

November 2018

Russia's gas pivot to Asia: Another false dawn or ready for lift off?

Introduction

Russia's pivot to Asia has provided more talk than action to date, especially in the gas sector. Small amounts of LNG have been delivered from the Sakhalin 2 project, and a few cargoes have travelled east from Yamal LNG, but the vast majority of Russia's gas exports have remained oriented towards the west and Gazprom's traditional European market. Indeed, despite the introduction of sanctions and calls from European and United States (US) politicians to reverse the continent's dependence on Russian gas, export volumes continue to expand, with the 2017 post-Soviet record now set to be exceeded in 2018. However, the limits of Russia's gas export capacity are now close to being reached, in particular on a seasonal basis and, with some policy-makers looking to block the construction of Nord Stream 2 and potentially limit the availability of Turkish Stream gas within the European Union (EU), it is becoming clear to the Kremlin that the potential for further growth in sales may be limited. Indeed, as will be discussed in a forthcoming paper by Simon Pirani,¹ 2019 is set to be a vital year for negotiations concerning the future of Russian gas export capacity, with the issue of transit through Ukraine at the heart of the debate.

One consequence of the increasing antipathy towards Russian gas in Europe has been a natural search for alternative markets in order to diversify export risk. The obvious region to turn to, given its tremendous growth potential and its more benign political views towards Russia, has been Asia and, in particular, China. Serious negotiations about gas exports have been underway since 2004 but were energised by political and commercial forces in 2014. The Ukraine crisis and the imposition of sanctions on Russia by the US and EU encouraged the Kremlin to turn towards friendlier neighbours, while the surge in Chinese gas demand and a desire for a diversity of import options encouraged the authorities in Beijing to become more enthusiastic about Russian gas. The result was a 38Bcm per annum contract signed in May 2014 for gas to flow from East Siberia via the Power of Siberia pipeline to North-East China, with Gazprom and China National Petroleum Corporation (CNPC) as the key protagonists.² Initially it appeared that the deal was born more of desperation than economic logic on the Russian side, with the Chinese having all the bargaining power, but over time the pendulum seems to have swung somewhat in Russia's favour, with the prospects for both pipeline and LNG exports to the East improving markedly. As a result, although caution and scepticism are always merited when considering negotiations between Russia and China, it would seem that gas sector relations may be on the cusp of a potential 'great leap forward'.

¹ Pirani, S. (forthcoming November 2018). 'Russian gas transit through Ukraine after 2020: the options', Oxford Energy Insight, Oxford Institute for Energy Studies.

² Financial Times, 3 April 2018. 'Russia's \$55bn gamble on China's demand for gas'

This Insight will briefly review the progress of Russian gas exports in Europe before focusing on the prospects for pipeline and LNG exports to Asia, in particular following the recent Economic Summit in Vladivostok where significant political and commercial efforts were focused on new projects that could see exports expand significantly over the next decade. The jury remains out on the exact timing, but the momentum towards a closer energy relationship between Russia and China now appears to be growing.

A counter-intuitive outcome post-2014: worsening politics but rising sales

The relationship between Russia and the European gas market could hardly offer a greater contrast between political rhetoric and commercial reality. On the one hand the European Commission (EC), a number of EU countries and the US Administration are all considering how to reduce the perceived over-dependence on Russian gas in the European energy mix. The issue of security of supply is a complex one, involving not only volume risk but also affordability, accessibility and acceptability of energy sources.³ Nevertheless, as the average share of Russian gas in the overall European gas mix rises towards 35 per cent,⁴ and is much higher in some individual countries, many politicians are keen to avoid over-exposure to a country seen as a major security risk.⁵

However, to an extent the EU has been the architect of its own problem thanks to the unintended consequences of market liberalisation and, more specifically, the Third Energy Package. While the overall goal was laudable and has, arguably, been remarkably successful, as increased competition, the break-up of monopolies and greater interconnection between markets has allowed consumers to access gas at the most competitive price, it has been impossible to avoid two unfortunate realities – Russia has the largest available gas resource for Europe and it is one of the cheapest sources of supply. With indigenous European supply in decline, European shale gas a failure, Southern Corridor imports a disappointment, North African production stalled and other sources of imports at full production, the only real alternative spare capacity is found in the global LNG market where, for now at least, the prices of internationally traded gas are significantly higher than the cost of Russian supply.⁶ The result has been somewhat inevitable, as shown in Figure 1, with Russian exports to Europe hitting regular monthly highs throughout 2017 and now 2018.⁷ Indeed, it seems very likely that after reaching a level of 194Bcm in 2017, Gazprom will send more than 200Bcm of Russian gas to Europe in 2018.

³ Henderson, J. (September 2018). 'The Impact of Security of Supply Issues on the Future of Gas' in Oxford Energy Forum 116, 'The Future of Gas', edited by Jonathan Stern, Oxford Institute for Energy Studies.

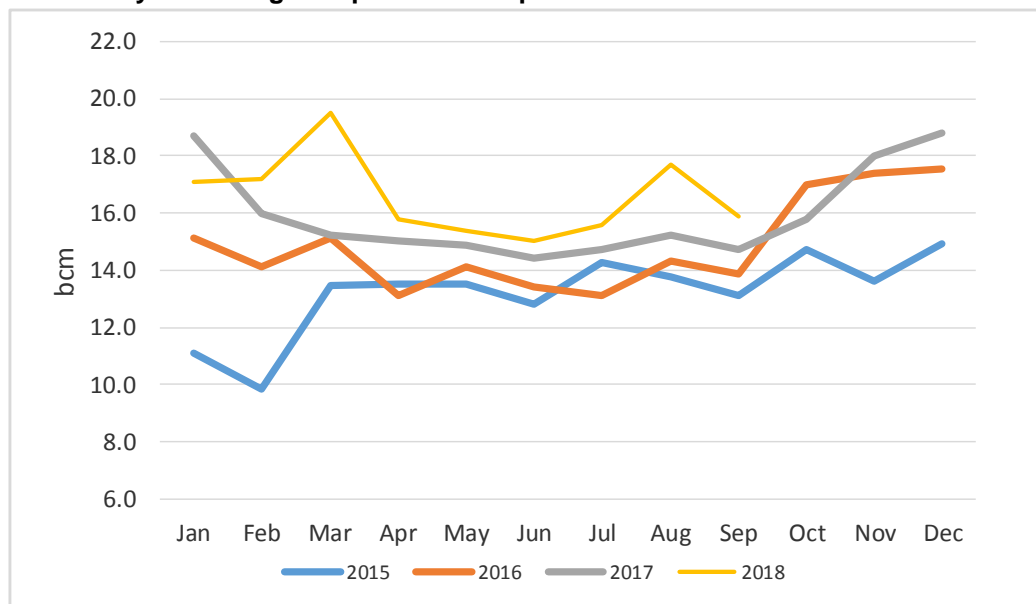
⁴ Henderson, J. (2018), 'Gazprom in Europe – two "Anni Mirabiles" but can it continue?', Oxford Energy Insight 29, Oxford Institute for Energy Studies

⁵ Washington Post, 25 April 2018. 'How a proposed Russian pipeline to Europe is dividing the West.'

⁶ Stern, J. et al (2014), 'Reducing dependence on Russian gas: distinguishing natural gas security from geopolitics', Working Paper NG 92, Oxford Institute for Energy Studies

⁷ Financial Times, 3 January 2018. 'Russia's gas exports to Europe rise to record high'.

Figure 1: Monthly Russian gas exports to Europe



Source: Data from Argus Media

However, what is also increasingly clear to the Kremlin is that the risk to Russia of relying on Europe as a long-term source of secure demand is increasing. In 2017, 34 per cent of the company's total revenues and 66.5 per cent of its net gas revenues were derived from exports to the European market,⁸ while approximately 4.2 per cent of total budget revenues come from taxes on gas exports, with the 30 per cent export tax being the largest contributor. As a result, although this revenue contribution is not as significant as that from the oil sector, it nevertheless remains the case that an important source of funds for the budget comes from sales to Europe.

The politics of Russian gas in Europe are becoming increasingly toxic, as politicians with a negative view of the security of energy supply from Russia appear to have resolved that the only way to stop it in the long term is to block new infrastructure, even though few appear to be willing to accept the consequence that they will need to pay more to reduce or eliminate dependence on Russian gas.⁹ The debate around the future of Nord Stream 2 in North-West Europe and the onshore extension of Turkish Stream in South-East Europe underline this fact, as it appears that the European Commission is prepared to take the most assertive interpretation of its legal position in order to undermine new export pipelines from Russia.¹⁰ This issue is also linked to the renegotiation of Russia's transit contract with Ukraine, which should be decided by the end of 2019,¹¹ but the important dynamic underlying this debate is that the current infrastructure is already being used at close to capacity, particularly at certain times of the year (specifically cold periods in winter). Sharples (2018), highlighted this issue in detail in a recent paper,¹² but Figure 2 below provides an overall illustration of the situation over the past two years and highlights that, on average, the Nord Stream and Yamal pipelines are effectively full, with the only flexibility on the system being offered by a Ukraine line where the actual capacity is somewhat uncertain.¹³

⁸ Gazprom Management Report for 2017, p.34. <http://www.gazprom.com/f/posts/12/255042/2017-mgt-report-en.pdf>.

⁹ Financial Times, 21 August 2018. 'Nord Stream 2 pipeline is against Europe's interests'.

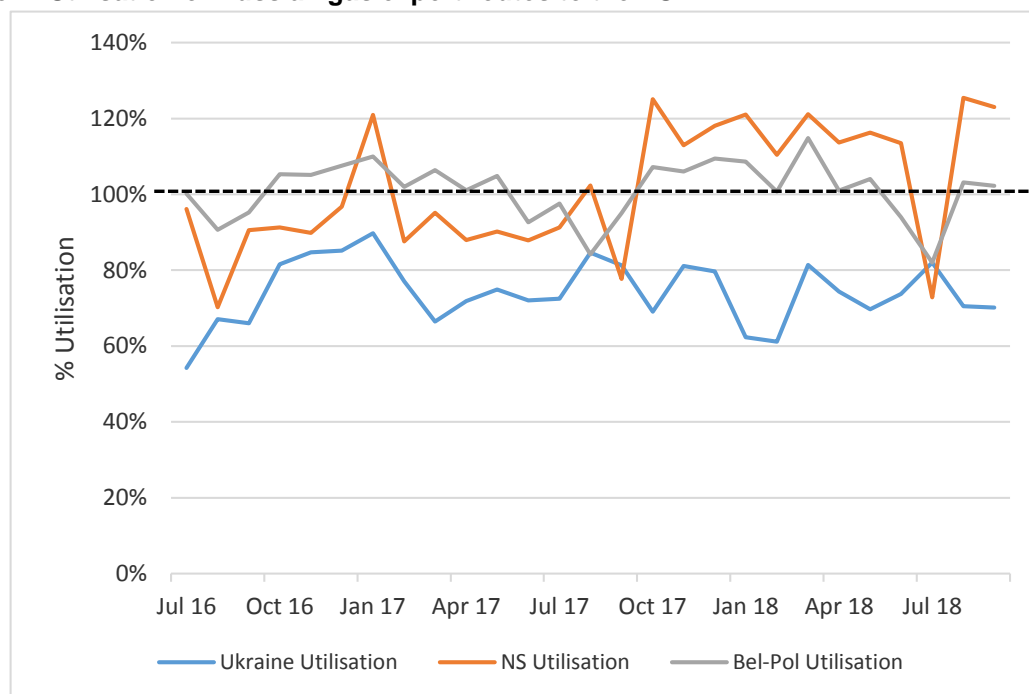
¹⁰ Platts, 24 July 2018. 'Insight from Brussels: Europe's Nord Stream 2 opponents now looking to 'plan B'.

¹¹ CNBC, 17 July 2018. 'Russia and Ukraine to hold further gas transit talks'.

¹² Sharples, J. (2018). 'Ukrainian Gas Transit: Still vital for Russian gas supplies to Europe as other routes reach full capacity', Oxford Energy Insight, Oxford Institute for Energy Studies.

¹³ The official capacity of the Ukraine pipeline system, according to UkrNafta, is 146Bcm per annum, although the maximum throughput over the past decade has been 110-120bcm (Pirani, S. & Yafimava, K. 2016. 'Russia Gas Transit through Ukraine

Figure 2: Utilisation of Russian gas export routes to the EU



Source: Data from Argus Media

Furthermore, in winter 2016/17 and winter 2017/18 all the pipelines were effectively full on certain critical days, with late February and early March 2018 providing a key example (during the period of cold weather named the ‘Beast from the East’) of the potential tightness of the system.¹⁴ From a European perspective, it would appear that limiting new export infrastructure from Russia could therefore create problems in a cold winter, at the very least, forcing prices higher as consumers are forced to compete for LNG on the global market. From a Russian perspective, though, it highlights the need to find new sources of gas demand, not only because further sanctions could specifically target the gas sector but also because future expansion of volumes could be physically constrained by lack of infrastructure. In addition, it is clear that European energy policy is heavily focused on decarbonisation of energy supply and increasing the share of renewables in the energy mix. Although this may not impact gas demand in the short to medium term, and indeed gas imports are likely to rise as indigenous European supply declines, nevertheless there is also a longer-term risk to gas demand in Europe (in particular beyond 2030).¹⁵ As a result, Russia has clear political and commercial incentives to adopt a diversification of demand strategy.

The logical turn to the East has been a tortuous process

The obvious shift for Russian energy export policy has been towards the expanding markets of Asia, and for the past decade the oil sector has led the way. The development of the East Siberia – Pacific Ocean pipeline (ESPO) allowed first pipeline exports of oil to China and the Asia-Pacific region in

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>.

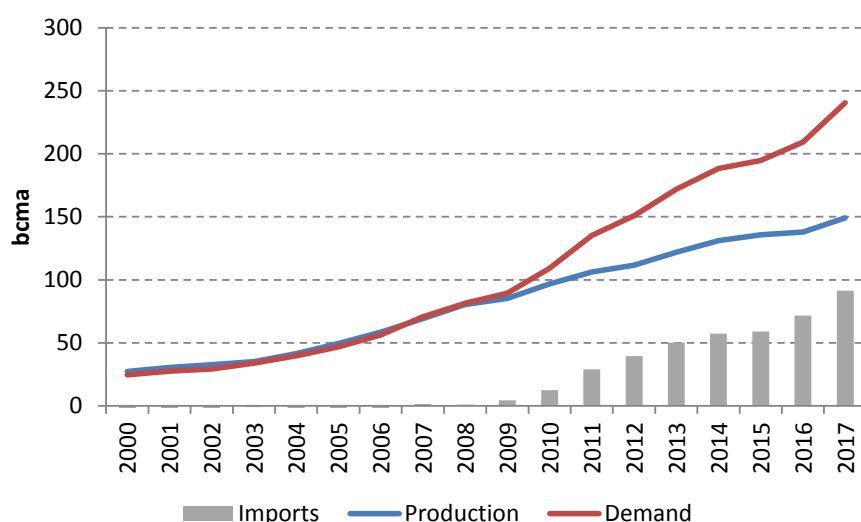
¹⁴ S&P Global, 23 February 2018. ‘European natural gas on the brink as “Beast from the East” brings major cold snap’.

¹⁵ Stern, J. (2017). ‘Challenges to the Future of Gas: unburnable or unaffordable?’ Working Paper NG 125, Oxford Institute for Energy Studies.

2009, since when Rosneft and others have encouraged a significant shift in Russia's oil exports from western to eastern markets. By 2017, 30 per cent of the country's oil exports were heading to Asia, compared with only eight per cent in 2010.¹⁶

Progress in the gas sector has been much slower, largely due to the fact that China's gas demand has been growing from a lower base and the country's import requirement has been smaller thanks to significant indigenous production. However, by 2009 the country had become a net gas importer and by 2017 imports had expanded to just over 90Bcm per annum (see Figure 3), mainly thanks to an almost tripling of demand over the eight-year period. Gazprom has been in active negotiation with Chinese companies about the potential for Russian gas sales to China since 2004, but it was not until 2014 that it became both commercially and politically logical for a deal to be done. By then Chinese imports had reached almost 60Bcm, and the country's authorities had embarked on an import diversification strategy which essentially sought to supplement domestic supply with a compass of alternative other gas sources. From the west a gas pipeline was constructed from Turkmenistan, with the majority of the financing for both gas field development and infrastructure construction coming from Chinese sources. From the south another pipeline was sponsored by Chinese money to bring gas from offshore fields in Myanmar. Meanwhile LNG provided diversity in the East, coming from multiple sources and via ship rather than pipe, with China rapidly expanding its regasification capacity to receive new supplies. As a result, Russia provided an obvious northern axis for this diversification strategy.

Figure 3: Chinese gas supply, demand and imports



Source: Data from BP Statistical Review of World Energy, 2018

The political catalyst came from Russia. 2014 saw the annexation of Crimea and the start of conflict in Eastern Ukraine, with the two events catalysing the imposition of sanctions on Russia by the US and the EU. As a result, the Kremlin was keen to develop stronger relations with countries that could provide a geo-political balance for its more strained relations in the West, with China providing an obvious source of support. President Putin stepped in to add his weight to the negotiations and, at a meeting with the Chinese President Xi Jinping, a deal was signed in May of that year.¹⁷ Up to 38Bcm per annum would be delivered over a thirty-year period, with sales commencing at the end of the current decade. Most importantly though, Russia had shown both its European customers and the US that it had an alternative market for its gas and powerful political friends who were prepared to conclude deals in the face of western sanctions.

¹⁶ Source – data from Argus Media, 'Russian and Caspian crude export destinations', 22 Oct 2018

¹⁷ Financial Times, 21 May 2014. 'China and Russia sign \$400bn gas deal'.

However, it seemed clear in 2014 that there was an economic price to pay for the political element of the deal. Firstly, the gas was set to flow through China's preferred route, not Russia's. Gazprom had long been an advocate of a western pipeline direct from West Siberia via Altai to the western border of China in Xinjiang.¹⁸ This would have allowed it to provide gas from existing fields at lower cost to itself and also to provide a genuine switching opportunity between its European and Asian customers.¹⁹ However, China was always much keener on an eastern route bringing gas from East Siberia to North-East China, much closer to the markets for any gas imports. In addition, it already had gas coming from the West from Central Asia and did not want to free up space in the West-East pipeline across China for Russian gas instead. Finally, the Chinese authorities no doubt understood Gazprom's desire to create an arbitrage opportunity between western and eastern markets and preferred to avoid potential competition and establish a unique new source of gas for its own market in East Siberia.

The Chinese bargaining position was strong, given Russia's geo-political issues, and it not only won the argument about the routing of the gas via Power of Siberia but also seemed to have negotiated very good commercial terms for the gas. Although the price agreement was never publicly disclosed, it was widely reported that an oil-linked price had been agreed with an effective slope of 10 per cent - the calculation of volumes and revenues expected from the deal suggested a price of \$10.5/MMBtu at a prevailing oil price at the time of around \$105 per barrel.²⁰ In addition, there also seemed to be some flexibility around when the gas would start to flow (a range of 2019-2021 was mentioned) and how fast the ramp up to peak output would be (between five and seven years). It appeared that the Chinese side was unclear how soon the gas would be needed and how rapidly sales would need to increase because of uncertainties about the future of Chinese gas demand.

The balance of bargaining power has shifted in Russia's direction

Although this paper will argue that there has been a significant shift in the relative balance of bargaining power between Russia and China in favour of the former, there is no doubt that things got worse before they got better. The fall in the oil price in 2015-2017, which saw Brent crude reach a low of below \$30 per barrel in early 2016, meant that the effective sales price for Russian gas via Power of Siberia fell below \$5 per MMBtu. At this point many were questioning whether the project could go ahead as, with a \$55 billion cost estimate for the upstream and pipeline infrastructure, the overall scheme was certainly not economic for Gazprom at such a low sales price.²¹ Furthermore, any thought that the Altai route (now known as Power of Siberia 2, or PoS2) might be viable at such low prices was also nonsensical as, although the upstream cost was lower because the fields had already been developed, the much longer transport cost across almost 5,000km in China alone to reach the main markets on the East Coast meant that the border price would need to be around \$3/MMBtu lower than the price for Power of Siberia 1 gas. This would have implied a price of around \$2/MMBtu for PoS2 gas at the Russia-China border, which was clearly not commercially viable for Gazprom compared to its European sales options.

¹⁸ Reuters, 7 June 2017. 'Russia-China talks over new gas routes stalled – sources'.

¹⁹ New Europe, 14 September 2018. 'Russia's western route to China may jeopardise Gazprom's supplies to Europe'.

²⁰ The Guardian, 21 May 2018. 'Russia signs 30-year deal worth \$400bn to deliver gas to China'.

²¹ Wood Mackenzie, 6 September 2017. 'Can Gazprom deliver Power of Siberia to China by 2020?'

Map 1: Russia's gas export pipeline options to China



Source: Oxford Institute for Energy Studies

However, following this low point for the prospects of Russian gas exports to the East, which made the CEO of Gazprom Alexey Miller's claim that as much as 110-130Bcm per annum of Russian gas would be reaching Asia by the 2030s look rather fanciful, the situation began to shift in a number of important ways.²² Firstly, and fundamentally, Chinese gas demand growth recovered from a lull in 2015 to grow very rapidly in 2016-17. As Figure 4 demonstrates, following a decline in the growth of gas demand in 2008/09 due to the financial crisis, the rate accelerated to an average of 16 per cent per annum in the period 2010-2014, before falling sharply in 2015 to only three per cent as the growth of the Chinese economy began to slow.²³ However, an increasing focus by the Chinese authorities on environmental issues and air quality from 2016 has seen a recovery in growth, with 2017 returning to the previous average and with growth in the first half of 2018 running at 17 per cent year-on-year.²⁴ With domestic production failing to keep up with this surge, gas imports have risen by an even more dramatic amount, increasing by 21 per cent in 2016 and 28 per cent in 2017.²⁵

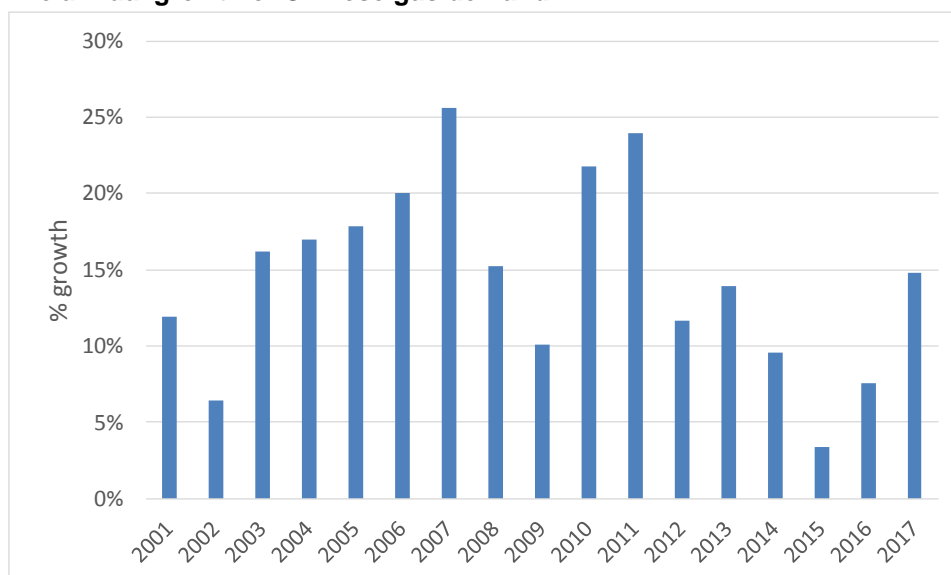
²² Daily Telegraph, 23 May 2014. 'Russia's gas king taunts crumbling Europe over China pipeline coup'.

²³ Wall Street Journal, 19 January 2016. 'China's Economic Growth in 2015 is Slowest in 25 Years'.

²⁴ Reuters, 5 February 2018. 'China's soaring natural gas output unable to meet demand set loose in pollution fight'.

²⁵ All calculations based on data from the BP Statistical Review of World Energy 2018.

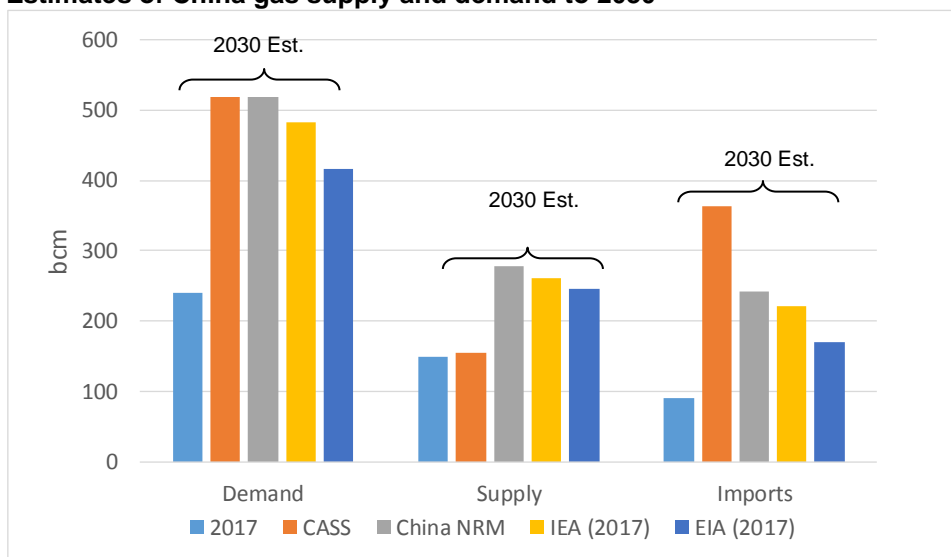
Figure 4: The annual growth of Chinese gas demand



Source: Based on data from BP Review of World Energy, 2018

This return to rapid gas demand growth, and in particular the increase in imports, has catalysed a need to establish secure sources of growing long-term supply as there seems to be no hope that domestic Chinese production can keep up. Indeed, as Figure 5 shows, the majority of forecasts for the future supply and demand of gas in China suggest an ever-widening gap that will need to be filled by both imports of pipeline gas and LNG. As one part of the Chinese gas supply compass, Russian gas will clearly have a crucial role to play in meeting an import requirement that is expected to rise from import 91Bcm in 2017 to a range between 170 and 340Bcm by 2030.

Figure 5: Estimates of China gas supply and demand to 2030



Source: Chinese Academy of Social Science (CASS), Chinese Ministry of Natural Resources, IEA, EIA

The potential importance of Russian gas imports had already become apparent through a subtle shift in the dynamics around the Power of Siberia contract. As mentioned above, the initial start date was in a range between 2019 and 2021, ostensibly as an option for both parties but in reality based around Chinese needs. Originally it was thought that the gas might not be needed until the early years of the new decade, but in mid-2017 Alexey Miller declared that first gas would be supplied on 20th

December 2019, early in the start-up window.²⁶ That this was announced during a visit by Xi Jinping to Moscow and was underlined by a statement from CNPC that it had ‘agreed to speed up the construction of the pipeline and market development’, provided further evidence that rising Chinese gas demand was acting as a catalyst for closer energy ties with Russia.²⁷ In addition, it now appears that the contracted volumes may be increased by 5-10Bcm following recent negotiations between Alexey Miller and his Chinese counterparts.

The increasing attractiveness of Russian gas for China was then underlined by the events of the winter 2017/18. Firstly, a combination of the Chinese government’s coal-to-gas switching initiative and very cold weather led to a dramatic surge in gas demand, ahead of the expectations of all market participants.²⁸ Indeed, the Chinese government was caught out by two key organisational issues. There was insufficient infrastructure to move gas away from LNG receiving terminals to consumers, causing blockages in the system,²⁹ and Central Asia (especially Turkmenistan) fell short in terms of gas supply volumes.³⁰ While the former problem has a ready solution, namely the construction of more pipelines to move gas from LNG terminals, the latter is a potentially greater risk for long-term supply, in particular because the reason for a sharp decline in Turkmen exports in January 2018 remains unclear. Overall, though, both issues point to a strategic goal for China to continue to broaden its gas import diversification options.

Opportunities to expand Russia’s gas relationship with China

With this goal in mind, the Eastern Economic Summit in Vladivostok in September 2018 provided a platform to announce renewed Chinese interest in two new gas export pipelines from Russia, in the West and also in the Far East of the country. Politics was naturally the catalyst once more, with Putin and Xi discussing potential co-operation across a broad range of economic areas, with instructions to Gazprom and CNPC to underpin this by advancing negotiations on the Power of Siberia 2 (Altai) and Far East gas pipeline projects.³¹ The geo-political undercurrent behind this arrangement was reinforced not only by the announcement of import tariffs on US LNG on 18th September,³² but also by the fact that on the same day as the Vladivostok Summit began Russia and China also embarked on the largest joint military exercise in the post-Soviet era, called Vostok 2018.³³ Furthermore, the general uncertainty about China’s relationship with the US during the Trump presidency has increased concerns about the reliability and predictability of seaborne energy imports overall and further increased the attractiveness of pipeline gas.

Against this backdrop a number of announcements on gas export projects were made as a result of high-level meetings at the summit. Dmitry Kozak, the Russian deputy prime minister responsible for energy, stated that a final agreement on a 30Bcm per annum contract for gas sales through PoS2 would be finalised by the end of the year, and that ‘all the key issues have been settled’. Meanwhile Alexey Miller discussed the potential for gas exports from Sakhalin Island in the Far East of Russia with Chinese state council vice premier Han Zheng, while Chinese National Energy Administration director Nur Bekri confirmed that a deal to import 5-10Bcm per annum via this route should be finalised in 2019.³⁴ This combination of events amounts to a sharp acceleration in the discussions

²⁶ Gazprom Press Release, 4 July 2017. ‘Russian gas supplies to China via Power of Siberia to start in December 2019’

²⁷ South China Morning Post, 5 July 2017. ‘Russia’s Gazprom to supply gas to China from the end of 2019 in sign of tighter energy ties’.

²⁸ Reuters, 28 November 2017. ‘China LNG imports set to hit record in November, push prices up’.

²⁹ Financial Times, 12 December 2017. ‘China gas shortages spread after botched coal conversion’.

³⁰ Bloomberg, 25 February 2018. ‘China’s old gas allies fail to meet demand boom in winter’.

³¹ Interfax, 12 September 2018. ‘Energy Ministry, Gazprom issue new statements on long-awaited gas contracts with China’.

³² Wall Street Journal, 18 September 2018. ‘China tariff threatens US Liquefied Natural Gas boom’.

³³ Nikkei Asian Review, 11 September 2018. ‘Xi-Putin summit in Vladivostok highlights common front against US’.

³⁴ Argus FSU Energy, 20 Sept 2018. ‘China gas talks move up a gear’.



about the potential for new Russian gas exports to China, and suggests that Alexey Miller's new target of 80-110Bcm of sales by 2035 may no longer be unobtainable.

Caution does need to be exercised, though. Phrases such as 'all the key issues have been settled' have been heard before without result, and the fact that Nur Bekri also mentioned that pricing is still to be resolved is certainly a concern, as this one issue delayed the Power of Siberia contract for a decade. Nevertheless, not only has the political background changed but the economic environment has also moved on from 2014/15 and, as the analysis below shows, the commercial prospects for PoS2 and the Far East pipeline now look more robust from both sides of the import-export lens.

The economics of gas exports via Power of Siberia 2

From a Russian perspective, one of the main attractions of PoS2 is that it offers the chance to use existing gas reserves in West Siberia, which would be transported via the Altai region to the border with Western China. This has a number of advantages. Firstly, it would use gas that has already been developed and therefore has a low marginal cost – the so-called Russian gas surplus created by the early development of the Yamal fields and the stagnation of European gas demand in the early 2010s. Although this surplus is only a short-term issue, the huge availability of gas in West Siberia will nevertheless improve the economics of the PoS2 project.

Secondly, PoS2 offers the chance to create an arbitrage between the European and Asian gas markets, and potentially to put some longer-term pressure on European consumers and politicians who have, to date, been in the relatively comfortable position of being the monopsony buyers of Russian gas exports from West Siberia. The emergence of competition from China would clearly increase the strength of Russia's bargaining position. Thirdly, the sale of Russia gas into western China could also create a new dynamic with the countries of Central Asia, and in particular Turkmenistan. Russia has been losing influence in the region, as Chinese interests have increased both economically and politically over the past decade, and any opportunity for the Kremlin and Gazprom to show that they still have some bargaining power would be welcome. Finally, for Gazprom any demonstration that it can play an active role in improving relations with China and Asia would be a boost to its domestic prestige relative to Rosneft and Novatek, whose influence has surged thanks to their involvement in hydrocarbon exports to the East. Although PoS1 will clearly help Gazprom to establish a position in Asia, new projects would provide further evidence of the company's relevance in the region and its importance to the Kremlin as a geo-political actor.

The problem with the Altai (PoS2) project, though, is that the economics have proved very challenging on three fronts – relative to comparative netback prices from Europe, relative to the price negotiated for PoS1 gas, and relative to the price at which China can import gas from Central Asia and via LNG. Essentially, in order to compete with all these alternative sources of imports, the gas provided through PoS2 needs to be priced close to the Turkmen import price in western China and also close to the price of PoS1 gas and LNG, taking into account the transport cost of moving PoS2 gas across 4,500km of China to the eastern seaboard at Beijing or Shanghai. Given that the cost of moving the gas over this vast distance is approximately \$3.50-4/MMBtu,³⁵ the commercial terms for gas exports into Xinjiang clearly need to reflect this expense on a netback basis. It is therefore interesting to compare this netback price with the netback price from Europe (essentially the price of Russian gas in Germany less transport costs and export tax) to see if the economics can work for Russia as well as for China.

In 2014, when the PoS2 (or Altai, as it was then known) project was first being actively discussed, the author provided an analysis of the comparative economics of the various sources of supply, netted back to Xinjiang, including a comparison with one other important benchmark, the Chinese domestic

³⁵ Chen, M. (2014). 'The Development of Chinese Gas Pricing', Working Paper NG 89, Oxford Institute for Energy Studies, pp. 21-23.

gas price.³⁶ The analysis concluded that, at the time, a price of around \$9/MMBtu at the border with western China would be sufficient to allow PoS2 gas to be competitive on the eastern seaboard of China, while also providing Gazprom with a comparable netback price at the wellhead with its gas exports to Europe.³⁷ As a result, the report concluded that there was significant political and commercial logic for the pipeline to progress, albeit that the Chinese parties preferred PoS1 due to its greater proximity to the primary consumers.

Unfortunately for Gazprom and Russia, the subsequent collapse in the oil price changed the picture completely. At an average oil price of \$50 per barrel in the period 2015-2017, the price for the PoS1 contract fell to around \$5/MMBtu, meaning that the effective netback to the western border in Xinjiang fell to as low as \$2.50/MMBtu when taking into account the relevant transport costs. At the same time the average LNG import price over the same period was approximately \$7.50/MMBtu and, after subtracting the transport cost back to Xinjiang, the equivalent price on the Russia-West China border was only around \$3.50-\$4.00/MMBtu. When any of these prices are netted back to the wellhead in West Siberia by removing the 30 per cent export tax and transport costs, the effective wellhead price falls to only \$1/MMBtu, which is too low to have made the PoS2 project economic at that stage. Indeed, many commentators were questioning the prospects for PoS1, arguing that Gazprom would not even be able to afford this agreed project, never mind a new one.

However, the recent recovery in oil and gas prices has altered the picture again and, as Table 1, shows the economic argument for PoS2 now appears logical once more. The figures are based on an oil price of \$75 per barrel.

Table 1: Comparative costs of Chinese gas import options

	At China Border US\$/mmbtu	Transport to Beijing US\$/mmbtu	Regas Cost US\$/mmbtu	Total Cost in Beijing US\$/mmbtu
Russia (Power of Siberia)	7.50	1.02		8.52
Central Asia Gas (Q1 2018)	5.68	3.45		9.13
Myanmar Gas (July 2017)	9.35	1.85		11.20
Spot LNG Price (Sept 2018)	11.55		0.4	11.95
China LNG Contract Price (Qatar)	9.8		0.4	10.20
US LNG (LRMC)	9.18		0.4	9.58
US LNG (SRMC)	6.18		0.4	6.58
Beijing City Gate Price (set Sept 2017)				7.74
Beijing City Gate Price (20% range)				9.29
Beijing City Gate Price (40% range)				10.84
Russia (Western) Europe Netback Parity	6.23	3.45		9.69
Russia (Far East)	7.33	0.95		8.28
<i>Assumptions</i>	<i>Oil Price</i>	<i>HH Price</i>		
	75	3.2		

Source: Author's calculations

³⁶ Henderson, J. (2014). 'The Commercial and Political Logic for the Altai Pipeline', Oxford Energy Comment, Oxford Institute for Energy Studies, p.9.

³⁷ Henderson, J. (2014). 'The Commercial and Political Logic for the Altai Pipeline', Oxford Energy Comment, Oxford Institute for Energy Studies, p.10.

As can be seen, the comparative costs are for delivery to Beijing, as it is assumed that PoS1 gas will be delivered into North-East China and will probably not reach Shanghai. The cost of Central Asian gas is based on actual prices for Q1 2018 plus the cost of delivery via the West-East pipeline.³⁸ The cost of Myanmar gas is relatively high based on a recent contract price, although in reality the gas remains in South-East China rather than being delivered to Beijing. The spot LNG price and the China LNG contract price are taken from recent data provided by Argus Media, with the addition of a regasification charge assumed to be \$0.4/MMBtu. The costs of US LNG are based on a Henry Hub price of \$3/MMBtu, and then use the classic Sabine Pass formula,³⁹ with the short-run marginal cost figure excluding the liquefaction cost. The Beijing City Gate price is then the price set by the Chinese authorities in September 2017, based on a formula that relates to a range of international gas prices at the time. The price gets set on an irregular basis and has not been adjusted for the past 12 months. The average import cost (using the long-run marginal cost of US LNG) is just over \$10/MMBtu, meaning that PoS1 gas is currently very competitive. Indeed, this may be why Alexey Miller has recently announced that Gazprom and CNPC are discussing an expansion of volumes under the contract by 5-10 Bcm per annum beyond the currently planned 38 Bcm plateau.⁴⁰

The prices for Russia's western pipeline to China (PoS2) are calculated using a European export netback equivalent price at the wellhead in Siberia. The average TTF price in Q3 2018 was \$7.77/MMBtu and when the 30 per cent export tax and the cost of transport via Nord Stream 1 and the Russian United Gas Supply System (UGSS) back to West Siberia are subtracted this equates to a well-head price of approximately \$3.30/MMBtu. Assuming a transport cost via the 2600km pipeline across the Altai region of \$1.45/MMBtu (based on the standard Russian domestic tariff) and adding back a 30 per cent export tariff, the border cost is \$6.23/MMBtu. The cost of transport across China to Beijing is then based on a West-East pipeline tariff assessed by Chen (2014) to give a total cost in Beijing of around \$9.70/MMBtu.⁴¹ Clearly this figure is based on a lot of movable assumptions, not least the European gas price and the assumption that Gazprom would demand an export netback equivalent price, but nevertheless it does demonstrate that gas delivered by PoS2 can be competitive with China's average import price and is close to the competing cost of Central Asian gas in western China. There is obviously room for negotiation, but it would seem that both Gazprom and the Chinese counterparties should be able to find a price that is attractive for both parties.

By comparison the cost of gas via the Far East pipeline is higher at the border but lower when delivered to Beijing. It must be admitted that the upstream cost is somewhat speculative at present and is based on the development of the South Kirinskoye field at a cost of \$8.5 billion, with production starting in 2023 and peaking at 21Bcm of output in 2033. Based on a 10 per cent real rate of return the field itself can break even at an estimated price of \$6.6/MMBtu and, when the tariffs for the shorter domestic and Chinese transport distances are added, the delivered price to Beijing is tentatively estimated at around \$8.30/MMBtu. Although this estimate must be treated with some caution, not least because the development of the South Kirinskoye field will be challenging, the outcome nevertheless shows that Russian gas exports to China via this third route are in a competitive range when compared to other sources of supply. Figure 6 shows a graphic representation of the results, with the new Russian pipes deliberately left shaded to underline the fact that the estimates remain tentative, but it is clear that consideration of these two new options can be justified on a commercial basis by both Russian and Chinese counterparties.

Importantly, the Russian import prices are also within the range of domestic city-gate prices in Beijing. The table shows three prices, which capture the range of Chinese domestic regulated prices depending on demand. The lowest price is the figure set by the government in September 2017 of

³⁸ The pipeline transport cost has been pro-rated from an assumed \$4/MMBtu cost to Shanghai to allow for the shorter transport distance to Beijing

³⁹ (Henry Hub * 1.15) + liquefaction cost (assumed to be \$3) + transport cost (assumed to be \$2.50/MMBtu) + regas cost (assumed to be \$0.4/MMBtu)

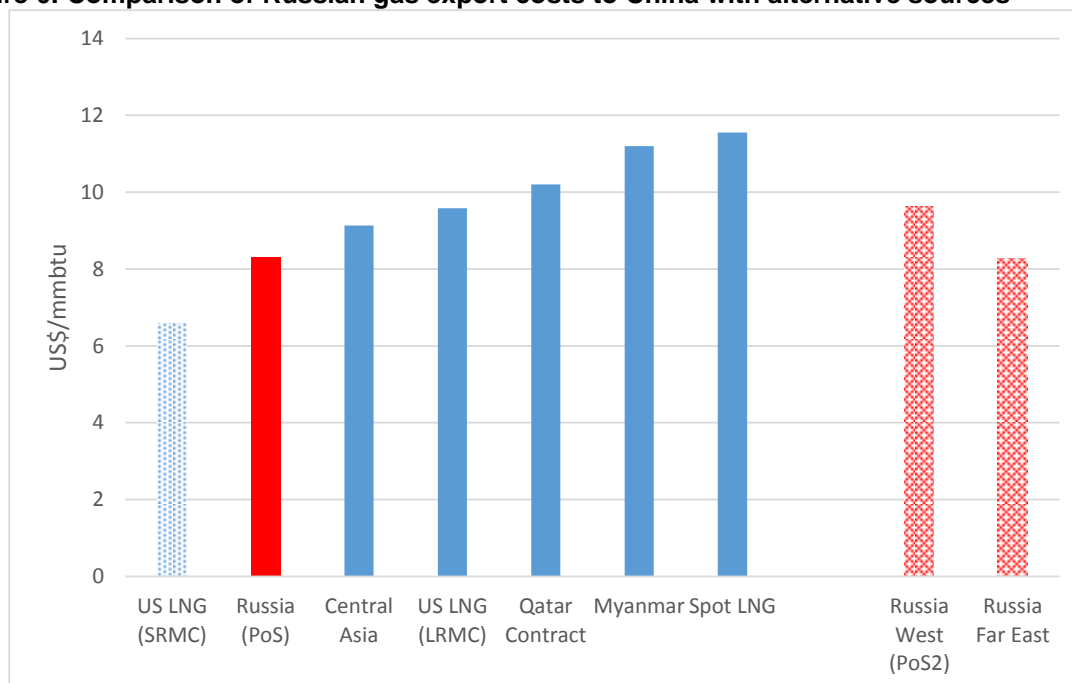
⁴⁰ Nefte Compass, 11 October 2018. 'Gazprom mulls additional Chinese exports'.

⁴¹ Chen, M. (2014). 'The Development of Chinese Gas Pricing', NG 89, Oxford Institute for Energy Studies, p.23.

RMB1.90/cm, which equates to \$7.74/Mmbtu at the current exchange rate. For the current winter, though, 2 higher prices have been set for customers with higher demand. Any consumer wishing to purchase up to 108% of the volume that they used last year must pay a 20% premium to the standard price, while the purchase of more than 108% of last year's volumes leads to a price premium of up to 40% on the understanding that the gas comes from domestic sources or pipeline imports. As can be seen from the table this leads to a potential price of almost \$11/Mmbtu for consumers with the highest growth in demand. It is also worth bearing in mind that average demand growth this year has been 18%, so this higher price is not uncommon. This higher level of price is also being charged for gas from unregulated sources (such as LNG), and as such the potential cost of Russian gas imports is well within a range of prices that are being charged to Chinese consumers.

The overall conclusion is that all three Russian pipeline projects appear to be in the “competitive window” for the Chinese gas market. Their exact position will fluctuate depending upon the oil price, the relative level of the European gas price (for PoS2) and the rouble exchange rate, and so the graph above inevitably only provides a snapshot at a certain point in time. Nevertheless, barring a dramatic change in the terms of trade, it would now seem that the economic case for the two potential new pipelines from Russia to China is relatively robust.

Figure 6: Comparison of Russian gas export costs to China with alternative sources



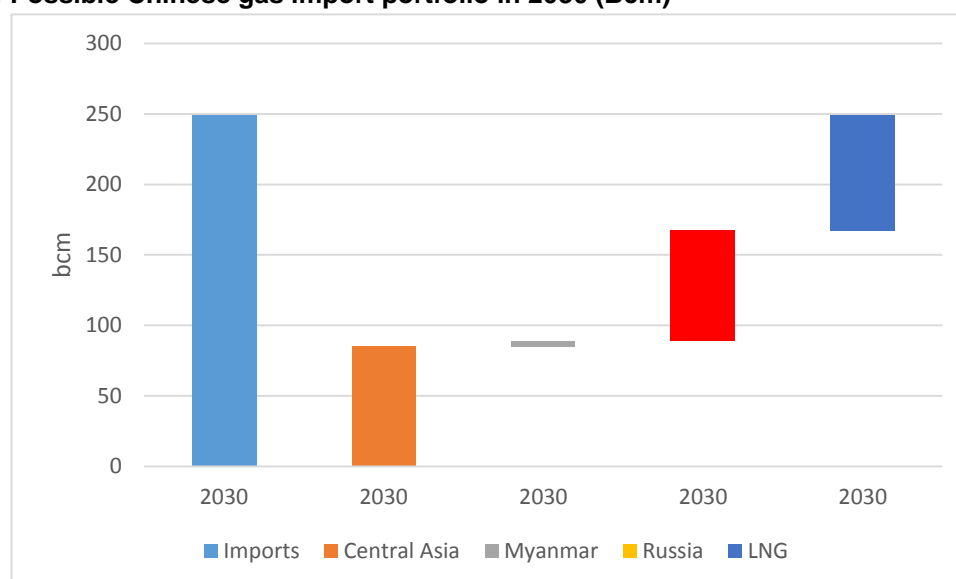
Source: Author's calculations

The political dynamics have also moved in Russia's favour

As is clear from the example of Power of Siberia 1, project economics and commercial considerations are important, but gas export pipelines tend only to be developed when the political motivation is also high. The 2014 intervention of Presidents Putin and Xi was vital to catalyse the final signing of the first gas export deal from Russia to China. As a result, the active interest of both leaders in additional gas export projects at the recent Economic Summit in Vladivostok is significant. While it must be acknowledged that at any such gathering there is always a tendency for politicians to make encouraging noises with little to back them up, in this case it would seem that there are a number of grounds for optimism that the momentum behind both the Power of Siberia 2 and the Far East pipelines is growing.

Firstly, gas demand in China is growing rapidly and the Chinese leadership has already been embarrassed once (in the winter of 2017-18) by a shortage of supply to meet the needs of consumers who have been encouraged to switch from coal to gas. Clearly new imports from Russia will not solve any imminent supply problems, but they can certainly be part of a longer-term plan by the Chinese authorities to create a diversified portfolio of gas supply. For example, taking an average assessment of China's import requirement in 2030 based on the figures in Chart 5, the country will be buying around 250Bcm from non-indigenous sources. On the assumption that 85Bcm of this comes from Central Asia, as planned via the capacity expansion of the Central Asia-China pipeline, plus the current 4Bcm from Myanmar, then 160Bcm remains to be split between Russia and LNG. If all three Russian pipelines are built then Gazprom could be exporting almost 80Bcm per annum (38Bcm via PoS1, 30Bcm via PoS2 and 10Bcm via the Far East pipeline), leaving around 80Bcm for LNG imports. Although these figures are clearly notional, it is hard to conceive of a more balanced import portfolio based on an increase in gas sales from Russia to China.

Figure 7: Possible Chinese gas import portfolio in 2030 (Bcm)



Source: Author's calculations

A second reason why China may be politically keen to expand imports of Russian gas involves its suspicion of excessive LNG imports. The Chinese authorities have been concerned for some time about exposure to seaborne energy imports, with oil from the Middle East arriving via the choke point in the Malacca Straits being one example of this anxiety.⁴² Significant imports of LNG would create the same problem, and this worry has been heightened by the current trade war with the United States. China has responded to US import tariffs on Chinese goods by imposing a tariff on the import of US LNG,⁴³ underlining its reluctance to become dependent on a commercial rival for energy imports, but this specific reaction reflects a deeper underlying concern about the ability of the US Pacific Fleet to undermine China's security of energy supply by interrupting flows of oil and gas through the South China Sea and the Pacific Ocean.⁴⁴ As a result, the attractiveness of pipeline

⁴² Financial Times, 25 September 2017. 'The global importance of China's oil imports'.

⁴³ Oil & Gas Journal, 21 September 2018. 'China imposes 10% tariff on US LNG'.

⁴⁴ CNN, 4 October 2018. 'US Navy proposing major show of force to warn China'.



imports from friendly states has undoubtedly increased, and it seems that Russia is increasingly regarded as a friend given the evidence of the Vostok 2018 military exercise mentioned earlier.⁴⁵

Finally, the choice of pipeline direction has become more interesting following the failure of Turkmenistan to meet the expected levels of supply during the winter of 2017/18. Although it remains unclear exactly what happened, the fact that a supposed political ally could fail to meet its obligations on gas supply has thrown the future acceptable level of imports from the Central Asian region into question. It has always been assumed that Turkmenistan would supply 65Bcm by the early to mid-2020s, with Uzbekistan and Kazakhstan supplying a further 10Bcm each, with the former being seen as a certainty thanks to the huge reserves at the Galkynysh field while the latter were more speculative, and subject to indigenous demand requirements in both countries.⁴⁶ Indeed, Chinese reluctance to sign up for Russian gas via a western route was largely premised on the fact that there would not be room for both Russian and Central Asian gas in large volumes via the West-East pipeline across China. Now it appears that the prioritisation of future imports may have altered, with Russian gas via Power of Siberia 2 perhaps taking preference over expanded imports from Turkmenistan.

Overall, then, it would seem that there is a growing commercial and political logic for increased gas imports via pipeline from Russia to China. In addition, it could be argued that historical reluctance from both parties to commit to a strategic energy relationship with the other has also reduced thanks to the shifting geo-political sands. China can rely on Russian pipeline gas because it is stranded and is therefore more likely to be reliable, while Russia can now have more faith that Chinese gas demand growth provides a secure foundation for its commitment to higher export sales. As a result, while it would still be foolish to forecast a specific timing for new sales agreements, given the historical procrastination over any such strategic deals, it would seem that the outlook for Alexey Miller's forecast of growing Russian gas exports to China is improving. Interestingly, though, the growth will not just come via pipeline and will not just be under the control of Gazprom. The strategic importance of Russian LNG is becoming increasingly apparent, both as a source of gas and as a source of geo-political cooperation in the Arctic region.

LNG as a source of Sino-Russian partnership

As already discussed, China sees LNG as an important part of its future gas supply and has already identified Russia as having a key role in providing seaborne gas imports. From a Russian perspective, Chinese involvement in its new LNG projects has been and is likely to continue to be vital in providing both financial and technical support at a time when many western companies and banks are being put off by US sanctions. Evidence for the Russia-China LNG partnership is most evident at Novatek's projects on the Yamal and Gydan peninsulas, where Chinese money and engineering skills have been put to work to provide an additional source of gas supply to the East.

Indeed, the Yamal LNG project is as much a triumph for China as it is for Russia and Novatek. Without Chinese financing the development would certainly not have gone ahead, with CNPC and the Silk Road Fund buying a combined 29.9 per cent stake in the project and opening the way for up to \$12 billion of bank loans and project financing.⁴⁷ Furthermore, much of the construction and engineering work was carried out by Chinese companies, which also provided many of the components for the plant.⁴⁸ Indeed, the Chinese press claimed significant credit for the country, asserting that 'throughout the project's construction process, China's advanced engineering capabilities showed most vividly...the creative work of China's construction team and builders is

⁴⁵ Washington Post, 13 September 2018. '5 things to know about Russia's Vostok-2018 military exercises'.

⁴⁶ The Diplomat, 18 August 2016. 'Central Asia's oil and gas now flows to the East'.

⁴⁷ The Maritime Executive, 15 December 2017. 'Russia and China claim success at Yamal LNG'.

⁴⁸ LNG World News, 17 August 2017. 'CNOOC completes last two modules for Yamal LNG'.

remarkable.⁴⁹ Indeed, it was also claimed that 85 per cent of all the modules and seven transport vessels were contracted from China.

The completion of the project on time and on budget was a triumph for Novatek and its leading IOC partner, Total, but also provided the Chinese companies involved with a significant boost to their LNG credentials. In addition, the project will deliver 3MM tonnes of LNG per annum to CNPC under a long-term contract from 2019, and the Northern Sea Route has already been used to deliver a number of spot cargoes.⁵⁰ Use of this Arctic route not only provides the project with a shorter distance to the Asian market, and therefore lower transport costs, but also offers Russia a significant bargaining chip in its negotiations with China on a range of issues. The Chinese authorities are very keen to develop their presence in the Arctic region as a whole and to have access to the Northern Sea Route, or the 'Polar Silk Road' or the 'Silk Road on Ice' as it is called in Beijing.⁵¹ The geo-strategic importance of a position in the Arctic is likely to encourage further offers of support from China which can help to bolster Russia's LNG business in the region.

Given the fact that Novatek has been specifically sanctioned by the US authorities, the involvement of Chinese companies and banks is likely to be of continued importance if the company's plans for further LNG development are to be fulfilled. Company CEO Leonid Mikhelson has outlined an objective to turn the Russian Arctic into the 'Qatar of the North', with plans for up to 70MM tonnes of LNG capacity in the region.⁵² The basis for the growth will be a second project called Arctic LNG-2, which will be based on resources from the Gydan peninsula opposite Yamal LNG.⁵³

The initial scheme will see the use of three gravity-based platforms each holding a 6.6MM tonne train, providing a total capacity of 19.8MM tonnes, but this will be expandable by the addition of further trains according to perceived demand in the global LNG market. Although it is anticipated that the total cost of the liquefaction plants will be 30 per cent lower than for Yamal LNG, with much of the equipment being built in a new yard on the Kola Peninsula near Murmansk, it would be very surprising if Chinese companies were not heavily involved once more. Novatek has already been in talks with CNPC and the Silk Road Fund about taking a stake in the project to add to their Yamal LNG investments, with another Yamal LNG partner,⁵⁴ Total, already having acquired a 10 per cent stake.⁵⁵ There is competition from other countries, though, with Saudi Arabian, Japanese and Korean companies all interested. To date cooperation deals have been signed with Saudi Aramco, Japan Oil, Gas and Metals National Corporation (JOGMEC) and Korea Gas Corporation (KOGAS), while a strategic cooperation agreement was signed with CNPC in 2017.⁵⁶ As a result, although no firm deals have been concluded to date (other than the 10 per cent sale to Total), Russia and Novatek have a strong bargaining position as the project moves towards its Final Investment Decision (FID) in 2019.

Overall, then, it would seem that Russian LNG can provide a strong compliment to the potential for pipeline gas sales to China over the next decade, and that a target of selling more than 100Bcm of gas to China by the mid-2030s is certainly possible if the two sources are combined. However, achievement of this goal will certainly require commercial, technical and political cooperation between the two countries and their respective corporate representatives over an extended period of time, and it remains to be seen whether this can be sustained. China's currently hostile relationship with the US provides clear encouragement for Russia that it can become an energy partner of choice for its

⁴⁹ Zhejiang Press Office, quoted in *The Maritime Executive*, 15 December 2017. 'Russia and China claim success at Yamal LNG'.

⁵⁰ *LNG World News*, 19 July 2018. 'Russia's Novatek delivers two Yamal LNG cargoes via NSR to China'.

⁵¹ Reuters, 26 January 2018. 'China unveils vision for 'Polar Silk Road' across Arctic'.

⁵² Interfax, 6 September 2018. 'Novatek expects to expand resources on Yamal, Gydan by 2021 to possibly produce 70mmt of LNG per year'.

⁵³ *Financial Times*, 12 December 2017. 'Novatek commits up to \$47.6bn on Arctic LNG projects'.

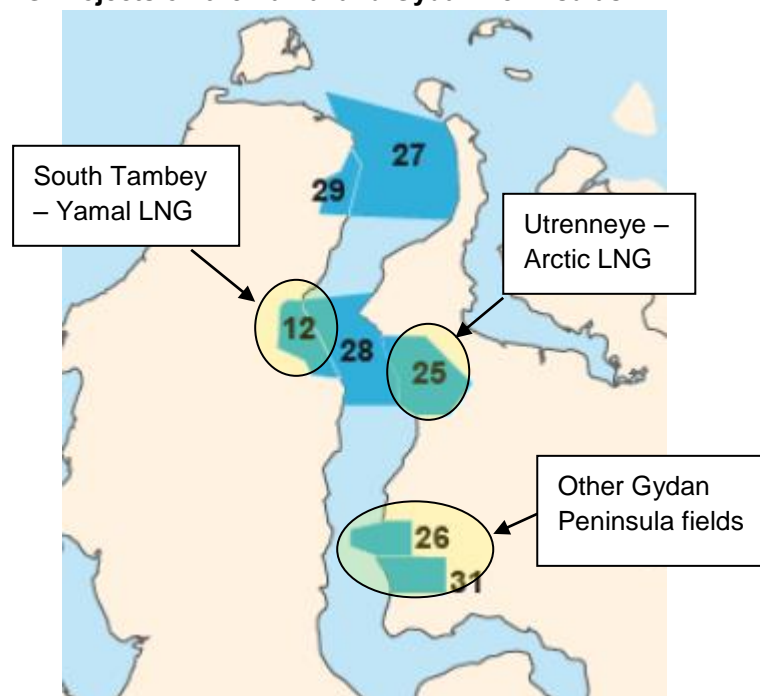
⁵⁴ Interfax, 11 September 2018. 'CNPC discussing entry into Arctic LNG 2 on same terms as Total's – Mikhelson'.

⁵⁵ Interfax, 25 May 2018. 'Total buying 10% of Arctic LNG-2 for \$2.55bn with option for 5% more if Novatek reduces stake'.

⁵⁶ Interfax, 11 September 2018. 'Mikhelson: JOGMEC's participation in Arctic LNG-2 may accelerate participation of Japanese private sector partners into new Novatek projects'.

Eastern neighbour, but the history of Sino-Russian relations urges caution over the longer term.⁵⁷ Having said that, it would seem that mutual interest and a gradual increase in trust between the two countries could provide the basis for further cooperation in the gas sector, especially as Russia appears to have reconciled itself to its role as energy provider to the Chinese economy.

Map 2: Novatek's LNG Projects on the Yamal and Gydan Peninsulas



Source: Novatek, with Author's additions

Conclusions

To date Russian gas has only been exported to China in small quantities via limited LNG sales from the Sakhalin 2 project. Recently, though, shipments from the Yamal LNG project have begun, and in December 2019 pipeline sales under the Power of Siberia contract will mark a significant upturn in the gas sector relationship between the two countries. By the mid-2020s Russia will be exporting at least 38Bcma of pipeline gas and 3mmtpa of LNG to its eastern neighbour.

However, the recent (September 2018) economic summit in Vladivostok has set the stage for a potential further increase of Russian gas exports, thanks to the unexpected rekindling of interest in two other pipeline projects, Power of Siberia 2 (or Altai) and the Far East pipeline from Sakhalin. The combined capacity of these two pipelines could be as much as 40Bcma, while Gazprom and CNPC are apparently also negotiating expansion of the original Power of Siberia contract by an additional 5-10Bcma. In addition, Novatek has also discussed further Chinese partnership in its new LNG project on the Gydan peninsula, Arctic LNG-2, where total output is expected to reach 19.8MM tonnes in its first stage by the mid-2020s.

The possible acceleration of Sino-Russian gas cooperation has been catalysed by both political and economic factors. US and EU sanctions on Russia in the aftermath of the 2014 Ukraine crisis have pushed the country's energy companies to look east for new markets, and now the US trade war with China has encouraged Beijing to re-adjust its thoughts on gas imports, with dedicated pipeline

⁵⁷ See Henderson, J. & Mitrova, T. (2016). 'Energy Relations between Russia and China: Playing chess with the dragon', WPM 67, Oxford Institute for Energy Studies.



sources looking more attractive. Furthermore, the failure of Chinese ally Turkmenistan to provide adequate gas supply in the winter of 2017/18 has also made Russian gas look more attractive in terms of reliability at a time when Chinese gas demand growth seems set to continue at a rapid pace thanks to a focus on clean-air policies.

Economically, the re-alignment of European and Asian gas prices over the past three years, as well as the increase in the oil price, has created a situation where a window to negotiate a gas price suitable for both Russia and China has opened again. The price issues around Power of Siberia 2 do remain problematic and the potential for delay in reaching agreement is clear, but there is now the potential for Gazprom to achieve a price close to European-netback equivalence while CNPC receives gas that can be competitive with other sources of imports. The cost of gas via the Far East pipeline will likely depend upon the development of the Yuzhno Kirinskoye field, but tentative early estimates suggest that, although the field is complicated, its breakeven price can also be competitive in North East China.

The economics of LNG exports from the Russian Arctic to China are also compelling, thanks to Novatek's successful development of Yamal LNG. Its second project, Arctic LNG-2, may be even more commercial if costs can be reduced by 30 per cent compared to Yamal LNG, as the company forecasts. In addition, Chinese involvement in both pipeline and LNG imports from Russia can provide some interesting negotiating opportunities, as competing Russian companies fight to secure not only a share in a growing market but also access to finance, service industry capability and political influence. This could allow Chinese companies and the Chinese government to further strengthen their bargaining position with the Kremlin and the relevant Russian actors.

From an LNG perspective the geo-political implications of this new source of gas for China are also important. The participation of Chinese companies as equity owners, LNG buyers and engineering contractors has provided access to the northern sea route, seen as strategically vital by Beijing, but Russia's geographical control of huge stretches of this route gives it significant bargaining power in its energy relations with its eastern neighbour. Of equal interest is that fact that Russia is being represented by a private company, Novatek, and not the state-owned Gazprom, which has potential implications for the future shape of the Russian gas sector.

One further conclusion concerns the implications of this emerging Sino-Russian gas relationship for Europe. As far as gas exports via Power of Siberia are concerned, these come from a unique source that has no connection to the west-facing pipeline system. As a result, there is no impact on potential exports to Europe. However, the start of production at Yamal LNG, the potential development of Arctic LNG-2 and, most importantly, the Altai (Power of Siberia 2) pipeline could create a new dynamic in Russia's gas relations with the West. All these projects will, for the first time, use gas that could go west or east, giving the Russian companies involved a new level of bargaining leverage. Although it would probably be wrong to suggest that this creates a threat to European supplies, it does underline that Russia could have more optionality and that the 'gas bubble', which has helped to provide Europe with a cheap source of supply over the past decade, could be directed at China instead. As such, European consumers need to consider the possibility that over the next decade they will have to compete with Asian buyers not only for LNG but also for some pipeline gas from West Siberia, with potential price implications if eastern demand continues to grow at the current rapid pace.

One final caveat would be that the conclusions above rely to an extent on a benign outlook for energy prices. A collapse in the oil price, a dramatic strengthening of the rouble-dollar exchange rate or a significant divergence in the relationship between European and Asian gas prices could significantly alter the dynamics of a Russia-China gas export relationship. Nevertheless, it would seem that there is important political momentum behind the current negotiations which means that, barring a major change in the commercial parameters, it will be important for both European gas consumers and global LNG players to follow the progress of Russia's expanding gas relationship with China closely over the next few months and years.