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Gazprom's LNG offensive: a demonstration of monopoly strength or impetus for Russian gas sector reform?

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ABSTRACT

Gazprom enjoys a dominant and privileged position in the Russian energy sector, and indeed in the economy as a whole. This article analyses the company's failure to achieve the Russian state's objectives for the country to become a force in the global LNG (liquefied natural gas) market. Has it weakened the company's standing relative to other industry players and the authorities, with the possibility that they could unleash broader reforms in the Russian gas sector? Short-term political and economic considerations may slow progress towards a radical outcome, with Gazprom's importance as a domestic and foreign policy tool providing some protection at a time of uncertainty for the Kremlin, but in the longer term it may well be the case that the liberalisation of LNG exports in December 2013 comes to be seen as the first step in a much broader reorganisation of the Russian gas sector.

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Introduction

Liquefied natural gas (LNG) has come to play a steadily increasing role in international gas trade and energy trade more widely. In traditional gas exports, the producer and consumer are connected via a pipeline, and thus form long-term bonds because of costly and inflexible infrastructure. LNG offers flexibility for both seller and buyer since gas transported on ships can go to a number of destinations for re-gasification, and buyers can easily choose from alternative suppliers. LNG trade offers new opportunities as well as challenges. In addition, the liquefaction plants, which cool the gas to minus 160 degrees Celsius to allow for transport in liquid form, represent huge investments and new technologies. In this article we will explore how Russia's dominant gas company, Gazprom, has approached this new sector in international gas trade. We examine how successful Gazprom's LNG strategy has proven to be, how its performance can be explained, and what the implications for Russian gas are likely to be.

Gazprom, which inherited the assets of the Soviet oil industry, enjoys a dominant and privileged position in the Russian energy sector, and indeed in the economy as a whole (Henderson & Pirani, 2014; Kryukov & Moe, 2013). But the possibility of change in the status of Gazprom has been a recurrent theme in the scholarly literature. Kryukov and Moe (2013)

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note that cost increases due to a more complicated resource base, combined with the lack of incentives for increasing efficiency in Gazprom, are becoming a challenge for the Russian economy. Attempts at comprehensive reform have often been called for, but these have always been rejected by the Russian government due to the social, economic and political role played by Gazprom. However, over the past five years the impact of global events such as the economic crisis in 2008–2009 and the advent of US shale gas have forced Gazprom and the Russian government to adapt their position, as noted by Henderson and Pirani (2014), with increasing competition emerging in both the domestic and export markets. As suggested by Locatelli (2014, p. 64), the ‘Gazprom model’ may not be suited to the changes now being witnessed in domestic and foreign markets.

Stern (2005) discussed the early evolution of Russia’s LNG strategy, led of course by Gazprom, as it sought to exploit the perceived opportunity in the US market in the early 2000s. However, at the same time new players, who had their own growth ambitions, were emerging in the domestic Russian gas market. Henderson (2010) charts the rise of the ‘Independents’ in Russia as they initially won market share from Gazprom for gas sales in the domestic power and industrial sectors and then gradually turned their eyes towards the gas export market. Gazprom always argued that its monopoly over export sales, which was enshrined in Russian law in 2006 (Federal Law, 2006; Russia gives, 2006), was a form of compensation for the low regulated gas prices it had to offer to domestic customers in Russia (Lunden, Fjaertoft, Overland, & Prachakova, 2013), but as those regulated prices increased towards export parity so this argument started to fade, encouraging the emergence of new actors in the Russian gas export market (Henderson, 2011a).

The Russian government remained keen to develop an LNG strategy, but no longer saw its state company as the only way to achieve this, and under pressure from Novatek and Rosneft (the state-controlled oil company) introduced a law to allow limited access to LNG exports for third party actors. Mitrova (2013) described this move as a historic decision, reflecting the fact that Gazprom was no longer trusted to fulfil all of Russia’s gas sector objectives, and that a race had begun to establish which company or companies could be the most efficient and technologically advanced in this new area. Sidortsov (2014) expresses some doubts about whether the end of Gazprom’s monopoly over LNG exports can be regarded as a true liberalisation, because the new projects permitted to export are limited in number and government control remains high. He argues that only companies with strong connections to the Kremlin have been allowed to establish a position in the gas export market. But as noted in Henderson and Pirani (2014), allowing third parties to export LNG could be a first step towards the further liberalisation of exports and of the Russian gas sector as a whole. Özdemir and Karbuz (2015) certainly see the structure of the Russian oil and gas sector changing, and argue that the dominant position of Gazprom is diminishing, with the emergence of competition for LNG sales putting pressure on Gazprom’s monopoly over pipeline exports. Indeed they see the demise of Gazprom as a dominant monopoly as inevitable in the long term.

We want to explore more closely what impact Gazprom’s LNG ventures have had on its position in the gas sector. We will examine whether they have helped to solidify Gazprom’s position or if they have weakened the company’s standing relative to other industry players and the authorities, with the possibility that they could unleash broader reforms in the Russian gas sector. Furthermore, we will also consider whether the company’s failure to achieve the Russian state’s objectives for the country to become a force in the global LNG

market, as part of an overall goal to maintain the country's geo-strategic influence using its energy resources, has resulted in the Kremlin turning to other domestic actors as an alternative route to achieving this. Indeed we will question whether the development of Russia's LNG strategy marks a significant turning point in the political economy of the energy industry and the country as a whole, demonstrating the potential benefits of competition in a sector that had previously been monopolised by a dominant state-owned actor. Our analysis will be based on a review of Gazprom's LNG projects, with reference to the activities of its closest domestic competitors. Before doing so, we will show how LNG has emerged as an important element in Russian energy policy.

LNG in Russian energy policy

Russia's ambitions in the LNG market stretch back as far as the 1970s, but it was the first decade of the 2000s that witnessed a true resurgence in activity. It was the potential of the US market which catalysed action, as the forecast sharp rise in US demand for LNG prompted Gazprom to consider three LNG projects: the Shtokman field in the Barents Sea; the Ust Luga LNG plant on the Baltic Sea near St Petersburg; and the Kharasevey project on the Yamal peninsula in West Siberia. In addition, the company also purchased a controlling interest and began investing in the Sakhalin 2 project in the Far East of Russia, with its potential to sell LNG to markets in Asia. Even as early as 1999, Gazprom formed Gazprom Marketing and Trading as a subsidiary with the objective of establishing it as a force in global LNG trading (<http://www.gazprom-mt.com>).

The commercial and political logic for a Russian move into LNG was strong. Gazprom was keen to exploit new markets that could not be accessed by its pipeline infrastructure, particularly in North America and Asia, and was also eager to assert itself as a global gas major with a broad and flexible portfolio of supply options (Gazprom, 2011, p. 22). From a political standpoint, the opportunity to expand geo-strategic relations with a broader array of countries based on closer commercial relations was clear. The Russian government was also keen to add LNG as a new area of technical expertise in order to catalyse industrial development in the energy economy (Mitrova, 2013, p. 3). Gazprom was given the task of pursuing these goals, as part of its existing monopoly over gas exports. LNG was an opportunity for the company to expand its presence in international markets, and success in this field would also strengthen its domestic position as an indispensable source of revenue for the government.

In its 2005 Annual Report, Gazprom announced its first sale of LNG cargo into the US market (Gazprom, 2006, p. 15), and over the rest of the decade it continued to assign LNG ever-increasing importance in its long-term strategy. By 2011 its ambition had grown to forging a 9% share of the global LNG market by 2020, with the hope that this would rise to 15% by 2030 (Gazprom, 2011, slide 22). To do so, would involve Gazprom developing stranded assets in remote offshore regions while building its expertise in a new technology (for Russia), with the additional benefit of accessing gas markets that had previously been closed to it for geographical reasons.

The Russian government shared the company's enthusiasm, seeing LNG as a path to achieving a number of core objectives. These included expanding gas exports and thereby improving the country's trade balance and foreign currency income, catalysing industrial development in Russia, supporting the exploitation of remote resources in areas such as

Sakhalin Island and the Barents Sea, encouraging the development of geo-politically important regions such as the Arctic and the Far East of Russia, and expanding Russia's commercial (and therefore political) reach to new areas such as North and South America and North-East Asia (Mitrova, 2013, p. 3). As such, the Russian Energy Strategy that was published in 2009 also foresaw a rapid increase in Russian LNG output, with a plan to reach 15% of the global total by 2030 (Energy strategy, 2009), and the Russian government provided an incentive to reach this target by reducing the export tax on LNG exports to zero (compared to the 30% rate for pipeline gas exports) (Mitrova, 2013, p. 13).

LNG projects in Russia

In this section we review the LNG projects, which Gazprom has planned, brought to fruition or failed to develop, while also referring to projects developed by other actors in the gas market. As will be illustrated, Gazprom, as the dominant state-controlled player in the industry, initially took the lead role, based on its vast resource base¹ and its monopoly over transport infrastructure and gas exports. As the company tasked with controlling Russia's gas sales to Europe and the Former Soviet Union, Gazprom had the legal right to be the sole developer of LNG projects that would, by definition, be aimed at export markets, with the explicit goal of broadening the scope of gas sales towards Asia and the Americas.² President Putin himself, who exerts significant control over the company having appointed a close associate, Alexei Miller, as chief executive, has clearly articulated his desire to see Russia access the global gas market more widely, with Gazprom in the vanguard (Goldman, 2008, pp. 142–144). However, as will be discussed later, Gazprom's inability to achieve this goal in an efficient and meaningful way has led to an adjustment of Russia's strategy via the introduction of domestic competition that might ultimately transform the gas sector as a whole. A review of the specific LNG projects that have resulted in this change can highlight the catalysts for this shift.

Shtokman

The enthusiasm of both Gazprom and the Russian government was sparked by the fact that the giant Shtokman field, which had been discovered in the Barents Sea in 1988,³ appeared to be an ideal candidate for the first LNG scheme. With 3.9 tcm (trillion cubic metres) of reserves, the field has the potential to support a multi-train (i.e. liquefaction facilities) development,⁴ even though its location in Arctic waters more than 500 km from the Russian coast creates logistical and technical difficulties.

After Gazprom asserted control of development of the field in 1995, it assembled a group of foreign companies (Norsk Hydro, Neste, Conoco and Total) to provide advice, and the option of developing LNG facilities was considered (Moe & Jørgensen, 2000). However, the company's senior management remained divided in its backing for the project, with a number preferring to support more traditional onshore projects (Stern, 2005). Furthermore, the field became entangled in the debate over whether production sharing agreements (PSAs)⁵ should be awarded to new fields or whether other tax breaks should be offered, with the Russian government reluctant to provide any incentives that it felt might reduce its revenues. Alongside the economic crisis of 1998 and the lack of agreement over whether Shtokman should sell its gas as LNG or via pipeline, it was no surprise that little progress was made by 2000.

In a harbinger of future competition in the Russian gas sector, Rosneft entered the market in 2002 by taking advantage of Gazprom's lack of progress with foreign partners to gain access via the Sevmorneftegaz joint venture with Gazprom (Mitrova, 2013, p. 16), which took over the licence to the field (Gazprom, Rosneft rush, 2003). By 2003, technological breakthroughs and a very promising US gas market made development look feasible and attractive, but Sevmorneftegaz was equally unsuccessful at coming up with a concrete plan, partly due to the animosity that was developing between the two joint venture partners. Rosneft ultimately sold its share to Gazprom in 2004, reportedly because it needed to raise capital after the acquisition of Yukos, and Gazprom began a further round of discussions with international oil companies (IOCs). However, despite short-listing five IOCs for detailed negotiations, no agreement was reached. Much of the blame for the failure of the negotiations was assigned to Gazprom, with the company revealing 'its inflated appetite and ... a desire to squeeze as much as possible from foreign partners' (Mitrova, 2013, p. 16), although further disagreements about the location of key facilities and offshore development concepts also undermined the discussions. Eventually Gazprom decided that it would proceed independently, encouraged by high gas prices in the US, where the field's LNG was intended to be sold, and also by high oil prices, which further improved the economics of a field that was also rich in natural gas liquids (NGLs) (Gazprom to develop, 2006).

However, Gazprom very soon realised that it did not have the skills to address all the technical challenges at the field, and in 2007 it invited first Total and then Statoil to begin partnership talks, finally forming a joint company (Shtokman Development AG – SDAG) in 2008. The foreign companies would hold 25% and 24% of the shares, respectively, with Gazprom owning the 51% majority of shares. The special-purpose company would develop and operate the first phase, accounting for approximately one third of the field, and would involve the production of up to 23.7 bcm (billion cubic metres) of gas. Gazprom planned to develop a further two phases on its own. SDAG would own the infrastructure for 25 years after production start-up, at which point all assets were to be handed over to Gazprom. Furthermore, SDAG would not sell the gas, as this would be done by Gazprom, and the licence remained with Gazprom's subsidiary which was renamed Gazprom neft' shel'f (Moe, 2010). This arrangement, referred to as 'the Shtokman model', was presented as the new standard framework for co-operation with foreign companies.

However, Gazprom and its international partners had problems agreeing on key technical solutions for the offshore part of the development (Rebrov & Grishkovets, 2010). A complicating factor was that Gazprom had established a separate subsidiary (Gazprom dobycha shel'f) to prepare for the second and third phase of Shtokman, and its proposed solutions were not harmonised with the partners for the first phase (Moe, 2010). This problem was aggravated by the fact that the sales strategy was also unclear. Although the plan at the outset had been for a 50/50 LNG/pipeline to Europe solution, the final decision on the exact sales mix was the subject of continuous debate. This lack of a clear marketing plan was further exacerbated by the significant shift in the global gas market caused by the advent of US shale gas, which ended US demand for LNG imports and, in combination with the effects of the 2008–2009 economic crisis, reduced gas prices in Europe. Planned start-up dates for the field were repeatedly postponed (Gazprom delays, 2010) from 2013 to 2016, and then to beyond 2020, and when the initial shareholder agreement for Shtokman Development AG expired in 2012, Statoil decided to withdraw from the project (Statoil writes, 2012). Total attempted to rekindle the project as part of its Russian gas strategy, but ultimately also

handed back its share in 2015 (Total pulls out, 2015), by which time Gazprom had admitted that the field would be left 'for development by future generations' (Total could quit, 2013).

The ultimate failure of the Shtokman project highlighted a number of key issues for Russia's LNG plans. First, Gazprom was consistently reluctant to make firm decisions on foreign partnership, and even when it had selected partners it did not respond in a timely fashion to advice on field development options, despite its own lack of expertise in LNG development. Second, an inability to make a definitive decision about the market for Shtokman gas and the means of export led to Gazprom missing a window of opportunity in the US and Europe. Third, the Russian government failed to provide any fiscal support to Shtokman, while offering it to other schemes, undermining the economics of the project (Moe, 2010, p. 233). Fourth, changing market conditions also played a significant role, with the unexpected rise of US shale production radically altering the outlook for Russian gas exports. Ultimately, though, the challenging nature of the project led to cost estimates rising to a level (\$30 billion) that made it commercially unfeasible (Gazprom flags, 2012). Moreover, Gazprom's lack of technical experience in the area of LNG and the slow progress made with foreign companies meant that a practical solution could not be found before the window of opportunity for Shtokman gas had closed.

Baltic LNG

Russia's disappointment over Shtokman was compounded by Gazprom's additional failure to secure the future of a second project, this time based on the Baltic Sea and appropriately called Baltic LNG. After an aborted attempt to create a seven million ton scheme in 1997, Gazprom announced a second attempt at the project in 2004 with a plan to liquefy gas brought by pipeline from West Siberia for onward sale into the Atlantic Basin market (Petro-Canada and Gazprom, 2006). PetroCanada was brought in as a core partner, and Gazprom had plans to take a stake in a Canadian re-gasification asset as part of a swap deal (Petro-Canada, Russia's, 2004). Other potential partners such as BP and the Russian company Itera also expressed their interest in the scheme, hoping to find a means to export their Russian gas production, while others such as ENI of Italy and Gaz de France hoped to use investment in Baltic LNG as a route to accessing upstream gas assets in Russia. However, once again a combination of deteriorating market conditions, a shortage of funds following the economic crisis and a muddled strategy undermined an LNG project in Russia. The signing of the agreement between Gazprom, Total and Statoil on Shtokman in 2007 created the perception that this field was Gazprom's priority LNG project. As a result, the concept of bringing gas more than 3000 km from the Yamal peninsula to St Petersburg before liquefying it and shipping it to Europe (as the US market no longer required imported LNG) seemed less attractive, especially as it would compete with Gazprom's own pipeline exports. Indeed, Gazprom itself expressed a preference for the Nord Stream pipeline as an export route through the Baltic, as this could move both West Siberian gas and Shtokman gas at a much lower cost (Gazprom drops, 2008). This combination of factors led to the cancellation of Baltic LNG in 2008, much to the surprise of Petro-Canada who had to re-think their re-gasification plans in Canada, and Gazprom's involvement in them, at short notice (Kiselyova & Jones, 2008).

Sakhalin 2

Production from Russia's first successful LNG scheme, Sakhalin 2, started in the Far East of Russia in 2009. The project involved the development of the 600 bcm Piltun-Astokhskoye field and the construction of a two-train 9.6 million ton (mt) capacity liquefaction plant at

Prigorodnoye on the south of the island in a bay with ice-free waters.⁶ However, although Gazprom was by 2009 a 50% plus one share partner in the Sakhalin 2 project it could hardly claim the credit for its success, as the development scheme had been managed by Sakhalin Energy, comprising Shell and its partners, Mitsubishi and Mitsui, before Gazprom acquired its interest in 2006. The acquisition of the stake by Gazprom highlighted the governance risks for foreign companies investing in Russian energy projects, as it involved an elaborate use of government agencies to put pressure on the foreign partners at the field. A number of commentators have argued that the original Sakhalin 2 PSA, signed in 1994, was overly generous to Shell and its foreign partners (Krysiak, 2007, pp. 22–24), but rather than attempt a formal renegotiation the Ministry of Natural Resources launched a series of investigations against Shell and its partners, alleging a number of breaches of Russian law (Bradshaw, 2009, pp. 8–10). The charges were not dropped until Gazprom was given a controlling stake in the project, paying only its share of past costs (\$7.45 billion) to enter as the dominant partner (Shell bows, 2006). However, although Gazprom had secured its place in Russia's first LNG project, its actions and those of the Russian government had undermined the confidence of investors and customers alike, which would have implications for the development of future projects (Brooke, 2006).

Despite these difficulties with the partnership arrangement, and significant delays caused by both the technical challenges of operating in the icy offshore waters and the difficulties of securing rapid approvals from Russia's bureaucratic government structures, Sakhalin 2 reached a peak output of 10.8 mt in 2011, exceeding its design capacity and sending cargoes to a range of markets in North East Asia, with Japan and Korea being the main buyers. It remains Russia's only producing LNG project as of 2016, and has the potential to expand its output through the addition of a third train at the Prigorodonoye.

Sakhalin 2 expansion

The addition of a third train at the existing Sakhalin 2 site appears to be Gazprom's most obvious next LNG project (Gazprom, 2014), but a final decision on the exact timing of an extended development has yet to be taken. One of the major concerns is the source of extra gas, as the existing Sakhalin 2 fields are fully allocated to the existing two trains and although additional resources are available around the island they bring their own difficulties. An obvious, but politically difficult, source is the Sakhalin 1 project, where 8 bcm of annual associated production is being re-injected into the oil reservoir and where development of gas reserves at the Chaivo field have been on hold for a number of years as the field partners look for an appropriate market. Gazprom has made a number of offers to purchase this gas for use at Sakhalin 2, but none have been acceptable for the Sakhalin 1 consortium (Gazprom offered, 2013), where the Russian partner is Rosneft, whose rivalry with Gazprom has encouraged it to develop its own LNG plans rather than co-operate with a fellow state-owned company (Gorst, 2014). Indeed the Russian government has said that it may be the final arbiter concerning future developments on Sakhalin, although it remains to be seen whether it can force either company to accept an outcome that would result in one of the state entities having to take a subordinate role.

While domestic politics has undermined the availability of one source of gas supply, Gazprom's reluctance to encourage international partnership appears to have weakened the chances of a logical alternative being developed. Gazprom itself holds significant

gas resources in the Kirinskoye and South Kirinskoye fields on the Sakhalin 3 licence, where it currently has a 100% interest. Gazprom's preferred plan has been to develop the approximately 700 bcm of gas reserves at the two fields itself,⁷ although this plan has been challenged by the fact that the geology is complex, the fields are offshore, where Gazprom has little experience, and also contain liquids, which complicate the development plan (Gazprom says, 2013). One obvious solution would be the expansion of Gazprom's partnership with Shell to include development of Sakhalin 3, and this has been under discussion for a number of years, as it would not only utilise Shell's offshore expertise but would also ensure that all the Sakhalin Energy partners are involved in the upstream and downstream parts of the development. An alternative scenario in which Gazprom provided the gas to be liquefied by Sakhalin Energy at a third train of Sakhalin 2 would be unlikely to appeal to the foreign partners, as they would effectively just be tolling Gazprom's equity gas if it was not involved in production from the Sakhalin 3 licence.

Gazprom has consistently been cautious about sharing its upstream assets with foreign partners, no matter how much value the latter might bring, but finally came to the conclusion that it could not go it alone when it signed a strategic co-operation agreement with Shell at the St Petersburg Economic Forum in June 2015 (Royal Dutch Shell, 2015). Among a series of statements on partnership in the gas sector, the two companies also agreed that Gazprom would commit to supply gas for a 5 mt third train at Sakhalin 2, and indeed preparation of documentation has been underway since early 2014 (Gazprom, 2014). The co-operation agreement also included plans for a series of asset swaps, and active discussion about Shell becoming involved in the development of the South Kirinskoye began shortly after the St Petersburg Forum ended (Baltic LNG scheduled, 2015). However, in August 2015 the US authorities provided a clarification of the technological sanctions imposed on Russia in 2014, which prohibited the transfer of technology for Arctic developments, shale oil production or offshore fields that could produce oil from water depths greater than 500 feet.⁸ They specifically singled out South Kirinskoye because of its oil reserves and the fact that some parts of the field are in deep water, and underlined that the field was included on the sanctions list (Chiacu, 2015). This appeared to rule Shell out as a potential partner for Gazprom, given the former's links to business in the US, but the two companies have apparently continued talks on how they could work together at the field without breaking the sanctions rules. Nevertheless, it would seem to be inevitable that the need for Shell to take a more cautious stance will at least delay the development of the field.

As a result, despite the fact that a third train at Sakhalin 2 would almost certainly provide the most cost-effective source of new Russian LNG, Gazprom CEO Alexei Miller has only promised to provide a further indication on timing at some point in 2016 (Making decision, 2015), and the company has indicated that first production would be unlikely before 2021 (Third train, 2015). The economics of the project would appear to be relatively robust, as adding a new train to an existing plant is cheaper than building a new greenfield liquefaction scheme because much of the infrastructure is already in place and the initial site preparation has been done. This would make the expansion of Sakhalin 2 the most commercially logical of all Russia's current LNG plans, and underlines the fact that Gazprom would not appear to have optimised its opportunity with this project.

Vladivostok LNG – a priority, a bargaining chip or a white elephant?

One of the other reasons why the expansion of Sakhalin 2 has taken longer than expected is because gas from the Sakhalin 3 fields had also been allocated to the Vladivostok LNG project, which is 100% controlled by Gazprom as well. The company announced plans for a 10–15 mt plant there in 2011, and took what it considered to be a final investment decision in 2013, with plans to send out a first LNG cargo in 2018 (Gazprom, 2013a). Furthermore, it also announced a co-operation agreement with a consortium of Japanese companies to conduct a feasibility study on the project, prior to making final commitments on financing and implementation as well as the signing of gas contracts (Gazprom, 2013b).

The project was part of a large scale plan to create an integrated gas network in Eastern Russia (Mastepanov, 2015), but some may have seen that establishing a liquefaction plant at Vladivostok could provide Gazprom with some bargaining power in its negotiations with CNPC (China National Petroleum Corporation) over pipeline exports from fields in East Siberia to north-east China (Mitrova, 2013, p. 19). Gazprom had been negotiating terms to sell gas from East Siberia to north-east China since 2004, but price negotiations have always proven difficult because the Chinese negotiators refused to meet Gazprom's expectations for a high oil-linked gas price, believing that East Siberian gas was effectively a stranded asset with no other market than China and should therefore be sold at a discount (Henderson, 2011b, pp. 6–10). By building a pipeline all the way to the Pacific Coast, with a spur to China, Russia could develop an alternative outlet for exports with which China would have to compete on price.

It soon became clear that the commercial logic behind this concept was flawed. Transporting gas 3500 km and then liquefying it involved considerable cost prior to export. Gazprom then suggested that the gas for Vladivostok LNG might come from Sakhalin instead via an existing pipeline (the Sakhalin–Khabarovsk–Vladivostok pipeline constructed in 2011, which has a current capacity of 5 bcm but which could be expanded to 30 bcm with extra compression), thus undermining its own plans for Sakhalin 2 expansion. The decision to switch gas supply also caused concern for possible foreign partners at Vladivostok, and also for potential customers who were unclear about the long-term viability of the project and therefore the security of any contracts that might be signed.

One of the main issues for customers signing long-term (20–30 year) LNG contracts is security of supply, and as such they are generally keen to know exactly where gas is being sourced and also that any project will be economically viable. Concerns over Vladivostok LNG were then magnified by the imposition of US sanctions, as they have not only undermined the development of the Sakhalin 3 fields and impaired the ability of all Russian companies to raise capital on international markets, but have also reduced the willingness of many Asian buyers to take on the extra risk of signing new contracts with any Russian energy companies.

The likelihood of Vladivostok LNG moving ahead on its original schedule has been further compromised by Gazprom's gas export negotiations with China. A first deal was signed in May 2014 to send gas from East Siberia via the Power of Siberia pipeline to north-east China (Gazprom, CNPC sign 30-year, 2014), but with no mention of extending the pipeline to the Pacific Coast. A subsequent preliminary agreement to export gas through a second pipeline via the Russian province of Altai was then signed in May 2015 (Gazprom, CNPC sign heads of agreement, 2014). Although reportedly the Chinese side was quite negative towards the latter project, Gazprom CEO Alexei Miller suggested that it might take preference over the

Vladivostok LNG plans (Farchy, 2014). Finally, Gazprom has suggested that gas from Sakhalin might be shipped to China by pipeline in future, further undermining any LNG plans (Gazprom, 2015). Indeed it would appear that Gazprom has reverted to its traditional role of pipeline exporter in the Far East, and has put its LNG plans very much on hold. As a result, despite official statements that Vladivostok LNG is still being planned, it would now seem that the project has been postponed until well into the 2020s at the earliest. Uncertainty over exactly what the company might be aiming to achieve with this new plant and exactly when and from where the gas supply would arrive have caused confusion for potential partners and customers.

'New' Baltic LNG – return of Gazprom's Atlantic Basin LNG strategy

As Gazprom's Asian LNG strategy appears to be diminishing in importance so the company has rekindled the idea of a Baltic LNG scheme, partly in response to competition from Novatek's Yamal LNG project (see below) but also because the company sees the opportunity to exploit an emerging LNG bunker fuel market in the Baltic Sea as well as more distant gas markets in South America (Gazprom Strategy Presentation, 2015). In addition the company is also under pressure from the Russian government to supply LNG to the Russian region of Kaliningrad (Gazprom, 2013c), which at present can only be accessed via a pipeline through the Baltic States that is now regarded as a strategic risk. As a result Gazprom in 2013 proposed a new 10 mt Baltic LNG project to be based at Ust Luga, close to St Petersburg, and has initially outlined a timetable which could see first output in 2020 (Baltic LNG scheduled, 2015).

Ostensibly the project appears to be quite an attractive commercial proposition, taking cheap Russian gas and transporting it to markets where much higher prices are paid. The key question, though, concerns the cost of building the new liquefaction plant, which will in turn determine the effective tolling fee that will need to be charged. A total capital expenditure estimate of one trillion roubles (around \$15.5 billion at an exchange rate of US\$1=RUB65) made by the head of the Ust Luga region appears very high and could undermine the commercial rationale for the project. The breakeven cost estimates based on this level of capital expenditure are relatively high compared with the current gas price in Europe and to the full cost of a typical US LNG export project. Gazprom and Shell have started negotiations on potential co-operation to develop the scheme, but given that Shell has cut its capital expenditure budget twice in 2015, and by a total of 20% compared to 2014, it is uncertain whether it will proceed with a project that has such marginal economic prospects.

Furthermore, it remains unclear how large the bunker market for LNG in the Baltic will be, and if Russian LNG from a new project can really hope to compete in South America with US LNG exports from the much closer Gulf of Mexico schemes. In addition, the possible arrival of Gazprom LNG in Europe could undermine its own pipeline sales, implying that the Baltic LNG project is another scheme that could be postponed despite the fact that Gazprom has apparently made its final investment decision (Uncertainty lingers, 2015).

Why have Gazprom's LNG prospects faded?

The outlook for Gazprom as an LNG producer is very uncertain. Logically, a third train should be built at Sakhalin 2, sourcing gas either from Sakhalin 3 fields or from Rosneft's Sakhalin

1 project. It could also be sensible to develop Baltic LNG, if costs can be controlled and a market in Europe and the Atlantic Basin can be found. Neither outcome is certain, though, and with Gazprom's other two projects, Vladivostok LNG and Shtokman, being at the very high end of the cost curve, it is possible that Gazprom could have no new LNG projects by 2025.

It is undeniable that Gazprom's results in the LNG business are far from the goals it set for itself only a few years ago. Explaining this failure is a more complicated task. Changes in the external environment, especially market developments, must account for much of what has happened. From the early 2000s we have seen a rapid rise in global demand for LNG. This growth was, however, followed by development of new LNG projects in many countries around the world. The shale gas revolution, and more recently the steep decline in oil prices, have also put strong downward pressure on the price for LNG. But our review of Gazprom's LNG projects suggests some recurring weaknesses in the company's approach.

First, most of the projects have been characterised by changing concepts and goals. At Shtokman there were vacillations between LNG and pipeline solutions; for Sakhalin 2 expansion the sourcing of gas has not been settled, while for Vladivostok LNG the whole purpose of the project has looked increasingly uncertain.

Second, in all the projects foreign companies play significant roles, but Gazprom has been reluctant to decide about partnerships and has wanted to limit the role of foreign companies. At Shtokman, most potential partners were scared off either because of Gazprom's indecisiveness or because of the terms they were offered. Even when the project did move ahead Gazprom continued to be inconsistent in its dealings with the foreign companies. In the case of Baltic LNG, it seems that the project was cancelled partly because it collided with other company priorities, but this came as a surprise to its foreign partner and undermined general confidence in Gazprom's planning ability and openness. Furthermore, one of the reasons the expansion of Sakhalin 2 has been delayed is Gazprom's reluctance to give foreign companies access to upstream assets, namely to Sakhalin 3, which is an obvious source of gas for a third train. At Vladivostok LNG the changing plans for sourcing have confused potential foreign partners. The one operating Gazprom controlled project – Sakhalin 2 – is deemed successful. But the way Gazprom achieved its majority share in the project, at the expense of foreign companies who had developed the project, exerted a negative impact on the company's reputation generally, and its LNG strategy specifically.

The two weaknesses discussed above are partly interwoven and they are both connected to a third problem: conflict or competition between the LNG projects and Gazprom's pipeline exports. This was clearly the case at Shtokman, which for a long time suffered from lack of attention and investment because LNG was not part of Gazprom's core business, and then was ultimately undermined when it became clear that gas from the field would reach the same markets as pipeline supplies from Gazprom's other production base on Yamal. Similarly, at Baltic LNG the plans for the Nord Stream pipeline were seen as producing a competitor to the LNG project. The same problem may also hinder the 'new' Baltic LNG project, although it is too early to make a definitive statement as negotiations for the expansion of the Nord Stream pipeline are still continuing. Meanwhile, at Vladivostok LNG the whole project seems to have been downgraded as a result of the development of pipeline exports to China.

It seems plausible that these problems at least to some extent can be attributed to the general characteristics of Gazprom as a giant self-supplied producer focused on pipeline exports. Gazprom took over an industry structure formed according to the principles of the

centrally planned economy, and established its preferential position in the Russian energy sector during the years of rapid transformation and economic upheaval in the 1990s. LNG represents a new line of business, requiring new technologies and new forms of marketing. It would be difficult enough for a company with Gazprom's structure and background to exploit opportunities effectively in this area, even under favourable market conditions. Under the pressure of low prices and increased global competition it would seem that it has been impossible.

Challenges to Gazprom's position

Such arguments have not been lost on other gas producers, notably Novatek and Rosneft, who had already become important players in the Russian domestic market.

Historically, Gazprom has been the sole exporter of Russian gas, based on its ownership of the trunk pipeline system (the UGSS) (Federal Law, 2006), and this monopoly position was extended to the LNG business *de facto* because Gazprom was the only Russian company with any LNG plans. However, Novatek, which as early as 2009 had acquired a controlling interest in Yamal LNG, a company established to develop the South Tambey gas field on the Yamal peninsula,⁹ started to develop its own LNG export strategy. Initially Novatek co-operated with Gazprom in order to optimise an overall LNG development on the Yamal peninsula (Gazprom, Novatek, 2013), using Gazprom as an intermediary in order to allow Novatek to export LNG without breaking the state company's export monopoly rights (Gazprom, 2010).

However, by summer of 2013 it had become clear that it would not be possible for Yamal LNG to raise bank financing unless Novatek had greater influence over the project's revenues, as no bank would lend money to a scheme that did not control sales of its output throughout the marketing process (Griffin, 2013). As a result, the role of Gazprom as an agent for third party LNG sales became untenable and Novatek began to lobby for a change in the LNG export rules, supported by Rosneft which had also become more interested in establishing a gas business, not only domestically, but also in the global market (Rusakova, 2013). Both companies had significant influence with the Russian government via their senior executives and owners, with the result that by October 2013 the Russian Ministry of Energy had approved a new law liberalising LNG exports and by 1 December it had been passed by the Russian Duma and signed into law by President Putin (V. Putin podpisal, 2013).

The new law is rather specific in its definition of allowable LNG exports, though, restricting them to licences where the right to construct an LNG plant is already included and also to offshore licences that are operated by companies which are at least 50% owned by the state (Josefson & Rotar, 2014). This currently limits the number of potential non-Gazprom projects to three: Novatek's Yamal LNG and Arctic LNG schemes (the latter being a potential project on the Gydan peninsula opposite Yamal) and Rosneft's Far East LNG venture (Sakhalin 1). Nevertheless a clear consequence was that competition, which had already emerged in the Russian domestic market between Russia's three largest gas producers (Henderson, 2013), had now spread to the export market.

It is now clear that both these new LNG players have developed strong commercial, and in Rosneft's case political, ambitions with regard to gas exports, and both have exploited their close connections to the Kremlin to gain Russian government support. Igor Sechin, the CEO of Rosneft, has been a long-term ally of President Putin and has argued that Rosneft

should be allowed to challenge Gazprom's dominant position in the gas sector, receiving some backing from the President at various meetings of the Presidential Energy Commission (Weaver, 2014). Indeed Rosneft has even gone so far as to claim rights for third party access to the Power of Siberia gas export pipeline to China, suggesting a challenge to Gazprom in pipeline as well as LNG exports (Yafimava, 2015, p. 18). Meanwhile the owners of Novatek are also believed to be closely related to the Kremlin (Marson, 2013), and have created a situation within which their company can provide a useful catalyst for action in competition with Gazprom at a time when President Putin fears that 'if we do not pursue an active policy [in LNG], we risk completely surrendering this market to competitors' (Putin, 2013). As a result, it has certainly seemed that LNG could become a major catalyst for change in the Russian gas sector as a whole.

However, one must also acknowledge that this argument is not without caveats. The Russian government has been ready to support Novatek's Yamal LNG project extensively, by way of state investments in infrastructure as well as generous tax breaks. However, it appears that this support has as much to do with the perceived strategic significance of this particular Arctic project than it has with encouragement of competition to Gazprom (Moe, 2014). Meanwhile, Rosneft's requests for financial aid for its Far East LNG scheme have been turned down by the National Welfare Fund. This must primarily be ascribed to the increasingly complicated economic situation from 2014 onwards, but also demonstrated the limits to Rosneft's influence (Astakhova & Pinchuk, 2015).

Despite these qualifications one can argue that Novatek and Rosneft did win a major concession when they were granted export rights, and that a logical continuation would be further inroads into Gazprom's privileges. Certainly this has been the ambition of Rosneft, which stepped up its attacks on Gazprom. In the summer of 2015 it submitted a proposal for extensive reform of the gas sector, including de-monopolisation of all exports (Podobedova, 2015).

However, even if Gazprom's LNG strategy has been widely described as a failure, the results shown by Novatek and Rosneft are to date not so impressive either. Russia's overall LNG ambitions have had to be scaled back because of market conditions and a lack of spare cash-flow for investment, meaning that promises of new non-Gazprom projects – which seemed to be emerging – are less convincing than before. In particular, Rosneft has postponed its project by 2–3 years, while Novatek has taken much longer than expected to raise project financing for its Yamal LNG scheme, under the pressure of US sanctions (Yamal LNG signs, 2016). As a result, Russia's overall ambitions, rather than just Gazprom's, appear to be under threat.

Conclusions

The liberalisation of Russian LNG exports has catalysed a debate about Russian gas exports as a whole, with potentially significant implications for the sector. This has left the Russian government with something of a dilemma, as it attempts to balance the importance of Gazprom to the political economy of the country with the need to exploit the country's gas resources as efficiently and competitively as possible.

The solution suggested by Rosneft CEO Igor Sechin has been for a broad restructuring of the Russian gas sector, including a split of Gazprom's transport business and a liberalisation of all export sales. However, in the face of domestic economic challenges and an increasingly

turbulent foreign policy environment, the Russian government appeared to become less ready to discuss radical change in the gas sector as a whole. At a meeting of the Presidential Energy Commission in October 2015 the issue of gas export liberalisation, explicitly put forward by Rosneft, was not discussed even though it had been on the agenda (Presidential Energy Commission, 2015). It would seem that President Putin had become keener to remain supportive of Gazprom at a time of growing economic and political volatility than he was only a few years ago. Gazprom played a crucial role contributing to social stability during the difficult transition in the 1990s, supplying industrial consumers as well as households at low prices and sometimes no payment at all (Kryukov & Moe, 2013). Gazprom's capacity to perform this function was always contingent on Gazprom maintaining its privileged role in exports. With the spectre of major economic crisis rising again it would therefore have seemed unwise to undermine Gazprom in its most important markets (Mazneva & Khrennikova, 2015). As a result the commission's recommendations were a compromise, with the plan to extend the role of 'guaranteed supplier', which hitherto has only applied to Gazprom, to other gas producers in certain areas, being a concession to Gazprom, while other measures which remain under discussion, particularly transport tariffs, may provide further commercial incentives to non-Gazprom producers (Barsukov, 2016).

Furthermore, Gazprom has become an important symbol of Russia's current political struggles with the West, in particular as the EU challenges its business methods in the European gas market and also continues to block its attempts to build new gas export pipelines. President Putin has offered direct support in this arena (Johnson, 2015a), and has also used Gazprom as a major plank of his 'pivot to Asia' strategy, with pipeline gas exports being a foundation for growth in commercial relations with China (Johnson, 2015b). In addition, Gazprom of course remains central to Russia's commercial relations with Ukraine, which have taken on added significance. As a result, the commission's initial decision to ignore the question of a challenge to Gazprom's pipeline export monopoly appeared to be in line with a policy of maintaining Gazprom's dominant position as an instrument of foreign policy.

Despite the apparent reluctance of the Russian government to act, however, non-Gazprom players have continued to push for change. In March 2016 Novatek CEO Leonid Mikhelson even took the step of writing to President Putin to request the right for third party Russian companies to sell gas to Europe via Gazprom's pipelines, effectively challenging the existing monopoly (Novatek CEO, 2016). His argument was based on the fact that Novatek already sells gas in Europe, but purchases its supplies on the European spot market, while it could be selling Russian gas if given access to the export pipeline system. Not surprisingly Gazprom has objected to this plan, and the Kremlin has deferred any decision (Kremlin says, 2016), but nevertheless it would seem that, only three years after the lifting to the monopoly on LNG exports a more significant challenge is now facing Gazprom's traditional business model. Rosneft has added further weight to the argument, sending a draft gas export agreement to Gazprom that, according to press reports, implies that the two state companies should discuss a new methodology for sharing export revenues without breaking Gazprom's 'single export channel' monopoly (Rosneft presents, 2016). The Russian government has subsequently emphasised once again that it will not be changing the export monopoly law (Govt. not to change, 2016), but the fact that the Energy Ministry has encouraged a commercial discussion on the issue between Rosneft and Gazprom suggests that momentum for some form of change is building (Rosneft sent draft, 2016). As a result, although in practical terms it would seem that Russia's liberalisation of export sales has had limited tangible

results to date, the psychological impact has been significant and has encouraged independent producers to expand their objectives.

A major conclusion, therefore, is that Gazprom's historic failure in one area of the gas business, which led the Russian government to seek out alternative development strategies, has catalysed a broader debate about the future structure of the Russian gas industry as a whole. Short-term political and economic considerations may slow progress towards a radical outcome, with Gazprom's importance as a domestic and foreign policy tool providing some protection at a time of uncertainty for the Kremlin, but in the longer term it may well be the case that the liberalisation of LNG exports in December 2013 comes to be seen as the first step in a much broader reorganisation of the Russian gas sector. In effect, the Russian government has seen evidence that competition has been beneficial in the domestic market and has accelerated, to an extent, progress with LNG exports. A clear implication could therefore be that broader competition between Russian companies in other export markets could expand sales of Russian gas. In Europe, governments and customers are wary of Gazprom as a state-controlled company from a country with a high level of perceived political risk. In Asia, Gazprom has failed to take advantage of growing demand for gas by accelerating Russian gas sales to the region. It might therefore be logical to allow other domestic actors to try their luck in both markets, preferably not in direct competition to Gazprom but as a supplement to Gazprom's existing business.

However, this could have broad implications for the political economy of Russia as a whole, as well as the gas sector. Gazprom has been a bastion of state influence both domestically and internationally throughout the post-Soviet period. It has also generated significant export revenues and taxes, as well as being the supplier of last resort to gas consumers across Russia, especially in the vital winter months. Gazprom has always argued that its compensation for taking on this role has been unique access to export markets. If this is threatened, then other companies may have to take on the domestic support roles that have historically been a burden for Gazprom alone. The political, as well as commercial, implications of this could be profound, and could set a precedent that could mark a significant shift in policy, if implemented. If a monopolistic state company with close ties to the Kremlin were to have its preferential status removed and its key domestic responsibilities shared with competitors, it would be a radical change to the existing system of political economy in Russia. Current statements from the Russian government suggest that the debate is not close to a conclusion yet, but the mere fact that the discussion is underway, and that third parties such as Novatek and Rosneft have demonstrated that they have much to offer as regards LNG exports, suggests that the historically unthinkable is no longer impossible.

Notes

1. Gazprom is the largest gas company in the world, with 18.5 tcm of gas reserves and production of 419 bcm in 2015. Its output is larger than any one country other than the US, and its reserves would rank it in third place behind only Iran and Qatar (BP Statistical Review of World Energy, 2015).
2. Gazprom's export strategy for new markets is explained at <http://www.gazpromexport.ru/en/strategy/markets/>.
3. See the history and description of the Shtokman field on the Gazprom website, available at <http://www.gazprom.com/about/production/projects/deposits/shp/>

4. LNG projects involve the liquefaction of gas via a deep cooling process that takes the temperature down to –160 degrees centigrade, at which point the gas is in liquid form (Liquefied Natural Gas), and can be transported in smaller volumes via tanker. The liquefaction process is carried out in a series of ‘trains’, or industrial plants. The more trains at any one site, the greater the volume of LNG that can be produced.
5. Production sharing agreements (PSA) are contracts between an oil company and a government in which the company agrees to provide the capital to invest in an oil or gas field in return for a share of the oil or revenues from it. The terms normally specify how costs can be recovered and the subsequent split of profits, with the state generally agreeing that the terms will not be subject to change for the life of the asset.
6. For details of the Sakhalin 2 project see the Gazprom website, available at <http://www.gazprom.com/about/production/projects/lng/sakhalin2/>.
7. For Sakhalin 3 details see <http://www.gazprom.com/about/production/projects/deposits/sakhalin3/>.
8. For details on US sanctions against the Russian oil industry refer to US Department of the Treasury (2014, 12 September).
9. Novatek history: <http://www.novatek.ru/en/about/general/history/>.

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