by then. With demand in the industrial and residential sectors remaining largely flat, and with transport growing, but from a very low base, we can envisage an overall increase in demand of 30-35 Bcm by the end of the next decade from the 2016 figure of 502 Bcm. This is hardly a controversial view, as it is consistent with the IEA forecast from the 2017 World Energy Outlook, which sees a marginal increase in EU gas demand by 2030,³⁶ and also corresponds with the consensus shown by Gazprom itself, which expects a demand increase of 10-36 Bcm by 2035.³⁷

With the demand outlook appearing to be one of only modest growth, the key driver for any increase in imports will, therefore, be the decline in indigenous supply, and the consensus of most experts is that this will continue for the foreseeable future.³⁸ Looking at the three key players for European supply, forecasts by the UK's Oil and Gas Authority predict that the recent recovery in UK production can be maintained until 2019, after which decline will commence once again,³⁹ while the trends in Dutch production are also negative for the reasons already discussed. The Dutch government has recently set a reduced cap of 21.6 Bcm on Groningen production in an attempt to reduce the risk of further earthquakes, and it is certainly possible that this cap could be lowered further given the increasing frequency of tremors at and around the field.⁴⁰ With other Dutch fields also in decline, it is even possible that the Netherlands could be a net gas importer by 2030,⁴¹ and perhaps even earlier given the latest seismic events in January 2018.

This leaves Norway as the most stable source of European indigenous gas supply, and a forthcoming study by Hall (2018) highlights the fact that Norwegian output is likely to remain stable, at the record levels seen in 2017, until 2022, before declining gradually to the end of the decade, by which time output could have fallen by around 30 Bcm from current levels.⁴² There is some risk to this forecast, given that one third of 2030 production will come from reserves that have yet to be discovered, but nevertheless Norway will certainly remain the largest European gas producer over the next two decades. Having said that, the decline in output forecast in all three countries will cause Europe's import requirement to rise, with OIES seeing an increase of over 100 Bcm by 2030 compared to the 2016 level of approximately 250 Bcm. This compares with a rather more modest increase of 93 Bcm by 2035 seen by Gazprom, assuming a flat demand forecast,⁴³ but overall the trend is clear – Europe will need significantly more imported gas over the next decade and a half.

The obvious, and vital, question is, therefore, what the sources of this level of imports will be. In a 2014 working paper Stern *et al* carried out a detailed analysis of Europe's gas import options and concluded that the potential is limited.⁴⁴ Modest extra imports will come from Azerbaijan thanks to the development of Phase 2 of the Shah Deniz project, combined with the TANAP and TAP pipelines but, beyond that, upside from the Caspian region is limited. Longer term projections suggest that Iran and Iraq could also offer new gas, but both sources have specific combinations of geo-political and geological risk which

³⁶ IEA World Energy Outlook 2017, page 339.

³⁷ Gazprom Investor Day Presentation 2018, page 5, <http://www.gazprom.com/f/posts/41/295497/investor-day-2018-en.pdf>.

³⁸ For example AT Kearney, 'The Future of European Gas Supply', http://www.atkearney.co.uk/en/oil-gas/featured-article/-/asset_publisher/7Cikk7IPfJp2/content/the-future-of-the-european-gas-supply/10192. Sourced on 12 Feb 2018.

³⁹ UK Oil and Gas Authority, Feb 2017, 'UKCS Oil and Gas Production Projections', <https://www.ogauthority.co.uk/media/3391/oga-production-projections-february-2017.pdf>. Sourced on 15 Feb 2018.

⁴⁰ Reuters, 16 Jan 2018, 'Dutch to lower Groningen gas production as much as possible – govt.'.

⁴¹ Honoré, A. 2017. 'The Dutch Gas Market: Trials, tribulations and crisis', p 59, NG118, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/05/The-Dutch-Gas-Market-trials-tribulations-and-trends-NG-118.pdf>.

⁴² Hall, M. 2018. 'The Future of Norwegian Gas Supply', Forthcoming Working Paper, Oxford Institute for Energy Studies.

⁴³ Gazprom Investor Day Presentation 2018, page 5.

⁴⁴ Stern *et al*, 2014. 'Reducing European Dependence on Russian Gas: distinguishing natural gas security from geopolitics', NG92, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/10/NG-92.pdf>.

mean that the outcomes are speculative at best. Meanwhile, gas from the East Mediterranean appears equally uncertain as a source of supply to Europe, while North African exports are likely to decline due to lack of production capacity, rapidly rising domestic consumption, and political instability.⁴⁵ As a result, the overall conclusion is that only two sources of supply are likely to be able to meet Europe's growing import needs, Russia and the global LNG market.

Russia and LNG – a recurring theme

As Rogers first pointed out in his 2015 paper, the European gas market is essentially balanced by the flexibility offered by Gazprom's take-or-pay contracts and the availability of competitively priced LNG on the global market.⁴⁶ Within this context it is clear that, if the price of Gazprom's gas is relatively high compared to the hub-based market price in Europe at which LNG would be sold, then buyers will minimise their offtake of Russian gas down towards take-or-pay levels and purchase LNG instead. Conversely, if Gazprom shows flexibility and offers a very competitive price, then customers will increase their purchases of Russian gas and reduce imports of LNG. There is probably a minimum level of LNG supply to Europe of around 50 Bcm which takes into account the location of customers relative to Russia and LNG terminals, but nevertheless the generic nature of the competition between Russia and global LNG holds, as both can be suppliers at the margin.

Importantly, though, the real competition only occurs when there is a surplus in the market, as Europe tends to act as the market of last resort for LNG suppliers.⁴⁷ The continent's excess of LNG receiving capacity⁴⁸ and its market-based pricing system means that there is always a potential market for spare LNG that has not been sold into the Asian market, where prices tend to be at a premium compared to Europe because of the greater reliance on LNG due to the relative lack of pipeline gas options in many countries. However, over the past two years Europe has not really acted as much of a spill-over market for LNG, as upstream projects have been delayed and demand elsewhere has scooped up any increases in supply. As Russia has been only too keen to point out, even the fabled flood of US LNG has failed to materialise, with Gazprom recently comparing its impact on Europe to a couple of drops of water compared to the full cup of tea that Russia has been able to provide (see Figure 6 below).

⁴⁵ Interfax, 7 Feb 2017, 'North African gas exports to Europe fall via all routes'.

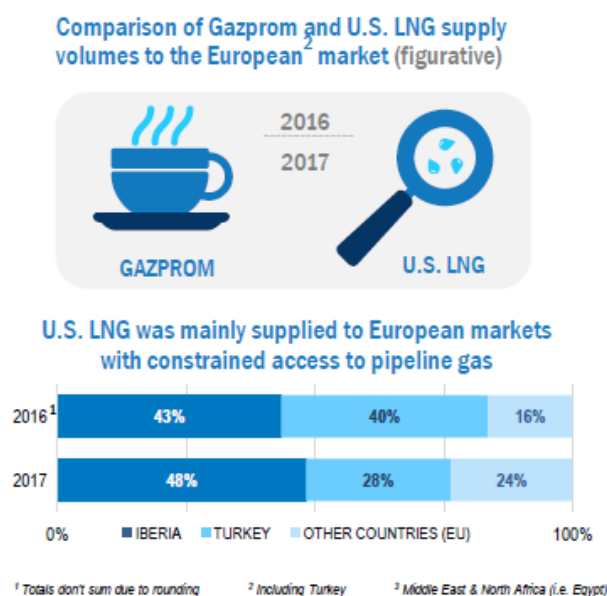
⁴⁶ Rogers, H. 2015. 'The Impact of Lower Gas and Oil Prices on Global Gas and LNG Markets', NG99, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2015/07/NG-99.pdf>.

⁴⁷ Global Gas Partners presentation at European Gas Summit, 27 Sept 2016, slide 7.

⁴⁸ European Gas Hub, 6 Dec 2017, 'A glimpse at the landscape of European LNG regasification', <http://www.europeangashub.com/reports-presentations/a-glimpse-at-the-landscape-of-european-lng-regasification-infrastructure.html>. Sourced on 15 Feb 2018.



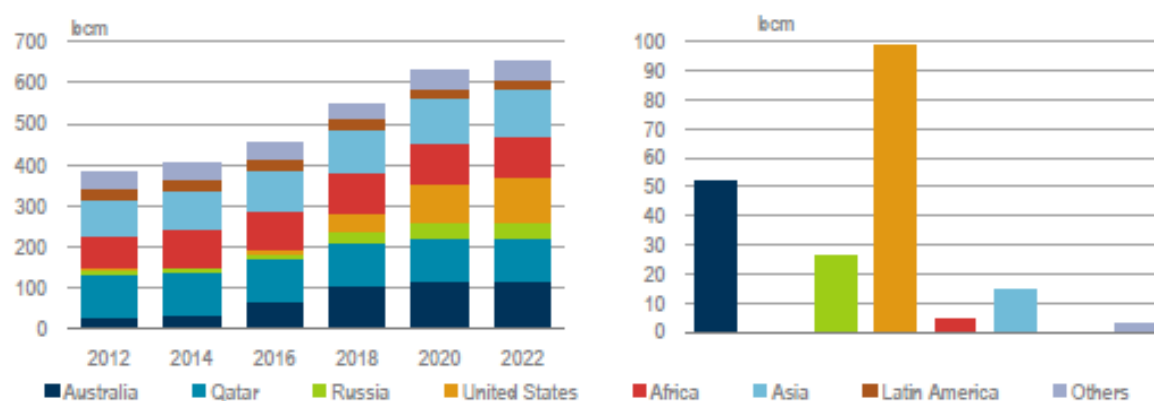
Figure 6: Gazprom analysis of the impact of US LNG in Europe



Source: Gazprom Investor Day Presentation 2018, slide 13

Having said this, it is clear in 2017 that the situation began to change, and the expectation must be that, over the next two to three years, the surge of new LNG projects will occur, and could even be more exaggerated over a short period as delayed projects now coincide with projects that were always scheduled for a later date. The signs that 2017 may have been a year that marks a shift can be seen in Figure 1, with the rebound in market share for LNG, and in numerical terms it was the first year since 2012 that LNG imports have not been at the notional minimum level of 50 Bcm. After four years in which LNG supply to Europe totalled between 48 to 52 Bcm, 2017 saw a jump to 60 Bcm and, as Figure 7 below shows, the build-up of global LNG supply is now expected to occur largely between 2018 and 2022, with the majority of the growth coming from the US and Australia as originally expected. As a result, Gazprom can expect more competition in Europe, depending on how other markets for LNG develop.

Figure 7: LNG export capacity by region (2016-2022)



Source: IEA Medium Term Gas Report 2017, page 108

As mentioned before, the key markets for LNG are in Asia and the potential for growth can be captured in a brief description of a few countries or groups, based on initial research by Rogers (2016) and

subsequently updated by the author.⁴⁹ Perhaps the most important is China, where the trajectory of economic growth and the impact of policies to displace coal with gas in industry, residential, and perhaps even the power sector, could have a huge impact on gas demand.⁵⁰ Furthermore, the country's import requirement will also depend on the results of its domestic gas production strategy which relies heavily on a successful development of shale gas resources. Given the uncertainties surrounding the outcomes of all three variables, the outcome for LNG imports is a wide range of 75-105 Bcm by 2030. Meanwhile in Japan, LNG demand will largely depend on the pace of nuclear restarts, while in South Korea the outcome will rely both on the country's future attitude towards nuclear power and the success of the current switch in policy away from coal towards gas.

Elsewhere in Asia, India remains a country with huge potential demand for gas and imported LNG, but government policies concerning pricing, subsidies, infrastructure, and a preference for domestically produced coal make any forecast highly subjective with a wide range of outcomes.⁵¹ Meanwhile, a number of smaller gas consumers, such as Pakistan, Bangladesh and Vietnam are growing strongly, while countries such as Thailand, Indonesia and Malaysia, that have historically been important exporters of gas, are now becoming importers as domestic demand increases and supplies start to decline.⁵² As a result, the potential outcomes are highly variable and any forecasts must be treated with extreme caution. Nevertheless, two main scenarios have been created, high and low Asian LNG demand, and their implications for the availability of LNG to Europe have been assessed. The essential conclusion is that in the low Asian demand scenario there will be a large amount of LNG available for supply to Europe creating a potentially significant surplus between the years 2019 and 2022, shown in Figure 8, while in a high Asian demand scenario there would be a much smaller surplus due to the larger amount of LNG being consumed in the East, with the oversupply limited to 2019 and 2020.

A key assumption in both cases, though, is the minimum level of exports that Gazprom is satisfied to sell in Europe, and the analysis in Figure 8 assumes that it would be prepared to reduce its volume to 165 Bcm of gas sales for consumption in Europe. That is just below the 2017 level in European units excluding gas sent to Ukraine via reverse flow. In both scenarios, though, the key question is how would economic and political forces work to clear any surplus gas?

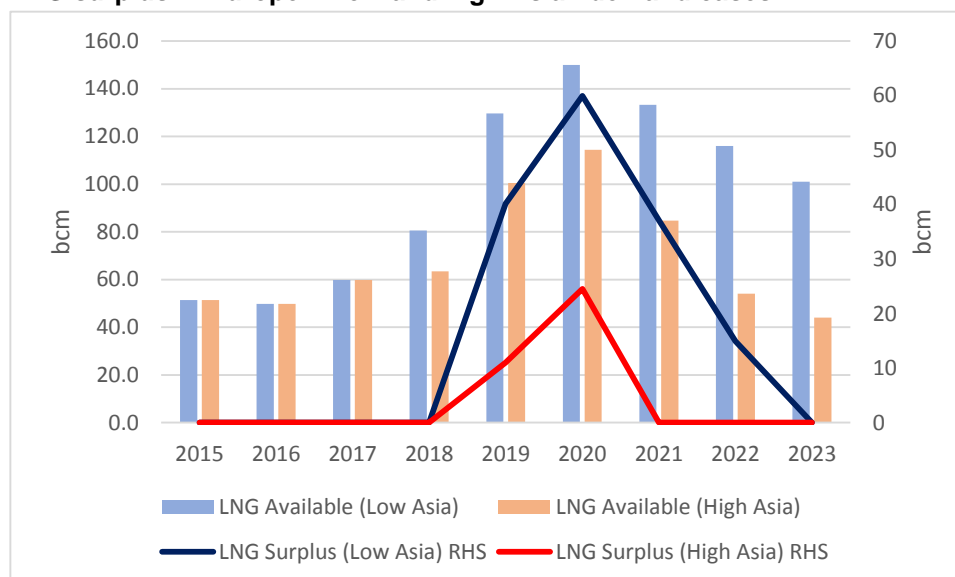
⁴⁹ Rogers, H. 2016. 'Asian LNG Demand: Key Drivers and Outlook', NG106, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/04/Asian-LNG-Demand-NG-106.pdf>.

⁵⁰ EIA, 25 Oct 2017, 'China leads the growth in projected global natural gas consumption', <https://www.eia.gov/todayinenergy/detail.php?id=33472>. Sourced on 15 Feb 2018.

⁵¹ Sen, A. 2017. 'India's Gas Market post COP21', NG120, OIES, <https://www.eia.gov/todayinenergy/detail.php?id=33472>.

⁵² LNG World Shipping, 8 Jan 2018, 'Cheap gas creates new LNG-import markets in Asia'.

Figure 8: LNG surplus in Europe in low and high Asian demand cases



Source: Rogers, H.

Russian gas versus US LNG – a proxy for a more general competition

Given the global nature of the LNG market, which is becoming increasingly liquid as portfolio players and traders start to optimise supply options for various markets, it is clearly difficult to specifically characterise the nature of the potential competition between Russian gas and LNG in Europe. However, it is perhaps possible to make a few salient remarks and to relate the potential commercial competition to a political dynamic. In terms of LNG suppliers, Qatar is widely regarded as having the lowest cost source of LNG on a short and long run marginal cost basis, largely thanks to the significant amount of liquids that it produces with its gas.⁵³ In addition, it is ideally located between the Asian and European markets and can therefore optimise its sales options. As such, it can be assumed that it will be able to compete in any market that it chooses and would displace pipeline gas if forced to compete on a cost basis. It is, therefore, never likely to be the marginal supplier, especially to Europe. Equally, the world's other main LNG producer, Australia, is too distant to be a major supplier to Europe, and Asia is always likely to be its market of choice on a contractual and a spot basis.

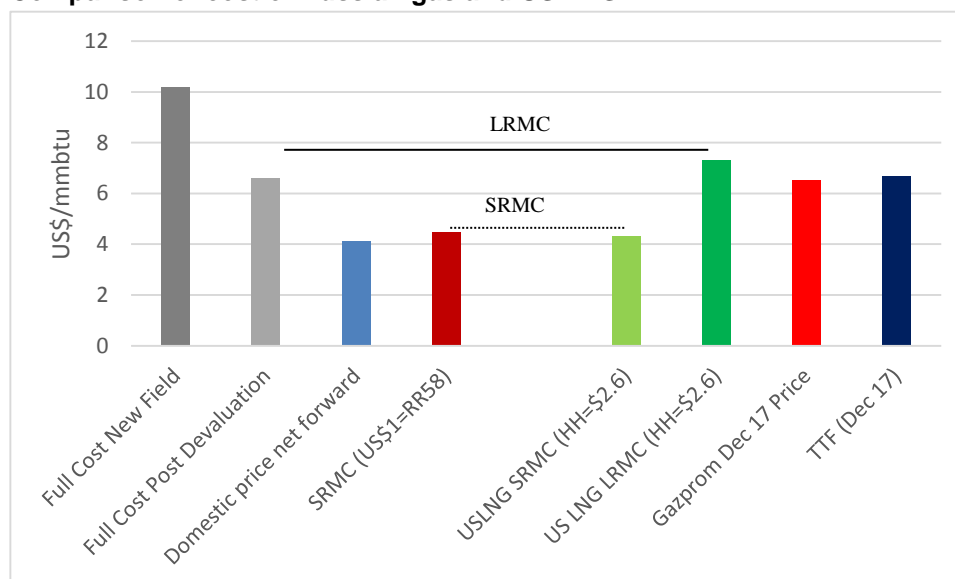
This leaves US LNG as the likely major source of competition with Russian gas in Europe.⁵⁴ Of course, LNG from other sources will also arrive on the continent, but given its cost base and the option that it also has to sell into the Asian market, US LNG can act as a reasonable proxy for the marginal cost LNG supplier to the Atlantic Basin markets. As such, Gazprom's pricing strategy is likely to have to respond to the availability and cost of US LNG, if the global gas market is oversupplied. In addition, there is a clear political dynamic involved as well, with the US keen to find new markets for its gas exports and with a number of European politicians and policy makers keen to support a potential alternative to Russian gas. Indeed, President Trump's recent visit to Poland encapsulated the mood on both sides, with the US President keen to promote US LNG as a potential saviour for Europe, albeit at a cost, and the Poles being only too eager to find any solution other than further reliance on Russia.⁵⁵

⁵³ Rogers, H. 2017. 'Qatar lifts its LNG Moratorium', *Oxford Energy Comment*, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/04/Qatar-Lifts-its-LNG-Moratorium.pdf>.

⁵⁴ Financial Times, 3 Aug 2017, 'US and Russia step up fight to supply Europe's gas'.

⁵⁵ Financial Times, 22 June 2017, 'Trump looks to lift LNG exports in US trade shift'.

Figure 9: Comparison of cost of Russian gas and US LNG



Source: Authors' analysis based on Argus, EIG and Platts data

Returning to an analysis of the cost of Russian gas supply versus the cost of US LNG landed in Europe, the comparison is shown in Figure 9. Here, it is worth noting a number of the key assumptions that will drive the short and long-run marginal costs of both sources of gas. As far as US LNG is concerned, on a short-run marginal basis the key parameter will clearly be a combination of the gas price and short-term transport costs, which have been rather volatile recently. At a Henry Hub price of around \$2.60/MMBtu (February 2018) and with transport costs to Europe currently calculated at around \$1.00/MMBtu based on a charter rate of \$60,000 per day,⁵⁶ the short-run marginal cost of US LNG into Europe would be approximately \$4.30/MMBtu, once a \$0.30/MMBtu regasification charge has also been added. As can be seen from Figure 9 below, this makes US LNG very competitive with Russian gas on a cash (Short Run Marginal Cost - SRMC) basis, and it is also relatively competitive on a long-run basis, as discussed in the analysis which follows.

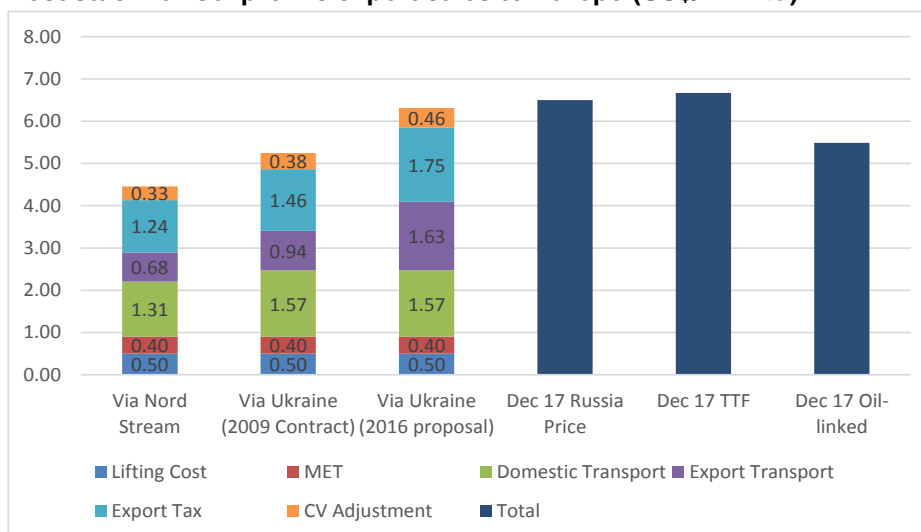
The strength or weakness of the rouble tends to be related to the oil price, as the two have historically moved in tandem, with the rouble weakening as the oil price falls, and vice versa, as is very clear from Figure 11. However, the Russian government has recently adopted a new fiscal rule which will see any extra government revenues from oil and gas taxes reinvested in the currency market to deliberately keep the rouble weaker than it might otherwise have been.⁵⁷ Again, Figure 11 shows how the mirror image of oil price and rouble exchange rate has broken towards the end of 2017, as the Russian currency has remained weak even as the oil price has risen above \$60 per barrel.

⁵⁶ Rogers, H. 2018. 'The LNG Shipping Forecast: Costs rebounding, outlook uncertain', *Energy Insight 27* OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/02/The-LNG-Shipping-Forecast-costs-rebounding-outlook-uncertain-Insight-27.pdf>.

⁵⁷ Financial Times, 3 Feb 2017, 'Russia plans to weaken rouble with forex sales'.



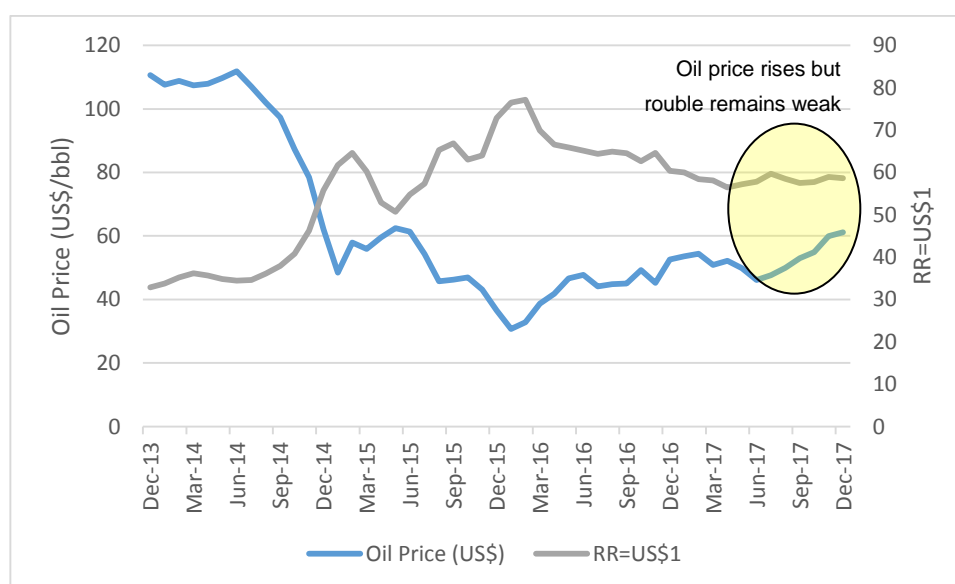
Figure 10: Cost stack for Gazprom's export sales to Europe (US\$/MMBtu)



Source: Author's analysis based on data from Gazprom, Reuters and Argus

This strategy is intended to provide a boost to all exporting sectors in the Russian economy and to remove one of the underlying causes of 'Dutch disease', but it is also of vital importance to Gazprom as a stronger oil price can create a double risk for the company. Not only can it cause an increase in the company's domestic cost base in US dollar terms if the rouble strengthens, but it can also push its gas sales contract prices up in as much as they are still linked to the oil price. As discussed earlier, this link is weakening, but if Gazprom is to be believed then one third of its contract prices are set to rise in 2018 as they react, with a six to nine-month lag, to the increase in oil prices in 2017. As a result, Gazprom could face increasing pressure from an oversupply of LNG just as some of its contract prices are being encouraged to become less competitive by a rising oil price, with the potential for further pressure on its cost base if the government fails to maintain its exchange rate policy. Of course, Gazprom can react and show the flexibility it has already demonstrated in shifting its marketing strategy towards more market-based and hybrid pricing, but it may well have to do this once more in the next two years as competitive pressures in Europe increase.

Figure 11: The rouble exchange rate compared to the oil price



Source: Central Bank of Russia, Argus Data

It would appear, then, that after a miraculous couple of years Gazprom may face some more challenging commercial pressures in the period to 2022, depending upon a number of external variables. Beyond then, however, the picture looks more promising, as the global gas market is expected to tighten as shown in Figure 8, with the LNG surplus running out in 2023 even on the low Asian demand scenario. An important question, then, is if and when new investment decisions will be taken to meet gas demand beyond that date, and this is an issue over which Gazprom, and now also Novatek, can have some significant influence.

From a Gazprom perspective, competition in the short-term will be with LNG from projects that are already committed and where the project partners will be prepared to sell their output down to short-run marginal cost if absolutely necessary. On this basis, Russian pipeline gas and US LNG, as a proxy for surplus LNG arriving in Europe, are competitive at just over \$4/MMBtu. However, once any surplus is cleared, new projects will be needed, and project developers will want to know that these can provide a return on a full, long-run marginal, cost basis before committing to a Final Investment Decision (FID). However, as can again be seen from Figure 9, the full long-run marginal cost of US LNG at a Henry Hub price of \$2.60/MMBtu is over \$7/MMBtu, and many commentators would argue that a more realistic assumption for new LNG projects overall would be a range of \$7-10/MMBtu.⁵⁸ Given that Gazprom's fully costed gas from the Yamal peninsula, at the current rouble exchange rate, is approximately \$6.50/MMBtu it would seem that the company is in a strong position to market its gas at somewhere between the short and long-run marginal cost of competing LNG in the medium term in order to disincentivise higher cost projects and optimize its own position in the European market. Indeed, given its resource base it could arguably choose to export significantly higher volumes of gas to Europe if it decided to compete very aggressively on price with LNG over the longer term.

From a Russian perspective, one additional point should be made concerning the country's LNG strategy, which is now largely in the hands of Novatek. The Yamal LNG project is now online and will be producing 16.5 million tonnes of LNG per year by 2020, and plans for a second project, Arctic LNG-2, are now being actively discussed, with a final investment decision scheduled for 2019.⁵⁹ This project could add a further 19.8 million tonnes to the global gas market, with at least some part of it likely to arrive in Europe. The cost of supply from both projects to Europe is estimated in the range \$5-7/MMBtu on a long run marginal cost basis,⁶⁰ and so the potential exists for competitive Russian gas to arrive in Europe from two sources, although Novatek's preference is clearly for Asia, in common with the ambitions of all LNG producers who are looking to exploit the potential for premium prices in this growth market.

Infrastructure is the limiting factor, and has become a major political issue

Given the cost position of Russian gas, it seems clear that Gazprom's current and potential sources of gas for export to Europe can compete with almost any alternative source of supply. It has also been clear over the past two years that consumers are prepared to buy Russian gas if it is priced at a competitive level. As such, any European politicians concerned about the over-dependence on gas from Russia, either for political reasons or because they believe that a market share of 34 per cent, potentially rising to over 40 per cent, presents a non-negligible risk to the continent's energy security, are facing something of a dilemma. It is difficult to impose restrictions on a competitive source of energy when the European Commission and national governments have spent 20 years creating a liberalised market to encourage lower prices for consumers.

One solution is to control Russia's ability to construct and use export infrastructure, which has become increasingly relevant as the existing pipeline system moves close to capacity. As Figure 12

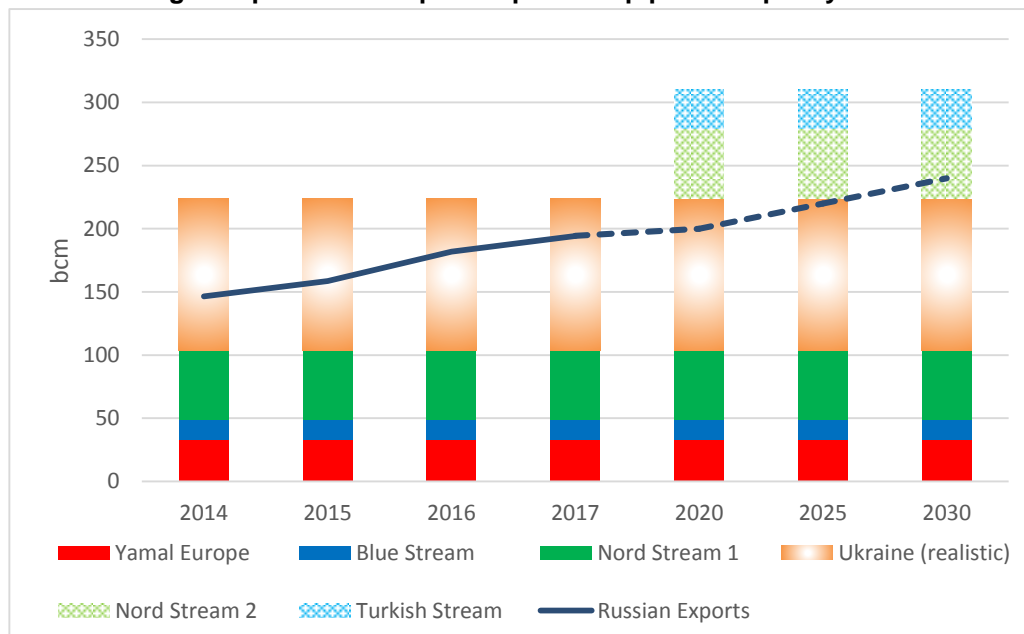
⁵⁸ Stern, J. 2017. 'Challenges to the Future of Gas: unburnable or unaffordable?', NG125, OIES, <https://www.oxfordenergy.org/publications/challenges-future-gas-unburnable-unaffordable/>.

⁵⁹ Financial Times, 27 Dec 2017, 'Russia's LNG ambitions no longer a pipe dream'.

⁶⁰ Sberbank Research, May 2017, "Russian Oil and Gas: Marking Territory", page 29.

demonstrates, at the current level of sales to Europe the average annual utilisation of Russia's export capacity, estimated at 230-240 Bcm, has risen from 63 per cent in 2014 to 87 per cent in 2017, although in key peak demand winter months this means that the system is practically full. Indeed, even on an average basis, the Yamal-Europe, Blue Stream, and Nord Stream pipelines are at over 90 per cent capacity utilisation, leaving the politically sensitive Ukrainian route as the only available option for expansion.⁶¹ Furthermore, the capacity of the Ukrainian system must be in some doubt. Although the nameplate figure is 151 Bcm according to Naftogaz Ukrainy,⁶² in reality it has not transported more than 120 Bcm in the post-Soviet era and lack of maintenance may mean that a realistic current capacity is closer to 100 Bcm. In this case the average annual utilisation of Russian export pipelines could currently be as high as 95 per cent overall, or in other words, close to full.

Figure 12: Russian gas exports to Europe compared to pipeline capacity



Source: Gazprom, Author's analysis (NB: Realistic Ukraine capacity assumed to be 120 Bcm. Nameplate capacity is theoretically 151 Bcm according to Naftogaz Ukrainy)

It is clear, therefore, that a physical constraint could limit Europe's access to one of its largest and cheapest sources of gas supply in the 2020s if the question of pipeline capacity is not resolved. There is no doubt that a security of supply question exists, as Europe seeks to maximise its diversity of physical supply options while also ensuring that price risk is kept to a minimum. Therefore, discussions over the future of pipeline options in the Black Sea (TurkStream), the Baltic Sea (Nord Stream 1 and 2) and through Ukraine will be vital to the future of European gas supply, and it would appear that 2019 will be the year in which the debate reaches its zenith. Indeed, the debate would now appear to have started in earnest, following Gazprom's threat to "terminate" the supply and transit contracts it has with Ukraine in response to the Stockholm arbitration tribunal's award of \$4.63bn to Naftogaz Ukrainy resulting from a judgement that Gazprom had not fulfilled its transit obligations.⁶³

⁶¹ Gazprom Investor Day Presentation 2018, slide 30.

⁶² Pirani, S. & Yafimava, K. 2016. 'Russia Gas Transit through Ukraine post-2019', NG105, p4, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/02/Russian-Gas-Transit-Across-Ukraine-Post-2019-NG-105.pdf>.

⁶³ Reuters, 2 March 2018, 'Russia's Gazprom says starts Ukraine's gas contract termination in court'

Political and regulatory issues around pipelines and transit, and potential near-term developments

During the Soviet period, Russian gas was delivered to the European market, including Turkey, almost entirely via Ukraine. In the early 1990s, Gazprom recognised this dependence on a single country, and began a long-term strategy of transit diversification. The Yamal-Europe pipeline from Russia to Germany, via Belarus and Poland, was completed in 1999 and reached its full, 33 Bcm capacity in 2005.⁶⁴ Meanwhile, the 16 Bcm capacity Blue Stream pipeline to Turkey, under the Black Sea, was launched in 2003, and finally the 55 Bcm capacity Nord Stream 1 pipeline was completed in 2012. Since then, Gazprom has begun work on the Nord Stream 2 pipeline, with a potential capacity of 55 Bcm, and the Turkish Stream pipeline, 31.5 Bcm. If the latter two pipelines are completed, and subsequently utilised at their full design capacity, gas transit via Ukraine (93.5 Bcm in 2017)⁶⁵ could be substantially reduced. However, Gazprom's usage of Nord Stream 1, and its construction of Nord Stream 2 and Turkish Stream, have generated significant debate over the company's dominant role on the European gas market and the geopolitical implications of these pipeline projects. These debates are further contextualised by Gazprom's growing share of European gas consumption, the European Commission investigation into Gazprom's commercial activities on the European gas market amid concerns over potentially anti-competitive behaviour, and the decision of the Stockholm arbitral tribunal that Gazprom must pay compensation for failing to supply sufficient transit volumes through Ukraine.⁶⁶

Nord Stream 1 and 2

Although the two lines of the Nord Stream pipeline were launched in November 2011 and October 2012, Gazprom has since faced limitations regarding their utilisation. These constraints relate to the OPAL and NEL pipelines, which were designed to receive gas from Nord Stream 1 and deliver it to the German-Czech border (OPAL) and north-west Germany (NEL). Unlike the offshore Nord Stream 1 pipeline, these onshore pipelines on EU territory are subject to EU gas market regulatory requirements, including that of third party access. In 2009, the Gazprom-Wintershall joint venture, OPAL Gas Transport,^{67 68} applied for an exemption from such regulatory requirements for their 80 per cent shareholding in the OPAL pipeline, but ultimately the European Commission limited Gazprom's use of OPAL to 50 per cent of its total capacity.⁶⁹

This remained the situation until October 2016, when the European Commission approved an agreement reached between OPAL Gas Transport and the German regulator, BNetzA, which effectively allowed Gazprom to bid in an auction for a further 30 per cent of OPAL's capacity.^{70 71} However, the agreement and Commission approval were subsequently challenged by PGNiG, its Germany subsidiary (PGNiG Supply & Trading), and the Polish government. The BNetzA-OPAL Gas Transport agreement

⁶⁴ See Gazprom web-site at <http://www.gazprom.com/about/production/projects/pipelines/active/yamal-evropa/>. Sourced on 15 Feb 2018

⁶⁵ Naftogaz Europe, 2018. 2017 results: Ukraine's gas consumption decreased by 1.3 Bcm (-4%). *Press release*, 06 February, http://www.naftogaz.com/www/3/nakweben.nsf/0/9C51660E41BAB696C225822C00262C70?OpenDocument&year=2018&month=02&nt=News&_. Sourced on 11 Feb 2018.

⁶⁶ TASS, 2 March 2018, 'Gazprom to cancel contracts with Ukraine's Naftogaz'

⁶⁷ WIGA, 2018. <http://www.wiga-transport.de/home.html>. Sourced on 07 Feb 2018.

⁶⁸ OPAL Gas Transport, 2018. *Company portrait*, <https://www.opal-gastransport.de/en/company/portrait/>. Sourced on 10 Feb 2018.

⁶⁹ European Commission 2016a. See pages 2-3. <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-356-EN-F1-1.PDF>. Sourced on 11 Feb 2018.

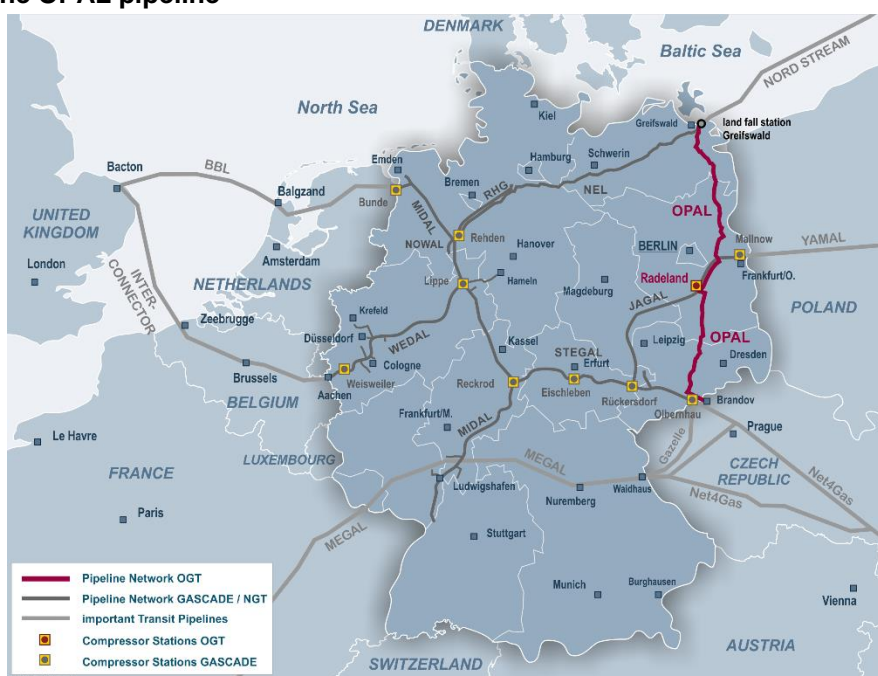
⁷⁰ European Commission 2016b. 'Commission Decision of 28.10.2016 on review of the exemption of the Ostseepipeline-Anbindungsleitung from the requirements on third party access and tariff regulation granted under Directive 2003/55/EC', p4, https://ec.europa.eu/energy/sites/ener/files/documents/2016_opal_revision_decision_en.pdf. Sourced on 11 Feb 2018.

⁷¹ For a detailed analysis of the OPAL exemption decision see Yafimava, K. 2017. 'The OPAL Exemption Decision: past, present and future', NG117, OIES, <https://www.oxfordenergy.org/publications/opal-exemption-decision-past-present-future/>.



was suspended from January to July 2017,⁷² and is currently being implemented on a provisional basis, pending a final European Court of Justice (ECJ) ruling, which is expected in 2019.⁷³ ⁷⁴ The lifting of the OPAL restrictions has allowed Gazprom to increase its usage of Nord Stream and, in 2017, the reported utilisation rate reached 93 per cent, with 51 Bcm being delivered via the pipeline, up from 43.8 Bcm (80 per cent utilisation) in 2016⁷⁵. For Gazprom, the ruling in 2019 will have a significant impact on its ability to ship gas via the OPAL pipeline and, by extension, its ability to ship gas via the Nord Stream pipeline. As such, it will also have broader implications for the overall ability of Gazprom to maintain or expand its sales into Europe, and the timing of the final decision means that any future agreement around OPAL will likely be tied to other pipeline agreements.

Figure 13: The OPAL pipeline



Source: OPAL Gas Transport⁷⁶

The regulatory uncertainties around Nord Stream 2 differ from those around OPAL and NEL insofar as they relate to an *offshore* pipeline. There are two key issues to be addressed, construction permits and overall regulatory approval, both of which appear to have been politicised due to concerns about over-dependence on Russia. Initially, Gazprom faces challenges to its construction of the offshore sections

⁷² BNetzA, 2017. Ruling Chamber 7, 'OLG Dusseldorf decision on case BK-08-009-E1-W1', 28.07.2018. (in German) Available at: https://www.bundesnetzagentur.de/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2008/2008_0001bis0999/2008_001bis099/BK7-08-009_BKV/BK7-08-009_E1-W1_Widerruf_bf.pdf?__blob=publicationFile&v=2. Sourced on 07 Feb 2018.

⁷³ General Court of the European Union, 2017. 'The President of the General Court rejects the applications for a stay of execution of the Commission's decision that 50% of the transport capacities of the OPAL gas pipeline are to be subject to a bidding procedure', *Press release*, 21 July, <https://curia.europa.eu/jcms/upload/docs/application/pdf/2017-07/cp170083en.pdf>. Sourced on 18 Feb 2018.

⁷⁴ For an analysis of the ECJ decision in July 2017, see Yafimava, K. 2017. 'The OPAL Exemption Decision: a comment on the CJEU's ruling to reject suspension' *Energy Insight* 18, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/09/The-OPAL-Exemption-Decision-a-comment-on-CJEU%E2%80%99s-ruling-to-reject-suspension.pdf>.

⁷⁵ Nord Stream AG, 2018c. 'Nord Stream Reaches Average Utilisation of 93% in 2017 – 51 bcm delivered to the European Union', *Press release*, 16 January, <https://www.nord-stream.com/press-info/press-releases/nord-stream-reaches-average-utilisation-of-93-in-2017-51-bcm-delivered-to-the-european-union-500/>. Sourced on 06 Feb 2018.

⁷⁶ OPAL Gas Transport, 2018. 'The OPAL Network'. <https://www.opal-gastransport.de/en/our-network/>. Sourced on 06 Feb 2018.



of Nord Stream 2 as permits for permission to lay the pipeline in their territorial waters must be received from Finland, Sweden, Denmark, and Germany. The German government is, so far, the only one to issue such a permit, doing so in January 2018.⁷⁷ Secondly, on the 30th of November 2017, the Danish parliament approved an amendment to its Continental Shelf Act, granting the government the right to block the construction of pipelines in the country's territorial waters on grounds of foreign policy, national security, and defence interests.⁷⁸ This could affect Nord Stream 2, which is planned to pass through Danish waters around the island of Bornholm. If Gazprom is denied permission to build Nord Stream 2 in Danish territorial waters, it will be obliged to find an alternative route, through Sweden, Poland, or Denmark's Exclusive Economic Zone (EEZ). This process will involve negotiations concerning the EEZ, as well as new surveys and route planning, which could delay the project by several months or even longer.⁷⁹

More fundamentally, in June 2017, the European Commission decided that it needed to intervene and requested a mandate from the Council of the EU to negotiate an agreement with Russia concerning the operation of Nord Stream 2.⁸⁰ However, in September, the EU Legal Service concluded that there was no legal rationale for such an agreement and, more importantly, that the 3rd Gas Directive 'does not apply to the Nord Stream 2 pipeline.'^{81 82} In response, on the 8th of November 2017, the European Commission announced its proposal to update the 3rd Gas Directive,⁸³ clearly showing it was prepared to stretch the limits of its jurisdiction to achieve its political goals by raising two key points. Firstly, it proposes changing the wording of the Directive from "EU territory" to "EU jurisdiction", and emphasises that EU jurisdiction extends to the territorial waters and EEZs of EU member states, and, therefore, to offshore pipelines. Secondly, the proposal states that where pipelines from third countries result in 'legally complex situations', an international agreement could provide a 'coherent regulatory framework'. In the absence of such an agreement, or an exemption, 'the pipeline may only be operated in line with the requirements of Directive 2009/73/EC within the borders of EU jurisdiction.'⁸⁴ In effect, this could apply from the point at which the pipeline crosses from Russian to Finnish territorial waters, and would potentially limit Gazprom's ability to use the full capacity of Nord Stream 2 as a certain amount of capacity would need to be available for third parties.

⁷⁷ Nord Stream 2 AG, 2018d. 'Nord Stream 2 Receives Permit for German Territorial Waters', *Press release*, 31 January, <https://www.nord-stream2.com/media-info/news-events/nord-stream-2-receives-permit-for-german-territorial-waters-82/>. Sourced on 06 Feb 2018.

⁷⁸ Danish Parliament, 2017. 'L 43 Proposal for a Law amending the Act on the Continental Shelf.' *Bill as adopted 30th of November*, http://www.ft.dk/samling/20171/lovforslag/L43/som_vedtaget.htm. Sourced on 06 Feb 2018.

⁷⁹ Financial Times, 10 April 2017, 'Denmark proposes law change to block Gazprom pipeline'.

⁸⁰ Council of the European Union, COM (2017) 320 final 09 June 2017. 'Recommendation for a Council Decision authorising the opening of negotiations on an agreement between the European Union and the Russian Federation on the operation of the Nord Stream 2 pipeline', <http://www.politico.eu/wp-content/uploads/2017/07/NS-Draft-Mandate.pdf>. Sourced on 19 Feb 2018.

⁸¹ Council of the European Union, Opinion of the Legal Service, 27 September 2017. 'Recommendation for a Council Decision authorising the opening of negotiations on an agreement between the European Union and the Russian Federation on the operation of the Nord Stream 2 pipeline', <http://www.politico.eu/wp-content/uploads/2017/09/SPOLITICO-17092812480.pdf>. Sourced on 06 Feb 2018.

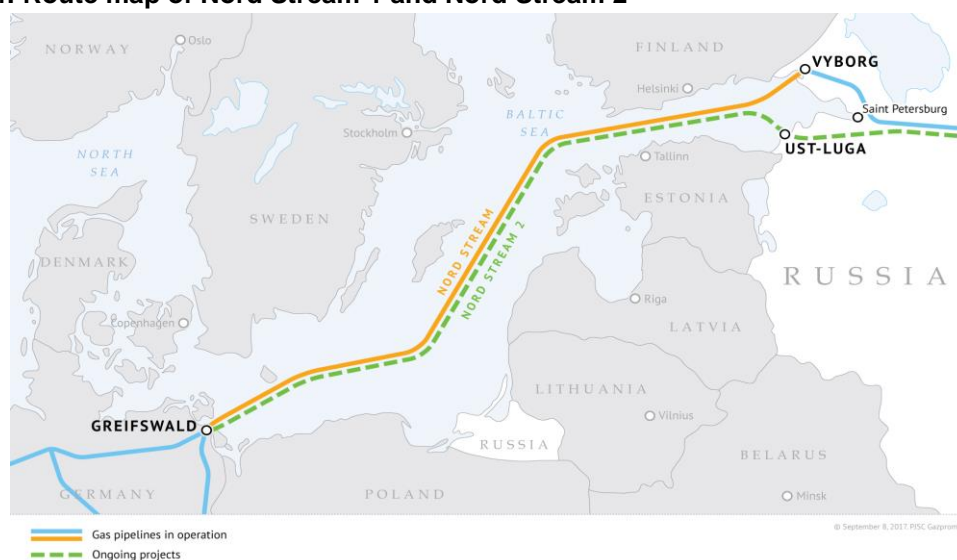
⁸² For an analysis of the mandate request and subsequent Legal Service assessment, see Yafimava, K. 2017. 'The Council Legal Service's assessment of the European Commission's negotiating mandate and what it means for Nord Stream 2', *Energy Insight* 19, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/10/The-Council-Legal-Services-assessment-of-the-European-Commissions-negotiating-mandate-and-what-it-means-for-Nord-Stream-2.pdf>.

⁸³ European Commission, COM (2017) 660 final, 8 November 2017. 'Proposal for a Directive of the European Parliament and of the Council amending Directive 2009/73/EC concerning common rules for the internal market in natural gas', 2017/0294 (COD), https://ec.europa.eu/energy/sites/ener/files/documents/act_gas_dir_adopted.pdf. Sourced on 06 Feb 2018.

⁸⁴ European Commission, COM (2017) 660 final, 8 November 2017. 'Assessing the amendments to Directive 2009/73/EC setting out rules for gas pipelines connecting the European Union with third countries', (See the Explanatory Memorandum on page 2), <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1519830576242&uri=CELEX:52017SC0368>. Sourced on 06 Feb 2018.



Figure 14: Route map of Nord Stream 1 and Nord Stream 2



Source: Gazprom⁸⁵

The common element to the OPAL (onshore) and Nord Stream 2 (offshore) situations is the uncertainty generated by regulatory issues over the next 18 months. Given that Gazprom's ability to use extra OPAL capacity will only be confirmed in 2019⁸⁶, when it also intends to launch both lines of Nord Stream 2,⁸⁷ the timing is clearly linked to the discussion of a new Ukraine transit agreement. Furthermore, with any OPAL decision also providing a potential precedent for the regulatory treatment of the EUGAL pipeline (a pipeline planned to receive gas from Nord Stream 2 and run in parallel with OPAL),⁸⁸ the legal outcomes in 2019 are complex and interlinked, further increasing the uncertainty for Gazprom as it ponders the start of pipe-laying at Nord Stream 2.

TurkStream

Another project facing regulatory uncertainty is the TurkStream pipeline, which was initiated in December 2014 as the successor to the South Stream project.^{89 90} The latter was abandoned at the final moment in the face of uncertainties over the operation of its onshore sections on EU territory, particularly in Bulgaria. Like South Stream, TurkStream aims to bring Russian gas across the Black Sea to Turkey and potentially onto the European market. The key difference is that South Stream included plans for onshore sections on EU territory, while TurkStream will terminate in Turkey. TurkStream is planned to consist of two 900km offshore lines, each with a 15.75 Bcm capacity, both of which are currently under construction. The first line is intended for deliveries to the Turkish market, thus replacing supplies that are currently delivered via Ukraine, Romania, and Bulgaria. The second

⁸⁵ Gazprom, 2018. *Nord Stream 2*, <http://www.gazprom.com/about/production/projects/pipelines/built/nord-stream2/>. Sourced on 19 Feb 2018.

⁸⁶ General Court of the European Union, 2017.

⁸⁷ Nord Stream 2 AG, 2018. 'Constructing the Pipeline', <https://www.nord-stream2.com/project/construction/>. Sourced on 15 Feb 2018.

⁸⁸ Yafimava has suggested that the final ruling on OPAL 'might serve as an adequate guidance for the regulatory treatment of Nord Stream 2's onshore extensions', Yafimava, K. 2016. 'The OPAL Exemption Decision: a comment on the CJEU's ruling to reject suspension', *Energy Insight 18*, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/09/The-OPAL-Exemption-Decision-a-comment-on-CJEU%E2%80%99s-ruling-to-reject-suspension.pdf>.

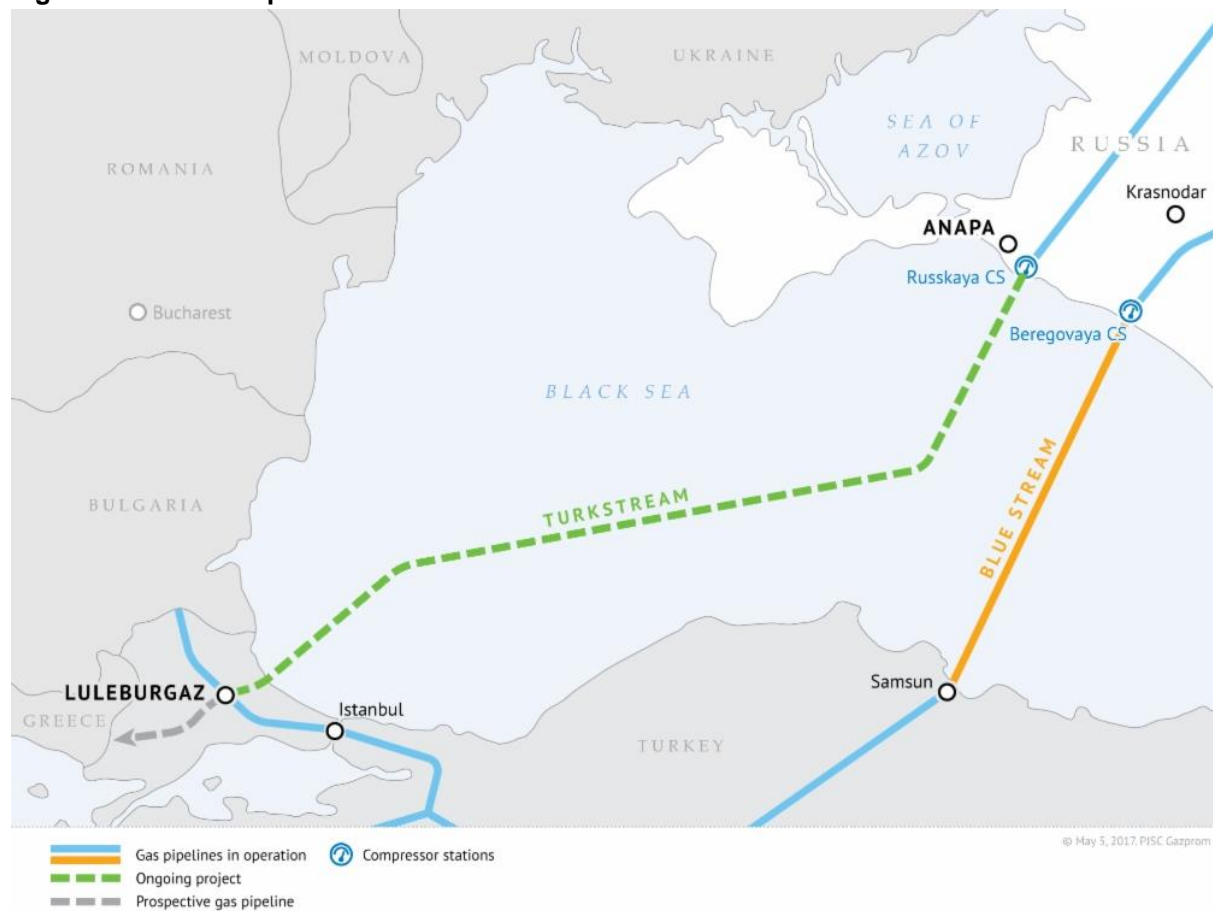
⁸⁹ Gazprom Export, 2018. Projects: TurkStream, <http://www.gazpromexport.ru/en/projects/6/>. Sourced on 13 Feb 2018.

⁹⁰ Yafimava, K, November 2016. 'The revived Turkish Stream: what, where, and when?', *Oxford Energy Forum*, No. 107, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/01/OEF-107.pdf>. Sourced on 23 Feb 2018.

line is intended for onward delivery to the continental European market.⁹¹ In January 2018, Gazprom received construction permits for Turkish territorial waters and confirmed its aim to complete both lines by the end of 2019.⁹² The following month, Gazprom confirmed that a combined 800km of TurkStream's two offshore lines had been laid.⁹³

Given that Gazprom's exports to Turkey remain strong⁹⁴, and that Blue Stream is being used at full capacity,⁹⁵ the construction of the first line of TurkStream will undoubtedly reduce the transit of Russian gas via Ukraine by approximately 10-15 Bcm per year. However, the key question relates to the second line. Construction has already begun, yet it remains unclear as to what will happen to that gas when it makes landfall in Turkey.

Figure 15: Route map of TurkStream



Source: Gazprom⁹⁶

⁹¹ TurkStream, 2018. 'Project: The TurkStream pipeline', <http://turkstream.info/project/>. [Accessed 13 February 2018]

⁹² Gazprom, 2018c. 'Gazprom receives construction permit for second string of TurkStream', *Press release*, 19 January, <http://www.gazprom.com/press/news/2018/january/article398360/>. Sourced on 13 Feb 2018.

⁹³ Gazprom, 2018d. 'Gazprom's 13th Investor Day held in New York and London', *Press release*, 8 February, <http://www.gazprom.com/press/news/2018/february/article404139/>. Sourced on 13 Feb 2018.

⁹⁴ Interfax, 10 Jan 2018. 'Gazprom gas production reaches 471 Bcm in 2017 due to export growth, decline in competitors' output.' *Russia and CIS Oil and Gas Weekly*.

⁹⁵ IEA, 2018. 'Gas trade flow in Europe' (data in MS Excel format), <https://www.iea.org/gtf/>. Sourced on 13 Feb 2018.

⁹⁶ Gazprom, 2018. *TurkStream*. <http://www.gazprom.com/about/production/projects/pipelines/built/turk-stream/>. Sourced on 19 Feb 2018.



There are three options currently on the table. The first is the proposed Poseidon pipeline from Greece to Italy, which is a joint venture project between DEPA (Greece) and Edison (Italy). In February 2016, Gazprom, Edison, and DEPA signed a Memorandum of Understanding (MoU) on the coordination of Poseidon with TurkStream. This MoU was supplemented by the signing of a trilateral Cooperation Agreement in June 2017.⁹⁷ If this option is chosen, the second line of TurkStream will terminate at Ipsala on the Turkey-Greece border.⁹⁸

The second option is for Gazprom to request third party access to the Trans-Adriatic Pipeline (TAP), which is also planned to run from Greece to Italy. However, TAP will have a limited initial 10 Bcm capacity, and only later could be expanded to 20 Bcm.⁹⁹ Furthermore, in 2013, TAP acquired a 25-year exemption from third party access provisions for the initial 10 Bcm, with an obligation to expand the pipeline and offer the additional 10 Bcm 'to the market', if a market test confirms that such capacity is required.¹⁰⁰ In April 2015, the 25-year exemption was extended to take into account a revised launch date of 2020.¹⁰¹ Given that the expansion of TAP will most likely take place only after the completion of the pipeline at its initial capacity, Gazprom's option here is relatively limited, especially if the second line of TurkStream is completed by 2019, as Gazprom currently intends.

The final option is the reversal of the Bulgaria-Turkey interconnector, for the delivery of gas to Bulgaria and Macedonia using existing infrastructure. In September 2017, the Gazprom CEO, Alexei Miller, met with Bulgaria's Energy Minister, Temenuzhka Petkova, and discussed 'Russian gas supplies to Bulgaria and gas transit across Bulgaria in the context of the TurkStream project.'¹⁰² In January 2018, the Russian Foreign Minister, Sergey Lavrov, noted that Bulgaria 'seems to be willing to discuss the possibility of hosting a second line of the Turkish Stream pipeline again.'¹⁰³ In December 2017, President Putin met with his Serbian counterpart, and stated that Serbia's involvement in the project 'is being considered,'¹⁰⁴ although this would require a new cross-border pipeline between Bulgaria and Serbia.

At present, it is far from clear which option will be chosen. The simplest option would appear to be combining the reversal of the Turkey-Bulgaria interconnector with gas deliveries to the Turkey-Greece border. Given that Gazprom supplied approximately 2.9 Bcm to Greece in 2017, this could enable combined deliveries of approximately 8.5 Bcm per year to Greece, Bulgaria, Macedonia, and Serbia with the remaining 7.25 Bcm of capacity in the second line of TurkStream available either for further growth in the Turkish market, or a later decision regarding the construction of Poseidon or Gazprom's potential third party access to an expanded TAP.¹⁰⁵

⁹⁷ Gazprom, 2017a. 'Gazprom and Edison highlight progress in setting up southern route for Russian gas supplies to Europe', *Press release*, 3 June, <http://www.gazprom.com/press/news/2017/june/article335189/>. Sourced on 13 Feb 2018.

⁹⁸ Gazprom Export, 2018.

⁹⁹ European Commission 2013. 'Decision of 16.5.2013 on the exemption of the Trans Adriatic Pipeline from the requirements on third party access, tariff regulation and ownership unbundling laid down in Articles 9, 32, 41(6), 41(8) and 41(10) of Directive 2009/73/EC', p5, https://ec.europa.eu/energy/sites/ener/files/documents/2013_tap_decision_en.pdf. Sourced on 13 Feb 2018.

¹⁰⁰ European Commission, 2013. (page 55), https://ec.europa.eu/energy/sites/ener/files/documents/2013_tap_decision_en.pdf.

¹⁰¹ European Commission Decision of 17.3.2015. 'prolonging the exemption of the Trans Adriatic Pipeline from certain requirements on third party access, tariff regulation and ownership unbundling laid down in Articles 9, 32, 41(6), (8) and (10) of Directive 2009/73/EC', pp9-10, https://ec.europa.eu/energy/sites/ener/files/documents/2015_tap_prolongation_decision_en.pdf. Sourced on 13 Feb 2018.

¹⁰² Gazprom, 2017b. 'Gazprom and Bulgarian Energy Ministry discuss cooperation matters', *Press release*, 26 September, <http://www.gazprom.com/press/news/2017/september/article364917/>. Sourced on 13 Feb 2018.

¹⁰³ Foreign Ministry of Russia, 2018. 'Foreign Minister Sergey Lavrov's statement and answers to media questions at a news conference on Russian diplomacy in 2017, Moscow, January 15, 2018', *Press release*, 15 January, http://www.mid.ru/en/foreign_policy/news/-/asset_publisher/ckNonkJE02Bw/content/id/3018203. Sourced on 13 Feb 2018.

¹⁰⁴ President of Russia, 2017. 'Press statements following Russian-Serbian talks', *Press release*, 19 December, <http://en.kremlin.ru/events/president/transcripts/56418>. Sourced on 13 Feb 2018.

¹⁰⁵ Interfax News, 10 Jan 2018. In 2017, Gazprom Export supplied an estimated 3.4 Bcm to Bulgaria and Macedonia, and delivered 2.1 Bcm per year to Serbia.



What is clear is that onward gas deliveries to Europe via the second line of TurkStream remain potentially constrained by regulatory uncertainty, as any of the three options discussed would require compliance with EU Third Energy Package rules. As a result, it is certainly conceivable that negotiations around the availability of Russian gas to Europe via TurkStream will also be included in the overall debate over total Russian export pipeline capacity, including transit through Ukraine.

The Ukraine context

Given Gazprom's strong export volumes and almost full utilisation of its major export routes to Europe, the fates of Nord Stream 1/2 and TurkStream will substantially influence Gazprom's negotiations with the Naftogaz subsidiary, UkrTransGaz, concerning the renewal of their gas transit contract, which will expire at the end of 2019. This will make the European Commission a vital broker in those discussions as it would have a significant bargaining chip to use.

While the continuing debate over Russia's actions concerning Ukraine and the Crimea since 2014 provides a challenging political context, the outcome of the arbitration case between Russia and Ukraine over the historical gas sales and transit agreements also seems likely to influence negotiations over the future of Russian gas transit via Ukraine. Rulings to date have dismissed Gazprom's claim that its take-or-pay rights have been breached and that Naftogaz owed it \$56 billion, while also dismissing Ukraine's claim that it has been overcharged throughout the life of the sales contract. Instead the court ruled that Ukraine has the right to pay market prices since 2014, and on this basis has stated that it owes Gazprom approximately \$2 billion for gas arrears since then. Furthermore, a future sales volume for the remainder of the contract has been set at 5 Bcm (or a minimum 4 Bcm take-or-pay level).¹⁰⁶ A second ruling on the gas transit contract, in which Naftogaz was claiming \$16 billion in take-or-pay fees from Gazprom, was delivered on 28th of February 2018, and has ruled that Gazprom owes Naftogaz damages of \$4.63 billion for failure to deliver agreed transit volumes, leaving Gazprom with a net debt to the Ukrainian company of \$2.56 billion.¹⁰⁷ Gazprom is disputing the outcome, and has promised to use all legal means to oppose it,¹⁰⁸ with its CEO Alexei Miller taking a very bold first step by threatening to cancel both the transit contract and the sales contract altogether with immediate effect.¹⁰⁹ Although it is difficult to see how this can work in practice, given the level of transit volumes at present and uncertainty that one party has the legal right to unilaterally terminate a 10-year contract before the end of its term, there is no doubt that this move creates a more urgent need for negotiations and highlights the high stakes involved. Given that the net amount owed by Gazprom is almost equivalent to the \$3 billion bond debt between Ukraine and Russia,¹¹⁰ there may be some hope for an overall balance of payments to be found, but Gazprom's current dismay at the outcome of the Stockholm arbitration process suggests that the negotiations will be long and fraught.¹¹¹

The overall issue, though, is that irrespective of the row that now seems inevitable over the Stockholm ruling and Gazprom's immediate response, it has become clear to all parties in Russia, Ukraine and the EU that Russia will need to use the Ukraine transit system beyond 2020, as demonstrated in Figure 12 above. The European Commission has stressed its desire to support the use of the Ukrainian system, from both a political and commercial perspective, as it wishes to maintain optionality around gas supply routes and also to ensure that Ukraine continues to receive around \$2-3 billion of annual transit fees that are vital to its economy.¹¹² Meanwhile, southern European customers of Gazprom have also expressed a desire to see volumes continue to flow through the current Ukrainian system,¹¹³ and

¹⁰⁶ Reuters, 22 Dec 2017. 'Ukraine and Russia both claim victory in gas dispute'.

¹⁰⁷ Reuters, 1 March 2018, 'Ukraine's Naftogaz claims \$2.56 billion victory in Gazprom legal battle'

¹⁰⁸ TASS, 1 March 2018, 'Gazprom disagrees with Stockholm arbitration ruling in dispute with Naftogaz'

¹⁰⁹ Pravda, 2 March 2018, 'Gazprom terminates all contracts with Gazprom immediately'

¹¹⁰ Financial Times, 1 March 2018, 'Ukraine's Naftogaz claims \$2.56 billion victory over Russia's Gazprom'

¹¹¹ UNIAN, 8 Feb 2018. 'Stockholm Arbitration to hand down award on UA-RU gas transit contract dispute in late Feb – Naftogaz CEO'.

¹¹² Financial Times, 5 June 2017. 'Tusk adds voice to calls for greater EU control over Nord Stream 2'.

¹¹³ Euractiv, 17 July 2015. 'Bypassing Ukraine will be costly for Gazprom, say analysts'.



the US has also announced its political support.¹¹⁴ Furthermore, although Russia and Gazprom initially asserted their desire to reduce transit volumes through Ukraine to zero, even they have now conceded on more than one occasion that gas will continue to flow, even if at reduced volumes.¹¹⁵ The latest reaction to the Stockholm ruling may suggest a change of heart from Gazprom, but it is difficult to see how a reduction to zero transit volumes can be achieved in the near-term. Indeed, Pirani and Yafimava (2016) have debated at length the various options and combinations of pipelines that could take shape beyond the end of the current Ukraine contract, concluding that the most likely range of Gazprom requirement for Ukraine transit is 40-60 Bcm per annum, with potential expansion to 75 Bcm in a more optimistic gas export scenario.¹¹⁶

The key question, therefore, is whether an overall agreement that encapsulates a balance between the various transport routes, the findings of the Stockholm arbitration court, the DG COMP investigation, and the commercial requirements of Gazprom and its customers can be found. The history of Ukraine-Russia negotiations suggests that the discussions are likely to be taken to the wire, as has happened so often in the past, and the latest outburst from Gazprom underlines how belligerent the negotiations have already become. The fact that 2019 is a parliamentary election year in Ukraine is only likely to heighten the tension and the political rhetoric, especially as Ukraine's bargaining position has been enhanced by its new-found ability to survive without Russian gas supplies, thanks to its lower demand and the availability of reverse flow gas from Europe.¹¹⁷ Indeed, the potentially fraught nature of the negotiations has already been indicated by Ukraine's initial suggestion that it may sharply increase transit fees to allow for lower utilisation of its system, potentially undermining the economics of Russian gas exports but also reducing the incentive for Gazprom to conclude a significant new deal.¹¹⁸ One encouraging sign, though, is that the EU has already offered to play a mediating role, suggesting that it sees itself as a natural coordinator of the negotiating process, which perhaps could see it attempt to coordinate a grand bargain to cover all the related issues over Russian gas exports to Europe.¹¹⁹

Conclusions

Gazprom has unexpectedly achieved record sales volumes in Europe over the past two years, surprising many industry actors thanks to a combination of external factors and a more flexible marketing strategy. Higher demand for gas in Europe due mainly to switching from coal, declines in indigenous production (especially at Groningen), delays in a number of LNG projects, and higher Asian demand have all played in its favour, while its own more flexible pricing strategy, which is now much more market-related, has enhanced the competitiveness of its offering. Consumers have responded by purchasing gas at record levels.

Some of these trends are set to continue. The outlook for European gas demand is reasonably positive, as although renewables will continue to be the main beneficiary of coal plant closures in the power sector, gas should also benefit, if only via the higher utilisation of existing generating capacity. Meanwhile industrial and residential gas demand should remain stable, while indigenous gas production will inevitably fall further as fields in the North Sea continue to decline and the curbs on Groningen output potentially become even stricter. As a result, the region's import requirement is likely to rise, with Russian gas and the global LNG market as the only significant sources of potential extra supply.

¹¹⁴ USA Today, 11 May 2017. 'US supports Ukraine against Russia, Trump tells foreign minister'.

¹¹⁵ Naftogaz-Europe, 15 Jan 2016. 'Russia won't stop gas transit via Ukraine after 2019 – minister'.

¹¹⁶ Pirani, S. & Yafimava, K. 2016. 'Russia Gas Transit Across Ukraine Post-2019', NG105, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/01/OEF-107.pdf>

¹¹⁷ Pirani, S. 2017. 'Adversity and reform: Ukrainian gas market prospects', *Energy Insight* 7, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/03/Adversity-and-reform-Ukrainian-gas-market-prospects-OIES-Energy-Insight.pdf>.

¹¹⁸ Bros, T. 2016. 'Has Ukraine scored an own-goal with its transit fee proposal', *Oxford Energy Comment*, OIES, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/11/Has-Ukraine-scored-an-own-goal-with-its-transit-fee-proposal.pdf>.

¹¹⁹ Interfax, 5 Oct 2017. 'EU offers Russia, Ukraine mediation in talks on gas transit after 2019'.



The absence of surplus LNG has been a key factor during 2016 and 2017, but the long-anticipated surge in new production is likely to arrive by 2019 as projects in the US and Australia come online and ramp up. Depending on the level of Asian demand for this new LNG, a surplus of potentially significant levels could be created, with Europe the obvious market of last resort. In a worst-case scenario for Gazprom, the oversupply could last from 2019 into the early 2020s, creating a level of competition that could put pressure on prices or Russian market share, or both.

Gazprom is well placed to compete with almost any source of new LNG in Europe, as its cost of supply is low and its flexible pricing strategy means that it can react if its customers start to indicate that they can find cheaper gas elsewhere. A rising oil price will put pressure on the company, as one third of its contract prices are still related to this marker, with the impact of the rise in 2017 Brent prices likely to be felt in mid-2018, given the six to nine-month lag in the pricing formulae. An additional concern is that a rising oil price has historically meant a stronger rouble, which would also increase Gazprom's cost base in dollar terms. Current Russian government policy is aimed at investing surplus revenues to keep the rouble weak, but it is unclear whether or not this strategy is sustainable over the medium term. As a result, Gazprom's competitive position could come under more pressure in the next two years as it may be forced to compete down to the short-run marginal cost of its export sales.

In the longer term, though, Gazprom's huge resource base and its relatively low development and production costs mean that it is very well placed to increase its share of the European market. Indeed, it is arguable that the company's optimal strategy would be to work to keep prices in Europe between the short and long-run marginal cost of US LNG to disincentivise excessive development of new projects. Gazprom's ability to do so, by making extra volumes available on European hubs should prices start to rise substantially, is likely to be enhanced by the reorganisation of its various gas trading subsidiaries, and their planned merger with Gazprom Export, into a single 'Integrated International Marketing Division' by 2020.¹²⁰ In this case, the company's stated view that it could have a market share in Europe of 40 per cent or more by the 2030s could be achieved on a more rapid timescale.

Irrespective of any political issues, this outcome presents a security of supply question for European policy-makers in pure commercial terms, as having any supplier take such a significant share, especially while indigenous production is in decline, is a risky proposition. The obvious answer is to create as much optionality as possible, and the European Commission is doing this by incentivising the interconnection of markets and the construction of as much LNG receiving capacity as possible, especially in more remote locations. However, although this provides the potential for diversification, if Russian gas is the cheapest option then its share will rise as customers, with the possible exceptions of Poland and Lithuania, take the opportunity to minimise their energy costs, as seen in 2016 and 2017.

On top of this, the politics clearly cannot be ignored, and both the EU and the US have made restraint of Russian gas supply to Europe a geo-political priority. The strategy is focused on the one area where a genuine bottleneck can be created, namely export pipeline capacity, where Gazprom is already close to the limit in a number of directions. The majority of current spare capacity is via Ukraine, where the realities of Russia-EU relations collide, with the EU wanting to protect the Ukrainian transit route for political and commercial reasons while Russia insists on trying to maximise its bargaining power by creating alternative routes such as Nord Stream 2 and TurkStream. Meanwhile the US continues to use sanctions to support Ukraine and to promote the virtues of its own gas exports, albeit at a higher price than Russian gas.

As a result, difficult decisions concerning the use of the OPAL onshore pipeline by Gazprom, the rules governing Nord Stream 2, the pipelines that will sell Russian gas sent via TurkStream into Europe, and the use of Ukrainian transit all need to be made in the next two years, as various construction milestones approach. It is possible, of course, Nord Stream 2 and TurkStream could be physically built before regulation issues are finalised, if Gazprom wishes to take the risk that they cannot be fully utilised.

¹²⁰ Gazprom, 2018. Gazprom to reorganize operational structure for exports. *Press Release*, 12 February

Ultimately, though, European politicians must decide whether they wish to limit the supply of one of the continent's cheapest sources of gas or whether they are prepared to compromise by ensuring that as many routes as possible are kept open, including new pipelines through the Baltic and Black Seas. In addition, they need to decide what role, if any, the ongoing DG COMP investigation into Gazprom could play in facilitating or hindering an ultimate deal as, although a resolution appears to be close, political obstacles still remain.

Overall, it would appear that a grand bargain is possible, which could see a compromise involving guaranteed use of the Ukraine transit system while new pipelines are built, and with Gazprom agreeing to effectively switch to market-based pricing for all its European customers, while also abiding by Third Energy Package rules. The confluence of all the parts of the jigsaw appears to be approaching in 2019, when Nord Stream 2 and TurkStream are due to be completed, the European Court of Justice is due to give a final ruling on OPAL and the Ukrainian transit contract needs to be renegotiated, with a further complication being that elections to the European parliament and elections in Ukraine are also due in 2019. In the same year, it would seem that competition between gas suppliers to Europe may also be reaching a peak, meaning that although Gazprom has enjoyed two *anni mirabiles* in 2016 and 2017, the remainder of the decade may prove more challenging for its business in Europe.

Indeed, the debate over the future of Russian gas export sales appears to have started in earnest thanks to Gazprom's reaction to the February 2018 Stockholm arbitral tribunal ruling that the company must pay compensation for under-utilisation of the Ukrainian transit route. Although the financial penalties issued in the rulings on the Ukrainian transit and sales contracts are relatively balanced, Gazprom has reacted furiously to what it sees as the distorted logic of the court's ruling and has threatened to terminate both contracts with immediate effect. A forthcoming OIES paper will analyse this issue in more detail, but in the context of this paper it demonstrates that intensive debate has already begun, and that a tense and volatile period of negotiations is likely over the next 18 months that could ultimately decide the long-term future of Russian gas exports in Europe.