OECD Economic Survey of the Russian Federation, 2004: Reforming the Domestic Natural Gas Market*

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Pricing, Subsidies and the Operation of the Domestic Market

The domestic gas market is not really a market at all. It is rather a rationing mechanism with market-based activity at the fringes. Rationing is, unsurprisingly, the result of artificially low regulated gas prices. Gazprom, rather than the state, controls the rationing process. The company and the government negotiate a 'gas balance' for the country towards the end of each year, for the year ahead.

This determines the quantity of gas that Gazprom must supply to domestic consumers at regulated prices. Given the difference between export and domestic prices, Gazprom has every incentive to keep its domestic deliveries as low as possible. It is significant therefore that, when the gas balance is being agreed, it is Gazprom that has all the relevant information about the production, pipeline capacity and export commitments. The balance, in short, is largely determined by Gazprom. Once the aggregate figure is agreed, industrial consumers bid for the gas they need. Bids are 'corrected' (*i.e.* reduced) by Gazprom, which then informs consumers of their quotas for the coming year. Any additional gas they need must be purchased at higher prices, either from non-Gazprom producers or from Gazprom itself, which re-sells a good deal of other producers' gas and also sells some of its own output at higher prices to those who exceed their quotas.[1] In principle, the amount Gazprom offers to supply the market reflects real supply constraints, but when consumers exceed their limits, there is never a shortage of gas – they just pay more for what they consume.

The administration of this rationing system is wholly opaque. Some consumers get what they bid for, while others are allocated far less than their bids and must purchase the rest at higher prices. There are no clearly defined principles of distribution. Even the overall results of the distribution are unknown; the government does not appear to have full data on the actual allocation of regulated-price gas to domestic customers. Gazprom officials merely describe the allocation of quotas as a matter for 'negotiation'.[2] Some consumers report that their quotas have simply been frozen, so that reliance on other sources grows in line with their gas demand; this appears to be the case with respect to the power sector. There appears to be no clear overall pattern in other sectors, although there does seem to be an incumbency effect: consumers need administrative permission to bid for gas at regulated tariffs for any *new* facility, and this is unlikely to be given if Gazprom objects. In practice, quotas may be adjusted each quarter. Consumer enterprises thus have no certainty about the quantity that will be supplied at regulated tariffs more than three months ahead. Quotas for delivery of regulated-price gas can and do change at very short notice. There are no long-term gas supply contracts. This absence of long-term contracts is particularly a problem for anyone contemplating investment in any gas-intensive activity. Finally, regulated-price gas quotas are apparently administered on the basis of even rates of consumption, without regard for the consumer's actual usage patterns. Thus, a consumer enterprise may forfeit 'unused' allocations during periods of low consumption (including weekends and holidays) while paying penalties for over-consumption during the week.[3]

On the production side, a similar situation prevails with respect to the management of the pipeline network. The principle of third-party access to pipelines is established in law, but it is virtually unenforceable. Uncertainty about pipeline access constitutes a major impediment to the conclusion of long-term contracts between non-Gazprom producers and their customers (other than Gazprom). Gazprom is only required to grant access if there is sufficient capacity available in the sys-

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[1] If consumers exceed quota, Gazprom may sell them 'above-quota' (*sverkhlimitnyi*) gas at higher prices, but these mark-ups are regulated. The permitted mark-ups for such gas rise in winter and fall in summer.

[2] Priority is, however, given to allocations of gas for the household sector, and there are principles governing allocation to organisations financed from federal and regional budgets.

[3] "Doklad" (2003:8). Note that the gas forfeited during periods of low usage may subsequently be sold to consumers at higher prices as 'above-quota' (*sverkhlimitnyi*) gas.

tem. Gazprom may also refuse access on technical grounds, such as the quality of the gas.[4] The Central Production-Dispatch Unit (TsPDU), which controls dispatch in the sector, remains an integral part of Gazprom itself, and information on dispatch is a closely held secret. No state or private body actually has the data on the level or structure of pipeline usage that would be needed to challenge Gazprom's decisions.[5] Denial of access can be challenged *ex post* by appeal to the government commission that oversees the oil and gas pipeline networks or in the courts, but these are time-consuming procedures with uncertain prospects of success. Moreover, the need to meet obligations to customers means that independents may have to accept Gazprom's terms, while the awareness that they cannot operate effectively without Gazprom's cooperation is a significant deterrent to challenging any given decision.

Gazprom denies that it exploits its control over the pipeline network to put other producers at a disadvantage and points to the threefold rise in volumes of non-Gazprom gas being transported through the system between 1998 and 2002.[6] However, it is unclear how much of this gas is produced by other Russian producers; much of it appears to consist of Central Asian gas either imported into Russia or transiting Russia to other markets, such as Ukraine. The oil companies and the independents producers continue to complain of discrimination. Representatives of non-Gazprom producers claim that Gazprom has sometimes declared that there was no capacity available on a given route when the producers knew that there was; unable to challenge Gazprom, however, they were forced in such cases to accept longer, costlier routes in order to fulfil their contractual obligations.[7] Given that it does not wish to supply any more gas to the domestic market than it has to, Gazprom has no incentive to keep other producers out. Indeed, it wishes their role to increase. However, control over the network gives it considerable scope to ensure that the smaller producers market their gas on terms that suit Gazprom. Thus, regardless of the rights and wrongs of particular instances of restricted access, the fact remains that Gazprom can discriminate against other producers and has incentives to do so. The establishment of an effective third-party access regime for the sector's infrastructure is likely to be absolutely crucial to the outlook for investment by non-Gazprom producers.

Underlying all of this regulation and rationing is the unsustainable under-pricing of natural gas, which constitutes a subsidy from the gas sector to the rest of the economy. While there is a good deal of debate about what the 'true' cost-reflective price of gas production in Russia might be, there is general agreement that the regulated tariffs set by the Federal Energy Commission (FEC) and its successor, the Federal Tariff Service (FST) are still below full cost-recovery levels.[8] Tariff regulation also involves two forms of cross-subsidy:

- The first is regional. Since 1997, the FEC has set differential tariffs for seven pricing zones defined according to distance from the wellhead (see Table 1). This reduced inter-regional subsidy substantially, but it appears that tariffs still do not fully reflect the differences in the cost of supplying different regions.
- Households continue to pay significantly less than industrial consumers. The size of the difference between industrial and household tariffs tends to increase with distance from the wellhead (see Table 1) so that there is less overall variation in household tariffs than industrial tariffs.

As noted in OECD (2002), the subsidy resulting from low prices was, during the 1990s, compounded by the widespread settlement of energy debts in non-monetary form and the failure to penalise non-payment. The aggregate subsidy provided to the rest of the economy by the electricity and gas sectors reached around 5.0–5.5 per cent of GDP in 1997–2000.[9] The situation has changed substantially since 2000. Gas tariffs have risen relatively fast in rouble terms, while the real appreciation of the rouble has helped further to reduce the differential between domestic and export prices (see Tables 2 and 3). At the same time, the barter and non-payments problems have largely abated: Gazprom itself now reports 98 per cent cash collection rates.[10] Russia's May 2004 agreement with the European Union on WTO accession issues commits the government to increasing domestic gas prices to USD 37–42/tcm in 2006 and USD 49–57/tcm in 2010. These price hikes are in fact somewhat smaller than the increases envisaged by the government's 2003 energy strategy, but they are all the more significant for being enshrined in a binding international agreement.[11]

[4] "Ob obespechenii dostupa" (2001). The decree in question was adopted in July 1997 but amended in 1999, 2000 and 2001.

[5] Should an independent producer challenge Gazprom's decision by appealing to the Government Commission on the Use of the Long-Distance Oil and Gas Pipeline Systems, the Commission can require Gazprom to provide information on the presence of spare capacity in the system.

[6] These rose from 28.1bcm in 1998 to 83.1bcm in 2002.

[7] Itera was told in 2003 that there was no pipeline capacity available to take its gas from the Beregovoy field to the trunk pipelines, and three of the independent producers had a highly public dispute with Gazprom in the autumn of 2003, after the monopolist threatened to cut their access by one-third or more.

8 Under Presidential Decree ¹ 314 of 9 March 2004, the FEC has been reorganised into the Federal Tariff Service. This involves, in addition to the change of name, the transfer of certain of its powers to other bodies as well as the extension of its tariff-setting authority.

[9] OECD (2002:121–32).

[10] Ryazanov and Medvedev (2004).

[11] *Vedomosti*, 24 May 2004; "Energeticheskaya strategiya" (2003:8, 32). For 2006, the strategy gives a range of USD 36–39/tcm in one place and USD 40–41 in another.

These are levels well above the average price of roughly USD 23.40 in late 2003 and also above all but the highest estimates of full cost-recovery levels.

Differences in estimates of the true level of cost recovery largely reflect disagreements as to Gazprom's actual costs and as to the allowance made for future capital investment. Estimates are also influenced by assessments of the sector's future development: gas production is likely to be cheaper to sustain in a reformed, more competitive sector than in a sector which continues to be organised on current lines. In the absence of greater competition on the domestic market, including the sale of a larger share of Russia's gas at free prices, it may be impossible to specify exactly the long-run marginal cost of gas production with confidence. However, there is at least an emerging 'zone of consensus'. If allowance is made for the need to replace fixed assets and/or develop new fields and transport infrastructure, as well as to cover all variable costs, most estimates point to a figure of around USD 35–45/tcm. This is close to the USD 36–41 range that the government is committed to reaching by 2005 or 2006. The average regulated tariff for industrial consumers in early 2004, at around USD 30–31/tcm (roughly USD 20/tcm for households), would suggest that there is still a significant subsidy flowing from the gas industry to other sectors. However, even now, the aggregate subsidy is smaller than it might appear, because industrial consumers are already buying a rapidly growing share of their gas at prices well above the regulated tariffs.

If industrial consumers' gas requirements exceed the limited volumes that they are allocated by Gazprom at regulated prices, they must buy the balance at higher prices. The opacity of Gazprom's allocation of regulated-price gas means that there are no comprehensive official data covering actual gas consumption patterns and prices. However, a November 2003 OECD survey of industrial gas consumers suggests that Russian industry purchases roughly 22 per cent of the gas it consumes at above-FEC/FST prices, at an average mark-up to the regulated tariff of just under 32 per cent. This means that the average effective price for industry is a bit more than 7 per cent above regulated prices. This may not seem to be an enormous mark-up, but on an industry-wide basis, the sums are significant. Moreover, the aggregate figure masks enormous differences in the ability of different enterprises and sectors to obtain gas at FEC/FST tariffs; while some large industrial consumers are able to buy all their gas from Gazprom at regulated tariffs, many others buy 30–50 per cent of their needs at prices far above regulated tariffs. Such differences underscore the arbitrariness of the current arrangements for allocating regulated-price gas, although they also provide evidence of the willingness and ability of many industrial enterprises to pay more for gas if they need to.

The average regulated industrial tariff in late 2003 was around USD 24.20/tcm, suggesting an effective tariff for industry of around USD 26.00;

Table 1. **Domestic natural gas tariffs, January 2004** (USD per 1 000 cubic meters)

Pricing zone	Industrial consumers	Households	Household as percentage of industrial
Zero*	18.24	16.09	88.2
One	21.98	17.06	77.6
Two	25.62	18.59	72.5
Three	28.71	19.97	69.6
Four	30.20	20.39	67.5
Five	31.62	20.80	65.8
Six	32.49	21.15	65.1

*The Yamalo-Nenets Autonomous District, which accounts for 87 per cent of natural gas production.

Source: Federal Energy Commission.

Table 2. **Natural gas tariff increases and CPI/PPI inflation** (December/December, per cent)

	1998	1999	2000	2001	2002	2003
Households	**36.9**	**27.6**	**16.5**	**19.9**	**33.6**	**34.8**
CPI	*84.5*	*36.6*	*20.1*	*18.8*	*15.1*	*12.0*
Industrial consumers	**-3.4**	**1.2**	**31.9**	**26.8**	**27.1**	**31.8**
PPI	*23.0*	*71.4*	*31.6*	*10.6*	*17.5*	*13.0*

Note: Goskomstat's index of producer prices for gas shows much higher rates of increase, reinforcing the impression that transport tariffs have been squeezed.

Source: Goskomstat RF.

Table 3. **Average natural gas tariffs for households and industrial consumers** (USD/1 000 cubic meters)

	1997	1998	1999	2000	2001	2002	2003
Households	19.2	15.6	7.9	8.0	9.3	11.6	15.9
Industrial consumers	46.0	26.5	10.6	12.2	14.9	17.6	23.8
Exports to non-CIS Europe	84.2	80.5	60.0	103.5	119.1	107.3	128.1

Source: Federal Energy Commission, Goskomstat RF, United Financial Group.

the wholesale price of gas intended for the household sector was roughly USD 15.90. On domestic consumption outside the gas industry of roughly 388bcm, this would imply a gas subsidy to the rest of the economy of USD 4.2–8.1bn (assuming a long-run marginal cost of USD 35-45/tcm). The impact on this estimate of the latest increases in gas tariffs gives some indication of how fast the subsidy is shrinking. Estimates based on the January 2004 average tariff levels of roughly USD 20/tcm for household gas and USD 30.50 for other consumers put the subsidy at USD 1.8-5.7bn, again assuming a long-run marginal cost of between USD 35 and USD 45/tcm.[13] A large share of this implicit gas subsidy goes to the electricity and heat industries and is then passed on to industry, households and other sectors via lower tariffs for those two commodities. If this pass-through subsidy is allocated to industry, households and other sectors on the basis of the breakdown of heat and electricity consumption, then it emerges that Russian industry (outside the power sector) received around 40 per cent of the total subsidy in 2003. The aggregate gas subsidy to industry appears to have been in the range of USD 1.7-3.5bn. The rest went to households, services and agriculture. However, because industrial tariffs are rapidly approaching the USD 35-45/tcm range, the subsidy to industry is shrinking rapidly: estimates employing January 2004 tariffs yield a net implicit subsidy to industry of between USD 480m and USD 2.3bn (around 0.1-0.4 per cent of GDP – the former figure reflects how close actual tariffs now are to the USD 35 threshold). At present, therefore, it appears that households rather than industrial consumers are receiving the largest share of the gas subsidy and that this share is increasing as a result of the fact that wholesale prices of gas for the household sector are approaching cost-recovery levels much less quickly than wholesale prices for other consumers.

Gas price rises have been, and continue to be, difficult for industry and households to absorb, as they feed through into higher prices for electricity as well as for gas consumed directly by plants and households. Price increases must therefore proceed gradually, if they are not to lead to unacceptable social or economic consequences. At the same time, however, the impact of higher gas prices should be offset to some extent by more efficient energy use. Russia's economy remains extremely energyintensive. In 2003, energy consumption per dollar of GDP was estimated to be 2.3 times the world average and 3.1 times the European average (calculated on the basis of purchasing power parity).[14] To some extent, such high-ratios of energy consumption to output are a product of factors such as geography, climate, the structure of industrial production in Russia and the energy inefficiency of much of the industrial plant and infrastructure left over from the Soviet period. These factors have been compounded by the sharp fall in real GDP during the 1990s, when output fell far faster than energy consumption; the energy intensity of GDP has been falling steadily since growth resumed in 1999. However, very high levels of energy consumption per unit of output also reflect the persistence of artificially low energy prices, which reduce incentives to improve energy efficiency. In most industrial sectors, energy consumption per unit produced is far higher in Russia than in the majority of European states, or even the United States, while domestic power and heat supplies are reckoned by both Russian and foreign observers to be extremely energy inefficient.[15] The latest draft of the government's energy strategy estimates that Russia could reduce consumption of energy per unit of output by 39-47 per cent from current levels, but cost-reflective pricing of energy will be needed to create the incentives to pursue improvements in energy efficiency.[16]

Gas sector reform

The Ministry of Economic Development and Trade has prepared several sets of proposals on gas-sector reform, including the restructuring of Gazprom itself. There has been almost no progress, however, thanks chiefly to resistance from Gazprom, which argues that its organisational integrity is critical to the smooth functioning of the nation's gas-supply system. It has, not surprisingly, rejected plans to break it up. Indeed, until early 2004, it rejected even proposals for reorganising its subsidiaries or producing separate accounts by line of business, as it saw any such internal restructuring as the first step towards its eventual dismemberment.[17] On more than one occasion, Gazprom has actively and publicly lobbied to prevent the cabinet from considering even the ministry's more moderate proposals, which concern the internal reorganisation of Gazprom's businesses in the interests of transparency, rather than its break-up.[18] Gazprom nevertheless claims that they would lead to the destabilisation of the sector, the break-up of the company and the domination of the industry by Russia's oil companies.[19] Gazprom's vision of

[13] This estimate of the subsidy takes into account the mark-up on gas sold at above-FEC prices.

[14] "Energeticheskaya strategiya", (2003:21). See also the even more pessimistic estimates in ISDEI (2003).

[15] For a detailed discussion of Russia's energy efficiency potential, see IEA (2002a:229–37).

[16] "Energeticheskaya strategiya", (2003:21).

[17] For a particularly full and at times impassioned statement of Gazprom's position, see Gazprom (2003a and 2003b).

[18] See "O strukturnykh" (2003) and the company's reaction as set out in Gazprom (2003b).

[19] Gazprom (2003b:2).

the sector's future needs is limited to a few basic elements: higher domestic tariffs, the right to sell some gas at free prices on the domestic market, a growing role for non-Gazprom producers in supplying *domestic* consumers and the liberalisation of the market in Gazprom shares. Structural change is out of the question. However, the company has begun to respond to pressure for greater financial transparency. Greater openness on the company's part would be a very positive step.

Gazprom is undoubtedly right to emphasise the need to raise domestic prices. Although this problem is far less acute than it was, raising domestic prices to full cost-recovery levels remains a key reform priority. Higher domestic prices, however, will not of themselves secure the future of Russia's gas industry. A more fundamental restructuring of Gazprom should be considered. Both Gazprom and the government acknowledge that non-Gazprom production must grow rapidly if Russia's gas industry is to develop successfully, but the current architecture of the sector constitutes a significant impediment to such growth, restricting both small producers' access to the market and consumers' freedom to choose their suppliers. Despite Gazprom's dominant position, there is significant potential for accelerating the growth of non-Gazprom production and making gas supply in Russia more competitive. This potential cannot be realised until Gazprom's domestic rivals can be assured of equal treatment, which is impossible as long as Gazprom controls both the information flows and the infrastructure. There is an immediate need to increase transparency in the sector and also to transfer what are in essence regulatory functions from Gazprom to the state. Over the longer term, Gazprom's natural monopoly/infrastructure provision functions should be separated from its potentially competitive activities.

Information and regulation

Gazprom has made some progress in becoming more transparent as a company in recent years, most notably in its regular publication of international standards accounts.[20] However, its interactions with its subsidiaries as well as its operation of the infrastructure and its supply of the domestic market remain largely opaque to outsiders. It is essential that the regulator, in particular, have timely, accurate and full information on the structure of pipeline usage and on the allocation of regulated-price gas. The quality of regulation depends directly on the quality of the information at the regulator's disposal. This may require, at the least, a degree of internal reorganisation so as to achieve a clearer separation of accounts with respect to production, transport and dispatch. Greater transparency in the company's other activities would also be welcome. Relationships like that between Gazprom and the Hungarian registered Eural Trans Gas have recently revived concerns about the possible use of trading intermediaries to extract value from the company.[21] Fortunately, prospects for progress on this front have recently improved. In March 2004, Gazprom CEO Aleksei Miller declared that by 2005, the company and its subsidiaries would unbundle their accounts according to activity – production, transport, processing, storage and distribution. Financial unbundling will allow for transparency in the setting of transport tariffs, a critical element of any effective third-party access regime. It will also facilitate efforts to assess where efficiency can be improved or where investment is needed.[22]

A second and related priority is minimising Gazprom's role as a *de facto* regulator in the gas sector, particularly as regards the allocation of regulated-price gas and pipeline access. The need for rationing regulated-price gas supplies should in any case disappear as domestic tariffs rise to levels that make it more attractive for gas producers to supply domestic consumers, while at the same time reducing consumers' appetite for gas. In the interim, however, it would be preferable for the state to take over the allocation of quotas for regulated-price gas from Gazprom. Indeed, the state should take over the preparation of the country's 'gas balance', which – inasmuch as it is closely linked to the question of a depletion strategy for Russia's gas resources – is arguably yet another sovereign function that is largely performed by Gazprom. The gas balance, moreover, should be prepared in a transparent fashion on the basis of a depletion strategy defined by the state. Whether Gazprom or the state performs actually rations the gas to be sold at regulated prices, there needs to be greater transparency and less scope for arbitrary action than at present. Clear rules and principles governing the allocation *and* administration of these quotas should be formulated and implemented. Once set, moreover, quotas should be binding, so as to give greater predictability to consumers.

As similar set of issues need to be resolved with respect to the transport and storage infrastructure. The main issue on a day-to-day basis concerns arrangements governing third-party access to the pipeline. At the least, it should be easier to challenge discrimi-

[20] OECD (2002:111).

[21] Gazprom shareholders and other observers have criticised the company's decision to extend loan guarantees to the little known Eural Trans Gas (ETG) and to appoint ETG as the agent for transporting 36bcm per annum of Turkmen gas to Ukraine. According to Russian media, ETG subsequently signed a contract to ship Turkmen gas to Poland via Ukraine, thus competing with Gazprom in that market. See *Moscow Times*, 27 February 2003 and 27 November 2003; and *Vedomosti*, 27 February 2003 22 March 2003, 4 November 2003, 21 November 2003, 24 November 2003 and 26 December 2003.

[22] *Vedomosti*, 19 March 2004; *Gazeta*, 19 March 2004.

natory behaviour and also to secure effective remedies *ex post*. However, it would be far better to insist on greater transparency regarding the utilisation of the pipeline network and a greater *ex ante* role for an impartial regulator in handling applications for access from other producers as part of a transparent, non-discriminatory third-party access regime. The strategic issue is the question of infrastructure investment and development, which is also largely in Gazprom's hands, even in areas in which it has no direct involvement in gas production (*e.g.* its coordinating role with respect to exports from Eastern Siberia). The potential conflict of interest here is obvious, since decisions about where to direct investment in the infrastructure can have an enormous impact on the viability of different producers.

Tariff policy, too, needs to be both more transparent and more consistent. The government is committed to raising tariffs to cost-recovery levels but is understandably reluctant to risk lower growth and higher inflation by raising them too rapidly. A big-bang approach to raising gas tariffs would hit households and industry extremely hard. Both need time to adjust. However, the need for a more gradual approach makes it all the more important that the authorities commit credibly to a price path for regulated tariffs and to clear, transparent methodologies for calculating them. This would, *inter alia*, make it easier to introduce longer-term contracts into the sector. Various drafts of the government's energy strategy and other official documents have outlined medium-term targets for gas prices, but price increases to date have consistently been smaller than these targets would imply. The targets for gas price increases included May 2004 agreement with the EU on WTO entry should therefore be seen as an important step forward, for they represent a binding commitment undertaken by the government in an international agreement. In principle, gas tariffs are fixed by the FST. In practice, they are set by the government and are adjusted once or even twice a year. Moreover, the increases often look somewhat *ad hoc*, the product of bargaining between the government and Gazprom. The government's tariff restraint also reflects a belief that Gazprom could and should be more efficient than it is. Cutting back Gazprom's investment plans and granting smaller tariff increases appear to be partly aimed at forcing the company to operate more efficiently and at getting a clearer sense of its true costs – which are extremely difficult for outsiders to assess – by 'testing its pain threshold'.[23]

The need for a credible price path is related to a more general need for a fair, stable, effective and transparent regulatory framework in which regulatory decisions are taken by an independent, expert regulatory authority rather than a market player. The experience of gas-market liberalisation in other countries suggests that such a regulatory structure is essential to ensuring market access to producers and choice of supplier to consumers.[24] Given that there is little or no prospect of Gazprom being broken up in the near term, the sector is destined to remain highly monopolised and therefore highly regulated. In such a heavily regulated sector, the credibility and stability of regulatory arrangements are critical to encouraging investment, but the FEC was always relatively weak and under-resourced compared with both Gazprom and other state institutions. Nor was the now abolished Ministry for Anti-Monopoly Policy (MAP) ever a very effective force, despite its attempts to challenge Gazprom. As noted above, the FEC has been transformed into a Federal Tariff Service, taking over the tariffsetting functions of various other bodies and transferring its oversight functions to the new Federal Anti-Monopoly Service, which has replaced MAP. It is important that, when this reorganisation is completed, the resulting institutions have considerably greater independence and regulatory capacity than their predecessors.

Separating the infrastructure

Improved transparency and better regulation of pipeline access are unlikely to be an optimal longterm solution. As long as Gazprom owns and controls the sector's dispatch, transport and storage infrastructure, it will be able to discriminate among producers. Better regulation might make it harder to use some of the cruder and more obvious means of discrimination, but that is about all. Over the long term, therefore, the question of separating the sector's infrastructure from Gazprom's production assets is likely to demand attention. The experience of other countries highlights the importance of equal access to infrastructure and transparent, non-discriminatory rules for all; it also demonstrates the difficulty of ensuring such access in the absence of vertical separation of the pipeline network from upstream producers.[25]

Pittman (2001) highlights three concerns that should be borne in mind when considering the question of a greater or lesser degree of vertical separation: the economies of scope that may be lost in the event of vertical separation; the ease or difficulty with which a regulator (or disadvantaged producer) is likely to detect discrimination in network access and to be able to act to secure a remedy in a timely fashion; and the potential welfare losses arising

[23] Recent statements by the Ministry of Economic Development and Trade, justifying limited tariff increases, appear to reflect this thinking. The government appears to have employed a similar strategy *vis-à-vis* the electricity and rail monopolies.

[24] OECD (2000b:8).

[25] See OECD (2000b).

from discrimination in access. Gazprom insists that the scope economies that would be lost in the event of any degree of vertical separation would be enormous, arguing that the smooth functioning of the entire system depends on the closest possible integration of production, dispatch and transport operations.[26] There are, to be sure, coordination issues: storage capacity is limited and uninterrupted delivery to consumers is critical. However, natural gas does not present the coordination problems present in, for example, electricity or telecommunications networks, and the experience of other countries suggests that the tight integration on which Gazprom insists is unnecessary.

The latter two factors point to the need for vertical separation. The regulator is very weak and the infrastructure operator enjoys a huge informational advantage over all other participants in the system. At the same time, seasonal variations in the price of gas and the large share of the price to end users that consists of transport costs (estimates vary in the range of 60–80 per cent) suggest that discrimination could be very profitable for a network operator also involved in production. In short, Gazprom at present has both the means and the motive to abuse its position. This applies, moreover, not merely to the day-to-day management of the infrastructure but also to questions concerning investment in the pipeline network, the resolution of which could have a significant impact on the prospects of different producers and the value of their assets. The determination of where the sector's infrastructure should be upgraded or expanded certainly should not be left to one producer.

While the *prima facie* case for vertical separation is compelling, the necessary conditions for unbundling are not in place at present and would take some time to put in place. However, the separation of accounts via the organisation of Gazprom's transport and dispatch infrastructure into joint-stock companies owned by Gazprom should be an important first step. This will increase financial transparency and would also provide a mechanism for the direct oversight of transport and dispatch operations by representatives of the state, as Gazprom's major shareholder. Other interim measures may also be required. In the longer term, however, it will probably be desirable to reorganise the transport and dispatch infrastructure into state-owned monopolies separate from Gazprom, perhaps via a restructuring of the monopolist that offered private shareholders the option of swapping stakes in the infrastructure companies for the state's shares in the production business (or businesses) that remained. Provided that the swap terms were reasonable, most private investors would probably prefer stakes in the upstream business rather than in a regulated natural monopoly that was guaranteed to produce steady but low returns.

Other aspects of Gazprom's increasing vertical integration should also be reconsidered. While Gazprom's growing involvement in distribution is an understandable by-product of the financial problems experienced by the distribution companies, it represents a further tightening of Gazprom's grip on all segments of the gas industry and is in the longer term likely to be a further obstacle to consumer choice and market access for other producers. In early 2004, the Ministry for Anti-Monopoly Policy found that Gazprom had, with the aid of the FEC, abused its position in the downstream sector in violation of anti-monopoly legislation.[27] Gazprom contested the decision, but the fact remains that its dominant position creates opportunities for abuse and also runs counter to the government's Energy Strategy to 2020, which envisages the emergence of greater competition in distribution and sales, and its medium-term economic strategy, which is committed to checking trends towards greater vertical integration in the sector.[28] Gazprom's *de facto* monopoly over gas-processing raises similar questions. Its acquisition of Sibur gave it effective control over access to the market for producers of associated gas, apart from Surgutneftegaz.[29] At the least, it would be expedient to put in place arrangements that would prevent any abuse of Gazprom's dominant position in gas processing. Given that gas-processing is not a natural monopoly activity, there could be a role for competition law here rather than for more sector-specific measures.

Though a number of critics have proposed breaking up Gazprom's production monopoly, this is probably the least problematic aspect of its structure. The size of the fields, the difficult geological and climatic conditions, and the extraordinary investment in infrastructure required to develop production in such remote locations mean that the economies of scale are very large. Smaller companies might well be more efficiently managed, and it is likely that the 'baby Gazproms' which resulted from any dismantling of the production monopoly would still be fairly large companies, possessing a significant portion of world gas reserves. Even so, such spin-off companies would probably need to form consortia in order to develop the new super-giants in the Arctic. This would require them either to band together again or to attract large foreign producers as partners. The former path would

[26] Gazprom (2003b:3).

[27] RIA TEK, 6 February 2004; for details of the case, see *Vedomosti*, 23 December 2003, and *Kommersant"*, 23 December 2003.

[28] "Energeticheskaya strategiya" (2003:33). For a more explicit statement, see section 3.5.1 of the government's medium-term economic strategy ("Osnovnye napravleniya", 2001).

[29] IEA (2002a:121–2).

raise questions about the point of breaking up Gazprom in the first place. The latter option could be commercially attractive, but the Russian authorities might well take the view that a larger Gazprom would have greater bargaining power *vis-à-vis* foreign companies. Moreover, a Gazprom with a production monopoly might find it easier to raise financing for the development of new fields than would the successor companies.

In any case, breaking up Gazprom's production monopoly can hardly be regarded as a priority. The principal issue to be addressed in any reform of the domestic gas sector is not the production monopoly, which could be eroded very rapidly if non-Gazprom producers enjoyed better access to the pipeline network, fewer regulatory restrictions and greater incentives to develop their reserves. Nor is the principal problem artificially low gas tariffs, although the consensus remains that domestic tariffs are probably still below cost-recovery levels. Tariffs are rising and will continue to rise, with rouble appreciation bringing about an even faster convergence of internal and external tariff levels in dollar terms. The main problem is Gazprom's combination of commercial and regulatory functions: it controls transport and dispatch and it determines which customers will receive how much gas at regulated prices. Moreover, its performance of these dispatch, transport and allocative functions remains largely opaque.

In pursuing the kind of restructuring outlined above, great care must be taken to minimise the risks of disruption to the economy. The unbundling of Gazprom's infrastructure is not something that can or should be executed in haste. Moreover, it would be unwise to unbundle Gazprom to any significant degree without first putting in place a framework for effective, independent and credible economic regulation. Dismantling vertically integrated monopolies can create serious problems where market and regulatory institutions are weak or under-developed.[30] Finally, any attempt substantially to restructure Gazprom, let alone to break it up, would have to take account not only of the rights of its private minority shareholders (it would require a qualified majority of shares, which the state could not muster on its own even with the benefit of treasury stock) but also of the position of those who hold Gazprom debt. However, these concerns should not be seen as grounds for delay. On the contrary, they all point to the conclusion that gas-sector reform will be a long and complex process. The longer it is put off, the greater the risk that it will eventually be undertaken precipitously in response to falling production.

[30] Joskow (1998).

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