

# The Potential Impact on Europe of Russia's Evolving Domestic Gas Market

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**Dr James Henderson**

***Senior Research Fellow, Oxford Institute for Energy Studies***

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## *Introduction*

Russia and previously the USSR have long played a vital role in supplying Europe's gas market. Soviet exports to Europe in 1990 accounted for 31% of the region's total consumption<sup>1</sup> and two thirds of gas imports,<sup>2</sup> and although these shares had fallen significantly by 2010,<sup>3</sup> this has not stopped concern about over-reliance on a source of supply that has been viewed as both geo-politically and commercially insecure. The Ukrainian crises of 2006 and 2009 have served to increase suspicions about the willingness of Russia to use its energy exports as a political "weapon",<sup>4</sup> while the gas shortages experienced by a number of European countries in February 2012 have raised questions about Russia's ability and willingness to meet its obligations during times of peak demand.<sup>5</sup> Indeed, with the trend in Russia's share of EU gas consumption expected to rebound by 2020,<sup>6</sup> the issue of Europe's future dependence on Russia is increasingly being raised as a key geo-political question.<sup>7</sup>

A powerful response to this legitimate strategic concern has been that over the two decades since the end of the Soviet era Russia's gas exports to Europe have played a vital role in sustaining the finances not just of Gazprom but of the country's budget revenues, meaning that the dependence is in fact very much reciprocal. At the height of the economic crisis in 1999, for example, gas sales to Europe generated revenues of US\$8.5bn, accounting for 62% of Gazprom's total and providing vital hard currency for the Russian economy at a time when the rouble exchange rate was in free-fall.<sup>8</sup> As the oil price recovered in the years post 2000 Russia's oil-linked gas exports continued to provide an essential source of revenue, and by 2003 accounted for 67% of Gazprom's total sales revenues, 12% of the country's total exports of goods and 5% of budget revenues. This vital contribution of exports to Europe in Gazprom's sales portfolio has been driven by two main factors, namely high gas prices in

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<sup>1</sup> A total of 109bcm - Stern, J., "The Russian Natural Gas Bubble", p.66, Royal Institute of International Affairs, London

<sup>2</sup> Data from BP Statistical Review of World Energy 2012, assuming that Norway is an exporter of gas to Europe rather than part of European indigenous supply. If Norway is assumed to be part of Europe then Russia's share of European imports was 80%.

<sup>3</sup> The Russian share of Europe's total gas requirement had fallen to 23% in 2010 and the share of gas imports had fallen to 34% - IEA World Energy Outlook 2011, p.343. IEA, Paris

<sup>4</sup> Pirani, S., Stern, J., Yafimava K., "The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment", February 2009, Oxford Institute for Energy Studies

<sup>5</sup> Heather, P. and Henderson, J., April 2012, "Lessons from the February 2012 gas crisis", Oxford Institute for Energy Studies, Oxford

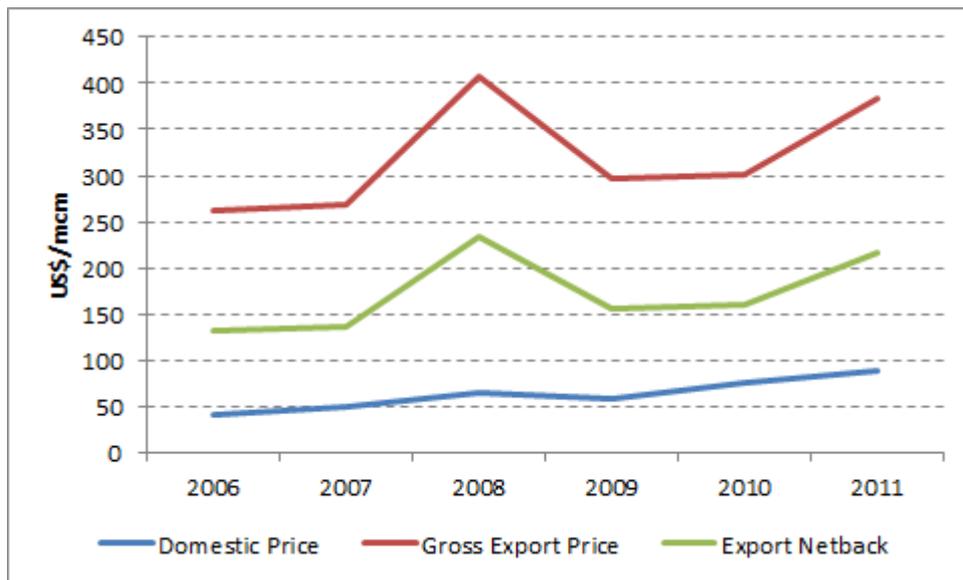
<sup>6</sup> The IEA forecasts that Russia's share of gas supply to Europe will reach 27% by 2020 - IEA World Energy Outlook 2011, p.343. IEA, Paris

<sup>7</sup> For example, "EU calls for non-Russia sources of gas", New Europe, 3 July 2012 at [www.neurope.eu](http://www.neurope.eu),

<sup>8</sup> IEA Russia Energy Survey 2002, p. 132, IEA, Paris

Europe (driven by their link to the oil price and other competing fuels) and low gas prices in Russia (which have been regulated by the government to provide an effective subsidy to domestic consumers).<sup>9</sup> The difference in the price for gas exports to Europe and the price to domestic consumers has been stark, even on a netback basis (as shown in Figure 1), with Russian wholesale customers paying approximately 70% less than their European counterparts for Russian gas in 2006 and 60% less in 2011 (on a netback basis).

**Figure 1: Comparison of Domestic and Export Prices for Russian Gas**



*Source: Gazprom IFRS Accounts, Federal Tariff Service of the Russian Federation*

Gazprom’s effective reliance on gas exports to Europe to counterbalance its domestic sales, which until 2009 had been making significant losses, has led to an implicit assumption that maximisation of export volumes is the company’s preferred strategy and therefore Europe can anticipate that Russian gas will be readily available to meet a significant level of the continent’s gas demand for the foreseeable future. Issues such as the February 2012 shortages mentioned above provide genuine concern about short-term deliverability during extreme

<sup>9</sup> The concept of Gazprom providing an implied subsidy to its domestic customers is a difficult one. The definition offered in the OECD 2004 Economic Survey of the Russian Federation is that the domestic gas price subsidy is the difference between Gazprom’s long-run marginal cost of production, estimated at US\$34–35/mcm in 2004, and the effective industrial tariff at the time of US\$26/mcm. However, the OECD itself acknowledges the difficulty in defining both the long-run marginal cost and therefore the subsidy itself, given the uncertainties around Gazprom’s actual costs, the allowances which need to be made for future capital investment, and the lack of transparency around pricing in a non-competitive market. As a result, the notion of a ‘gas subsidy’ is a relatively loose one, defined in general terms as selling gas at a price which fails to cover the costs of production and delivery to market as well as some allowance for capex to replace fixed assets. This ‘subsidy’, though, is not the same as the effective discount offered by Gazprom to domestic customers as defined by the difference between domestic and export gas prices.

weather, but overall the prevailing view<sup>10</sup> is that, despite the challenge of funding the necessary expenditure, Russia's vast resource base combined with its need for long-term export revenues will catalyse the investment required both to meet future gas sales to Europe, exports to the CIS and the even larger demand from the country's domestic market. However, changes that are currently underway in Russia's domestic gas market mean that, although the ability of Russia to meet any volume requirements in Europe is not in doubt, the balance between the importance of domestic and export sales is set to fundamentally change. Furthermore, the combination of this shift in domestic emphasis with the increasing pressures that Gazprom is facing over the price and structure of its export contracts to Europe and over its ability to conclude sales agreements in Asia could lead to significant changes in the way in which the Russian Administration formulates its gas supply strategy, with potentially important consequences for European buyers of Russian gas.

#### *Domestic gas price reform in Russia*

The Russian government has been attempting, for various commercial and political reasons, to raise domestic prices over the past decade. Primarily, it has been encouraged by Gazprom to target a price level at which a reasonable profit could be made on domestic sales, as opposed to the considerable losses incurred during the late 1990s and the first decade of the 2000s,<sup>11</sup> and at which investment in new and expensive mega-projects could be economically justified.<sup>12</sup> However, the Russian government has also been driven by a desire to meet requirements for WTO entry, which were being undermined by the perceived subsidy that low gas prices provide to the industrial sector; to increase energy efficiency; to ensure the optimal use of Russia's hydrocarbon resources, which has been distorted by the low cost of gas in comparison with liberalized coal and oil prices; and to co-ordinate the development of liberalised markets in the electricity sector, which is a the largest consumer of gas in Russia.<sup>13</sup> A concerted effort to meet these goals began in the year 2000 when the Russian government first set the target to increase domestic gas prices from the very low levels seen immediately after the 1998 economic crisis towards international levels, with the proviso that it should be done in a controlled and measured fashion, to protect Russian consumers from the excessive

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<sup>10</sup> For example in the IEA World Energy Outlook 2012, p.335

<sup>11</sup> According to Gazprom CFO Andrey Kruglov the company made a small profit on domestic sales for the first time in 2009 – Interfax, May 2 2010, "Gazprom posts first profit on domestic gas sales in 2009", Moscow

<sup>12</sup> In particular Gazprom needs to fund the development of the huge gas fields on the Yamal peninsula, where total production could reach 250 bcm/year but the total cost of development could exceed \$100bn

<sup>13</sup> Power generation accounted for 30% of Gazprom's gas sales in 2010

price increases seen in the early 1990s. As a result, in December 2000 the Gas Supply Law was amended to give the Russian state<sup>14</sup> the right to set regulated gas prices, as opposed to linking them to inflation, until such time as they had been fully liberalized.<sup>15</sup> According to the law, once this goal is achieved, the state will influence the gas sector via greater regulatory control of the transport system, which is currently owned by Gazprom.

In 2000, as the full impact of currency devaluation was felt, the industrial gas price in Russia had fallen from its high of more than \$50/mcm (\$1.4/Mmbtu) in 1995/96 to a mere \$12/mcm (\$0.33/mmbtu), equivalent to only 17 per cent of the export netback price (see Figure 2). Over the period 2000–4 the Federal Tariff Service (FTS) therefore introduced a series of 20–25 per cent price increases, but by 2005 the ratio of industrial gas price to export netback price had still only risen to 42 per cent. This meant that Gazprom was continuing to sell domestic gas at a large discount to export prices and was thus providing a significant implied subsidy to its domestic customers, estimated at up to \$2.3 billion/year<sup>16</sup>, because it was selling gas to them not only at a discount to export prices but also below the long-run marginal cost of developing its reserves.<sup>17 18</sup>

Further pressure on the regulated price system was also developing as a result of the changing structure of the domestic gas market, in particular due to the emergence of new players in the gas supply sector. ‘Independent’ gas producers such as Novatek and Itera, as well as oil companies such as LUKOIL, TNK-BP, and Rosneft, had begun to take an increasing interest in producing gas and even marketing it to domestic customers, and despite the difficulty of gaining access to the high pressure pipeline network (the UGSS, owned by Gazprom) had gained a market share of 15 per cent of total Russian gas supply by 2005.<sup>19</sup> The key element of this change was, and still is, the fact that non-Gazprom producers are not subject to regulated price restrictions and can essentially charge a tariff that effectively equates to a ‘free market’ price. As a result a two-tier market was created, with Gazprom forced to sell at

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<sup>14</sup> Prices are specifically set by the Federal Tariff Service (FTS)

<sup>15</sup> In December 2000 the Gas Supply Law was amended according to Resolution No. 1021 ‘On State Regulation of Gas Prices and Tariffs for Transportation’

<sup>16</sup> OECD, “Economic Surveys – Russian Federation”, 2004, Paris, p.135

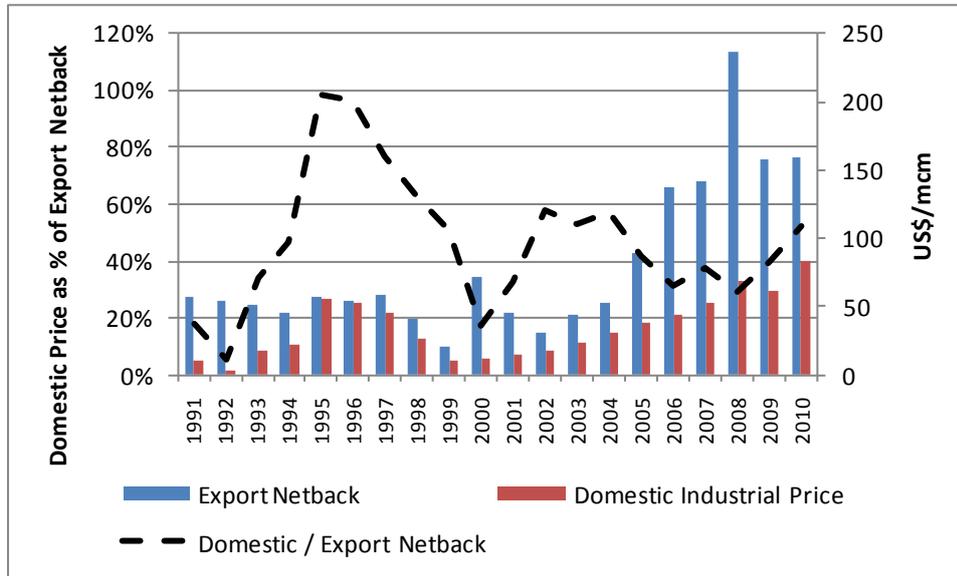
<sup>17</sup> See note 9 above for a discussion of the difference between the subsidy offered to domestic customers and the discount of domestic prices to export prices

<sup>18</sup> Although this article refers to a domestic gas price, this is a generic term to describe a complex pricing mechanism that comprises prices set across many regions and for different classes of consumer (residential, industrial, agriculture etc.). In this paper domestic gas price tends to refer to the average price of gas for industrial consumers, as this accounts for the largest share of the market. For a full description see Burgansky, S., July 2010, “Oil and Gas Yearbook 2010”, Renaissance Capital, Moscow, pp.155-164

<sup>19</sup> Henderson, J., “Non-Gazprom Gas Producers in Russia”, Oxford Institute for Energy Studies, Oxford, p.16

a low regulated price and non-Gazprom players able to charge whatever higher price consumers would pay, with the OECD identifying the mark-up in November 2003 as just under 32 per cent.<sup>20</sup>

**Figure 2: Industrial and export netback gas prices (1991–2010)**



*Source: IEA, Federal Tariff Service of Russian Federation, Author’s calculations*

The final piece of the pricing jigsaw, which underlined the upward pressure on domestic gas prices, was the continuing rapid rise in demand for gas during the six years after 2000. As detailed by Pirani (2011)<sup>21</sup> gas demand in the power, industrial, and residential sectors grew by 12 per cent between 2000 and 2006 (see Figure 3), driven largely by GDP growth that averaged 6 per cent per annum, putting pressure on Russian supply at a time when the country’s net gas exports<sup>22</sup> had also increased by 11 per cent, and production from Gazprom’s core West Siberian fields had started to go into decline.

As a result, by 2006, the combination of the government’s desire to encourage greater energy efficiency by constraining demand, Gazprom’s need to develop new remoter and more expensive fields to replace its declining Soviet-era assets, and the increasingly obvious gap between regulated and unregulated domestic gas prices, mandated a more aggressive approach to gas pricing. A new objective was set out: to equalize Russia’s domestic gas price

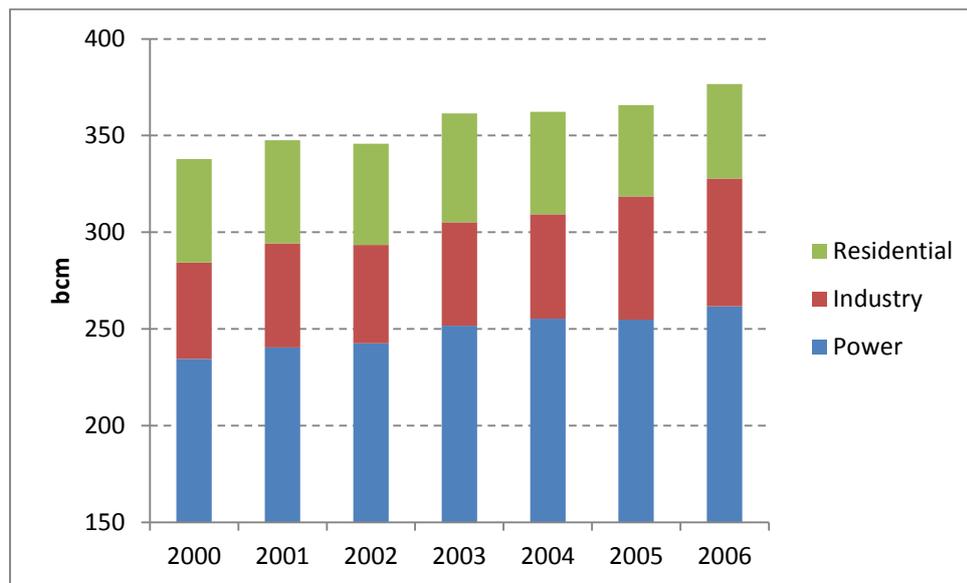
<sup>20</sup> OECD, “Economic Surveys – Russian Federation”, 2004, Paris, p.135

<sup>21</sup> Pirani, S., July 2011, “Elusive Potential: Natural Gas Consumption in the CIS and the Quest for Efficiency”, Oxford Institute for Energy Studies

<sup>22</sup> Net gas exports defined as total exports from Russia less imports from Central Asia

with its export equivalent on a netback basis. At the time, this netback was based on a European export price related to a world oil price of around \$55 per barrel, and implied achievable growth in prices of 15–18 per cent per annum for 4–5 years. As a result the target of ‘export netback parity by 2011’ was endorsed by the Russian government and became the basis for subsequent price increases implemented by the FTS.

**Figure 3: Russian gas demand 2000-2006**



*Source: Gazprom*

*The implications and difficulties of the netback parity target*

The ‘netback parity’ target was specifically endorsed by President Putin<sup>23</sup> in 2006, and as a result has always been taken as a very serious and specific goal as well as being a catalyst for the full liberalization of the Russian gas market. However, although the concept of price equivalence between domestic and international prices on a netback basis appears logical and relatively simple, in practice it is fraught with definitional difficulties and could potentially create an unnecessary burden for the Russian economy. The key and most obvious reason for this is that the major assumptions behind the netback parity target are extremely volatile and indeed have changed dramatically since 2006. In particular, by 2011 oil prices had doubled to a range of \$110–120 per barrel, with a consequent impact on the price of gas sold on long-term contracts in Europe. The rise in the oil price initially led to a delay in the netback parity target date from 2011 to 2015, but even this later date now looks unrealistic, as to meet a

<sup>23</sup> ‘Gas price in Russia, EU to get closer – Putin’, *Interfax*, 24 November 2006, Moscow

target based even on \$100 per barrel oil would imply domestic gas price growth of 23 per cent per annum during the period 2011–15. A price increase of this magnitude could have a significant negative impact on the Russian economy at a time when pressure is already being felt in the non-hydrocarbon sectors,<sup>24</sup> and as a result a less radical change was introduced in early 2012 when it was decided that regulated prices would grow by 15% p.a. from July 2012 for 3 years, after which time further steps would be considered to continue progress towards to netback parity target. However, it is becoming increasingly likely that during this three year interim period a number of inter-linked commercial factors related to the supply of and demand for gas from Russia may come into play in a manner that could fundamentally alter the strategic direction of the Russian gas sector.

The first of these factors is the continuing pressure from Gazprom for higher domestic prices and convergence with export netback parity levels.<sup>25</sup> An obvious drive of this pressure is Gazprom's eagerness to further increase the profitability of its domestic market operations, but perhaps more importantly it wants to ensure that the economics of its new high-cost projects, which are essential to replace the decline in the company's existing West Siberian assets, are underpinned by sales into its largest market. The breakeven price for gas from the first Yamal field, Bovanenkovskoye, is widely regarded<sup>26</sup> to be in the range of \$120-150/mcm delivered in Moscow, and so this would be the company's initial target for domestic gas prices. However, the development of further fields on the peninsula would be likely to require a price closer to \$200/mcm (equivalent to export netback parity at an approximate oil price of \$90 per barrel)<sup>27</sup> to generate an adequate return on the tens of billions of capital investment that will be required.

Historically Gazprom might have relied on prices in the export market to guarantee the commercial returns from these new fields, but a second key commercial factor, namely increasing uncertainty about the level of prices and the structure of contracts in Europe, is creating additional pressure on domestic gas prices. The opening of a significant gap between spot gas prices at Europe's major hubs and the price of oil-linked long-term contract prices since the emergence of the shale gas revolution in the US, which caused large amounts of low cost LNG to be diverted to Europe, combined with the demand impact of the economic crisis

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<sup>24</sup> World Bank, Russian Economic Report No.27, April 2012, p.3

<sup>25</sup> Interfax, 6 April 2012, "Gazprom still looking for additional tariff indexation in 2012", Moscow

<sup>26</sup> Data from Wood Mackenzie Consultants, Lambert Energy Advisory and Bank of America Merrill Lynch reports

<sup>27</sup> Author's calculations, based on the current tax system and cost estimates derived from existing projects

since 2008, has put significant pressure on Gazprom to alter its contractual arrangements with its major European customers. Agreements made with E.ON, ENI, GdF and others during 2011 and 2012 have seen spot gas prices introduced as an important element of price determination in Gazprom's export contracts, and although Gazprom itself consistently expresses the opinion that this will only be a short-term phenomenon due to the illiquidity of Europe's gas hubs, Heather (2012)<sup>28</sup> has made a powerful case that they are increasingly providing an accurate market signal and will play an ever-increasing role in the pricing of gas in long-term contracts. As a result it would appear ever more likely that the pricing of Russian gas exports will gradually move to a gas market rather than oil-linked price formation structure. As argued by Stern and Rogers (2011)<sup>29</sup> this does not necessarily mean that export prices will be lower over the long-term (although it would be the implication in the short-term), but it does mean that Gazprom's exports will need to be competitive against other sources of gas supply to Europe rather than reliant on secure volumes at oil-linked prices. As a result of the uncertainty which this change is creating, Gazprom's alternative tactic is to secure a high enough price in the Russian domestic market to ensure the economics of its new fields are robust rather than rely on the growing uncertainty of its export contracts.

#### *Likely development of gas prices in Russia*

However, the uncertainty about how gas exports to Europe will ultimately be priced re-emphasizes the ambiguity surrounding the Russian government's export netback parity target for domestic gas prices and begs the question: "How should export netback parity be calculated?" The current formula sees the oil-linked export price at the European border netted back to the Russian market by subtracting transport costs and the 30% export tax, but this obviously anticipates a continuation of the oil-linked model. If Gazprom's customers in Europe are increasingly being sold gas on a market-related basis, and if Russian domestic gas is ultimately to be priced on an oil-linked netback basis, then it is eminently possible that domestic Russian consumers could ultimately be sold Russian gas at a higher price than European customers. The contrast between the oil-linked netback and the current spot price netback is clearly shown in Figure 4, which also shows the estimated potential trajectory of the industrial gas price in Russia. As can be seen, the export netback equivalent price at the

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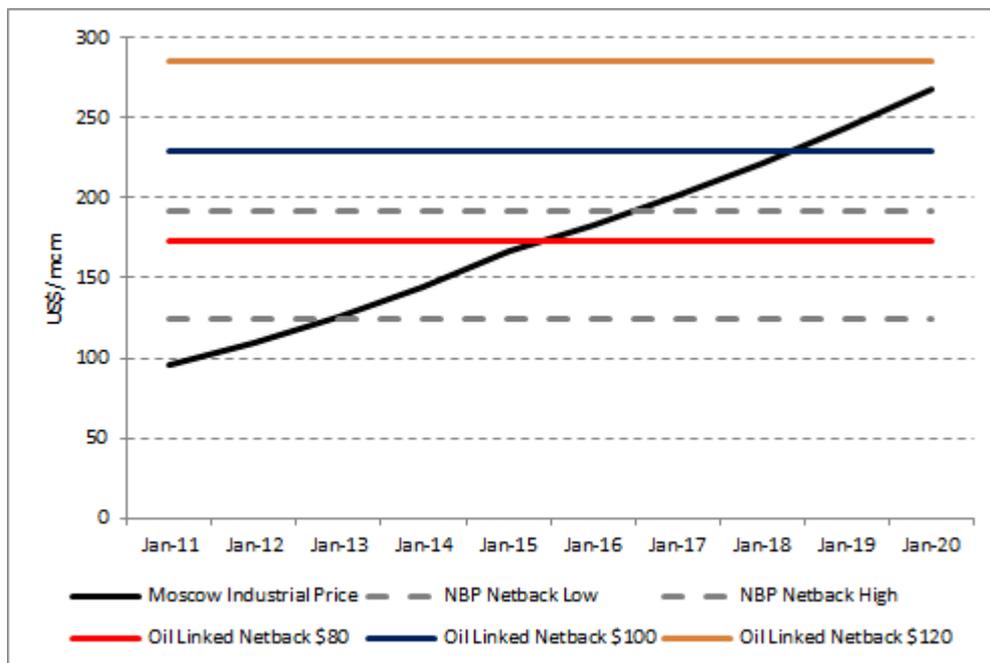
<sup>28</sup> Heather, P., June 2012, "Continental European Gas Hubs: Are They Fit For Purpose?", Oxford Institute for Energy Studies

<sup>29</sup> Stern, J. and Rogers, H., March 2011, "The Transition to Hub-Based Gas Pricing in Continental Europe", Oxford Institute for Energy Studies

current oil price (c. \$100 per barrel in July 2012) would imply a domestic gas price in Russia of \$230/mcm, which would not be reached until 2019 given the estimated growth in industrial prices in Russia.<sup>30</sup> A netback price based on a \$120 oil price would not be reached until beyond 2020, while a netback price based on an \$80 oil price could be achieved by 2016.

Even at a price based on this lower oil price assumption, though, it can be seen that domestic consumers in Russia could be paying more than European customers for Russian gas if prices in Europe are ultimately based on spot markets. The dotted lines show the range of spot prices at the NBP hub in the UK in the period July 2011 to July 2012 and indicate both the potential volatility of a domestic netback pricing strategy in Russia and also the potential for a netback strategy based on oil-linked prices to put Russian consumers at a commercial disadvantage to their European neighbours.

**Figure 4: Estimates of Future Domestic Gas Prices in Russia Compared to Various Export Netback Levels**



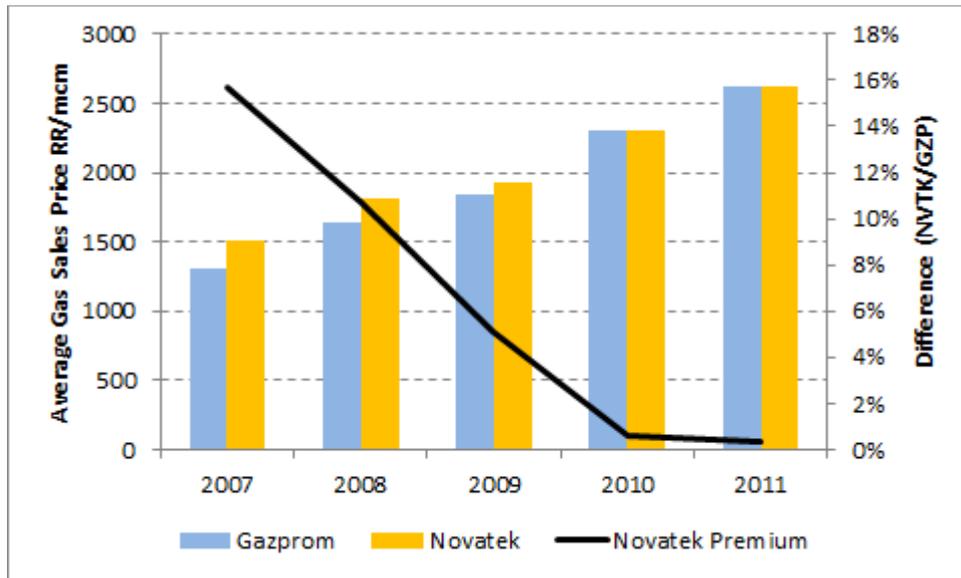
Source: Energy Intelligence Group, Author's Calculations

<sup>30</sup> It is assumed that industrial prices rise by 15% per annum in 2012, 2013 and 2014 before rising at 14.6% in 2015, 13.6% in 2016 and 7% p.a. thereafter. This is the "Innovative Scenario" outlined by the Ministry of Economic Development in the first quarter of 2012.

The dilemma for both Gazprom and the Russian Government is demonstrated by the fact that, as shown in the graph above, in 2012/13 the Russian domestic price would already have reached export netback equivalence at certain times based on the lower end of the NBP Netback range. While this is by no means a definitive pricing signal, it is nevertheless a warning to the Russian Administration that the prolongation of their oil-linked pricing policy risks a continuation of the erosion of Russian market share in the European gas market that was noted in the Introduction above. It also shows that continuance of domestic gas price growth towards an oil-linked netback parity level could place an unnecessary burden on gas consumers in Russia. Indeed these consumers, and some domestic suppliers, are already providing market signals of their own that a new commercial balance is being found in Russia's domestic gas market at prices well below the longer-term regulated price target.

Figure 5 shows the historical premium that Novatek, Russia's second largest gas producer, has been able to charge for gas above the regulated price at which Gazprom is forced to sell to most of its domestic customers. Novatek is free to sell its gas at any price that it can negotiate with consumers, and in 2007 was able to command an average 16% premium to Gazprom's regulated gas price. However, as it has expanded its output and sales (production has grown by almost 90% between 2007 and 2011) and has therefore had to compete for a larger customer base this premium has been eroded to the point where Novatek now effectively sells gas at the regulated price, implying that this is the current clearing price at which domestic industrial customers are prepared to buy new gas supplies.

**Figure 5: Price of Novatek Gas Sales versus Gazprom’s Regulated Gas Price**

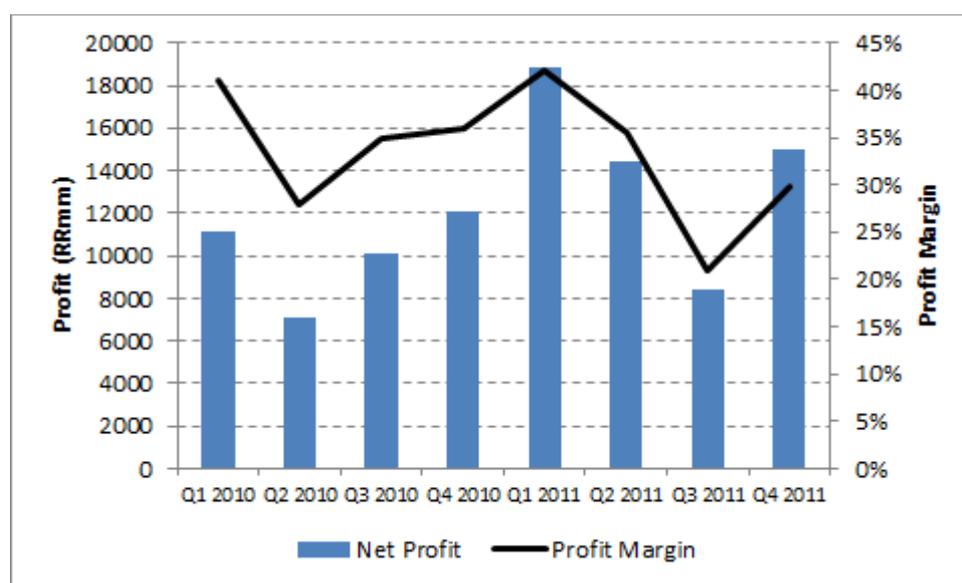


Sources: *Gazprom and Novatek IFRS Financial Statements, 2007-2011*

A further interesting signal is that domestic gas producers, and in particular Novatek, are able to generate significant profits even though they are effectively selling at regulated gas prices. Figure 6 shows Novatek’s net profits and its net profit margin for 2010 and 2011 and clearly demonstrates that the company is generating a significant return on gas assets that are primarily focused on the domestic market. Novatek’s profits are boosted by the fact that it also produces a significant amount of condensate which can be exported via its own facilities on the White Sea, but this fact does not undermine the point that a large gas producer in Russia is making more than adequate profits from the sale of gas into the domestic market at current 2012 prices. Indeed this point has also been recognised by the Russian government, who are proposing that the majority of any further price rises from 2013 should effectively be paid back to the Russian budget via an increase in the rate of Natural Resource Extraction Tax (NRET, a royalty paid on gas production), implying that they also believe that current prices are high enough to allow adequate returns to be made by domestic suppliers.<sup>31</sup> This therefore prompts further questions about gas pricing in Russia, namely why should prices rise any higher; does Russia have more non-Gazprom gas that could be profitably produced at similar levels; and if so could this gas also improve Russia’s competitive position in its export markets and ease the path to the end of oil-linked contracts?

<sup>31</sup> Interfax, 8 June 2012, “Increase in NRET for gas would remove 90% of additional revenue from rising gas prices – Gazprom”, Moscow

**Figure 6: Novatek's Profits and Profit Margins, 2010 and 2011**



*Source: Novatek IFRS Financial Statements, 2010 and 2011*

In terms of potential supplies of non-Gazprom gas, so-called “Independent” gas producers and the Russian oil companies, plus a number of foreign energy companies, own more than 8 Tcm of gas reserves close to existing infrastructure in West Siberia, with the potential to produce up to 300 bcm/year of west-facing gas by 2020.<sup>32</sup> The cost of supply of a significant part of this gas could be enhanced by the sale of associated liquids, meaning that it could be sold competitively in both the domestic and, if permitted, the export markets, and could certainly help to reduce the need to increase Russian domestic gas prices towards oil-linked export netback levels. As a result the Russian Administration is left with something of a dilemma. If domestic prices continue to be increased towards oil-linked export netback levels then Russian consumers could pay higher prices for their gas than would be necessary, because of the high cost of Gazprom’s new developments; while European customers will increasingly be paying hub prices which – due to a variety of factors – could be higher or lower than Russian domestic prices. Alternatively, the Russian Administration could encourage a more liberalised Russian domestic market to develop in order to allow the country’s most cost-competitive gas to be supplied to consumers at a price determined by the dynamics of supply and demand. In this scenario it would appear likely that a lower domestic gas price level could be established, but this would imply a much greater production of lower cost non-Gazprom gas and a potentially significant reduction in Gazprom’s output and

<sup>32</sup> Henderson, J., “Non-Gazprom Gas Producers in Russia”, Oxford Institute for Energy Studies, 2010, p.249

domestic market share (as investing beyond the first phase of Yamal would become increasingly questionable).

However, there are a number of clear institutional and operational barriers that stand in the way of this theoretical concept being turned into reality. For example, it is now clear that Gazprom's major field developments on the Yamal peninsula are going ahead, with the first (the Bovanenkovskoye field) due to produce first gas in October 2012. As a result, at least one field with the potential to produce up to 115 bcma will be added to Gazprom's supply portfolio and could crowd out potentially lower cost gas from other domestic supply sources, especially given the political support that Gazprom has received for the development of the Yamal region. An additional major institutional barrier is Gazprom's current control of the trunk pipeline system in Russia, which it both owns and operates. Although third party access laws mandate the transport of independent gas in the system, in reality Gazprom's control means that it can prioritise its own gas or give preferential access to influential third parties to suit its supply strategy while limiting access to others.<sup>33</sup> Slow progress is being made to increase transparency and regulatory oversight, but the situation remains far from the position where a state-appointed regulator could hope to exert control over an independent transport operator. As a result, the ending of gas price regulation and any concept of liberalized domestic prices at netback parity are likely to be delayed until issues surrounding the control of the transport system are resolved.<sup>34</sup>

A further consideration is the monopoly which Gazprom currently enjoys for sales of Russian gas to export markets. Historically this monopoly has been justified because of Gazprom's need to generate high export revenues to compensate for low domestic prices, but as the latter continue to rise this rationale is becoming increasingly untenable. However, from both a commercial and a political perspective there is no imminent sign that the company's

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<sup>33</sup> For example it is interesting to note that Novatek's production has increased by almost 90% in the period 2007-2011 while production from the rest of the Independent gas sector has risen by 41%.

<sup>34</sup> The main issues concerning control of the transport system surround regulation of access to the trunk pipeline (the UGSS) and the setting of tariffs. At present Gazprom, Russia's main gas producer, owns 100% of the trunk pipeline system, and although full third party access is mandated by Russian law, in reality Gazprom can manipulate the allocation of capacity as it has a monopoly on information about ullage in the system. Furthermore, although transport tariffs are set for third party producers, Gazprom charges a different internal tariff to its own upstream subsidiaries, thus masking the true economics of the transport business. Finally, third party producers have been unable to secure the long-term access rights that they need to underpin gas field developments and long-term contracts with consumers. What is therefore needed is full independent regulation (and perhaps even ownership) of the UGSS, with fully transparent access rights and transport tariffs for all producers, so that producers and consumers of gas in Russia can agree long-term contracts based on secure transportation rights.

monopoly position will be undermined significantly in the near future. Commercially the Russian Administration would be very reluctant to see supplies from various domestic companies competing for export markets, thus potentially lowering the price for the country's gas. Politically, Gazprom's monopoly, as a state-controlled gas exporter, provides Russia with a strategic lever that it is currently attempting to enhance through the addition of new export infrastructure to Europe via the expansion of the Nord Stream pipeline and the construction of South Stream. Given the importance which President Putin in particular attaches to energy as a source of geo-political strength for Russia<sup>35</sup> it would seem unlikely that Gazprom's monopoly on pipeline exports will be broken in the near-term, although Novatek's plans to export LNG from the Yamal peninsula<sup>36</sup> demonstrate that other forms of export sales may be allowed.

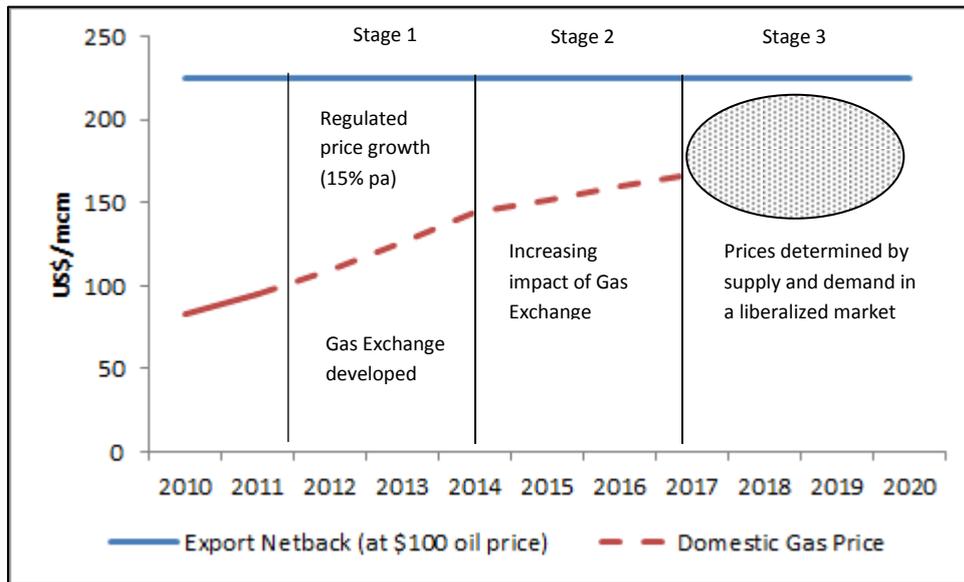
Given these constraints, and the fact that the 2006 target of export netback parity has been made increasingly irrelevant due to the volatile nature of the assumptions upon which it is based, it would appear that the Russian Administration's preferred route to a liberalised gas market and higher gas prices is likely to be a gradually evolving hybrid of regulated and market-based strategies. An initial period of state-controlled price increases could be focused on the need to allow Gazprom to profitably develop its supply portfolio, perhaps using the company's average cost of supply as a basis for allowing a gradual increase in regulated prices as the share of higher-cost gas in Gazprom's production profile increases while its lower cost existing fields decline. In Figure 7 this period is shown as Stage 1, where regulated prices increase by 15% per annum according to the current government targets for the period 2012-2014.

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<sup>35</sup> Baev, P., 2008, "Russian Energy Policy and Military Power: Putin's Quest for Greatness", Routledge, UK

<sup>36</sup> Gyetvay, M., 13 May 2011, "Unlocking the potential of Arctic LNG", Novatek presentation at Flame Conference

**Figure 7: Potential outlook for domestic gas prices in Russia**



Source: Author's estimates

During this first stage the potential re-development of a Gas Exchange,<sup>37</sup> either by a Gazprom subsidiary or by an independent government-sponsored entity, could also take place, and indeed support for such a move has been expressed by President Putin.<sup>38</sup> Ultimately the establishment of a fully-fledged exchange trading significant volumes (perhaps up to 30 bcm per annum) of Gazprom and non-Gazprom gas could then occur by 2014/15.

Stage 2 could then see the full working of this domestic Gas Exchange, with increasing volumes traded by all gas producers, the ending of the quota system whereby volumes to be sold at regulated prices are allocated on an annual basis, full access to the trunk pipeline system granted to allow the development of a competitive long-term contract market, and a marked reduction in the importance of the regulated pricing mechanism. Prices would then start to be more heavily influenced by the fundamental forces of domestic supply and demand and as a result price rises during this period could even start to slow, as parity with export prices approached and increasing amounts of lower-cost non-Gazprom gas became available on the market. By this time Gazprom's complete control of the trunk gas pipeline system would need to have been resolved, with independent regulation of a commercially

<sup>37</sup> A Gas Exchange was operational in Russia during 2007-08, run by Gazprom subsidiary Mezhhregiongaz (see Henderson J., Feb 2012, "Is a Russian Domestic Gas Bubble Emerging", Oxford Institute for Energy Studies)

<sup>38</sup> Interfax, 16 July 2012, "Putin back proposal for setting up natural gas exchange", Moscow

autonomous Gazprom subsidiary the absolute minimum requirement for further progress towards a fully liberalized market.

This increased access to domestic markets for all gas producers combined with a fundamental shift in the price formation mechanism could then lead Russia into the fully liberalized market envisaged in Stage 3 at some point beyond 2017. Supply and demand in the Russian market would determine prices as state regulation fell away completely (apart from perhaps some controls over prices for essential services),<sup>39</sup> and Gazprom would be forced to compete with its domestic rivals for market share. Furthermore Gazprom's transport business might also by this stage have been separated at a corporate level from its upstream and distribution businesses, allowing for fully independent regulation of the trunk pipeline system via a state-owned gas transport company. Netback parity could then effectively be achieved, although as in the oil market today the actual level of prices in the domestic and export markets would be set by a number of commercial, political, and environmental factors that would see fluctuation around a netback level rather than strict adherence to a single figure based on European prices. In particular, the impact of price rises on demand in Russia (which could stagnate or even fall as the country's industrial capital stock is replaced and more efficient energy use is encouraged by higher gas tariffs) could even create an oversupply scenario that would see prices fall back, rather than rise inexorably, towards European levels.

#### *Implications for Russia's gas export strategy*

At this last stage, the question of Russia's gas export strategy would also have a key bearing both on consumers in Russia and customers for Russian gas in Europe. Given the commercial logic of Russia retaining a single export channel in order to avoid creating unnecessary competition between its own suppliers, it seems very likely that Gazprom (or its subsidiary Gazprom Export) would retain control of Russia's export sales. However, allowing for this constraint, the more relevant issue could become the sourcing of gas supplies to underpin export volumes.

One option is for the existing logic of Gazprom's export monopoly to be maintained. Under this scheme Gazprom would only sell its own equity gas to export customers (including CIS customers, who are in some cases now paying as much if not more than their European

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<sup>39</sup> As part of the complex regional and sectorial matrix of gas pricing in Russia Gazprom is also forced to sell gas at low prices to some essential sectors (e.g. agriculture, schools, hospitals)

counterparts) while allowing the domestic market to be supplied by a combination of its own gas and increasingly by 3<sup>rd</sup> party domestic suppliers. In the liberalised market described above, this could lead to a gas bubble in the Russian domestic market, given the levels of relatively low-cost gas that could be made available at profitable margins by many companies who are currently unable to fully exploit their gas resources. Given that this gas would effectively be “trapped” in Russia, one might expect a market clearing price to be established well below export netback parity, given that companies such as Novatek and other independent producers have shown that significant profits can be generated even at 2012 prices. Gazprom’s domestic market share would most likely fall, but it would be able to underpin the development of new more remote fields via its monopoly access to the higher prices available in the export market and as the sole exporter would also retain its position as a key geo-political tool for the Russian Administration.

Given the importance of this geo-political angle, in particular in light of the new export infrastructure planned to northern and southern Europe, it would seem likely that this is the preferred option for the Russian Administration. However, this approach does carry some risk for both Russia and Gazprom, as it implies a potentially fundamental shift in the country’s and the company’s export strategy. Given the increasingly competitive nature of the European gas market and the rising cost of Gazprom’s supply portfolio, the company could well find itself emerging as the swing supplier of European gas, and therefore having to make a choice between optimising its price realisations or its sales volumes at time when it is becoming increasingly reliant on export sales. This would be a very different situation from the historic picture, where volumes have been relatively secure (within the boundaries of take-or-pay conditions) and the risk has centred on oil prices. As discussed by Rogers (2012),<sup>40</sup> in this new situation Gazprom could find itself with significant market power, but would also have a difficult balancing act to maintain, in particular because it would involve not just Europe and Russia but also, in an increasingly globalised gas market, the impact of changing conditions in the Asian and North American markets. At one extreme it could flood the European market with gas in order to maximise the use of its export infrastructure but risk a collapse in the European spot price, or alternatively it could restrict supply in order to push prices to more profitable levels but risk losing market share and leaving its export pipeline under-utilised. Finding the optimal political and commercial outcome between these two

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<sup>40</sup> Rogers, H, 2012, “The Impact of a Globalising Market on Future European Gas Supply and Pricing: The Importance of Asian Demand and North American Pricing”, Oxford Institute for Energy Studies

extremes will require careful judgement of the market place and most likely a significant element of luck.

However, an alternative export supply strategy could see the Russian Administration take a fully market-oriented approach to export and domestic sales of gas by allowing Russia's most competitive gas to take priority. In a domestic context this would imply the adoption of the fully liberalised market strategy described above, while in an export context it could suggest the creation of a "gas export pool" into which suppliers bid their gas in order to create Russia's most competitive export gas portfolio. Under this scenario Gazprom Export could continue to manage a single export channel but would source the gas for export from the optimal balance of its own and third party sources. As a result Russia might find itself better able to compete in a European market in which prices are increasingly being set through gas-to-gas competition. Furthermore it would also be more likely that domestic gas prices would find a closer link with export netback parity levels, given the opportunity for all suppliers to sell into both markets, but given the size of the Russian gas market it could also imply that the fundamentals of supply and demand in Russia could begin to impact price levels in Europe. Essentially Russian suppliers would attempt to optimise their gas sales based on profit maximisation in all the available markets, meaning that European customers could find themselves competing with domestic Russian consumers and with CIS countries (who already buy volumes equivalent to 50% of Gazprom's sales to Europe) over price and volume of gas purchases.

In conclusion, the current changes taking place in the Russian gas market could have a fundamental impact on the outlook for prices and volumes of Russian gas sales in Europe, but also could have a significant impact on the strategy which Russia adopts to meet its export goals and how it defines these goals in the light of changing domestic and international conditions. Maintenance of the traditional model would see Gazprom continue to hold a monopoly on export sales, but based on a supply portfolio that is becoming increasingly expensive and is therefore pushing the company to become the swing supplier to Europe. Under this scenario, Russia and Gazprom will have some difficult commercial and geopolitical choices to make about the optimisation of export volumes or prices that could significantly change their export strategy. Alternatively, the Russian Administration could decide that it needs to allow its gas industry to optimise its cost competitiveness in response to the forces of liberalising markets both at home and overseas. In this scenario, Russia's most competitive gas would be sold first into whichever market offered the best returns,

leading to an increasing reciprocal relationship between supply and demand across the European, CIS and Russian gas markets. In either case, politics, vested interests and foreign policy will of course have a major influence on the final outcome, but nevertheless the most likely outcome for European gas consumers is that they will have a very different relationship with Russia's gas industry over the next decade than they have over the previous 20 years.