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# **Gazprom's export strategies under the institutional constraint of the Russian gas market**

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Abstract :

"Russia and its main gas company Gazprom, essential suppliers for the European gas market, are today at the centre of the debate surrounding the security of the European Union's gas supply. A variety of factors have focussed interest on the question of Gazprom's industrial strategies and more precisely :the Gazprom's ability to meet its future contractual commitments. The gas market liberalisation in Europe is bringing about some significant changes in the relations (especially contractual ones) that the EU had established with its main natural gas suppliers. The aim of this paper is to throw some light on how European gas market liberalisation is affecting and changing the strategies of one of the EU's essential gas suppliers, namely Russia. The export policies developed by Gazprom are however largely conditioned by the particular characteristics (essentially institutional) of its domestic market, not only in terms of supply and demand but also prices". It is important to take into account this aspect in order to understand the Russian gas export strategy".

Résumé :

Les principales caractéristiques de la stratégie d'exportation de gaz naturel de la compagnie gazière russe Gazprom sur le marché européen sont une réponse aux incertitudes (volumes, prix) créées par la libéralisation du marché gazier de l'UE. La politique d'acquisition d'actifs menée depuis la fin des années 1980, la multiplication des réseaux d'exportation mais aussi la volonté de maintenir des contrats de long terme tout en profitant de nouvelles opportunités contractuelles en sont des illustrations. Mais les stratégies industrielles et commerciales que peut développer l'entreprise gazière sont en partie déterminées par les caractéristiques de son marché intérieur (bas prix du gaz, quotas de consommation). En l'absence d'un véritable marché gazier intérieur, de fortes contraintes pèsent sur la capacité de production et donc d'exportation de Gazprom. Par conséquent, les « relations gazières » entre la Russie et l'UE - la sécurité gazière de celle-ci mais aussi la capacité de la Russie à exercer un réel pouvoir de marché en Europe - dépendront largement de la capacité de la Russie à réformer son marché intérieur.

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## **Gazprom's export strategies under the institutional constraint of the Russian gas market**

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May 2008

Russia and its main gas company Gazprom, essential suppliers for the European gas market, are today at the centre of the debate surrounding the security of the European Union's gas supply. A variety of factors have focussed interest on the question of Gazprom's industrial strategies and its market power in Europe: fears expressed about Gazprom's ability to meet its future contractual commitments in light of changes in its production capacity, the possibility of the EU's main suppliers forming a "gas OPEC" (OGEP), and Gazprom's attempts to acquire European companies. These questions concerning Russia's gas policy with respect to the EU are being raised against a background of two important changes. First, the growing role of the State in the gas sector and in the energy sector as a whole in Russia suggests that it will be increasingly difficult for international oil companies to gain access to Russian hydrocarbon resources. Second, gas market liberalisation in Europe is bringing about some significant changes in the relations (especially contractual ones) that the EU had established with its main natural gas suppliers (most of which are in fact outside the EU).

The aim of this paper is to throw some light on how European gas market liberalisation is affecting and changing the strategies of one of the EU's essential gas suppliers, namely Russia. The paper will analyse the different policies developed by Gazprom, both industrial and commercial (that is to say contractual), in order to deal with the institutional changes in its main export market and maintain its market shares.

The export policies developed by Gazprom are however largely conditioned by the particular characteristics (essentially institutional) of its domestic market, not only in terms of supply and demand but also prices. In the medium term, in the absence of a real domestic gas market, strong constraints are hindering Gazprom's production capacity and therefore its export capacity. Completion of domestic gas price reform (in particular the rate at which reform is implemented) is at the heart of the problem of the gas industry, at least where two factors are concerned. First, price reform will be a decisive variable in the rate of increase not only in demand but also in supply of Russian gas, and consequently in its export capacity. Second, by improving the profitability of Gazprom's domestic market, price reform will give the company greater flexibility in its export strategies. Consequently, "gas relations" between Russia and the EU – gas supply security for the EU but also Russia's ability to exert real market power in Europe – will depend to a great extent on Russia's ability to reform its domestic market.

### **I – Gazprom's new export strategies in response to European gas market liberalisation**

Where gas is concerned, the relationship between the EU and Russia is characterised by interdependence. Exports of Russian gas to Europe in 2006 totalled 161.5 Bcm excluding the Baltic countries<sup>1</sup> (of which 137.1 Bcm went to the EU27). Russian gas represents 23% of gas supplies to the EU27. In the medium term, Russia should maintain its position as a major

supplier of gas to Europe with exports that could, according to Russia’s long term energy plan drawn up in 2003, amount to 200 Bcm in 2020 (180 Bcm in 2015 according to recent statements by A. Medvedev<sup>2</sup>).

These gas relations, which were created under the Soviet Union, were essentially structured by long-term contracts (*Take or Pay*). Contracts of this type link a gas producer directly with each of the big import monopolies of the EU States and at the same time allow for the risks (related to volume and price) to be shared between buyer and seller. Generally speaking, the liberalisation of the EU market – greater competition among suppliers, development of spot markets and short-term transactions – is likely to increase exposure of the EU’s traditional gas suppliers to “price risk” and “volume risk”. In this environment of greater uncertainty, these suppliers are attempting to develop a number of strategies to ensure a secure position in the market.

**1.1 Industrial strategies based on acquisition of assets**

*- Downstream integration*

In order to secure its market shares (or outlets) in a liberalised market a supplier must acquire a presence downstream, which will give it access to final consumers. Through a policy of buying assets in gas transmission and distribution companies and even in large gas consumers (case of electricity sector), gas suppliers can place their resources without having to compete with other gas producers in a wholesale market (Eikeland, 2007). In terms of prices, in a seller’s market, a producer who can develop a position downstream in the chain can capture the profit margins obtained by retailers.

Gazprom’s policy of acquiring assets, which it has been doing since the end of the 1980s, fits into this framework since its clear aim is to gain access to final users. Gazprom has thus set itself the goal of obtaining a 10% direct share of the French market as well as over 10% of the English market by 2010 and 20% by 2015. It has similar goals for Italy and the Czech Republic. Conceived as a way of protecting its market share at a time of institutional change in its main export market, this strategy has a number of important characteristics.

Until the start of the 2000s, this industrial policy was based on cooperation between Gazprom and its traditional European clients, rather than on competition. The company set up joint ventures in gas transmission, marketing and trading, but for the main part these were with incumbent operators, who had signed long-term contracts (OMV, GDF, SNAM, ENI, etc, cf. Table 1)<sup>3</sup>.

**Table 1: Main Gazprom joint ventures with EU partners (late 2007)**

Countries	Joint venture	% ofGazprom	Nature of operations
<b>Germany</b>	Wingas (Wintershall/BASF)	50 since 2007	Transportation and sales
	WIEH (Wintershall/BASF)	50	Sales and marketing
<b>Austria</b>	GWH (with OMV)	50	Marketing et trading
<b>Finland</b>	Gasum (Fortum, E. ON Ruhrgas)	50	Distribution
	North Transgas OY	50	Transportation

<b>France</b>	Fragaz (GDF)	50	Distribution and trading
<b>Greece</b>	Prometheus Gas	50	Marketing
<b>Hungary</b>	Panrusgaz (Mol)	40	Marketing and distribution
	Borsodchem	25	Petrochemistry
	DKG-EAST Co. Inc	38	Marketing and trading
<b>Italy</b>	Promgaz (SNAM, Edison)	50	Marketing and distribution
<b>Poland</b>	EuroPolGaz (PGNiG)	48	Transportation (Yamal pipeline)
	Gaz Trading (PGNiG)	16	Marketing and trading, gas and LNG
<b>Czech Rep</b>	Gas-Invest	37,5	Marketing, distribution and trading
	Vemex	33	Trading
<b>Slovakia</b>	Slovrusgaz (E.ON)	50	Transportation and marketing
<b>Switzerland</b>	WIEE (Wintershall)	50	Marketing

In comparison with this classic approach, other organisational methods have been developing since the start of the 2000s. They involve creating marketing subsidiaries in certain European countries<sup>4</sup> and/or buying minority or majority shares in local companies (cf. Table 2). This latter method has thus far been quite limited, except in Central and Eastern European countries and the Baltic States (and CIS countries). But if developed on a large scale, industrial policies like this could destabilise relations previously established between Gazprom and its traditional clients insofar as this type of approach involves a certain amount of competition with incumbent operators, the traditional clients of the Russian company. Such methods are also often perceived as a threat to the energy security of Europe, not least because of the Russian State's share in Gazprom's capital (51% share)<sup>5</sup>. However, the Commission has shown its determination to introduce a third gas directive that among other things would order ownership "unbundling", effectively prohibiting gas supply companies from integrating downstream. This could thus call into question the type of strategies adopted by Gazprom and upset the present balance.

**Table 2: Gazprom's main acquisitions among its European Union partners and its main subsidiaries in the EU (end of 2007)**

<b>Countries</b>	<b>Company</b>
<b>Austria</b>	Gazprom will have right to sell directly to customers through subsidiary GWH and Centrex (25% held by Gazprom)
<b>Hungary</b>	Acquisition of share in E.ON Foldag Storage and E.ON Foldaz and in regional gas and electricity suppliers as part of a deal with E.ON concerning its holdings in MOL
<b>Italy</b>	Possibility of acquisition of 10% stake in ENIpower with direct sales of gas for electricity production
<b>United Kingdom</b>	Acquisition of share in gas distributor Pennine Natural Gas (PNG)
	Acquisition of gas distribution company NGSS (Natural Gas Shipping Services)
	Gazprom Marketing and Trading, Gazprom subsidiary enabling Gazprom to sell Russian gas directly in the UK
<b>Estonia</b>	Acquisition of share (37.5%) in marketing and transmission company Eesti Gaas
<b>Latvia</b>	Acquisition of share (34%) in marketing and distribution company Latvijas Gaze
<b>Lithuania</b>	Acquisition of share (30%) in transmission and distribution company Stella Vitae
	Acquisition of share (37%) in marketing and transmission company Lietuvos Dujos

Source: Locatelli, C. (2007).

*- Export channels policy*

Gazprom has accompanied this strategy of downstream integration by a policy to increase transmission capacity, and this for two main reasons: to expand and secure export channels to Europe. Currently, Gazprom's transmission capacity to Europe is of the order of 145 Bcm, divided between two main pipelines, the first through Ukraine and the other through Belarus (the Yamal I). The Blue Stream, under the Black Sea, provides a further 16 Bcm capacity. Russia's two main projects designed to expand and secure its export routes are the Nord Stream and the South Stream. The first is well under way and should be operational by 2010. This project follows an agreement concluded in 2005 between Gazprom, BASF and E.ON<sup>6</sup>. The Nord Stream will be the first Russian gas pipeline to reach Europe without passing through any other country, since its route will take it under the Baltic sea to Germany. The South Stream project, although as yet in its early stages<sup>7</sup>, is expected to increase Gazprom's export capacity by a further 30 Bcm on completion in 2011, when it will deliver Russian gas directly to Bulgaria. From there, the pipeline will be divided into two branches, one to Romania, Hungary and Slovenia, and the other to Greece and southern Italy<sup>8</sup>. To complete these export routes to Europe, Gazprom has also acquired stakes in two interconnectors, with the explicit aim of reaching the UK market<sup>9</sup>. Gazprom could also buy a share in the Baumgarten gas hub in Austria<sup>10</sup>.

Given the often conflictual situations inherited from the Soviet era, Gazprom’s strategy to protect its export routes also includes attempts to acquire stakes in existing networks in the CIS. With this aim in mind, Gazprom tried to negotiate with Ukraine and Belarus, offering to cancel their gas debts in exchange for a majority stake in their gas pipeline companies. Their attempts failed as far as Ukraine was concerned but they achieved a certain success with Belarus in 2007.

### 1.2 Commercial strategies: what would be the Gazprom’s contracts portfolio?

The second major element of Gazprom’s strategy relates to the definition of its contracts portfolio. While gas market liberalisation in Europe has given suppliers new marketing options (in particular sales on spot markets and short-term sales), it has also led to changes in long-term contracts. These may concern the duration of contracts<sup>11</sup> or may involve the removal or modification of certain important clauses (final destination clause and price indexation clause<sup>12</sup>). Other changes may allow for greater flexibility concerning the quantities of gas actually delivered (Take or Pay clause) (Chevalier, Percebois, 2007).

Gazprom is thus faced with the classic dilemma of any gas supplier, that of finding the right balance between volumes and prices. Thus, a policy of capturing market shares through spot trading and short-term sales could, if implemented on a large scale, pull prices downwards. Furthermore, the conditions of Russia’s domestic gas market, where prices contribute very little to the gas company’s profitability, justify Gazprom’s preference for long-term contracts. Such contracts are necessary to fund the huge investments that will be needed to develop new production areas. They provide Gazprom with the guarantee of profitable long-term outlets on the European market. Without these outlets, low gas prices within Russia would not make it economically viable to develop new gas fields, where production costs would be considerably higher than in the past.

Faced with this situation, Gazprom can sell gas on spot markets, as it has done at different times in the UK in order to benefit from prices that are higher than contract prices. In this particular case, this is a “new” market with which Gazprom is not bound by any long-term contract (thus eliminating any form of competition). Aside from a few individual cases, Gazprom is planning for the main part to maintain its system of long-term contracts for its sales to Europe. Agreements signed recently with GDF, E. ON-Ruhgas, ENI, OMV AND RWE Transgas, to name just a few, bear witness to this strategy (cf. Table 3).

**Table 3: Main long-term contracts signed between Gazprom and European gas operators  
Between 2005 and 2007**

Country	Company	Term of contract (signature)	Amounts	Extension/new contract	Comments
Germany	E.ON Ruhgas (1)	2011-2036 (2006)	100 Bcm	New	By Nord Stream
Germany	E.ON Ruhgas (1)	2020-2035? (2006)	300 Bcm	Extension	
Germany	E.ON	2009-2020 (2005)		Extension	
Germany	WIEH	2014-2031 (2006)	90 Bcm	Extension	

<b>Austria</b>	OMV (1)	2012-2027 (2006)	7,5 Bcm/y	Extension	25% marketed by two companies, Centrex and GWH controlled respectively at 50% and 100% by Russian interests
<b>Bulgaria</b>	Bulgargaz (1)	2011-2030 (2006)	3 Bcm/y	New	
<b>Danmark</b>	Dong	2011-2030 (2006)	1 Bcm/y	New	By Nord Stream
<b>Italy</b>	ENI (1)	2017-2035 (2006)	22 Bcm/y	Extension	In parallel, ENI has agreed that Gazprom can sell 3 Bcm/yr directly to Italian customers (2)
<b>France</b>	GDF (1)	2017-2030 (2006)	12 Bcm/y	Extension	From 2010, there will be an additional volume of 2.5 Bcm/yr (NordStream). Gazprom will be able to sell 1.5 Bcm/yr directly on the market.
<b>Czech rep</b>	RWE Transgaz (1)	2014-2035 (2006)	9 Bcm/y	Extension	
<b>Czech rep</b>	Vemex	2008-2012 (2007)	0,55 Bcm/y	New	Option to extend for 5 years. (Vemex, marketing company in which Gazprom has 33% share)
<b>Romania</b>	WIEH	2012-2030 (2005)	4,5 Bcm/y	Extension	

*Notes (1): incumbent operator; (2): The agreements signed are aimed at defining a partnership based on asset swaps between ENI and Gazprom: 10% stake in ENIPower in exchange for shares in a gas field and the creation of a joint marketing company in exchange for a stake in a gas field.*

*Sources: Tonje., De Jong (2007) ; Finon, Locatelli (2006) ; "Gazprom starts to compete against its own long-term contracted supplies in the Czech downstream market", Gas Matters, novembre-décembre 2007, p. 24-25.*

### 1.3 Some limits to defining a new gas strategy

Gazprom's strategy of getting into the downstream chain could come up against a certain number of limits and constraints. At the very least, it creates a dilemma peculiar to the gas company in that, if it is developed on a large scale, it could call into question its contractual relations with its traditional clients on European markets. The question of competition between long-term contracts and direct sales then becomes a crucial challenge, much like that of finding a balance between different types of contract so as not to destabilise the gas giant's relations with its traditional clients. In the case of the French market, for example, it would be difficult for Gazprom to expect to maintain or even increase contracted volumes covered by Take-or-Pay agreements and at the same time aspire to a 10% direct share of the final-consumer market, unless there were to be a strong rise in demand (i.e. a sellers market). Similarly, the medium-term contract signed with Vemex, a gas marketing company in which Gazprom has a 33% share, poses the same question with respect to the long-term contract signed with RWE Transgas, the former gas import monopoly in the Czech Republic.

From this point of view, the agreement signed in 2006 between Gazprom and GDF can throw some light on this question and help with interpretation. In particular, this agreement will enable Gazprom to sell 1.5 Bcm/yr of gas directly to French consumers (GDF must transfer this amount back to Gazprom). Because of the quantities at stake, this type of agreement would not seem to have a particularly serious effect in terms of competition. Although the volume involved is fairly significant (10.3% of the contracted supplies from Gazprom), it



represents only a small percentage (2.3%) of GDF's total gas sales to French consumers (approximately 66 Bcm). It is therefore highly unlikely that this strategy will destabilise the contracts concluded with GDF. A similar conclusion can be made concerning the agreement signed with the Czech Republic<sup>13</sup>.

Given the importance placed by Gazprom on long-term contracts with its traditional partners and in light of recent changes in contractual arrangements, it would appear that Gazprom's strategy of gaining a presence downstream will remain limited. In our view, only by acquiring stakes in incumbent operators could Gazprom implement a broad-reaching policy of downstream integration without calling into question existing contractual relations. As already mentioned, a development of this kind would, in the present context, seem difficult for the EU States to accept, with the exception perhaps of the special case of central and eastern European countries and certain former Soviet-bloc countries. Gazprom has thus been able to take part in the privatisation process of energy companies in particular in the Baltic countries, Bulgaria and Romania (but even in these cases, it has come up against resistance on many occasions<sup>14</sup>).

- *Access to resources in exchange for downstream assets?*

Perhaps, it is hard to imagine a downstream strategy being implemented on a large scale unless the Russian gas giant opens up its upstream operations to European companies. For its part, Gazprom has on a number of occasions shown its willingness to provide access to its gas resources in exchange for a presence in the downstream chain in Europe under bilateral deals. The agreement signed with BASF is a first example of such a situation (cf. Box 1). As far as the EU is concerned, the opening up of its suppliers' gas sectors – in particular Russia's - to foreign investors is an important variable in its energy policy in the context of energy market liberalisation. This has been expressed in the Energy Charter (and even certain aspects of discussions surrounding Russia's accession to the WTO<sup>15</sup>).

#### **Box 1: BASF – Gazprom agreement**

The contract signed in 2007 between BASF and Gazprom concerns the entire gas chain, covering exploration-production activities (in Russia) and transport and distribution (in Germany and certain other European countries). Under this contract, Wintershall (subsidiary of BASF) will receive a 25% stake minus one share in the Russian company Severneftegazprom which is developing the Yuzhno-Russkoye gas field (with expected production capacity of 25 Bcm by 2009). In exchange, Gazprom will increase its share in Wingas from 35 to 50% minus one share. In addition, Wingas Europe, a 50/50 joint venture between Gazprom and BASF, is to be created to market Russian gas in Europe.

*Sources : Pétrostratégies, 9 novembre 2007 ; “Gaz : le tandem Gazprom-Wintershall se dirige vers des ventes de gaz de 50 Gm<sup>3</sup>/an en Europe”, Pétrostratégies, 9 avril 2007.*

Misunderstanding and controversy remain between Russia and the EU on just how involved the European companies will be in the Russian upstream activities and the extent to which downstream activities in Europe will be opened up. It is clear today that the Russian State is more than ever determined to maintain direct control over its oil and gas resources. While we cannot talk about total closure of the Russian territory, it is clear that agreements are increasingly negotiated on a case-by-case basis with the highest echelons in the Kremlin, an example being the agreement between Gazprom, Total and StatoilHydro for the development of the Shtokman gas field. Furthermore, this agreement is surrounded by seemingly inevitable misunderstanding and ambiguity. Gazprom says that it owns 100% of the reserves and the natural gas production of Shtokman while Total states that it is in a position to own a share in the reserves<sup>16</sup>.

#### **1.4 Diversification of exports: a credible response to liberalisation of the European market?**

Institutional changes in the European gas market provide an incentive for the Russian company to try to diversify its exports, first in the direction of the Asian markets but also to the United States via an LNG chain. In the long term, it is quite possible to imagine a situation in which European markets will have to compete with Asian markets for Russian gas. But in the short term, such a choice would hardly be a credible response from Russia to the uncertainties created by gas market liberalisation in Europe.

Gas could be exported to Asia via two principal routes<sup>17</sup>. The first would involve supplying China by developing gas fields in eastern Siberia, with the Kovytko field in the Irkutsk region the first to go onstream, followed by the more remote fields in the Sakha republic (Chayandiskoye, Talakan). In this case, the areas that would supply Asia are relatively distinct from those that would supply the European market (western Siberia). Only the second option, the Altai development, which would involve supplying Asian markets from gas fields in western Siberia, would create real competition between Europe and Asia<sup>18</sup>.

Numerous constraints make such diversification difficult to envisage in the immediate future. The adequacy of the reserves themselves is not an issue, even though lack of exploration in this region means that there is uncertainty regarding actual quantities<sup>19</sup>. However, gas pipelines would have to be built over very long distances (especially in the case of the western Siberian fields), necessitating substantial financial commitments. The principal limit however comes from China and how much it is prepared to pay for gas imports from Russia. China is reluctant to commit itself to long-term contracts that would be binding not only in terms of contracted volumes but also in terms of prices (price indexation clause). Although China's internal prices have been raised considerably over the last few years, they are still not sufficiently high for China to be able to pay import prices comparable to those paid on the European markets<sup>20</sup>. It is European markets that are the most profitable for Gazprom, at least in the short term. Finally, there is the "Gazprom" institutional unknown factor. Although Gazprom has a monopoly over gas exports and is also coordinator of gas field development in eastern Siberia, it has thus far not been particularly involved in developing this area, with development licences for the main gas fields being in the hands of Russian oil companies. However, it is difficult to imagine that there could be any large-scale development in this region without greater involvement from Gazprom. The Russian gas company's membership of the Sakhalin II consortium and its purchase of TNK-BP's stake in the company that holds Kovytko's development licence perhaps mark the beginning of fresh developments.

## **II – Export strategies hampered by domestic market constraints**

Institutional changes in the EU gas market have forced Gazprom to adapt its export strategies as far as this market is concerned. However, exports to Europe are affected by – and in the future may be even restricted by – conditions on the Russian domestic market. Despite the considerable changes over the last few years, Russia’s internal market can hardly be viewed as a genuine market where supply and demand are regulated by price fluctuations. With a large part of this market controlled by the classic tools of the planned economy, namely consumption quotas rather than prices, trying to assess domestic supply and demand is a difficult and somewhat hazardous exercise. Changes in supply and demand, like price fluctuations, are however the main factors which would define Russia’s export capacity in the medium term.

## 2.1 Uncertainties surrounding future gas production

The statement – made initially by V. Milov and then reiterated by the International Energy Agency and the European Union – that from 2010 Russia would no longer be able to meet its contractual obligations and satisfy domestic demand opened up the debate on the prospects for boosting gas production over the next ten years. By 2010 (Milov, 2005), Russia’s gas deficit should be of the order of 132 Bcm, which would seem to confirm forecasts given by the *Centre For European Policy Studies*, which gives a figure of 126 Bcm for this date (Riley, 2006). But some of the assumptions that have been made might be open to question. This deficit is estimated on the basis of an export volume of 312 Bcm, comprised of 200 Bcm to Europe and 112 Bcm to the CIS (while Russia’s production levels are not very far off official estimates). This export volume seems considerable since it is higher than projected exports for 2020 given by the Russian authorities in the long-term energy plan, which puts maximum exports for 2010 (all export areas together) at 225 Bcm, while for 2020 it estimates exports to Europe will not exceed 210 Bcm, even in an optimistic scenario. These export levels correspond to gas production that will vary in 2010 from 560 to 665 Bcm, depending on the scenarios considered, and from 610 to 730 Bcm in 2020 (cf. Table 4). The overall plan for developing the gas sector up to 2030, prepared by Gazprom and under discussion since 2005, puts forward a figure for gas output in 2010 of between 683 and 710 Bcm.

**Table 4 : Russian gas production perspectives**

			2010	2015	2020	2030
Sagen, Tsygankova, 2006	Scénario pessimiste	Gazprom	-	500	-	-
		<b>Total</b>	-	<b>580</b>	-	-
	Scénario modéré	Gazprom	-	540	-	-
		<b>Total</b>	-	<b>660</b>	-	-
	Scénario optimiste	Gazprom	-	580	-	-
		<b>Total</b>	-	<b>740</b>	-	-
Victor, Jaffe, Hayes, 2006		<b>Total</b>	<b>712,4</b>	<b>804,8</b>	<b>1013,7</b>	-
Long Term Energy Plan, 2003	Scénario pessimiste	Gazprom	-	-	-	-
		<b>Total</b>	<b>555-560</b>	-	<b>610</b>	-
	Scénario modéré	Gazprom	530	540	530	-
		<b>Total</b>	<b>635</b>	<b>660</b>	<b>680</b>	-
	Scénario optimiste	Gazprom	550	570	590	-
		<b>Total</b>	<b>665</b>	<b>705</b>	<b>710-730</b>	-
Scheme for the development of the gas sector,	Minimum	Gazprom	546	-	-	595
		<b>Total</b>	<b>683</b>	-	-	<b>789</b>
		Gazprom	556	-	-	656

2007		<b>Total</b>	<b>710</b>	-	-	<b>922</b>
Renaissance Capital, 2004		Gazprom	581	-	-	-
		<b>Total</b>	<b>776</b>	-	-	-
Milov, 2005		Gazprom	550	-	-	-
		<b>Total</b>	<b>640 (2)</b>	-	-	-
WEO, 2004		<b>Total</b>	-	-	<b>800</b>	-
DOE, 2004			<b>697</b>	<b>767</b>	<b>840</b>	<b>985</b>

(1) Without Far East and East Siberia Production

(2) Without Central Asia supply

Sources: World Energy Outlook 2004, AIE 2004, p. 292 ; "Russia's gas supply commitments - Is there enough for everyone", Gas Matters, July 2007, p. 21 ; Sagen, Tsygankova (2006) ; Milov (2005) ; Victor, et al. (2006).

While certain variables might be open to question, the fact remains that in the medium term Gazprom is not planning any massive increase in gas production, with most of Russia's rise in production being left to independent gas companies and Russian oil companies. If we take Gazprom's own estimates, its production should stabilise up to 2010 (of the order of 550-570 Bcm) and then only start to rise significantly from 2015 (610-615 Bcm), reaching and 650-670 Bcm by 2020 (Gazprom, 2008). The wait-and-see attitude adopted by Gazprom in its strategy regarding investment in the renewal of existing reserves is at the heart of current debate. Until 2009-2010, the main satellite deposits (namely Zapolarnoye, Pestovoye and Tarkosalinskoye) of the three super deposits of Medevheze, Urengoy and Yamburg, where production has now reached its peak, will compensate for this decline in production. After this date, the scenarios are less clear.

For Gazprom to maintain its current production level, it will have to add 70 Bcm of new production capacity by 2015 and 180 Bcm by 2020. The huge gas fields in Yamal province<sup>21</sup> (with Bovanenko, Kharesavey and Kruzenshtern the first to go onstream), the Barents sea (Shtokman) and eastern Siberia can provide the additional gas required, given the substantial reserves in these fields. It remains to be seen which zones Gazprom will place at the top of the agenda in its investment strategy. It has a number of choices: it could start by developing either the Yamal province fields (with potential production of 250 Bcm) or the offshore Shtokman field which could reach a maximum production of 94 Bcm. A third solution, less frequently considered though nevertheless mentioned, would be to give priority to developing the reserves in the Ob Bay and Taz regions in the Kara sea<sup>22</sup>. Officially, Gazprom's priority is to develop the Bovanenko gas field in Yamal province, which is expected to produce 7.9 Bcm of gas by 2011.

Even so, recent developments concerning Shtokman, with the signature of an agreement between Gazprom, Total and StatoilHydro under which natural gas is expected to be onstream by 2010 and LNG by 2014, would suggest that the options are still open and choices not yet finalised despite the short time frame involved. For certain observers, Bovanenko is still a more credible short-term option than Shtokman<sup>23</sup>.

These delays reflect the environment of uncertainty in which the Russian company has to make its investment decisions. These uncertainties concern not only its main export market, the European Union, but also its domestic market. There may be no need for any significant increase in Russian gas production. On one hand for the European market, the aim of liberalisation is indeed to create competition between several suppliers and thus, implicitly, to diversify the sources of EU gas supplies. In this respect, Gazprom can consider its outlets to be less stable, even less reliable, and depending on the types of contracts it has with importers, it may be moving towards commitments of a more short-term nature. In such circumstances, suppliers have to decide whether they need to significantly increase production. This line of reasoning can be carried even further. In a liberalised market, Gazprom could wield market power by limiting volumes, which would make it easier to keep spot prices high as well as those in new contracts (Finon, 2007). But given the company's preference for long-term contracts, justified to a large extent by its inability to generate sufficient profits from its internal market, and also the slow pace of EU gas market liberalisation, there is no reason to assume that this is going to happen<sup>24</sup>. Needless to say, Gazprom cannot escape the uncertainty regarding its outlets as a result of market liberalisation. On the other hand this uncertainty also has an effect on its domestic market, with serious questions as to what might be the consequences of large-scale gas price reform.

## **2.2 Price reform at the heart of Russia's gas issues**

The speed with which reforms will be implemented, the extent to which prices will rise and the structure of the reformed market (with a regulated market and a "free" market) will determine changes in Russian gas supply and demand, and consequently the export capacity of this country. Let us not forget that, despite the economic reforms started in 1991, the Russian gas market is still characterised by low prices and cross subsidies and an energy price structure in which natural gas prices remain lower than coal prices. In 2006, regulated domestic wholesale prices charged to industrial consumers were on average 44\$/1000 m<sup>3</sup>. In the residential sector, prices are much lower because of the cross subsidization by industrial tariffs, a practice of the planned economy. By way of comparison, the price of gas exported to the European market was on average \$240/1000 m<sup>3</sup> in 2006. Because of the low gas prices charged at home, Gazprom can hardly make a profit from this market, which in fact account for the majority of the company's sales. For a production of 656 Bcm in 2006, 68.7% i.e. 451 Bcm went to meet domestic demand<sup>25</sup>. Of this, 30% was sold to the industrial sector and 39% to the electricity sector<sup>26</sup>. Most of the demand for gas is covered by Gazprom's production but the contribution of independent producers and Russian oil companies to meeting domestic needs is on the increase. In 2006, independents and Russian oil companies produced 61 Bcm of natural gas, most of it sold on the Russian market, given Gazprom's monopoly over export pipelines. In such a situation where prices have little meaning, the Russian gas market is essentially governed by a system of consumption quotas, which basically corresponds to a system of rationing (cf. Box 2). In such conditions, gas supply must adapt to demand, which, unless there are massive price increases, is bound to rise considerable in a phase of strong economic growth. According to the Ministry of Economy and Finance, domestic gas demand is expected to rise by 20% by 2010.

## Box 2: Managing the Russian gas market by controlling quantities

Quotas, which are fixed as a method of managing the natural gas market in Russia, are essentially negotiated between Gazprom and the major types of gas consumers, although there are no clearly defined principles (in particular contractual ones) regarding these quotas (1). Each year, Gazprom determines the quantity of gas that it will supply to each type of consumer at the regulated price.

While most gas supplied to residential consumers is sold at regulated prices (long-term contracts with local distribution companies are possible), the same is no longer true for the industrial sector. A non-regulated market is now developing alongside the regulated market, even though this parallel market is still largely controlled by Gazprom. Industrial consumers (and the electric power sector) who require gas in excess of their consumption quotas can buy additional supplies on a so-called “free” market at non-regulated prices. This market is supplied primarily by independent gas producers, Russian oil companies, and to a minor degree by Gazprom (marginal volumes). We thus have:

- sales by independent producers and Russian oil companies at freely negotiated prices (10 to 20% higher than regulated prices) ;
- sales on a gas exchange by Gazprom (5 Bcm) and independent producers (5 Bcm);
- sales by Gazprom since May 2007 at prices negotiated bilaterally with electricity sector companies that wish to buy volumes in excess of the quotas negotiated in the 2007 gas balance and with new consumers. Close to 11 Bcm could be sold on this basis in 2008 (2).

Consumption quotas are difficult and complex to negotiate, especially with the public authorities. They are linked to important social stakes but also to the industrial policies that the Russian State plans to implement. From this point of view, low energy prices give certain energy-intensive Russian industries a comparative advantage in export markets.

Notes : (1) Ahrend, Tompson (2004) ; (2) “Russia starts to reform its internal gas market”, Gas Matters, octobre 2007, p. 13-17.

The gradual price increases envisaged by the Russian authorities, if they are really applied, could change this approach considerably. The overall objective is for parity (less excise taxes, export duties and transport costs) between Russia’s domestic gas prices and European prices from 2011 for the industrial sector, and from 2013 for the residential sector. The schedule for raising regulated gas prices adopted on 30 November 2006 provides for a rise of 15% in 2007 and 25% in 2008. In 2009, prices could rise by two increments of 13% while 2010 will see a rise of 13% followed by a further 12%. However, it is difficult to say precisely what prices will be in effect in absolute terms in 2011, in particular because this approach of aligning prices with European prices can lead to considerable increases given that gas prices are indexed to oil prices in the price formulas used for long-term contracts.

On the demand side, such price changes should create the economic incentives needed to persuade consumers to rationalise their gas consumption, which would necessarily slow the rate of growth in demand. The country’s long-term energy plan already provides for a relatively modest rise in demand for natural gas by 2020 with an average annual growth rate of 1.3%<sup>27</sup>. In this case, Russia could meet its domestic needs and still honour its contractual obligations without the need for a massive rise in gas production.

On the supply side, a significant increase in domestic prices would be likely to encourage independent producers (such as Novatek and Northgaz) and the Russian oil companies (Surgutneftegaz, Rosneft, TNK-BP and Lukoil) to produce more gas than they are doing at present. At the moment, because domestic prices are low and because Gazprom’s export

monopoly prevents them from selling on the European market, these companies tend to limit their production, which in 2006 represented 16% of Russian gas production<sup>28</sup>. In the medium term, therefore, any large-scale development of gas fields with huge reserves such as those in Yamal might not be justified, for fear of creating a gas glut.

*- Without price increases, what room for manoeuvre does Gazprom have?*

Development of the Yamal gas fields, where production costs will undoubtedly be much higher than those in western Siberia, will necessitate a rise in domestic gas tariffs (and/or a “secure European gas demand”). Without major price increases, it is unlikely that Gazprom will be able to secure a return on such investments on the internal market. Consequently, even to meet rising demand at home, there is no economic justification for developing gas fields of this type. This being so, Gazprom has two possible ways of making adjustments. First, it can make sure that it has a large volume of gas available from Central Asia (Turkmenistan, Kazakhstan), in addition to Russian gas production. For 2008, Russia has signed an agreement to purchase 50 Bcm of gas from Turkmenistan at a price of \$100/1000 m<sup>3</sup>. In an agreement signed between Gazprom and the Turkmen president in 2003, these imports could rise to 80 Bcm by 2010 and continue until 2028. The situation should become clearer with the signature of the agreements between Russia, Kazakhstan and Turkmenistan concerning renovation of the gas pipeline network between Turkmenistan and Russia via Uzbekistan and Kazakhstan, and also the construction of a new pipeline with a capacity of 30 Bcm, parallel to the first, and finally the renovation of the Central Asia-Center pipeline<sup>29</sup>.

The second method of adjustment available to Gazprom concerns the way in which the domestic gas market is organised. For example, in a situation of low prices (below marginal cost for example), Gazprom might try to minimise its sales (Sagen, Tsygankova, 2006) and leave independent producers to make up the difference on parallel markets, thereby enabling it to reallocate part of domestic sales to the export market. Given the way the Russian gas market is organised, this is a realistic hypothesis for making adjustments through quantities. The quota system thus provides Gazprom with the possibility of negotiated rationing with major consumers and the industrial and electricity segments (Stern, 2006). (Any demand in excess of the quotas can then be satisfied on a free market at prices higher than those regulated by the state). This type of rationing by controlling quantities would enable Gazprom to meet its contractual commitments which, given its domestic situation, would remain a priority in its gas policy (even though to date Gazprom has always refused to arbitrate against the interests of its internal market)<sup>30</sup>. Such an approach could find support in the policies to replace gas with coal in electricity generation, something that is explicitly envisaged in Russia’s long-term energy plan. Given the present state of reforms and current uncertainties (especially political), making any sudden and substantial increase in prices improbable, this would seem to be a highly likely scenario.

\* \* \*

The possibility of Russia exercising market power in the EU gas market is today not really a realistic threat. First, current conditions in a European gas market dominated by long-term contracts are hardly conducive to such a situation. Second, Russia has neither the production capacity (i.e. surplus capacity) nor the necessary flexibility in its export strategies. Only massive price rises on the domestic market would be likely to satisfy this second condition, for at least two reasons. A profitable domestic market would undoubtedly enable Gazprom to more easily envisage a redistribution of its sales between internal market and export market,

with the EU losing the priority status that it currently enjoys (Stern, 2007). This could prompt Gazprom to be more flexible with regard to its contracts in the sense that it might be less inclined to systematically defend long-term contracts and more inclined to develop short-term sales. At the same time, such price rises would guarantee the company a production capacity sufficiently high (surplus?) – either through reduced demand, or because the development of numerous fields would become worthwhile economically – to make flexible export strategies a credible option (increasing or reducing exports depending on spot market conditions). In fact, given its present production capacity, it appears highly unlikely that Gazprom has any real room to manoeuvre as far as its exports are concerned.

Such changes would add credibility to the idea of Gazprom exercising market power in Europe but, given Russia's dependence on revenues from hydrocarbon exports (as well as the state of development of spot markets in the EU), the company is hardly in a position to do this today.

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## Notes

<sup>1</sup> In Gazprom's statistics, exports to the Baltic countries (4.9 Bcm) are included in the CIS zone.

<sup>2</sup> cf. "Russia : Gazprom official reaffirms reliability of gas supplies", *Cedigaz News Report*, 46(40), 21 décembre 2007, p. 11.

<sup>3</sup> Even the creation of Wingas did not fundamentally stand in the way of Ruhrgas (in other words create real competition) on the German market because of demarcation agreements that governed the German gas industry until 2000. Under these agreements, large areas were exempted from gas-gas competition. (cf. Finon, Locatelli, 2006).

<sup>4</sup> In particular Gazprom Marketing and Trading in the UK and Gazprom Marketing and Trading France SAS in France.

<sup>5</sup> The British government came out strongly against Gazprom's professed or assumed aim of obtaining a stake in the UK's Centrica.

<sup>6</sup> To build this gas pipeline, Gazprom, BASF and E.ON created a joint venture in which Gazprom has a 51% stake. Gasunie should join the consortium (9% stake) in exchange for assets in the Balgzand Bacton Line (BBL), a gas pipeline between the Netherlands and the UK. Its final capacity should reach 55 Bcm by 2013 (22.5 Bcm in 2011 and 22.5 Bcm in 2013).

<sup>7</sup> At the end of 2007, Gazprom and ENI signed an agreement to create a joint venture to build the gas pipeline. Gazprom will have a 51% share in the company.

<sup>8</sup> cf. "Gazprom, Eni sign South Stream deal", *Argus FSUE*, 23 novembre 2007, p. 10.

<sup>9</sup> Gazprom has a 10% stake in the interconnector between Zeebrugge and Bacton. In exchange for Gasunie receiving a share in NordStream, Gazprom will have an option to acquire a stake in the Balgzand Bacton Line (BBL), the interconnector between the Netherlands and the UK.

<sup>10</sup> cf. "Gazprom gets 50 % Stake in Austrian Hub", *The Moscow Times*, janvier 2008, p. 7.

<sup>11</sup> A. Neumann and C. Von Hirschhausen observed that, since liberalisation, new supply contracts of five to eight years have been introduced. However, they remain marginal and concern production capacity already in place (cf. Neumann, Von Hirschhausen, 2004; Finon, Locatelli, 2006).

<sup>12</sup> *In certain cases, price formulae will include market prices for electricity as an element for pricing part of the gas supply, or prices for coal, which can replace gas in electricity generation. In a few years time they could include spot market prices in continental Europe, provided these markets are sufficiently liquid. Liberalisation will thus probably lead to changes to pricing formulae.*

<sup>13</sup> *Under a medium-term contract Vemex has agreed to purchase 0.5 Bcm of Russian gas between 2008 and 2012, with an option to extend the contract for five years. This amount represents 5% of the Czech market. (cf. "Gazprom starts to compete against its own long-term contracted supplies in the Czech downstream market", Gas Matters, November-December 2007, p. 24-25.*

<sup>14</sup> *cf. example of Romania.*

<sup>15</sup> *Some of these discussions concerned in particular the gas sector and the low gas prices practised in Russia. These prices could be viewed as indirect subsidies to the Russian industrial sector and thus as a form of dumping.*

<sup>16</sup> *cf. "Statoil fits the Bill for Shtokman", Petroleum Intelligence Weekly, 5 novembre 2007, p. 4-5.*

<sup>17</sup> *On this point, see for example C. Locatelli, 2007.*

<sup>18</sup> *This is a proposed gas pipeline from the gas fields in western Siberia to China that would deliver 30-40 Bcm /yr.*

<sup>19</sup> *In the three potential production areas, the Republic of Sakha, and the Irkutsk and Krasnoyarsk regions, proven and potential reserves are estimated at between 3.7 and 5.3 Tm<sup>3</sup> (proven) and over 50 Tm<sup>3</sup> (potential). (cf. Boussena, et al., 2006, p. 134).*

<sup>20</sup> *cf. "Russia misleads on China gas talks", Argus FSU Energy, 23 novembre 2007.*

<sup>21</sup> *In 2006, Gazprom announced that gas from the Bovanenko field will be onstream by 2011.*

<sup>22</sup> *cf. "Russia's gas supply commitments-Is there enough for everyone", Gas Matters, July 2007, p. 18-24.*

<sup>23</sup> *cf. "Shtokman gets green light", Argus FSUE, 23 novembre 2007, p. 3.*

<sup>24</sup> *On these questions, see D. Finon, C. Locatelli, 2008.*

<sup>25</sup> *It is difficult to analyse Russia's domestic gas consumption due to lack of information on the types of consumers that are supplied by the country's independent gas producers and oil companies, whose production in 2006 totalled 61 Bcm.*

<sup>26</sup> *Over 70% of Russia's thermal power stations are gas-fired.*

<sup>27</sup> *In an optimistic scenario, Russia's gas consumption will be 512 Bcm in 2020 and in a pessimistic scenario 464 Bcm.*

*According to A. Goldthau, these levels implicitly assume a significant improvement in the energy efficiency of this country insofar as it can be assumed that Russia's economic growth rate over this period will be well above the 1.3% /yr expected rise in gas consumption (Goldthau, 2007).*

<sup>28</sup> *This output could vary between 194 and 266 Bcm in 2030 according to the gas sector general development plan for 2030. in Gas Matters, July 2007, op. cit., p. 21. But more optimistic estimates can be found. Thus, output might reach 150 Bcm in 2010 and 209 Bcm in 2015. cf. "Gazprom oversees growth in gas output by independent producers", Gas Matters, August 2006, p.17-22.*

<sup>29</sup> *This is a gas pipeline built in the Soviet era from Turkmenistan, through Uzbekistan and Kazakhstan to Russia. Its capacity of 45 Bcm/yr should rise to 90 Bcm/yr.*

<sup>30</sup> *The policy to replace gas with coal in thermal power stations that the government intends to implement by 2020 is part of this strategy.*

