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The Russian gas industry: challenges to the "Gazprom model"?

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Abstract :

The Russian gas sector is undergoing significant changes which is opening the way for an original reform. Because of the particular institutional and economic context of the country, this reorganisation is not taking place along the lines of the de-integrated model of the EU. It is characterised by increasingly significant competitive fringes. Gazprom remains the main actor of the Russian gas industry but the company is facing challenges on its main export market and an increasing competition at home with the arrival of new gas firms, independents and Russian oil companies. For Gazprom, the aim issue is to develop more flexible strategies for export markets but also on its internal market. These internal changes will not be without consequence on the country's export strategy and the implication for international markets could be considerable.

JEL : P28, Q34, L23
Russia, reform of the gas organisational model, institutional analysis

The decline in Russia's gas exports to the EU in 2012 – with Norway, its main competitor, benefiting from this drop – suggests that all might not be well with the Russian "gas model". As the European gas market becomes increasingly competitive and characterised by significant surpluses, debate is now focussed on the capacity of Gazprom, which controls all Russian natural gas exports, to adapt to the current changes by developing more flexible policies. Under particular scrutiny is Gazprom's insistence on defending its export prices to the detriment of export volumes, a strategy that has led to a drop in its market share. However, Gazprom's export strategy and any changes that might be made cannot be examined in isolation from its domestic market, particularly where profitability is concerned. The economic and institutional context in which the gas company operates is changing dramatically under the combined effect of three main developments, and this could affect the behaviour of Gazprom. Increases in domestic prices have resulted in significant improvements in profitability, giving the company the possibility of creating new export strategies. As well as facing challenges on its main export market, Gazprom is also facing increasing competition at home with the arrival of new gas firms, independents and Russian oil companies. At the same time its production costs are rising as it develops gas fields in new areas to replace the maturing fields that were developed under the former Soviet Union. Russia's export strategy and its domestic reforms are inextricably linked.

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The Russian gas sector is undergoing significant changes that are opening the way for an original reform whose blueprint is now becoming apparent. The "Gazprom model" resulting from the reforms that took place in the 1990s endorsed a hierarchical governance structure based on a quasi-monopoly in the production segment, and a transmission and export monopoly. This governance structure has been and remains to a certain degree compatible with the country's institutional environment. According to the concept of institutional complementarity developed by the Neo-institutional Economy (NEI), the functioning of an institution is conditioned by interactions with other institutions (Höpner, 2005). From the point of view of the NEI, a structure based on de-integration of the gas industry and complete unbundling of Gazprom, as envisaged in the 2000-2002 reform projects, had little credibility. However, the present structure is not incompatible with changes characterised by increasingly significant competitive fringes. The reform of the gas industry is focussed on developing competitive forms that will enable new players to gradually contest Gazprom's market power. This competition is emerging as an essential institution of the reform. Its purpose is two-fold. First, it acts in a fairly conventional manner to help discipline Gazprom's behaviour. Second, the presence of competitors enables the State to reduce information asymmetry in its relations with Gazprom, which has long been seen as a State within the State. From this point of view, the competition between the two main State companies, Rosneft and Gazprom, is a specificity of the Russian reform. The consequences for international markets could be considerable.

Our aim here is to identify the characteristics of the Russian gas market, which revolves around Gazprom, and the emergence of a dual market. We shall then seek to show how changes in the European and Russian gas markets are forcing Gazprom to modify its behaviour and strategies and are thus likely to provide the basis for reform and for a gas industry specific to Russia.

I - Hierarchical governance structure

The reforms of the 1990s left the Russian gas sector with a hierarchical type of governance structure. A governance structure can be described as a hierarchy of economic institutions, the "explicit or implicit contractual framework governing a transaction" (Williamson 2005). Neo-institutional theory defines institutions as "the rules of the game of a society (…), the constraints (…) that structure human interactions" (North 1990)[1]. The Russian gas structure governance is characterised by the presence of the financial holding Gazprom, which had a quasi-monopoly over production as well as full control over transmission (gas pipelines) and exports to Europe. By the 2000s, Gazprom had control over all exports, including potential exports to Asia. The gas sector is thus characterised by hierarchical (non-contractual) coordination mechanisms and public property rights The State held a 38% share in the holding, making it a dominant – yet not majority – shareholder. It was only at the beginning of the 2000s that the State became Gazprom's major shareholder, with a 51% stake. Even so, this type of model does not exclude the possibility of the development of competitive fringes, and in the 2000s this led to the gradual emergence of a dual gas market.

1.1 The debate between the advocates of centralisation and those of liberalisation

[1] They consist of formal rules (rules, laws, constitutions) and informal constraints (norms of behaviour, conventions and codes of conduct, North 1990). Rules restrict behaviour but they can also facilitate coordinated action among decentralised players operating in an environment characterised by endogenous uncertainty (Rossiaud 2012).

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The idea of introducing a liberal governance structure such as that tried out in the oil sector (Rossiaud 2012) was the subject of recurrent debate throughout the 1990s, as can be seen from the various reform proposals. These proposals aimed at introducing a reform of the sector based on the de-integrated competitive model tested by the EU through the 1998 and 2003 directives. Proposed restructuring was thus centered on the vertical de-integration of Gazprom. The idea was to separate production and transmission activities (according to a logic of ownership unbundling) in order to separate the competitive segments of the market from the activities of natural monopolies. In keeping with a competitive approach, the aim was also to create six producers from the production firms owned 100% by Gazprom. The company would keep the ownership over the transmission system which as a natural monopoly would be regulated by the State with third party access (TPA). Gazprom would also maintain its function as the sole gas exporter, the only concession in relation to the European model. In a final stage (2007-2013), Gazprom would be limited to export activities only. The position of the "reformers" was less clear-cut where liberalisation of gas exports was concerned (in particular exports to Europe), this question not being one of their priorities (Locatelli 2003). However, the feasibility and credibility of a reform based on the de-integrated competitive model of the EU were called into question by the economic and institutional environment of Russia. Two institutional forms are particularly problematic, namely property rights and, in particular, the mechanism for coordination through monetary relations and prices.

- *Alignment of a hierarchical governance structure with Russia's institutional environment*

Governance structures can only be examined in the context of the institutional environment (as defined by North) in which they operate (Williamson 2000, Dixit 2009). Consequently the governance structure must be aligned with the institutional environment[2]. From this point of view, the "Gazprom model" is the organisational and institutional form that enables non-monetary relations and low energy prices to be best managed. The fact that gas industry regulatory measures have focussed on quantities, with little concern for profitability criteria, costs or prices, has meant that the Russian economy has had access to an inexpensive stable supply of gas, despite the insolvency of a large number of industrial and domestic consumers as well as some distributors. This supply has ensured the continued operation of industry, gas being one of the main inputs for electricity generation. Numerous authors have highlighted the special role played by Gazprom in the Russian economy (Gaddy and Ickes 1997 1998 1999, Woodruff 1999).

The gas sector has been managed by regulating quantities through the mechanism of delivery quotas. Gazprom negotiates these quotas with the main categories of consumers at administered prices set by the State (Ahrend and Tompson 2004). While the problem of non-payment disappeared in the 2000s, the system of low energy prices has prevented any kind of competition, for at least two reasons. First, the price structure takes into account substantial cross-subsidies between the industrial sector and the residential sector, the latter being subsidised by the former. Second, it can be estimated that at least until the early 2000s domestic prices were on average lower than Gazprom's marginal production cost (Tarr and Thomson 2003, Dubek *et al.* 2006) thus limiting the profitability of gas sector operators. In 2001, the price of gas for residential consumers was \$10/1000 m^3 while for industry it was 15 to \$16/1000 m^3, compared with an average of \$120/1000 m^3 for gas exported to Western

[2] For a more detailed analysis see Locatelli and Rossiaud (2013).

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Europe. Privileged access to revenues from its exports to the European market has helped Gazprom finance its investments. In return for obtaining revenues in foreign currency, Gazprom must commit itself to fulfilling long-term take-or-pay (TOP) contracts with its European clients. From this point of view it is undoubtedly Gazprom's hierarchical governance structure that has enabled it to honour its contracts with its European clients and guarantee the stability of Russian supplies.

The "Gazprom model" also addresses the issue of uncertainty over property rights which was one of the main problem in the Russian oil sector (Rossiaud and Locatelli, 2009). Relations between the financial holding and its companies are dominated by a special coordination mechanism known as internal transfer prices. These are the prices at which Gazprom purchases gas from the production companies through Transgaz. These prices are generally set lower than gas production costs (Kryukov and Moe 1996). This means that the production companies operate at a deficit, which gives them considerably less autonomy. Through this mechanism, Gazprom is able to keep the financing of its investments centralised (Locatelli 2003).

1.2 Development of a competitive fringe through a "dual market" for natural gas

The hierarchical governance structure is consistent with the emergence of competitive fringes in specific segments of the Russian gas market. Gazprom has in fact never had a complete monopoly over exploration and production. It holds only 70% of the country's proven gas reserves, which at the end of 2010 amounted to 19 trillion cubic metres (Gazprom 2013). Two other categories of players can be identified alongside Gazprom. In the first category are the independent producers, which are generally private companies that received some of the exploration and production licences at the time of the gas sector reform in 1992. Itera, Northgaz and Novatek fall into this category. The second category is the Russian oil companies. These companies have oil fields with associated gas production or simply hold gas exploitation licences and therefore have a significant role in the gas production sector[3]. These two types of independents now account for a non-negligible part of Russian gas production, with 27% in 2012 compared with 6% in 1996 (cf. Table 1).

Table 1: Russian gas production by producer

Gm^3	**1996**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013 forecast**
Gazprom	564.7	556.0	548.6	549.7	462.2	506.6	509.8	479	496
Other producers	38.3	100.2	104.1	113.9	120.2	141.7	160.7	176	
Total	603	656.2	652.7	663.6	582.4	650.3	670.5	655	

Sources: Gazprom, Russian Energy Ministry

These players have developed their growing role in the particular context of a dual market, with regulated prices on the one hand and free market prices on the other (Ahrend and Tompson 2004). Households are supplied with gas from the regulated market at prices governed by the Federal Tariff Service[4]. Wholesale prices are determined on the basis of

[3] Some of the gas fields concerned are very large, such as the Kovytka field initially held by Rusia Petroleum before being taken over by Gazprom.

[4] The following legal provisions allow the State to regulate gas prices:
- Law of 1995 on natural monopolies

geographical areas. Gazprom is the only supplier on this market. Industrial consumers (and particularly the electricity sector) are also supplied by this market but according to quotas negotiated with Gazprom. Consumers may purchase gas in addition to their negotiated quantities on a so-called free market at unregulated prices. This market is supplied for the most part by independent gas producers and Russian oil companies. Gazprom also supplies this market but to a lesser degree, more specifically to sell its "new gas"[5].

Box 1: Non-regulated gas market

The non-regulated gas market comprises:

– sales by independent producers and Russian oil companies at freely negotiated prices. In 2007, free prices were between 10 and 20% higher than negotiated prices. This price difference is gradually disappearing.

– sales by Gazprom on the Russian Gas Exchange (spot market), created by the decree of 2006. According to this decree, Gazprom, through its subsidiary Mezhregiongaz, could sell 5 Gm^3 of gas at free prices provided that the same amount (5 Gm^3) was sold by independent suppliers on this same market. The underlying rationale was that Gazprom's sales should not exceed sales by third parties. In 2006-2007 and 2008 sales on this Exchange increased significantly, providing increasingly credible information about market prices. The crisis at the end of 2008 prevented the further development of this Exchange but its creation represented a willingness on the part of the public authorities to create a more permanent platform for trade.

– 2007: decree enabling "new gas" (gas from newly exploited fields), more specifically operated by Gazprom, to be sold at free prices. An implicit result of this rule was that the volume of gas sold by Gazprom at regulated prices should not exceed 300 Gm^3. Beyond this limit, consumers would have to buy gas at unregulated prices from Gazprom, independents or Russian oil companies (Henderson 2012).

In all, Gazprom accounts for 25% of gas sales on the unregulated market (equivalent to over 100 Gm^3).

This institutional mechanism has been and continues to be an important means for ensuring flexibility in the Russian gas market, and for Gazprom it is a key factor in its production strategy, and even in its export strategy. Depending on the requirements of the market, Gazprom, with its monopoly over transmission, has been able to accept or refuse to deliver gas produced by independents and in so doing to control supply on the market. An additional advantage is that this mechanism has enabled Gazprom to meet its contractual commitments with European countries at times when there has been pressure on production.

II – Challenges to the "Gazprom model": directions for Russian reform

The so-called Gazprom model is now being called into question as a result of developments in the European gas market as well as the changes taking place in Russia's domestic market. Greater competition is emerging as an essential element in the Russian gas sector reform with two goals. The first is a relatively conventional goal of improving efficiency essentially

- Law of 1999 on gas supply in the Russian Federation
- 1995 directive on gas prices, amended in 1997, 2000 and 2010.

[5] New gas is from the development of new fields and involves considerably higher production costs than those for reserves developed in the 1970s (Urengoy, Yamburg…).

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through ensuring greater discipline in Gazprom's behaviour. Second, the State must be able to reduce information asymmetry in its relations with Gazprom, which has often been referred to as a state-within-a-state (Nemtsov and Milov 2008). With the arrival of competitors the State is thus attempting to obtain a certain amount of essential information, particularly regarding production costs, pricing and taxation levels that enable companies to be profitable.

2.1 Changes taking place in Gazprom's main export market, the EU

Developments in the gas market in Europe, which is Gazprom's principal export zone, mean that Gazprom will have to adapt its strategy to a new context. Two factors, both related to a more competitive environment, pose problems with regard to the company's policy. First, Gazprom must adapt to the situation of a gas surplus on the market, brought about by the economic crisis, and the accompanying fall in demand, but also by the development of shale gas in the US[6]. Second, the company must find a way to deal with the EU's desire to create a competitive and integrated European gas market (directives of 1998, 2003, 3rd energy package of 2009). Gazprom must find way to of dealing with these developments by introducing more flexibility into its trade relation and in particular in its contracts with purchasers. Challenges are being made to certain clauses in long-term TOP contracts, which have always played an essential role in Europe's gas supply. The debate is focussed more specifically on the price indexation formula in the contracts. The EU market is characterised by two rationales for the formation of natural gas prices: one based on spot markets where the price results from the confrontation of supply and demand; the other on long-term contracts in which prices have traditionally been indexed to those of crude oil or refined products. In practice the two systems are not totally separate, though since 2008 gas prices in long-term contracts and on spot markets have been subject to substantial decoupling. The prices of natural gas and LNG on European spot markets have plummeted due to the over-abundance of gas caused by the economic crisis. At the same time, prices in TOP contracts have kept pace with the rising trend in refined-product and crude prices. Because of this decoupling of prices, a great many of Gazprom's clients prefer to purchase gas on spot markets and have asked Gazprom to revise its pricing formula in long-term contracts.

- *Are changes afoot in price-volume trade-offs in Gazprom's strategy?*

The company remains intent on maintaining a price indexation formula linking gas prices to those of oil. But Gazprom has lost a large market share. In 2012 its gas exports to Europe fell by 5.5% while Norway saw a rise in its export volumes[7]. This drop in the company's sales to Europe can be blamed on its strategy of defending prices to the detriment of volumes. On average the selling price of Russian gas to Europe was \$402/1000 m^3 (that is a rise of 5%)[8]. Price-volume trade-offs are a reality for all gas producers. The question is whether Gazprom's loss of market shares will prompt it to agree to a certain degree of flexibility in long-term contract prices so as to adapt to the changing conditions in the European market. It is difficult

[6] With the development of shale gas, the US has become self-sufficient as regards gas. A considerable volume of LNG originally destined for the US first ended up in Europe and subsequently in Asia.

[7] Gazprom's exports to Europe (excluding the Baltic states) amounted in 2012 to 138.8 Gm^3 (the same level as in 2010) compared with 150 Gm^3 in 2011, with Germany and Italy remaining its biggest customers (Gazprom Export, 2013). Since 2005, apart from in 2010 and 2012, gas exports to this zone have always exceeded 150 Gm^3.

[8] "Gazprom's export slide in 2012". *International Gas report*, n° 718, 25 Feb. 2013.

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to know whether the company is prepared to change its strategy. But a few points are worth looking at more closely.

First, Gazprom has attempted to maintain a certain level of competitiveness in relation to spot prices for natural gas by agreeing to negotiate lower prices in its long-term contracts with its principal clients, but seemingly without fundamentally changing the price indexation formula. In 2012 the company paid a total of $2.7 billion to the European gas companies concerned, and this could rise to $4.7 billion for 2013[9]. But Gazprom seems to be strongly opposed to changing its basic formula by taking spot prices into account, as the Norwegians have done and as recommended by a certain number of authors (Stern 2009b, Stern and Rogers 2011)[10]. Problems over the reliability of spot prices along with the question of the hub marker price[11] are frequently used as justification by Gazprom for refusing to make changes. Spot prices do not reflect gas market conditions (and cannot therefore be used as marker prices), particularly because of the lack of liquidity and depth of the gas hubs. Furthermore, a large proportion of the gas supplied to the EU is traded according to another price formation system in long-term TOP contracts (Komlev 2013).

It is important to note that despite its loss of market share in Europe, Gazprom's profit margins are much greater than they were at the end of the 1990s. In fact, Gazprom is in a position to maintain its prices given that the profitability of its domestic market has improved thanks to a rise in government-regulated prices. Any analysis of the company's export policy must take into account changes in the domestic market. It is important to remember that this market accounts for a large proportion of the company's gas sales (around 300 Gm^3). From this point of view, Gazprom can decide upon new balances and trade-offs between its three main markets, namely Russia, the EU and the CIS countries. In the longer term, Asia will probably also be part of this equation.

Second, the questions of long-term contracts and the price indexation formula are directly linked to the company's need to finance the development of new fields where conditions make production costs much higher (Yamal, Barents Sea, Eastern Siberia). Some pressure has been taken off this question at least in the short-to-medium term because of the changes in the European market. There is no longer any justification for a strategy of maximising production, as can be seen from Gazprom's adjustments to its production objectives. Some investments can be put on hold. But in the long term, the company must make huge investments – which carry inherent risks – and therefore needs to have guaranteed outlets on the European markets[12].

[9] These companies are E.ON-Ruhrgas (Germany), PGNiG (Poland), DONG (Denmark), ENI (Italy) and Econgas (Austria).

[10] On this point, the reader may refer to the debate between S. Komlev, Contract Structuring and Pricing Directorate of Gazprom Export, and J. Stern and H. Rogers, Oxford Institute of Energy Studies (Komlev 2013, Stern and Rogers 2013).

[11] For a spot price fixed at a hub to become a marker price, the hub must offer, among other attributes, the necessary depth, liquidity and transparency, and consequently be able to attract a significant number of market players (Heather 2012).

[12] Low domestic gas prices are currently not sufficient to provide a return on the investments needed to develop the gas province.

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Finally, it is important to point out that gas trading relations between Russia and certain EU countries cannot today be reduced to the logics of long-term contracts versus spot markets. There is evidence of more structural changes. Gazprom's strategy to gain footholds downstream in the European market (Locatelli 2008, 2012) with asset swapping as a key mechanism, as in the latest agreement (2012) between BASF and Gazprom[13], is a prelude to new types of trading. Clearly for the time being such strategies remain on the sidelines and are contrary to the policy of increased competition promoted by the EU, which strongly opposes them on the grounds of the principle of ownership unbundling and the third-country clause in the 3rd energy package of 2009. But they cannot be ignored when they concern and are implemented by Gazprom's main customer, Germany, and are a priority for Russia and its gas company.

In consequence, with greater flexibility in its investment strategy and improved profitability on its domestic market, Gazprom may find it more in its interest to sell periodically on spot markets when prices are high and so have more flexibility with regard to its contract sales. But it is important that the company does not allow spot sales to pose a challenge to its contracted sales by selling excessively large volumes on these markets.

2.2 Competition for Gazprom on its domestic market: ways for reform

The "Gazprom model" is also being called into question because of the emergence of an increasingly competitive domestic market. This competition is between Gazprom and the gas companies like Novatek but also between the two State companies Gazprom and Rosneft (the State oil company). This is a very specific characteristic of the Russian hydrocarbon sector.

Three rationales add credibility to the development of a competitive approach in Russia. First, the rationale of dual markets and the gradual rise in government-regulated gas prices means that Gazprom is having to compete more and more with independent producers and Russian oil companies in significant segments of its market, namely the industrial and electric power sectors. Between 2006 and 2010, prices rose by 124% for the industrial sector and 121% for the residential sector (cf. Table 2). The initial reform project (parity with European prices from 2011 for the industrial sector and from 2013 for the residential sector) seems to have been shelved for the time being, or at least delayed. In the absence of a world gas market there might seem to be little economic justification for such reform[14] (Tarr and Thomson 2003).

Table 2: Average regulated prices for natural gas in Russia 2006-2011
Forecasts for 2012 and 2013

By thousand m^3		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012** (2)	**2013** (2)
Industries	Roubles	1104	1352	1690	1957	2478	2583	-	-

[13] Wintershall, a subsidiary of BASF and a partner of Gazprom in the Wingas joint venture, has signed a basic agreement for a deal to acquire stakes in the development of the Urengoy field. In exchange, Gazprom will obtain a share in BASF (through Wintershall) in the WIEH, WIEE and Wingas joint ventures, and will become the sole owner of these projects. These are companies that market Russian gas in Europe, particularly in Germany and Austria.

[14] In the absence of a world natural gas market and given Gazprom's dominant position on the Russian market, the domestic price must be one that enables producers to cover their long-run marginal cost (Tarr and Thomson 2003).

							(1)		
	Dollars	40.58	52.81	67.87	64.80	82.60	91 (2)	105	119
Households	Roubles	863	1031	1291	1294	1903			
	Dollars	31.72	40.27	51.85	49.47	63.43			

(1) For the first 6 months of 2011

(2) Forecasts of the Russian Federal Tariff Service

Sources: Price rises and market reform in Russia, a long and winding road. *Gas matters*, June 2011; *Gazprom Financial report 2011*, Gazprom 2012; *Dynamics of gas wholesale prices for industrial consumers.* Russian Federal Tariff Service.

Nevertheless current price rises seem to be sufficient on the one hand to ensure Gazprom's profitability and on the other to keep regulated prices in line with free prices on the unregulated market (Henderson 2013). At least this is the assumption that can be made in light of the contracts drawn up between certain independents and important players in the electric power and industrial sectors to supply gas volumes that were previously supplied by Gazprom (cf. Table 3). They can now offer gas at prices that are competitive with Gazprom's. If this trend continues it could be a step towards unification of the markets.

Aside from the role of prices, competition between Gazprom and other gas industry players is also made possible through stricter application of rules regarding access to Gazprom's transmission network. Since the gas pipeline system is a natural monopoly, third party access (TPA) to the network is a necessary condition for introducing competition to the sector. TPA in fact requires that freely available and non-discriminatory access to the gas transmission network be given to all producers. This provision has been in place in Russia since 1997 but has hardly been enforced. It has generally been left to the goodwill of Gazprom, which alone has information on the rate of use of pipeline capacity. This situation now seems to be changing, the Federal Antimonopoly Service having brought Gazprom before the courts several times in recent years for abusing market dominance.

Table 3: Main gas contracts between independents and oil companies and customers in the Russian industrial and electric power sector, 2009-2012

Seller	Buyer	Volume (bcm)	Duration (yrs)	Date
Novatek	Inter RAO	7.7	6	November 2009
Novatek	OGK-1	57	6	November 2009
Novatek	MMK	50	10	June 2012
Lukoil	E.On Russia	2.24	10	June 2012
Novatek	Mechel	17	11.5	July 2012
Novatek	E.On Russia	150	15	August 2012
Novatek	Fortum	30	15	August 2012
Novatek	Uralchem	8	5	September 2012
Rosneft	E.On Russia	23	3	September 2012
Surneftegaz	E.On Russia	na	3	September 2012
Novatek	Severstal	12	5	October 2012
Rosneft	Inter RAO	875	25	November 2012
Novatek	Mosenergo	27	3	December 2012
TNK-BP	TGK-5	15 (estimate)	17	December 2012
TNK-BP	TGK-7	20 (estimate)	15	December 2012
TNK-BP	TGK-9	20 (estimate)	17	December 2012

Source: Henderson (2013)

Finally, with demand continuing to stagnate both at home and on the export market (Stern 2009a), the present Russian gas surplus is likely to persist given the forecast production growth figures announced by the independents and oil companies. J. Henderson (2013) has

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shown that independents and oil companies have the means to potentially produce 350 Gm^3 by 2020. And these companies (in particular Rosneft) have a priority: monetizing their natural gas resources. This suggests that the market will become increasingly competitive.

- *Competition and reduced information asymmetry*

The development of competition can induce profound structural changes in the Russian gas market from two main points. First, competition helps reduce information asymmetry between the state and Gazprom. Indirectly, it can reveal certain information about the profit levels of the various players and thus their production costs. It is undoubtedly difficult for the state to obtain such information simply by regulating Gazprom, given that it is a major player in the economy. The private sector could thus be used for benchmarking, especially for decisions concerning reform of gas prices and taxes.

Second, the presence of competitors will oblige Gazprom to take a closer look at some of its strategies and to improve efficiency in order to remain competitive. Studies on Gazprom are very limited, but they emphasise three main problems that critics of the company use to support their claims of Gazprom's inefficiency: problems of Corporate Governance, agency problems (Gazprom often being referred to as a state-within-a-state, Nemtsov and Milov 2008)[15], and the company's poor economic performance. With respect to this performance, these studies draw attention to the fact that dividends on Gazprom shares are lower than those paid by private Russian oil companies. They mention the problem of overemployment[16] and the company's high production costs. Furthermore, authors have drawn attention to the deterioration in the company's financial situation in the 2000s, with debt levels increasing by 60% between 2005 and 2010 (Wood Mackenzie 2004, Victor 2008, Victor and Sayfer 2011). But it is extremely difficult to determine how much blame can be attributed to low gas prices and how much to poor management. Since 2008, Gazprom has seen an upward trend in net profits. Despite a drop in the volume of gas sold on its domestic market between 2008 and 2012, revenue from these sales has increased significantly[17].

A certain number of reforms are being implemented along two main lines. The first involves separating the production units from the transmission and storage activities within each Gazprom subsidiary. The second reform involves separating the company's core business from its non-core activities by operating them as separate entities (Victor 2008). This separation of Gazprom's activities into different companies is a prerequisite for implementing TPA provided for under Russian law and for greater transparency with respect to transmission costs. It is important to note the company's efforts to be more transparent with regard to its financial affairs. In particular, it publishes its accounts regularly in compliance with international standards.

- *Disadvantages and advantages of an incumbent operator in a competitive environment*

[15] In particular, the problem of the agent "turning against" its main shareholder.

[16] In their study, B. Nemtsov and V. Milov (2008) highlight the rise in Gazprom's workforce. For the period 2003-2007 in particular, the number of employees rose from 391,000 to 445,000. During the same period, production increased by only 15 Gm^3, from 533 to 548 Gm^3.

[17] Gas volumes sold by Gazprom on its domestic market fell from 292 Gm3 in 2008 to 266 Gm3 in 2012, while revenues for these sales for this same period increased from 479 billion roubles to 800 billion roubles. Gazprom (2013). *Gas for the future. Gazprom Investor Day*. London, February.

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A certain number of factors may put Gazprom at a disadvantage as it attempts to compete with new players in the industry. First of all, Gazprom is likely to see its production costs rise steeply. It is not easy to obtain information about these costs. But an analysis of the location of reserves for each player suggests that production costs for new market entrants might be competitive with those of Gazprom, whose costs are destined to rise significantly as it becomes obliged to focus on gas reserves in the Yamal and eastern Siberia. These two areas could account for 20% of Gazprom's output by 2020 and for more than 50% by 2030 (cf. Table 4). Another point is important concerning the costs of production. In the case of associated gas from fields owned by oil companies, profitability is related essentially to the oil that is extracted. These companies therefore may sell natural gas at lower prices compared to Gazprom's sales.

Table 4: Gazprom gas production outlook

Gm^3	**Current**	**Forecast**		
	2010	2020	2030 base scenario	2030 high case scenario
Production from current fields	510	380	150	150
New Nadym-Pur-Taz fields		45	110	110
Yamal projects		100	250	290
Eastern Siberia and Far East region		20	70	70
Shtokman		0	45	70
Total	510	545	625	690

Source: "Russian and Chinese energy relationships heats up". Gas Matters, April 2013

Taxation conditions are also likely to impact competition. Differential tax rates (in particular the Mineral Extraction Tax[18]) for Gazprom and the other companies demonstrate the State's desire to encourage the development of competition by imposing higher rates on the incumbent producer, which already has an advantage because of its dominant market position. The State can also discriminate between the various players by granting tax exemptions, more specifically for developments in frontier areas (offshore, Eastern Siberia …). Gazprom has thus far never benefited from tax exemptions for the Shtokman development, whereas the Yamal LNG projects have exemptions for a period of 12 years (or for output up to 250 Gm^3)

But a huge advantage for Gazprom in relation to its competitors is its dominant position on the Russian market, with output of close to 500 Gm^3. Having inherited the gas fields developed during the Soviet era, Gazprom's market power is indisputable. The company's export monopoly also puts it at a considerable advantage in that it has access to foreign currency and the highly profitable markets of the EU. However, in exchange it has to finance export pipelines, and in particular the NordStream and SouthStream. It is also obliged to supply households with gas at preferential prices.

2.3 Towards liberalisation of Russian gas exports?

[18] For Gazprom, this tax was 509 roubles/1000 m^3 in 2012 and is set to rise in 2013 to 622 roubles ($20)/1000 m^3. For independent producers, the tax was 251 roubles/1000 m^3 in 2012 and should rise to 402 roubles/1000 m^3 in 2013.

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Competition on the domestic market between Gazprom and other players in the gas sector is likely to spread to the export sector. Gazprom's export monopoly is increasingly being called into question by the independents (mainly Novatek) and the oil companies (mainly Rosneft). The competition concerning the export markets that seems to be developing between the two State companies is a key factor for the reorganisation of the gas sector.

Liberalisation of Russian gas exports is one of the most controversial and most difficult issues for the State. The terms of the debate are as follows. On the one hand, new players in this sector are seeking to monetise their gas resources. Since they cannot do this simply on the domestic market, given demand forecasts and their expected output, their aim is to gain access to export markets. On the other hand, the macroeconomic implications of such market opening are considerable. In fact it would most probably create a situation where Russian producers are competing among each other on export markets. D. Tarr (2010) shows that liberalisation of the export market would significantly erode Russia's monopoly profits on gas exports, by contributing in particular to decreasing prices on European spot markets.

The debate concerns more specifically LNG exports to Asia, since for the time being Gazprom's exports of natural gas to Europe via pipeline do not seem to be challenged. Asia has become a vital element in Russia's strategy to diversify its export markets in view of the uncertainties in the European gas market stemming in particular from reduced demand (economic crisis and climate policy). This long-term strategy had until recently concerned only Gazprom, but now three of the six main projects to export LNG to Asia are planned without the participation of Gazprom. These are Sakhalin I (ExxonMobil-Rosneft), Yamal-LNG (Novatek-Total) and Pechora LNG overseen by TNK-BP (now Rosneft). In consequence a solution has to be found to the problem of Gazprom's export monopoly. The solution envisaged in the case of the most advanced project, the one headed by Novatek-Total, is for the company to export its LNG through Gazprom, to which it will make a small payment for the service. However, this solution would not seem to be satisfactory since the viability of LNG projects is dependent on direct access to export markets. In fact the international financing that is needed to finance the huge investments involved is conditional upon such direct access being available. It is the exports that guarantee the investments, as was the case with the Gazprom gas natural gas pipelines to Europe.

Table 5: LNG projects in Russia

Projects	Main players	Fields	Capacity (Mt/yr)	On line	Target markets
Shtokman	Gazprom-Total	Shtokman	7.5-15	Unknown	Europe, USA
Vladivostok	Gazprom	Sakhalin, Kamchatka, Yakutia, Irkutsk	3 trains of 5	2018	Asia including Japan
Yamal LNG	Novatek-Total	South Tambey field	5 (may be tripled)	2018	Europe and Asia
Yamal	Novatek-Gazprom				Asia
Far East region	Rosneft-ExxonMobil	Sakhalin I Okhotsk Sea		Unknown	Asia-Pacific
Pechora LNG	TNK-BP	Nenets Autonomous District	2.6		China

Sources: "Russia pays high price for export prize". *Petroleum Economist*, October 2012; "Poutine réfléchit à une levée du monopole d'export de Gazprom, qui accélère le projet GNL de Vladivostok". *Pétrostratégies*, n° 1295, 4 March 2013; "Russia reviews LNG export policy". *International Gas Report*, n° 718; 25 Feb. 2013

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Even if it is the State's intention to treat exports via gas pipelines and exports of LNG differently, there will still be nothing to prevent competition between these two gas delivery methods. Such competition is already occurring on the Asian market. LNG projects will likely have to compete with the natural gas pipeline to China, which Gazprom has been negotiating for many years. Final agreement is being held up in particular by the issue of the price indexation formula to be included in the long-term contract, and seemingly also by issues concerning access to Russian hydrocarbon resources. China's strategy is to secure its supply, at least in part, by investing in the development of fields in exporting countries. It succeeded in doing this in Iran and Turkmenistan, but thus far Gazprom has not been willing to allow Chinese companies to get involved in development of its gas fields.

Such competition could also develop on the European market, even if most of the gas exported by Gazprom to this zone is protected by long-term contracts. Half of the LNG exported from the field developed by Novatek-Total would thus go to Europe[19]. As for exports planned by Rosneft, although Asia is their preferred destination, some could also end up on the European market (particularly on spot markets)[20].

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The "Gazprom model" that resulted from the reform of the 1990s no longer seems suited to the changing market in Europe nor the new domestic gas market that is emerging in Russia. Gazprom, with its export and transmission monopoly, must adapt to the more competitive markets in which it operates, and more importantly must develop more flexible strategies concerning contracts. This applies both to its export market as well as at home. In fact, despite the dominant position of Gazprom, the Russian domestic market is undergoing profound restructuring. Because of the particular institutional and economic context of the country, this reorganisation is not taking place along the lines of the de-integrated model of the EU. It is focussed on developing competitive forms and in particular between the two State companies, Gazprom and Rosneft. These changes will not be without consequence on the country's export strategy. An increasingly profitable domestic market will open the way for greater flexibility, more specifically in Gazprom's export strategies. But most importantly, Gazprom's export monopoly could well become threatened. The implications for Russia and for international markets would be considerable.

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[19] "Russia reviews LNG exports policy". *International Gas Report*, n° 718, 25 Feb. 2013.

[20] Because of climatic conditions the Northern sea route envisaged for exporting the gas from Yamal to Asia is only open five months of the year.

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