Russia's Gas "Triopoly" – implications of a changing gas sector structure[1]

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Abstract
The growth strategies of the two largest so-called independent Russian gas producers – Novatek and Rosneft - as well as developments in international markets and changing domestic energy needs - have put pressure on the present Russian gas sector model dominated by Gazprom. The three companies are involved in a struggle over export liberalization as well as the conditions in the domestic market. An analysis of the resource base of the two Independents indicates that liquefied natural gas (LNG) is top priority for Novatek and that Rosneft's main gas focus is on eastern Russia and Asia, but there is still room for considerable tension with Gazprom. The government is faced with a dilemma, as it both wants to improve Russia's position in export markets and maintain stable domestic supplies, including to socially disadvantaged regions and institutions. Gazprom is insisting that if further access to export markets is granted to the Independents, then they must take greater responsibility for domestic market obligations, while on the other hand the key Independents seem intent on stopping or slowing down their expansion in the domestic market in order to prioritise export sales, and will certainly not take broader domestic supply responsibilities without better access to export markets. The balancing of policies will be difficult since it involves strong players on the Russian economic and political scene, all with ties to the Kremlin.

Keywords: Russia, gas, reform, Gazprom, Rosneft, Novatek

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Introduction

Natural gas is the dominant fuel in Russia's domestic energy consumption; it gives Russia an important role in foreign markets and is a key factor in relations with other states (e.g., Roseth 2017). It is also a significant source of income for the Russian government (Mitrova 2014). The natural gas industry is an important element in Russia's development of remote parts of the country's vast geography, in the Arctic, Siberia, and the Far East (Shadrina and Bradshaw 2013). The organization and efficiency of the industry therefore has consequences in several directions.

Throughout the post-Soviet era the question of reform of the sector, centered on Gazprom's dominance, has been a major issue of debate amongst industry commentators and political analysts (e.g., Ahrend and Tompson 2005). Other analyses have shown light on how changes in Russia's core gas markets in Europe have affected the monopoly exporter Gazprom and also how negative foreign policy developments influence the gas sector (e.g., Henderson and Pirani 2014). Increasing criticism of Gazprom's inefficiency and its inability to expand Russia's role in the global gas market, especially in the liquefied natural gas (LNG) field but also in the key growth market of Asia, have led to calls for reform of the company and the sector as a whole (Henderson and Moe 2016). In particular, the ability of two companies, Novatek and Rosneft, to compete successfully with Gazprom in the domestic market over the past five years has raised the question as to whether they should be given a broader role. How domestic market reforms may affect exports is an import question in the present article.

It is far from certain how the ongoing struggle over the gas sector will end. In addition to wide-reaching economic implications of any change in the structure, there are also strong political and personal interests involved in a sector controlling vital production and transportation assets as well as distributing huge revenues. Indeed, Gazprom has been termed the most important rent distributor in Russia (Hill and Gaddy 2015, 455).

This article investigates the ongoing changes in the organization of the sector, with a view to understanding important driving forces and inter-linkages between key issues. More specifically we want to pursue the following research questions:

- Where does overlap, and therefore competition, exist between the main corporate players, and where do the companies appear to be creating niches for themselves?
- Does change in the Russian gas sector remain a political goal and if so, how will it be implemented?
- What is the link between domestic market reform and de-monopolization of exports?

We approach these questions by exploring the evolving strategies of the main corporate players in the Russian energy sector and their material underpinnings; namely their respective resource bases and production assets, and also by examining evolving Russian government policies.

Current situation in the domestic market

An analysis of Russian natural gas production in 2016 reveals that very few companies actually produced a meaningful amount of gas. As shown in figure 1, out of total production of 640bcm (billion cubic meters), Gazprom produced 66% (420bcm), meaning that the market share of independent gas producers, was 34%, or 220bcm. In Russian legal terminology, all non-Gazprom gas producers are called Independents, irrespective of their links to Gazprom or the Russian government. Among these Independents, five sources accounted for 205bcm – Rosneft (67bcm), Novatek (66bcm), GazpromNeft (32.5bcm), Production sharing agreement (PSA) Operators (26bcm), and Lukoil (13.5bcm). No other producer managed output of more than 1bcm.

[insert Figure 1 near here]

The gas from PSA operators comes from offshore fields outside Sakhalin Island in the Far East and is either reinjected, sold locally, or used for LNG exports. Meanwhile Lukoil sells most of its gas to Gazprom at the wellhead, while Gazprom Neft is owned by Gazprom (Gazprom has a 98% equity share in that company, which was formerly known as Sibneft and has gas operations separate from Gazprom). This leaves only two active competitors with Gazprom, namely Novatek and Rosneft. In effect then, the Russian gas sector is a triopoly, with one dominant player and two expanding newcomers.

These developments did not come about as part of a comprehensive reform, but were rather the result of changing circumstances. One important development was better conditions for independent producers, including access to pipelines. Gazprom was not against granting these companies a bigger role domestically, because the low regulated domestic gas price has consistently made domestic sales rather unprofitable. Indeed, the obligation to supply the domestic market has always been something the company has had to accept as part of a broader "social contract." The upside has been Gazprom's export monopoly and privileges, including the right to keep a large share of its export income. Gazprom only ever paid a maximum 30% export tax (the level in 2017), compared with the much higher levels (as much as 65% at an oil price above $25 per barrel) historically seen in the oil industry. As a result, expansion of independent gas production and sales could relieve Gazprom of some of its domestic obligations, thus permitting it to concentrate on its important and more profitable export activities (Lunden et al. 2013). Any inroads Independents made in domestic supplies were closely coordinated with Gazprom, and as a result the term 'independent' was in many respects misleading.

Gazprom's interest in permitting other producers to increase their share of deliveries was further stimulated by rising gas demand following the economic upturn after 1999, at the same time as output from the company's 'legacy fields' was leveling out or falling. Independent suppliers could help Gazprom postpone costly investments in new fields (Henderson and Pirani 2014, 315), and the need for additional domestic suppliers increased further when gas from Central Asia, which had been important in the early 2000s, became much more expensive as countries such as Turkmenistan began to demand a price equivalent to the European export price on a netback basis (Henderson and Pirani 2014, 316).

However, the harmonious relationship between Gazprom and many of the Independents came to an end when the former saw a stagnation in export volumes after the global economic crisis in 2008, at the same time as price reforms had made the domestic market more attractive. Previously the Independents, who, unlike Gazprom, were not obliged to sell at the regulated price, only competed for premium sales to those customers who could not source sufficient cheap gas from Gazprom. After 2009, though, it became possible for them to compete with Gazprom on price and still make money, and they did exactly this with increasing alacrity. By

2012 Novatek's average sales price was at a 2% discount to Gazprom's average price, having been at a 16% premium in 2007, and in that year both Novatek and Rosneft began an aggressive marketing strategy to win over customers from Gazprom (Henderson 2013).

Additional pressure for pipeline access came from oil companies who since 2011 were obliged by regulations and law to curb flaring at the well head of associated gas from oil production and utilize more of the associated gas produced, up to a level of 95% in new licenses (Kiryushin et al. 2013, 78-79).

At the same time Gazprom had excess supplies available, due to the development of the super-giant Bovanenkovskoye field on the Yamal peninsula that had been intended for the European market but which became surplus to requirements because of the downturn in European demand after 2008. In the meantime, however, the Independents had signed new contracts with customers who could now buy gas domestically at a discount to Gazprom's regulated price, which by 2012 had been increased enough to allow for a quasi-competitive market to develop. By 2016 the share of all Independents combined was approaching 34% of total production and almost 50% of total domestic Russian demand (Neftegaz.ru 2016).

Rosneft has very swiftly built a contract portfolio that will mean sales of 100bcm by 2018/2019, while Novatek is likely to have domestic sales of around 75bcm based on the contracts it has signed. Given that the total size of the domestic market in 2015, excluding own use and losses, was 364bcm, this would imply Novatek and Rosneft *alone* accounting for almost 50% of the domestic market by the end of the decade (Rosneft 2016).

Thus a "controlled" liberalization, intended to support the operation of Gazprom, became a serious threat to the very same company. Nevertheless, a key question now is whether this development of the domestic gas market, with Novatek and Rosneft chipping away at Gazprom's market share, will continue.

Continued market realignment – or peaceful coexistence?

Novatek has total proved reserves of 1,775bcm, which would suggest that it could produce at the levels seen in 2016 for almost 27 years. However, 745bcm of these reserves are in fields dedicated to export oriented LNG projects, and when these are removed the company's "domestic" reserve life falls to 15.5 years. Furthermore, this figure falls to below 14 years using the contracted level of production (75bcm) which will be needed within two years. As a result, it would seem that Novatek is somewhat resource constrained, with further evidence for this being the fact that the company has recently bid to acquire a 25% share of the Yuzhno-Russkoye field in order to increase its domestic production (although it lost out to the Austrian oil and gas company OMV) (Nefte Compass 2017b). Therefore, despite its undoubted success in the domestic market over the past five years, Novatek's ambitions from 2017 would appear to be limited to fulfilling existing contractual commitments. Production from fields directed toward the domestic market may be set to peak, and its reserve base suggests that further expansion in Russia is unlikely.

From a Rosneft perspective, the company's aggressive acquisition of new sales contracts has left it in a position where it now needs to develop new gas fields rather rapidly to fulfil its commitments. There have been suggestions that in the short term the company has had to turn to third parties, including Gazprom, to source enough gas (Interfax 2015b), but over the medium term the company does have sufficient resources to meet its obligations. Four main gas resources (Rospan, Sibneftegaz, Kharampur, and KCHLA [Kynsko-Chaselskoye group of fields]) will be used to take production from the current 67bcma (billion cubic meters annually) to the target of 100bcma by 2020, and the company would certainly seem to have sufficient reserves to maintain output at this level. The company has total proved reserves of 1609bcm, which implies a reserve life of 24 years at current production and 16 years at the 100bcm target level, but this rises to almost 40 years if probable reserves are also included. As a result, achieving the target should certainly be possible, and further growth could even be achievable (Rosneft 2016).

Nevertheless, the main impression is that the limits of domestic competition with Gazprom are being reached, specifically because Rosneft (and indeed Novatek) also have more fundamental reasons for being discouraged about further growth in the domestic market. They believe that the current level of demand and prices offers limited incentive to invest, as demand has been declining for a number of years and the average price has also been relatively stagnant (Natural Gas World 2014). In addition, they argue that transport and storage tariffs are too high and are non-transparent, while access to that infrastructure remains sub-optimal for non-Gazprom players (Interfax 2017a). Furthermore, it would also appear that the three main companies have now found their regional market niches (with Gazprom still having the broadest reach), meaning that there is reduced incentive for expansion beyond existing signed contracts as it could lead to much more aggressive competition. Figure 2 shows how Novatek's and Rosneft's domestic sales are concentrated in some regions, reflected in high market shares, whereas many regions have only one supplier – Gazprom. In a sense, an equilibrium appears to have been found, and one might have expected that the triopoly would be reluctant to disturb what has become a reasonably cozy domestic arrangement. In addition, Novatek and Rosneft are also finding that the social and political obligations being placed upon them as their domestic gas market share grows are becoming an increasing burden, again reducing their incentive to expand further. One example of Gazprom's continuing obligation to gasify remote regions of the country, especially in the Far East, was epitomized by the rapid construction of the Sakhalin-Vladivostok gas pipeline before the 2014 APEC meeting in Vladivostok under the specific instruction of Vladimir Putin (Gazprom 2011).

[insert Figure 2 near here.]

Novatek's LNG strategy

Novatek has been gradually shifting its corporate strategy since 2009 when it acquired a 51% interest in OAO Yamal LNG, which held the license for exploration and development of the South-Tambeyskoye field on the Yamal peninsula (Novatek 2009). From that time, the company has clearly resolved to first build a strong domestic business and then to expand into the export market, which the 2013 decision on LNG export liberalization (see below) has allowed it to do. In that same year, the final investment decision for the Yamal LNG project was taken, the LNG factory was completed in the fall of 2017 on time and on budget (Interfax 2017b) and in December 2017 the first gas was produced, liquefied and pumped aboard a purpose built icebreaking LNG carrier (Kommersant 2017. This marks a significant strategic moment for the company, as it will essentially be the start of a process which could see a decline in domestic sales and a surge in overseas business. Indeed, it would not appear to be an exaggeration to say that Novatek sees itself becoming a global-scale LNG company and Russia's dominant player in the sector.

Figure 3 shows a forecast of the company's production to 2030. Fields focused on the domestic market will almost certainly have peaked by the end of this decade and will then be in decline. All the growth will come from LNG-related projects (shown in shades of orange), with Yamal LNG already close to full capacity by 2020 and potential new projects scheduled for the following decade. Of course, as noted earlier, Novatek could change this outlook by purchasing domestic assets with gas for sale in Russia, but this would only be likely to halt the decline in domestic sales.

[insert Figure 3 near here]

The most obvious new source of growth is the company's proposed Arctic LNG 2 project, based on the Gydan peninsula opposite Yamal LNG, where fields with capacity to support a 12-18mtpa project are already owned by the company (Interfax 2017c). However, there is also the potential for Novatek to dramatically expand the Yamal LNG project, which may become its preferred option if it can acquire new assets located nearby. Company CEO Leonid Mikhelson stated that the current gas source, the South Tambey field, has sufficient reserves after a recent upgrade to supply a fourth train at the project, but if Novatek can acquire four other fields currently owned by Gazprom situated around South Tambey, then the potential is for a possible further eight trains to be built (Interfax 2016b). The fields in question were part of a joint venture agreement that Novatek and Gazprom reached in 2012, when a joint LNG development was planned with Gazprom as the 75% shareholder. However, Novatek subsequently decided to move ahead alone, and interestingly received significant state support for its independent venture, including preferential tax rates and direct funding to build the port facilities at Sabetta. In early 2017 the Russian government encouraged Gazprom to discuss the sale of the four fields in question to Novatek. But by May 2017, Gazprom announced that it would develop the fields on its own, in cooperation with RusGazDobycha, a special purpose company (Gazprom 2017a). Given that the decision was announced after a meeting between Gazprom CEO Miller and President Putin (Barsukov 2017), it sends a strong signal of support to Gazprom. In the meantime, Novatek has emphasized that Arctic LNG 2 is now its priority after the initial development of Yamal LNG, and it expects to be able to make a Final Investment Decision in 2019.

The Arctic LNG 2 project offers the prospect of the development of an indigenous LNG industry, as Novatek is proposing to build in Murmansk the gravity-based structures, i.e. structures kept in place by gravity, typically made of concrete reinforced with steel, that would be the foundation of the LNG plant, and has also purchased a local engineering company to help build up an LNG contracting industry (Interfax 2017d). As well as adding a domestic dimension to this new project, this will also allow the company to benefit from the devaluation of the Russian ruble to reduce overall costs and make Novatek's LNG more competitive on international markets. Furthermore, the company has announced an increase in reserves at the Utrenneye field, where the gas will be sourced, and seems to be committed to the development of a second LNG export scheme there by the mid-2020s.

In effect, then, Novatek would ultimately seem to want to carry out new projects on both sides of the Ob' Bay, with the question being one of timing rather than choice. Indeed, Mikhelson has talked about the combined Yamal/Arctic LNG region producing as much LNG as Qatar, the world's largest exporter, over time (Sotnikova and Podobedova 2017). Clearly this is unlikely to occur in the short to medium term, but even the statement of the goal demonstrates

Novatek's ambition and underlines that its overall strategy is export- rather than domestic-focused. Thus, its main challenge to Gazprom will be via LNG, as the Arctic LNG 2 project already has export approval and Novatek has sufficient resources on the Gydan peninsula to focus on that region first. If Gazprom turns out to be unable to develop the fields around South Tambey, the issue of transfer of ownership to Novatek will probably again arise.

Rosneft – focus on Asia

In something of a contrast with Novatek, it is interesting that although Rosneft has some clear LNG plans, they appear to be more options or bargaining positions than definite objectives. Rosneft's main project is Far East LNG, based around the Sakhalin 1 fields (Reuters 2016b). With 8bcma already being reinjected and with further gas reserves to be developed, the company's plans for a 5-10mtpa LNG project appear feasible, but it remains unclear whether this would be the best use of the gas, and indeed whether Rosneft and its main partner ExxonMobil would prefer to sell the gas to the Gazprom/Shell partnership at Sakhalin 2 to provide the feed gas for a third LNG train (production unit for conversion of natural gas into liquefied natural gas) that has been planned since 2014. The clear problem is that neither side can agree on an appropriate transfer price, and both sides have felt the need to develop alternative options, if only as bargaining chips. Rosneft has its plan to develop Far East LNG, although this is likely to cost as much as $15 billion and is unlikely to be very profitable as a stand-alone project. Gazprom has the possibility to source gas from its Sakhalin 3 license, where more than 700bcm of gas reserves are located, but the fields there will be complex to develop, and international help has been limited by the imposition of US sanctions (due to the fields oil reserves). Once again, it would seem that government intervention may be required to resolve the issue between two gas sector rivals, this time two state-dominated companies (Mazneva and Reznik 2016).

The Energy Ministry entered the fray to encourage a resolution in 2017, but it appears that Rosneft is trying to play a much broader game in the gas sector. As has been noted above, it has already mounted a significant challenge to Gazprom in the domestic market, where its share is set to grow consistently to 2020. However, Rosneft also has a clear interest in pipeline exports, as well as LNG, and may be prepared to trade one for the other as it seeks to gain the extra margins available for overseas sales that have been further enhanced by the devaluation of the ruble since 2014. One interesting feature of Rosneft's reserve base is how much of its longer-term potential is located in the East of Russia, where it already has a thriving oil export business focussed on China and the Pacific. Of the company's 4.7tcm of ABC1 reserves that can be identified in specific fields, 1.2tcm is located in East Siberia, with a further 600bcm in the Sakhalin 1 licenses, meaning that almost 40% of its gas reserves are focused on the Asian market (Rosneft 2016). In addition, the outlook for further exploration is good, with Rosneft's joint venture with Sinopec at the Veninsky prospect being one example of an additional license offshore Sakhalin with the prospect for gas discoveries (Reuters 2007). With demand in eastern Russia being very small due to the low population levels, it is clear that the export market is the only realistic monetization option.

As with LNG in the 2000s, Gazprom has initially been given the lead role in developing Russia's gas pivot to Asia, and is constructing the Power of Siberia pipeline to take gas from the Yakutsk and Irkutsk regions to China in order to fulfil a 38bcma contract with CNPC (China National Petroleum Corporation) that is due to start in December 2019 (Gazprom 2017b). However, in a similar fashion to the development of Russian LNG, progress has been much slower than hoped and the future remains uncertain. Negotiations over the first Power of Siberia contract took more than a decade to complete, hopes for a second pipeline from West Siberia to North-West China have been put on hold, an extension of Power of Siberia to the Pacific coast has been postponed, the overall capacity of the pipe has been reduced from 61 to 38bcma, and progress toward first gas sales has been slower than expected, with likely first deliveries now set to occur after 2020 (Henderson and Mitrova 2016, 54-56)

In addition, the lower capacity of the Power of Siberia pipeline has raised questions about how it should be filled. Gazprom has two fields, Kovykta and Chayanda, with a combined potential production capacity of 60bcma (enough to fulfil the original Power of Siberia plan). However, full development of both fields is not needed to meet the current contract, and a logical alternative would be to develop one field (Chayanda) (Chayandinskoye field n.d.) with a capacity of 25bcma and then to use extra gas from third parties (such as Rosneft, but also including Surgutneftegaz, GazpromNeft, and Irkutsk Oil). Such a development could potentially loosen Gazprom's hold over pipeline export sales, although it would still control the CNPC contract and so would most likely purchase the gas at export netback prices from the Russian counterparties rather than allow them to sell direct to China. Nevertheless, the opening up of the Asian market has provided Gazprom's competitors with a chance to challenge its pipeline export monopoly without putting its core European business, which the Kremlin is loath to tamper with, at risk.

Rosneft is at the forefront of this challenge to Gazprom's ability to open a new market. The company has demonstrated that it can successfully sell oil to China, raise significant debt from China, and integrate into the Chinese market. As such, its track record of pivoting Russia's energy business toward Asia compares more than favorably with Gazprom's efforts. Indeed, Rosneft's strategy of partnering with Chinese companies is at the heart of its eastern challenge to Gazprom. Beijing Gas has been persuaded to purchase a 20% stake in a company named Verkhnechonskneftegaz (VCNG), which owns 115bcm of gas reserves (Interfax 2016c). Beijing Gas and Rosneft would like to export this gas to China via Power of Siberia, if they could get capacity in the pipeline and an export license. Not surprisingly Gazprom has not responded favorably to date, as any concession would be another chink in its pipeline export monopoly, but the challenge from Rosneft is clear.

Arguably, the Russian government and Gazprom could concede to Rosneft's demands in Asia without breaking the overall monopoly on exports via pipeline, as it applies to the United Gas Supply System, of which Power of Siberia is not yet a part (it is an individual pipe not connected to the main trunk pipeline system, known as the UGSS) (Peschinskiy 2017). Of course, a concession on Power of Siberia would have implications for the wider argument about the monopoly, in particular because Rosneft has already catalyzed the start of a debate, as discussed above. In addition, Rosneft has also launched a direct challenge to the main sales corridor to the West, as in January 2017 it announced that it had an agreement in principle to sell BP 7-20bcma of gas in Europe, should the monopoly be lifted (Reuters 2017). Although both sides have stated that no firm contract has yet been signed, the announcement of a possible deal (like the Beijing Gas arrangement in the East) is a clear hint to both the Kremlin and Gazprom that Rosneft is ready for change.

To conclude on Rosneft, the company is clearly searching for opportunities to challenge Gazprom's position in the domestic and export gas markets. Its domestic position will certainly grow, based on existing contracts, and it is creating options in the export market. Far East LNG, access to Power of Siberia for sales to Beijing Gas, or an export arrangement with BP in Europe are all possibilities that can be used as bargaining chips. Other potential sales ideas include a second LNG project (Pechora LNG), although this does not yet have adequate gas resources or an export license, and the possibility of selling Sakhalin gas to China via the Sakhalin-Vladivostok pipeline in the Far East (rekindling an idea that was first hatched in 2006).

However, unlike Novatek's very firm plans for Yamal LNG and the real potential of Yamal expansion or Arctic LNG 2 development, Rosneft's plan appears less precise. It anticipates growth in the gas sector, but it is unclear as yet exactly where it will occur. The challenge to Gazprom appears real, though, and may intensify once the 2018 presidential electoral cycle has been completed.

Clearly the prospects for further expansion for both Novatek and Rosneft are dependent on political decisions. For this reason, they are keen for a discussion about reform of the entire gas sector to take place and are encouraging policy-makers to debate the future role of Gazprom and third parties in all potential markets for Russian gas (Interfax 2016a).

Vested interests in the Russian gas sector

Although economic and also social considerations are crucial in determining the future of the Russian gas sector, it is important to also consider the influence that certain individuals can exert within the Russian political environment, as they seek the greatest benefit for their organizations. In the context of this article, the key actors are the CEOs of the three major companies, Alexei Miller at Gazprom, Igor Sechin at Rosneft, and Leonid Mikhelson at Novatek.

Miller was appointed Chairman of Gazprom's Management Committee in 2001, having previously worked in various roles in the St. Petersburg regional administration, as well as becoming Deputy Energy Minister in Vladimir Putin's first government in 2000 (Gazprom n.d.). The link with Putin, via historic St. Petersburg ties, is strong, and Miller has consistently been regarded as a safe and loyal pair of hands to manage Gazprom (The Economist 2013). Indeed, Putin has always been viewed as the real strategic leader of Gazprom (Johnson 2015), but as a result Miller retains an important level of influence in the Kremlin as the implementer of key plans, and the company is unlikely to be completely undermined as the gas sector progresses toward liberalization.

In contrast with Miller, Igor Sechin, the CEO of Russia's state-dominated oil company Rosneft, appears to be a much more dominant figure. He is often painted as being in direct conflict with Gazprom and its chairman (Zygar 2016), while the companies themselves have a growing number of competing interests in the gas sector, as depicted above. Increasingly it would appear that Sechin has the upper hand, built on his historic role as Deputy Prime Minister with responsibility for energy, his leadership of Russia's largest oil company, and his influential role as Secretary of the Presidential Energy Commission (Shadrina and Bradshaw 2013, 473), through which he is able to bring key energy issues to the notice of President Putin. His considerable power and influence has been evidenced in the growing consolidation of the Russian oil sector under the Rosneft banner, including the acquisitions of TNK-BP, Bashneft, and the main assets of Yukos, and in the gas sector he continues to push for change in the form of greater competition in the domestic and export markets, as discussed above. However, it is interesting to note that, despite his reputation, his influence is not without boundaries, as seen in his attempt to have gas sector reform discussed at the Presidential Commission in 2015. Initially it seemed that significant reform, and even the break-up of

Gazprom, might be on the agenda (RBK 2015), but in the end President Putin decided that other political issues (chiefly Ukraine) took priority and the matter was not even debated (Interfax 2015a). Nevertheless, as discussed in this article the issue of gas sector reform has consistently been brought up by Rosneft since then, and the influence of Sechin can be seen in the numerous interventions he has made across the gas sector, from the domestic market to LNG and exports to Asia, and even with regard to Gazprom's mainstay of exports to Europe.

As a private company Novatek clearly has less direct corporate influence over the key decision-makers in Russia, but it has undoubtedly prospered thanks to the links between its key shareholders and the Kremlin. In particular, the role of Gennady Timchenko appears to have been important, as he owns 23.5% of Novatek (Terent'eva and Starinskaya 2014) and is considered very close to Putin (Hill and Gaddy 2015, 456). Novatek's CEO Leonid Mikhelson has also built up a considerable level of influence in Russian political circles and has managed to steer a course between cooperating with Gazprom (which remains a 9.9% shareholder in Novatek) and becoming a key competitor. Mikhelson also wields significant influence through his ownership of gas processing company Sibur, where President Putin's son-in-law is allegedly also a partner (Forbes n.d.), and as Russia's wealthiest man he also commands a significant level of respect amongst the political elite in Russia (Reuters 2016a).

This triangle of powerful figures in the Russian gas sector has allowed Putin and the Kremlin administration to conduct the balancing game that has been a key tactic throughout the Putin era as the president has established a "Power Vertical" within which he can control competing individuals and clans (Zygar 2016). No one player tends to remain too powerful or successful for too long, and the tension between Gazprom, Rosneft, and Novatek can be seen in this light across various issues and markets from LNG to pipeline exports to domestic market share and gas pricing. At the heart of the debate is Gazprom's role as a core element in the Kremlin's domestic and foreign policies, with concerns over its commercial efficiency and ability to compete across multiple geographies and businesses providing third parties with their opportunities. Layered on top of this are the personal interests of associates close to the Kremlin, who have clear vested interests to pursue.

However, although we believe that keeping a balance between the key players in the gas sector remains an over-arching concern for President Putin, there is still room for adjustments and dynamics within this framework.

Gas reform - a consistent theme

The question of reform of the Russian gas industry has been on and off the agenda since the early 1990s. Initially the main question concerned whether the gas industry should be broken up into separate and competing production companies with transport being controlled by the state, in line with the developments in the oil sector. Gazprom, which had managed to transfer the structure of the old Soviet Ministry of the Gas Industry almost intact into a joint stock company in the "new" Russia, where a market economy was being developed, argued strongly against tampering with the structure of the gas industry, pointing to the high level of technical integration of production and transmission as a significant differentiating point compared to the oil industry. Splitting up the structure could have dangerous consequences, it was asserted, and could undermine the security of supply that was of vital political and social importance (especially in the harsh Russian winter). The same arguments helped defeat a fairly elaborate proposal in 1998 to separate out transmission into a special company (Kryukov and Moe 2013, 377), with Gazprom's claims also being helped by the fact that the country was in the midst of an economic crisis. Only a large and state-controlled company such as Gazprom could be expected to continue deliveries despite widespread non-payment, and as a result there was little appetite for experimenting with the organization of the sector. All the same there was a widespread opinion in the liberal parts of the ruling elite that the monopolistic structure of the gas industry was inefficient, and proposals for reform kept surfacing. The support for large scale deregulation was limited, however, very much because the physical integration of the industry did not easily lend itself to such steps. Indeed, the core arguments used by Gazprom to fend off any reform attempts had considerable merit, and the arguments against reform were probably also helped by the fact that such proposals could be labeled as being too compliant with foreign (mainly EU) wishes.

LNG as a driver for reform

Development of the LNG business meanwhile constituted a concrete challenge to the organization of the gas sector. Expanding Russia's LNG business is a political priority for the Kremlin as well as a commercial goal for the Russian gas sector. If the Russian government truly wants the country to be regarded as a gas superpower, as its reserve base and productive capacity suggests that it should, then Russia will need to become a significant player in LNG as well as pipeline exports, not just to access new markets beyond its traditional European and CIS base, but also because LNG sales are transforming the way that gas is marketed and priced in an increasingly globalised market (Corbeau and Ledesma 2016, 554-557).

Russia has had ambitions to become an LNG producer since the 1970s (Stern 2005), but it has become a real focus only in the 2000s as Gazprom in particular attempted to establish itself as a global gas player. However, despite proposing a number of different projects, including Shtokman in the Barents Sea, Vladivostok LNG on the Pacific coast, and Baltic LNG near St. Petersburg, the company has failed to bring any major LNG development to fruition. Russia's only LNG production comes from the Sakhalin 2 project in the Far East, where Gazprom is a controlling partner but where Shell was the lead operator as the scheme was constructed (Henderson and Moe 2016).

In a meeting of the president's Fuel and Energy commission in early 2013 President Putin talked about the need to "think about a step-wise liberalization of LNG exports." However, his interest was tempered by a concern that Russian LNG might end up in markets competing with Russian pipeline gas (Zasedanie 2013). The initial concept for the Yamal LNG project in the early 2010s involved cooperation between Gazprom and Novatek, where Gazprom would organize the export of the LNG in line with its monopoly position (Gazprom 2010). However, the alliance was broken by banks who demanded a direct link between the production and exports as a necessary condition for providing loans, meaning that Novatek had to control the entire production and sales chain (Henderson and Pirani 2014, 324). In turn, this requirement served as a strong argument in favor of exempting the project from the export monopoly, and a law to this effect was approved in December 2013 (Henderson and Moe 2016, 292), despite strong resistance from Gazprom, with Rosneft joining Novatek in lobbying for liberalization of LNG exports. The new law allows third parties to sell into overseas markets from specific fields, which happen to coincide with the assets owned by Rosneft and Novatek. (Zakon 2013).

State companies with offshore gas reserves (Rosneft at its Sakhalin 1 field) and companies with licenses where LNG development is specifically included (two Novatek projects, Yamal LNG and Arctic LNG 2) can now compete with Gazprom in selling LNG, providing the first crack in the latter's export monopoly. Thus, external demands forced a decision with potentially large implications for the sector.

New rounds of reform discussions

Gazprom's position as the dominant Russian gas company has come under commercial threat, and political debate on the issue has become inevitable. This has taken various forms, which will be discussed below, but primarily the vehicles for discussion have been Russia's Energy Strategy, its plan for gas sector development, and the Presidential Energy Commission, chaired by President Putin but with Rosneft CEO Igor Sechin as the Executive Secretary. All three have witnessed either written or verbal discussion about gas sector reform over the last few years, and it is important to understand how each could act as a driver for action in the years ahead.

The Russian Energy Strategy is a government white paper published at five-year intervals. Although its significance for concrete developments and policies in the energy sector can be questioned, it undoubtedly reflects the official understanding of issues and questions of concern at any given time. In the most recent official edition, "The Russian Energy strategy until 2030" approved in November 2009, reforms or organizational changes in the gas industry are mentioned briefly among the principal goals, but not elaborated. "Gas market de-monopolization, creation of a competitive environment and establishment of non-discriminatory access to gas industry infrastructure for all business entities" all feature as issues, but without any practical initiatives for implementation (Energy strategy 2009). Furthermore, it is interesting to note that at that time liberalization of exports was not identified as a major concern.

Drafts of a new energy strategy – with an outlook stretching to 2035 – started appearing in 2014, and we will return to them below. It is clear, though, that gas sector reform is not just a theme involving government structures and disinterested experts looking for optimal solutions for the country. Rather it is a process increasingly dominated by players with a strong vested interest in the outcome. Primarily, as noted above, this means Novatek and Rosneft, who are the two most significant non-Gazprom actors in the Russian gas sector and who both have significant political connections.

Whereas Novatek's development to become the second largest producer of natural gas in Russia initially took place within a harmonious relationship with Gazprom, as mentioned earlier, a shift to a more competitive stance was catalyzed by the development of the export-oriented Yamal LNG project. At the same time, Novatek was also becoming increasingly competitive in the domestic market, undercutting Gazprom's prices with key industrial customers and expanding its market share. As a result, Novatek was no longer supporting Gazprom's efforts to free up gas for exports, rather to the contrary, it was simultaneously undermining the state company's efforts in the domestic market as well as its drive to preserve a complete export monopoly.

Meanwhile Rosneft had also developed a significant gas strategy based on its large reserve base and had become an important player in the domestic market with the signing of long-term supply contracts with several large "prime" industrial customers. As with the Novatek example, this put it increasingly in competition with Gazprom, in contrast with the previous "friendly" division of the domestic market. Rosneft's resource base – as well as market clout – increased further with the acquisition of Itera and TNK-BP, both in 2013. At this point

Rosneft also started to talk openly about access to foreign markets. Igor Sechin managed to put liberalization of gas exports on the agenda of the Commission for Strategic Development of the Fuel and Energy Sector and Environmental Security (of which he was secretary) in early 2013, where he argued in favor of liberalizing all LNG exports (Zasedanie 2013). Rosneft subsequently joined Novatek's campaign for LNG export rights and succeeded in having its Sakhalin 1 project included in the liberalization, although the revisions in the law on gas exports fell short of Rosneft's wish to have all LNG projects exempted (RBK 2013; Zakon 2013).

Since 2013 Novatek has appeared to be content with its role as a leading Russian LNG company without a need to challenge Gazprom further. The two companies even entered into an arrangement where Gazprom's LNG subsidiary contracted 2.9 million tons annually from Yamal LNG for a period of twenty years (Gazprom 2015). Rosneft, in contrast, has stepped up its criticism of Gazprom, and in the summer of 2014 argued that it should have access to the planned Power of Siberia pipeline to China (Ria-Novosti 2014). One year later, in the summer of 2015, it called for liberalization of all exports, including pipeline gas, and also proposed that Gazprom should be broken up (Podobedova 2015). Rosneft presented its ideas as an input to a process in the Ministry of Energy for development of a "Concept for Development of the Domestic Gas Market," which despite its name also came to include export issues. According to Rosneft, independent producers should immediately receive export quotas, to be sold by Gazprom as an agent. From 2019 producers should have direct access to export income, at the same time as domestic gas prices would be liberalized. In the period 2023-2026 Gazprom should then be split into a separate production company and a transportation company, including gas storage (Podobedova 2015).

Rosneft is also concerned with the current pricing model in Russia, because Gazprom is asking for permission to sell at prices below the regulated price (which it is currently forced to charge and which its competitors can undercut) where it feels necessary (Natural Gas World 2016). Rosneft asserts that the current price is already marginal for producers and offers very mixed price signals across Russia, and that allowing Gazprom to sell at a "liberalized" price would provide it with significant dumping opportunities that could undermine smaller third parties. It argues that because it is the monopoly pipeline owner and has significant influence over the direction and cost of gas transport, Gazprom can effectively compensate for a lower price by making more money from its mid-stream business, which could put independent producers in a very disadvantaged position. As a result, Rosneft is effectively asking for a complete overhaul of the methodology for managing the transport system, perhaps even subtly calling for the break-up of Gazprom, while at the same time arguing that Gazprom should not be allowed to compete on price with other producers in the domestic market.

The only caveat to this argument, though, would be if independent producers were to be given access to pipeline export sales, at which point free competition on all markets would be justified. As a result, Rosneft's arguments about the domestic situation carry an implicit *quid pro quo* for Gazprom and the Russian government. If Gazprom is allowed to compete on the domestic market, then Rosneft, Novatek, and others should be allowed access to export to compensate.

Novatek has adopted a very similar line on these domestic issues, while being much less assertive on pipeline exports, but company CEO Mikhelson has argued that for Russia as a country it would be better to also have an alternative exporter of pipeline gas (Barsukov 2016). He has, however made clear that "we do not expect any progress on the issue [of pipeline gas export liberalization]. For us non-discriminatory economic conditions in the domestic market for all participants and a fair transportation tariff are much more important." (Interfax 2017e). He further explained that Novatek believes that the current transport tariff rate is inflated and that the company is waiting for a new methodology to be introduced. In addition, he reiterated Rosneft's complaints about storage, arguing that Gazprom can just move prices as it sees fit and so therefore some stricter regulation of underground storage services needs to be introduced.

On the gas pricing issue, Novatek has again supported Rosneft's position, with Mikhelson criticizing "experiments" carried out in some regions instigated by the Federal anti-monopoly service where "Gazprom will be allowed to trade at unregulated prices, even though Gazprom will remain a monopoly and no mechanism for setting transport tariffs that is comprehensible and transparent to all is approved" (Interfax 2017f). Again, he is implying that Gazprom can use its monopoly position in one area (transport) to give it competitive advantage in another (pricing to customers) and that this situation must be changed. His solution is that the Energy Ministry, rather than the Federal Anti-Monopoly Service as at present, should be given control over Gazprom tariffs, but this seems to be a somewhat arbitrary outcome as it merely implies that one government body is likely to be less favorable to Gazprom than another. The ultimate implication of Mikhelson's assertion is that Gazprom's control over upstream and mid-stream operations should be broken in order to create fair competition in the domestic market.

As such, although neither company has explicitly stated that Gazprom should be broken up, it would appear that this is the implicit conclusion which they are encouraging others, and in particular the Kremlin, to reach. Therefore, it would seem to be arguable that even in the domestic market, where we have previously suggested that both companies have limited ambitions given their current reserve base, Gazprom is being aggressively challenged by its main competitors.

Gazprom has responded strongly to the challenge from the Independents. It has argued that de-monopolization of exports would drive prices in the export markets down, somewhat offsetting the recent benefits of ruble devaluation that have enhanced the competitive position of Russian gas in foreign markets and potentially reducing export tax revenues for the government. It would also, Gazprom argues, undermine the company's ability to fulfill the social function that it is forced to accept as the domestic supplier of last resort. Liberalization of the domestic market would also be unfair, it claimed, unless independent producers were given responsibility for ensuring stable supplies, as Gazprom is forced to do (Barsukov 2015).

All the critical remarks as well as the rebuttals have undoubtedly been fed into the development of the "Concept for Development of the Domestic Gas Market." The finalization of the concept has continued to be delayed, however, with concerns stretching beyond the issue of the export monopoly, as apparently the Federal anti-monopoly service is also strongly opposed to the introduction of the model of "guaranteed supplier," which Gazprom wishes to be applied to the Independents as well as to itself (Kezik 2016). As a result, the rather complex layers of government policy concerning the gas sector have become bogged down in a debate over the detail. It had been intended that the "Concept for Development of the Domestic Gas Market" should be an attachment to a new version of the "General Scheme for Development of the Gas Sector," which in turn would be connected to the new version of the energy strategy (Fadeeva 2015). However, due to the delays in the first of these, the General Scheme was not finished in time, and by early 2017 it was declared that it would only happen after the energy strategy was confirmed (Molodtsov 2017). As a result, the new energy strategy has become the most immediate likely indicator of potential gas sector reform.

Another draft of the seriously delayed energy strategy until 2035 became available in February 2017 (Energy strategy 2017). Salient points on gas sector organization and policies include:

- The present management of the United Gas Supply System will continue, but financial transparency in Gazprom's management of the system will be enhanced. (Ostensibly this should mean that Gazprom not only keeps control of the pipeline system, but also remains the *de facto* regulator of who receives gas.)
- A single corridor for pipeline gas exports will be maintained. If necessary, because of increasing exports the question of access to the single corridor for independent producers will be considered.
- Continued liberalization of LNG exports. (No elaboration given).
- Conditions for competition in the domestic market not mentioned.

The impression is that the final draft of the energy strategy takes a much softer approach to changes in the domestic market as well as to export liberalization than was evident in an earlier draft of the energy strategy circulated in 2015 (Energy strategy 2015), as well as in a version presented to the government in October 2016 (Energy strategy 2016) where establishment of equal economic conditions for fair competition, first by improving the system of price regulation and then over the longer term through the liberalization of domestic prices, was put forward as a goal. The lack of detail and timetable in the 2017 draft is also striking, probably signifying that discussions are being postponed. But reading the document as it stands gives the impression that in the course of four years the reform agenda for the gas sector has come full circle. After a period of change, with reformers and independent gas producers on the offensive, the official discourse in early 2017 was just as tentative as it was back in early 2013.

Nevertheless, in the summer of 2017, a little known, but high level "intergovernmental commission on security in the economic and social spheres" reportedly argued for liberalization of gas exports in a confidential memo after a meeting where representatives of Rosneft and Novatek were present, but not Gazprom (Petlevoy, Toporkov, and Papchenkova 2017). Apparently the commission's explicit concern was Russia's position in international LNG markets, but their intervention is also an indication of Novatek's and Rosneft's strong political connections. However, one month later the minister of energy made it clear that a decision to maintain the pipeline export monopoly had been taken (Toporkov 2017).

Hard policy choices for the Russian government

Strong dynamic elements at play in the Russian gas sector are comprised of the expansion and strategies of the Independents and increasing competition with Gazprom, but also developments in international markets and changing domestic energy needs. Within this volatile environment it is difficult to imagine that the rules determining the roles of the key players in the Russian gas sector can remain static if over-arching political goals are to be satisfied.

What has become very clear during the ongoing rounds of discussions about the gas sector is the intimate link between export liberalization and the organization of the domestic market. This is acknowledged – and argued – by both proponents of and opponents to reforms. Gazprom is insisting that if further access to export markets is granted to the Independents then they must take greater responsibility for domestic market obligations, while on the other hand, the key Independents seem intent on stopping or slowing down their expansion in the domestic market in order to prioritize export sales and will certainly not take broader domestic supply responsibilities without better access to export markets.

While resisting attempts by third parties to create competition in the export market, Gazprom is also becoming increasingly aggressive in the domestic market. It wants to be given the right to compete on price with its independent rivals, and succeeded in convincing the Federal anti-monopoly service to run a trial in some regions in order to test the impact of this move. Given that the company has a large surplus of low-cost gas in West Siberia, though, the outcome is almost inevitable – namely, that Gazprom will be able to undercut its competitors and win back market share.

The Russian government therefore has some very important policy choices to make as it seeks to balance its political and economic needs at home and overseas. On the one hand, the temptation for the government must be to support Gazprom as an institution on which it has relied to supply the Russian population with vital fuel (especially in winter) over the past 25 years, to exert control over regions of Russia where gas is a key industrial and commercial fuel, to provide vital taxes and revenues, and to offer a useful instrument of foreign policy. However, on the other hand the domestic market, and to an extent the LNG market, have provided clear evidence that competition from third parties can benefit the state and the Russian population. Domestic gas prices have arguably remained much lower than would have been the case if Novatek and Rosneft had not demonstrated that they could compete and make money below Gazprom's regulated price. Further, Russia's role in the global LNG market will undoubtedly be strengthened by the presence of Novatek's Yamal LNG project, which has moved much faster and more efficiently than any of Gazprom's attempts to enter the market. And the pressure applied by Rosneft on Sakhalin Island and in the Far East is forcing Gazprom to defend its position and demonstrate that it can lead Russia's gas pivot to Asia.

Put in stark terms, it would appear that the government must choose between two alternatives, which favor either Gazprom or the Independents. Fully favoring Gazprom would mean supporting the request for domestic price liberalization, which would give the company the possibility to compete with the Independents and take back customers. At the same time, Gazprom would retain its pipeline export monopoly and export privileges. The opposite alternative, adopting a policy satisfying the wishes of the Independents, would entail further liberalization of exports, giving them the right to sell gas to foreign customers directly through various channels, but not requiring them to take more social responsibility domestically.

However, as shown in this article, in reality the policy alternatives are not so clear-cut. It is totally inconceivable that the government would choose to alienate either Gazprom or the Independents, since that would have a negative impact on two key energy political concerns – stable domestic energy supplies and a strong Russian position in foreign gas markets. It would also rock the internal political balance. The primary wishes of Gazprom and the Independents are irreconcilable, but a policy must give all parties something. Therefore, the key question is whether a more balanced approach can be found.

The key questions in the next few years (most likely to be addressed only after the presidential election in March 2018) concern whether Gazprom will be given any more scope to prove its worth or whether the Russian government will make gradual changes to the Russian gas sector that allow the other two members of the triopoly to expand their positions further. Indications of the likely direction of policy may become evident in two key issues. First, will Rosneft and Gazprom finally resolve their issues on Sakhalin – will Rosneft be forced to give up Sakhalin 1 gas for use at the Sakhalin 2 project, or will it be able to cut a beneficial deal using the threat of an alternative LNG project to secure export rights for its gas either as LNG or via pipeline to China? Second, will Rosneft be given access to the Power of Siberia pipeline, especially for export sales? The company has been pushing hard to be allowed to sell its associated gas produced in East Siberia through the new pipeline, when it is completed, and a decision one way or the other can be expected by the end of this decade.

Furthermore, argument for liberalization of prices and exports is given greater weight by the fact that the gap between domestic gas price and the export price has narrowed significantly over the past few years, reaching parity at one point in 2016 (see fig. 4). Although the gap re-opened slightly in 2017, it is clear that the benefit of selling exported gas is now much smaller than it was, suggesting that the cost of breaking Gazprom's pipeline export monopoly would now be much smaller. A number of organizational and legal issues would need to be resolved, not least concerning Gazprom's current contracts and its domestic market obligations as the supplier of last resort, but economically at least there would seem to be little reason to object to liberalization over the medium term. Indeed, developments at SPIMEX, the St. Petersburg commodity exchange, suggest that steps are slowly being taken in this direction (Nefte Compass 2017a). The Federal Anti-Monopoly Service is keen to create a traded and liquid market for domestic gas sales (Interfax 2016d), and it would then only be a relatively small step to combine this with some form of trading for gas to flow through the Nord Stream export pipeline to North West Europe.

[insert Figure 4 near here]

Developments in the domestic market could also provide an important indication of the various roles of the major players in Russia's overall gas strategy. The key issues are whether Gazprom will be allowed to compete on price with its independent rivals and also whether the Independents will be asked to take on more responsibility for supplying socially and politically important customers (for example, schools and hospitals, which have a definitive need but a lack of ability to pay high prices), as well as investing in continued gasification of the country.

Policy developments focusing on liberalization of exports would undoubtedly be seen as a victory for the Independents. At a political level, the argument in favor would be to maximize Russia's export revenues. However, liberalization covers a big range of policy elements and alternatives ranging from permission to export from individual LNG projects to equal access to export pipelines. Granting Rosneft export access to China would be a big step, nevertheless it would not automatically affect Gazprom's position in its prime export market – Europe. But the more extensive the liberalization of exports becomes, the stronger will be Gazprom's demand, or case, for adjustments in the domestic market. Such adjustment could range from more explicit requirements for Independents to invest in gasification or taking on supply responsibility for disadvantaged regions or non-paying customers, to liberalization of the domestic market, allowing Gazprom to compete on price.

A policy primarily aimed at changes in the domestic market could be interpreted as benefiting Gazprom, if it entails price liberalization. An important argument would be lower prices for consumers, and such a reform could therefore be popular. However, a major concern, as outlined by the Independents, would be that Gazprom will be able to undercut all its competitors, using its huge resource base and infrastructure, reasserting its dominant position before increasing prices again. In this scenario the demand, and perhaps need, for compensation to Independents in the form of increased export possibilities would be strong.

The upshot is that domestic market reforms and export policy are clearly intertwined and that some changes in export policies can be expected, even if the current focus of the reform process is domestic.

However, the balancing of policies will be difficult, since it involves strong players on the Russian economic and political scene, all with ties to the Kremlin. Resolution of these issues is unlikely before the presidential election in March 2018, but important signposts could emerge thereafter. Some trade-offs will inevitably be made, and a radical reform entailing full liberalization and the breakup of Gazprom is unlikely, at least in the short to medium term. The history of Putin-era Russia suggests that the president prefers to exert control by balancing competing interests, and is never keen to see one faction, businessman, or politician become too influential or successful.

Nevertheless, this political reasoning would also seem to conform with what is economically prudent; namely, that a sudden and radical change is too risky for the Kremlin to contemplate. As a result, gradual expansion of the roles of Rosneft and Novatek in the gas sector is more likely than a "big bang" reform of the gas industry, in particular because of the impact that this could have on the domestic market. Ultimately, the speed of change may also be determined by external forces, as competitive pressure in the global gas market may increase the necessity for Russia to adopt a more commercial and dynamic stance in marketing its gas, including expanding its LNG business. The Kremlin may eventually decide that, for all its past success, Gazprom in its current form may not be the vehicle that is best-placed to optimize Russia's interests, and that using the strong sides of all the three largest companies may provide better results. This certainly appears to be what Novatek and Rosneft are lobbying for, and it may be what Gazprom is eventually forced to accept.

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