

# The Future of Russian Gas and Gazprom

*Jonathan Stern*

Being CEO of any large international energy company is a complex job, but the task facing Alexei Miller – who holds this position at Gazprom – is particularly difficult. His appointment by President Putin in 2001 coincided with the passing of an era for both Russian gas and Gazprom, not just in terms of management, but also in relation to traditional patterns of supply, demand and trade.

## Supply and Transmission

As the 2000s unfold, it becomes increasingly apparent that the ‘Soviet gas dowry’ to the Russian Federation, specifically the investments that were made in production and transmission before 1991, are within sight of the end of their productive lives. Gazprom’s production is moving from dependence on three fields (Urengoy, Yamburg and Medvezhe) to a larger number of smaller fields requiring more complex and costly development of gas and liquids, and therefore more complex and costly transportation options. Well over 20 percent of high pressure transmission lines are beyond their design lifetime of 30 years, while nearly 60 percent of the network is over 20 years old. The main domestic tasks for the Russian gas industry and Gazprom over the next 20 years are to replace the production capacity of those fields, combined with large-scale refurbishment of the Unified Gas Supply System (UGSS) bringing that gas from Western Siberia to domestic and export markets.

In the first part of the 2000s, the consequences of decline in the three major fields were masked by the start-up of the (supergiant) Zapolyarnoye field, which was close to its plateau production of 100 Bcm/year in 2004. As a result, Gazprom production – which had fallen during the period 1998–2001 – increased again in the early 2000s. But with Zapolyarnoye reaching its peak, Gazprom’s production will level off and decline before 2010. There has been an average rate

of production decline at the three major gas fields of more than 22 Bcm/year during the period 1999–2004, and by 2020 Gazprom will need to replace around 200 Bcm of production capacity. Given that the company has a well-established resource base and well-developed supply options, this is by no means a crisis situation. But there is some urgency for Gazprom to establish a clear strategy on the timing of new large-scale supplies, particularly from the Yamal Peninsula.

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Capital investment requirements of \$20–25bn for the first phase of the Yamal development made such a commitment impossible in the economic and political environment of the late 1990s and early 2000s; even in 2005, the Yamal fields are not on Gazprom’s immediate investment agenda. Lead times for field development and pipeline construction suggest that production of 100 Bcm/year cannot be achieved in less than eight years. Thus even if a decision is taken to begin Yamal development in 2006, the earliest date that the region can be producing 100 Bcm/year would be 2014, and this may be overly optimistic in terms of the logistical challenges and environmental difficulties likely to be encountered in such a remote and ecologically fragile region.

Those who criticise the company for failing to invest sufficiently in new production have not understood that, despite the fact that domestic gas prices have risen sharply in real terms in the early 2000s, Yamal gas could not be sold profitably in Russia at 2005 prices – and possibly not even at prices of \$60/mcm foreseen for 2010. (Profitability will depend to a

significant extent on the tax regime for Yamal gas). While this justifies the commercial wisdom of Gazprom’s decision not to develop Yamal for production in the 2000s – even if this was mainly driven by financial constraints – it does not provide a future supply ‘road map’ for the company.

To the extent that Gazprom does not move towards rapid, large-scale development of the Yamal Peninsula, it must, by design or default, rely on:

- a larger number of smaller fields, specifically offshore fields in the Ob and Taz Bays, close to the existing pipeline network which could provide around 80 Bcm/year, but with plateau volumes in many fields only able to be maintained for around a decade. Developing these fields could be a crucial part of a low cost supply strategy;
- deliveries from other gas producers which, with adequate incentives, could increase from a 2004 level of nearly 90 Bcm to as much as 150 Bcm/year by the early 2010s, and perhaps more than 200 Bcm by 2020 but only if prices are attractive and access terms are ‘reasonable’. Although there is a tendency to refer to ‘independent producers’ as if they were a significant number of companies, in 2005 only five companies appeared to have the ability to substantially increase gas production for sale to markets west of Siberia: Lukoil, Rosneft, TNK/BP, Surgutneftegaz and Novatek;
- imports from Central Asian countries where Gazprom has long-term agreements in place with Turkmenistan, Kazakhstan and Uzbekistan which envisage the possibility of more than 100 Bcm/year of imports by the early 2010s.

The outcome will depend both on a view of costs, time schedules and levels of security attached to these different options; and the margins available from the different markets for Russian gas – domestic, CIS and



European – which in turn will depend on the prices these customers will be willing and able to pay over the next decade. Independent gas production and imports from Central Asia on this scale would introduce a level of dependence on other suppliers never before experienced by Gazprom, and this will be a big change for the company in the future.

**Demand and Prices**

During the period 1998–2005, the Russian industrial gas sector was

transformed from a massive loss-making nightmare to a modestly profitable business for Gazprom selling at regulated prices. It is possible that sales to residential customers could become profitable within ten years. Further reform of regulated prices is needed not just to remove subsidies to residential customers, and to increase prices to all customers closer to long-run marginal costs, but also to increase cost-reflectiveness (in terms of location and customer demand profile). But full deregulation of (even) industrial prices, with further develop-

ment of trading and exchanges, will be difficult for as long as Gazprom is the overwhelmingly ‘dominant player’ in both production and sales.

Lack of detailed data on gas demand and price elasticity means that it is very difficult to estimate the impact on demand of increasing industrial prices, two to three times higher in real terms than five years previously, with a requirement to pay on time, in full and in cash. Thus in terms of price levels and payment enforcement, in 2005 the industry is in uncharted territory. Significant conservation and efficiency measures can be expected to be the result, challenging the traditional assumption that demand will continue to increase at 1–2% per annum indefinitely. The problem is to know when structural change and large-scale replacement of old inefficient plant will begin. To an important extent this will depend on reform in the power sector and whether the new owners of power stations will have sufficient confidence in their property rights to make substantial investments in new, energy efficient, plant. Nevertheless, sales to the domestic market have become profitable for Gazprom – and independent producers – and promise to become more profitable. This will be a big change in the future and, with Gazprom sales amounting to nearly 300 Bcm/year, one with significant financial consequences.

**Reform and Restructuring**

Gazprom will remain the dominant player in Russian gas production and sales for the foreseeable future, but reform has taken place, and shows every sign of continuing, in the gas sector. The advances in price reform were noted above. In terms of access to networks, in 2004, Gazprom carried nearly 112 Bcm of gas for 35 shippers, although more than 50 Bcm was Central Asian gas destined (mainly) for CIS countries. Despite the fact that probably only a handful of shippers accounted for the majority of the remaining 62 Bcm, this represented respectable progress. Nevertheless much remains to be achieved in terms of non-discriminatory access to networks and the evolution of cost-related

tariffs. In the reform environment of 2005, non-Gazprom producers – both oil companies and independent gas companies – could prosper as long as they did not provoke conflict with Gazprom management (and the Russian government) and stayed within the role determined by the latter which, for the foreseeable future, does not include exports to Europe. While this may not permanently condemn these producers to what the Head of the Russian Anti-Monopoly Service has termed ‘vassal status’ in respect of Gazprom, it also leaves them somewhat short of operating as independent commercial entities in a non-discriminatory third-party access regime.

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In 2004, companies other than Gazprom accounted for around 14 percent of production and a similar percentage of gas sales within Russia. The speed with which the market share of non-Gazprom players will increase will depend on the development of:

- regulated prices;
- a transparent and enforceable regulatory regime for tariffs and access to networks and, in its absence, the interest of Gazprom in encouraging other suppliers to develop fields and move gas to market;
- the success of Gazprom in developing competitively priced supply from Central Asia (the more of this gas is available to Gazprom, the less independent gas will be required).

To the extent that Gazprom delays the development of supplies over which it has direct control, it will need to rely on other Russian producers which will take an increasingly large share of the Russian domestic market. Both Gazprom and the Russian government

seem to be relatively comfortable with this prospect which would be positive for market reform. Less positive for reform would be a situation in which non-Gazprom production increased substantially, but those producers found their access to market blocked and were forced to sell their gas to Gazprom at the wellhead at regulated prices (minus transportation).

One of the most difficult developments to project is how far and how fast structural reform of Gazprom will develop. The creation of separate subsidiary companies for production, transmission, storage and other activities (legal unbundling) was well advanced in 2005. Break-up (ownership unbundling) of the company is politically unacceptable and this is unlikely to change even after the end of the second Putin presidency. As the 2000s unfolded, Minister of Economic Development and Trade (MEDT) Gref was clearly frustrated at the slowness of Gazprom reform and the lack of cost control, in an environment of sharply rising earnings from domestic and foreign markets. But MEDT was the only powerful government agency which has consistently expressed opposition both to the growing consolidation of the energy sector with Gazprom acquiring oil and electricity assets, and frustration with the slow pace of gas sector reform.

But despite these problems and the continued dominance of Gazprom, those who claim that ‘there has been no reform of the Russian gas sector’ are completely wrong. Gazprom’s corporate structure, financial accounting and transparency have improved immensely. There is third-party access to networks with a regulatory authority, and substantial volumes being transported for third parties to Russian customers. But rights of access to networks become problematic beyond Russian borders, and cease entirely at the borders of CIS countries.

#### Exports: Pipeline and LNG

Gazprom management, the government and the president are clear that Gazprom will remain the ‘single export channel’ to Europe for the foreseeable future. The same policy

has already been instituted for Asian pipeline exports, well in advance of any such exports actually happening.

By 2005, Gazprom had re-established complete control over Russian gas to *CIS countries* after a period in the late 1990s and early 2000s when it relinquished a large part of this role. Russian gas exports to (especially) Ukraine, Belarus and Moldova will remain extremely important for these countries and intertwined with transit of Russian gas to Europe. Gazprom has commitments to supply around 90 Bcm/year to CIS countries in the mid to late 2000s, of which 60 Bcm/year will be to Ukraine (more than half of which *should* be re-exports from Turkmenistan) and up to another 20 Bcm/year to Belarus.

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*Europe* will remain the dominant export market for Russian gas in terms of volumes and revenues for at least the next two decades and probably much longer. Export capacity to European countries including Turkey was around 190 Bcm in the mid 2000s. Refurbishment of the Ukrainian network could add up to an additional 40 Bcm of capacity. The North European Pipeline (through the Baltic Sea to Germany) will add another 27.5 Bcm and eventually twice that volume. Resolution of transit relationships with Ukraine and Belarus (and to a lesser extent Moldova) will remain essential, and the North European Pipeline will not change that situation.

Gazprom’s stated intention to complete the line by 2010 could be delayed, but will not affect marketing of additional Russian gas in Belgium and the UK, which can be achieved via the expanded capacity of Interconnector (IUK) and the new BBL pipeline both of which should be completed by the end of 2006. Sales to these markets demonstrate another

aspect of the future of Russian gas exports: confirmation that Gazprom sees a role for short-term contracts based on gas-indexed prices, alongside the traditional long-term oil-indexed contracts. But the costs involved in serving these markets, particularly the UK, mean that they are highly price-sensitive and sales could disappear relatively quickly should prices fall significantly from the levels of 2003–05.

There are substantial uncertainties for Russian gas sales to European markets over the next decade. These are related to the long-awaited development of gas-to-gas competition and pricing, anticipated as a consequence of liberalisation, which have yet to make a significant impact in Continental Europe. A growing surplus of supply over demand in the late 2000s, implementation of the second EU Gas Directive and the EU competition investigation into the energy sector, could give rise to gas-to-gas competition which would drive down European gas prices for a period of years. This would present substantial commercial difficulties for projects such as the North European Pipeline which might be commissioned around that time. On the other hand, should gas-to-gas competition fail to become a reality in Europe with prices remaining linked to those of oil (particularly at the oil price levels of 2003–05), additional sales through new infrastructure would remain attractive. But the outlook for increases in gas demand – and therefore increases in Russian exports – in a higher (oil-linked) price environment, would be significantly reduced.

*Asia and North America.* The delivery of Russian LNG from the Sakhalin 2 project – with Gazprom finally agreeing to become a 25 percent partner – to Japan, Korea and the west coast of Mexico is expected to start in 2008. There are no shortage of projects aimed at expanding Russian LNG and pipeline gas supplies to Asia, but since 2003 it has been to the east and gulf coasts of North America that Gazprom's LNG attention has been devoted. A liquefaction terminal at Murmansk – using gas from the

Shtokman field – became Gazprom's flagship LNG project. Partners will be selected from five companies – three European and two American – to participate in a joint venture with the intention to start deliveries in the early 2010s.

## “There are substantial uncertainties for Russian gas sales to European markets over the next decade”

Despite all these exciting prospects, Gazprom's pipeline and LNG export options in Asia and North America cannot reach significant proportions, in comparison to current European export levels, until the late 2020s at the earliest. But by 2005, Russian and Gazprom gas export horizons had substantially expanded beyond pipeline exports to Europe and this will be a big change for the future of Russian gas, particularly in the 2020s and beyond.

### Gazprom: Complex Options and Challenges

The complexity of the options and challenges facing Gazprom in the management of the domestic gas market, and trade – exports and imports – is daunting. There is a clear and urgent need for Gazprom (and the Russian government) to develop strategic priorities, and a significant risk that some of the projects – domestic and export – despite being huge opportunities, could also prove to be significant distractions. The announcement at the end of September that Gazprom had purchased a majority share in the oil company Sibneft, adds another substantial dimension to this complexity and (combined with Gazprom's existing oil interests) means that the company will be producing around 1 mmb/d of oil.

With very substantial gas exports to Europe, an LNG export project to North America under development, aspirations to export both LNG

and pipeline gas to Asian countries, not to speak of a wide range of potential investments in a variety of other countries, Gazprom is clearly becoming a powerful multinational – even ‘global’ – gas company. A key question is whether these international aspirations can continue to successfully coexist with a huge gas pipeline (including distribution) network and social responsibilities to supply gas to domestic customers – the legacy of Gazprom's past as a Soviet, now Russian, gas utility. The vision and skills needed to manage domestic gas transmission and distribution networks and sales, are very different from those needed to develop a ‘global gas business’ – let alone a global gas *and oil* business – and the contradiction between these two roles may give a clue to the next major phase of reform and restructuring within the Russian gas industry.



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### The Future of Russian Gas and Gazprom

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Published by the Oxford University Press for OIES

ISBN 0-19-730031-6, pp. 270,  
£39.50/\$75.00 (inc. p&p).

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