REFORM OF GAS SECTOR IN RUSSIA

There are few, if any, industries more important to the Russian economy than the natural gas industry. Russia is a major gas exporter and has substantial natural gas reserves. This industry is dominated by a single vertically-integrated firm, RAO Gazprom. The industry has faced several problems, including low domestic prices, widespread non-payment (and barter and offset schemes) and a virtually complete lack of competition. At a seminar in Moscow in September 2001, OECD experts and Russian officials discussed what can be learned from the experience of reform in OECD natural gas industries. The topics covered include enhancing the transparency of Gazprom, the need for rebalancing of prices, the "right" price for gas relative to other fuels, the financing of new investment, the structure and powers of regulatory institutions and the promotion of competition in natural gas production. A key issue for the Russian economy is whether to structurally separate Gazprom. Separation of natural gas production and transportation has the potential to enhance competition between gas producers, and stimulate development of gas fields, without necessarily foregoing the market power that Russia enjoys in international gas markets.

The Natural Gas Sector

by D*arryl* B*iggar**

1. Introduction

The Russian natural gas industry plays a key role in the Russian economy. The natural gas industry is both a major export earner and a substantial contributor to federal tax revenues. Although some steps have been taken in the direction of opening this sector to competition, it is currently organised as a vertically-integrated monopoly. It is our view that properly managed, introducing further regulatory reform and competition in this sector has the potential to improve the productivity, efficiency, innovation of this sector, without jeopardising the contribution of this sector to tax revenues and export earnings.

2. Background

The following is a short bullet-point summary of our understanding of the current situation in the Russian natural gas industry:[1]

- On the supply side, a single company, RAO Gazprom, dominates the Russian natural gas industry. This company has a dominant position in virtually all the components of the natural gas industry. Specifically:
  - Gazprom produces 91% of all Russian gas (the rest is shared between Itera, East Siberian companies and oil companies);
  - Gazprom is integrated into raw gas processing and storage. In October 2000, Gazprom acquired 51% of the equity of Sibur, its only rival in gas processing facilities. Gazprom owns the only gas storage facilities in Russia.
  - Gazprom has a monopoly over natural gas transmission; its affiliate, Gazexport, has a monopoly over gas exports to Europe. Gazprom is partially integrated into distribution, owning around 10% of the total distri-

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bution network (the other local distribution networks are owned by the regions or municipalities, regional governments or other organisations).

– Gazprom shares are the most actively traded shares on the Russian stock exchange. The Russian government is the largest shareholder in Gazprom (38%). Foreigners officially hold around 10% of Gazprom's stock but may hold (through indirect means) another 5-15%.

- A US registered company, Itera, is also involved in gas production, exports to the CIS states and gas distribution (having taken over responsibility for gas distribution in the Sverdlovsk region). Close co-operative agreements between Gazprom and Itera have become a source of controversy in Russia.
- On the demand side, around 38% of Russian gas is exported. Exports to Europe account for only 24% of the volume of gas sold by Gazprom, but 73% of its reported gas revenues. Of domestic consumption, the largest component (about two-thirds) is heat and power production. Industry and residential customers each take around 18% of domestic consumption. Gazprom sells directly to industrial users and electric power stations, but, in the case of residential users, Gazprom sells the gas to local distributors at regulated prices who resell it to households. Due to the absence of meters and other constraints, households usually pay a fixed monthly fee that is independent of the amount of gas actually consumed. For these households, the marginal cost of gas is zero, so there is no incentive for conservation.
- The prices of domestic gas sales by Gazprom are regulated by the Federal Energy Commission ("FEC") and the Regional Energy Commissions ("RECs"). A freeze on nominal energy prices has been in place since October 1996, leading to substantial real price declines. Political considerations currently play a big role in the setting of prices. RECs set retail gas prices for households, but not every region has an REC and, in any case, the influence of the regional administration in an REC is very strong. Unlike most OECD countries, the regulated prices are lower for residential households than for industry. In 1999, exported gas earned around 6 times more per unit than domestic gas. The Main Provisions of the Russian Energy Strategy to 2020 sets the target of raising natural gas prices by up to 350% by 2005 and to parity with European import prices by 2007.
- Even though domestic prices for gas are relatively low (and have declined in real terms), the "actual" or "effective" price paid for the gas is lower still due to widespread non-payment and various non-equivalent barter and offset schemes. Gazprom is owed very substantial sums, especially from RAO UES (the electricity monopoly, accounting for 40% of all outstanding debt in 2000) and the local distribution companies. Local authorities have little incentive to insist that local distribution companies enforce payment since

non-payment essentially passes the debts on to Gazprom, and its shareholders and the central government. Gazprom management claims that greater control over local distribution companies has been a key factor in improving payment discipline.

- The existing regulatory regime envisages a degree of gas-on-gas competition. The gas law reserves 15% of the capacity of the transmission system for independent shippers, but there is no procedure for independent verification of the capacity of the network. Gazprom has reportedly delayed disclosing information on free capacity to the Ministry of Economic Development. Critics have argued that Gazprom must have unused capacity as it used to transport 10-15% more gas than it does at present. Gazprom's response is that pipeline capacity has decreased due to lack of investment. In practice, we are not aware of any firms having access to Gazprom's pipelines under the current arrangements, with the important exception of Itera, which has reportedly obtained pipeline access at special rates. The regulated tariff for transportation is based purely on volumes transported and the distance transported.

- A presidential decree of 1997 set numerous goals: separating potentially competitive segments of gas and electricity from the networks; privatisation; non-discriminatory third-party access to transmission; a more active role for state representatives on boards of directors; the strengthening of regulatory capacity and effectiveness; and the phasing out of cross-subsidies over time. The financial crisis and political instability that began in late 1997 temporarily interrupted this as well as other important structural reforms. The Russian government (long-term) Economic Programme of 2000 highlighted gas and electricity as primary areas of reform, reiterating many of the general goals of 1997, and calling for the development of detailed reform proposals that clearly identify main reform directions and timetables for the implementation of legal and other measures. A first package of draft legislation for regulatory reform was submitted to the Duma in July 2001. The 2001 Draft Governmental Programme, chapter 3.5 on Natural Monopolies includes the following proposals regarding the gas sector:

The first stage priorities are *a*) surmounting the non-payments crisis and *b*) achieving profitable commercial results by domestic gas sector enterprises. To achieve this, the document proposes accounting separation of Gazprom and local distribution companies, modernisation of access for independent gas producers to the major pipeline network and the introduction of restrictions on vertical and horizontal integration.

Second stage priorities are *a*) achieving profitability on all sectors of the gas market *b*) discontinuation of cross-subsidies, including discounted sales of gas to the public and additional charges on gas transportation tariffs for financial pro-

grammes in the gas sector. This second stage includes the formation of a market for gas transportation capacity.

The discussion at the seminar can be organised under three headings:

a) First, issues related to how best to regulate the natural monopoly parts of Gazprom;

b) Second, issues related to the introduction of competition into the competitive parts of this industry; and

c) Third, other issues, such as how to ensure that consumers of gas pay their gas bills.

We will consider each of these issues in turn.

3. Regulation of the natural monopoly parts of the natural gas industry

Many issues raised at the seminar related to how best to regulate gas transmission and distribution, along the lines of the following questions:

- How can we enhance the "transparency" of the information provided by Gazprom?
- How should the price of gas be regulated relative to other fuels?
- Is there a need for rebalancing of gas prices?
- What investments should be allowed to be recovered in regulated prices?
- How do you measure the value of the asset base used by Gazprom?
- What is the right structure and powers for the regulator?

3.1. *Transparency of Gazprom*

Many participants at the seminar noted that, although Gazprom's transparency had improved, it still is not possible to obtain reliable information on Gazprom's cost and revenues of providing gas transportation services. This is a fundamental concern. It is simply not possible to regulate a natural monopoly without detailed knowledge of its costs.[2] In OECD countries, a substantial proportion of regulatory resources are devoted to assessing and contesting the claims of the monopolist about its costs.

Gazprom does, of course, disclose some information. Since 1999, Gazprom has published biannual consolidated financial reports audited by Price Waterhouse. Since 2000, these reports have been released on a quarterly basis, with accounting separation for extraction, processing, transmission and distribution. However, accounting separation of this kind is of limited usefulness for reliably assessing the true costs of a monopolist, for three reasons:

- First, in many cases one input is used to provide two or more outputs. Standard accounting rules place little or no constraint on the allocation of costs

that are common or joint to two or more activities. Therefore a regulated firm retains substantial discretion, even when following internationally-accepted accounting rules, to shift its costs around within the firm to suit its own purposes. These purposes might include shifting costs to the more heavily regulated parts of the firm, to justify higher final prices or higher access prices; or shifting profits to the more lightly taxed parts of the firm, to evade taxes.

- Second, in a large firm, inevitably the outputs of some parts of the firm are the inputs to others. The prices at which the firm sells outputs to itself are irrelevant to the firm's decision-making and to the overall profitability of the integrated firm. But, the firm can, by choosing this value appropriately, shift its revenues and profits around within the integrated firm, for the firm's own purposes.
- Third, in an infrastructure industry a large component of the total cost is a return on capital used, but the size of that return depends on how you value the firm's assets. Different approaches to valuing a firm's assets are recognised as legitimate for accounting purposes. If the firm has discretion to select a method it will choose the method which best suits its own purposes.

In OECD countries, it was realised early on that accounting information provided by a regulated firm would only be useful if there were strict rules to control the discretion of the regulated firm over the way that it presented its accounts. As a result, elaborate and detailed sets of rules have been put in place which govern the way that regulated firms are allowed to allocate costs, that place limits on transfer prices and that specify a particular approach to valuing assets.

As long as Gazprom remains integrated (both vertically and into other industries) it will remain necessary to invest substantial regulatory resources into analysing and verifying Gazprom's claims about the level and structure of its costs. Specifically, as discussed above, the regulators will need to ensure that Gazprom does not allocate to its regulated activities the costs of providing non-regulated activities, ensure that Gazprom's within-firm sales to its regulated activities take place at prices that are not too high, and the within-firm sales of its regulated activities to its non-regulated activities do not take place at prices that are too low. Finally, the regulator will have to ensure that the method that Gazprom uses to value its regulated assets is appropriate.

This regulatory task can be made substantially simpler by requiring ownership separation of the regulated and non-regulated activities. If the regulated activity is separated in this way there can be no within-firm shifting of costs from non-regulated to regulated activities and no within-firm sales at prices that are too high or too low. It will still be necessary to control the way the firm values its

assets, but isolating and identifying those assets will be much simpler. Structural separation therefore makes the regulatory task easier.[3] Later we will argue that vertical separation facilitates the introduction of competition. Here the argument is a little different – here separation of the regulated and non-regulated activities of a regulated firm (whether horizontal, vertical or neither) facilitates the process of regulation of the regulated activities.[4]

3.2. Is *there a need for rebalancing of prices*?

At the seminar the concern was often expressed that prices were "too low" or that there was a need to rebalance prices. Other participants raised questions about the correct level of the price of gas relative to other fuels.

Are the prices of domestic gas in Russia "too low"? What does it mean for the price of domestic gas to be "too low"? There are three possible meanings. First, it could be that the regulated price is so low that the monopolist is not able to earn a sufficient rate of return over all its products. Second, it could mean that the prices of certain services are below the marginal cost of providing those services. Finally, the question could be interpreted to mean that the prices of certain services are below incremental cost, *i.e.*, those services are cross-subsidised from the revenue from other services.

Is it the case that Gazprom's regulated prices are held so low that Gazprom is not able to earn a normal rate of return over all its services? We do not have enough information to answer this question, so we will put it to one side.

Is it the case that Gazprom's prices are lower than marginal cost for some services? We can view the marginal cost of gas as being made up of two components – the marginal cost of transportation and opportunity cost of selling an additional unit of gas in the market with the highest return. Assuming that Gazprom can export additional gas to Western Europe,[5] the opportunity cost of the gas itself is the extra revenue that would be earned from the export sale of an additional unit of gas. In other words, the marginal cost of delivered gas within Russia is the marginal cost of transportation plus the profit on the sale of a unit of exported gas.

There is at least some evidence that Gazprom is not earning sufficient revenue in its sales to some domestic customers to cover its marginal costs – it has recently offered to invest substantially in a project to increase the use of coal as a fuel in the production of electricity. It is difficult to see why Gazprom would voluntarily increase the demand for alternative fuels if it were selling above its marginal cost on sales to electricity generators.

There is no economic rationale for gas prices to be below marginal cost.[6] Gas prices this low induce inefficient substitution of gas for other fuels, discourage appropriate energy efficiency and conservation measures and cause Gazprom to attempt to resist rather than expand its domestic sales.

If Gazprom is not able to recover sufficient revenue to cover its total costs, or if the price for a particular service is below marginal cost, regulated prices will have to rise. This price increase should be supported by enhanced effort regarding payments discipline to ensure (as has happened in the past) that price increases are not offset by greater non-payment. Measures to support poorer segments of the population may also be necessary.

Is it the case that prices should be rebalanced to eliminate cross-subsidies between customer classes? There is no one correct economic answer to this question. The answer depends on the public policy objectives that are being pursued.

In some cases, governments will wish to maintain a certain structure of prices for public policy reasons. For example, a government may wish to keep prices low for a certain category of users. This will usually mean that other prices must be raised in order to ensure that the monopolist can earn sufficient revenues overall. But, if the prices for those other services are high enough, a rival firm may decide that it can provide the services more cheaply itself and invest in the construction of, say, an entirely new pipeline, even when it is more efficient to use the monopolist's existing pipelines. If the monopolist is to be able to preserve the "cross-subsidies" it must be able to prevent new entry of this kind.

In other words, there is a clear choice – cross-subsidies between classes of end-users can be allowed to persist, but only if new entry in the form of the construction of new pipelines is prevented. On the other hand, if competition and free entry into the market for pipelines is to be allowed, prices must be rebalanced to eliminate these cross-subsidies.

In the medium- or long-term we consider that it is preferable to allow free entry and competition between pipelines (this is discussed further below). We therefore consider that it is preferable to rebalance prices over time so as to eliminate cross-subsidies and simultaneously to relax controls on the private construction of pipelines.

Is it essential to rebalance prices before introducing competition between gas producers? From a theoretical perspective the answer is No. The cross-subsidies can be preserved through the regulated price of gas transportation. If the government wishes to subsidise a group of consumers it can do so through subsidies on gas transportation costs, leaving the price of gas itself to be determined in the market. In practice, however, extreme cross-subsidies may make introducing competition more difficult. The reason is that transportation services are not just provided by one company, Gazprom, but by both Gazprom and local distribution companies. Maintaining cross-subsidies in this circumstance would require an elaborate arrangement for transfers between Gazprom and the local distribution companies. Although it is theoretically possible to set up such arrangements, in practice it may be difficult.

A related issue is the question of whether it is necessary to adjust the relative prices faced by industrial and residential users. In Russia, unlike most OECD countries, industrial users pay more for the gas they consume than residential users. Should industrial customers pay more for gas than residential customers? Economic theory says that when a natural monopoly has fixed costs which need to be recovered through prices which are marked-up above marginal cost, the regulated price should be marked-up above marginal cost by an amount related to the elasticity of demand – services which are price inelastic should have a high price, while services with a high elasticity should have a low price. While it is at least possible that the elasticity of demand for residential users is higher than that of industrial users, this doesn't seem likely. If most residential demand is unmetered, the elasticity of demand is likely to be very low, whereas if industrial users can switch to other energy sources, their elasticity of demand is probably higher. At the same time, the cost of delivering gas to industrial customers is likely to be lower than the cost of delivering gas to residential customers. For these reasons, we believe that the relative prices for industrial and residential users should be adjusted.

Questions were also raised at the seminar about the appropriate price of domestic gas in relation to other fuels. How should the price of gas relate to the price of electricity? Or various grades of oil?

There is no one simple price that is "right" for all end-users. Similarly, there is no simple "right" ratio of the gas price to the price of other fuels.

Regulating the end-user price of gas efficiently is a difficult and complex task. The "right" price of delivered gas will vary from geographic location to location, from day to day and probably also according to the identity of the end-user. The "right" price of gas might be significantly lower than the price of oil in a region that has a relative abundance of gas and it might be significantly higher than the price of oil in a region for which gas demand exceeds the capacity of a pipeline to supply. The price level overall must be high enough to provide a return to investment in and maintenance of the pipeline network and exploration and development of new gas fields.

In other words, the task of the regulator, if carried out thoroughly, might require setting many hundreds or thousands of individual prices, all of which might vary on a daily basis. This task can be made somewhat simpler by allowing the regulated company to choose its own prices, subject to an overall price cap. But the task still remains onerous.

Introducing competition into gas production can make this task somewhat simpler. The regulated price of gas is comprised of two components – the price of the gas itself and the price of transportation. When there is effective competition between gas producers, the price of the gas itself can be determined by the mar-

ket – the regulator can focus, instead on merely regulating the price of transportation. In particular, the regulator will not need to determine the "correct" relationship between the end-user price for gas and the end-user price for other fuels. When there is competition between gas producers, the final price of gas will correctly reflect the scarcity of gas relative to other fuels (taking into account constraints on pipeline capacity).

3.3. *Who should pay for new investment?*

In any pipeline network there is a continual need for new investment – in maintaining and upgrading existing facilities and in constructing new facilities – new storage facilities and entirely new pipelines. This is a classic question in the theory of regulation: Who should pay for the cost of these new investments? Should the cost of a new pipeline be charged *only* to the users of the pipeline? Or should the costs of new investment be spread over all users and recovered as part of the broad fixed costs of operating the network?

The answer to this question is closely related to the answer to the question above regarding whether prices should be rebalanced. If a strict monopoly is to be maintained in pipeline transportation then both choices are feasible – the costs of a new facility could be recovered either from the prices of that facility alone or from the prices of all services. On the other hand, and this would be our preference, if new construction of independent pipelines is possible, then the prices of all new services should at least recover the incremental cost. In other words, the users of new facilities such as a new pipeline should at least pay the incremental cost of the facility.

Another issue that was raised was how the existing pipeline infrastructure should be valued. After all, it was "inherited" in its entirety from the former Soviet regime. Should current prices reflect the costs that were incurred in its construction, even though those costs were incurred under a former regime?

The theory of regulation has little to say to this point. All that we can note is that for all *new* investment the prices should be sufficient to allow a strong expectation of recovery of costs. Whatever valuation method is chosen, over time, as the infrastructure wears out and is replaced with new infrastructure, the cost of the new investment is reflected in the capital base of the infrastructure and the regulated prices approach the correct level (*i.e.*, prices that just allow recovery of all costs). If the infrastructure is initially valued at a price that is "too low", consumers will benefit from a period of low prices. But this period will not last – as the existing infrastructure is replaced, prices will rise to allow a level that allows an adequate return on the new investment. Similarly, if the infrastructure is initially valued at a price that is "too high", prices will fall over time as the cost of new

investment necessary to maintain the infrastructure is less than the depreciation on the existing capital base.

If it is considered preferable that prices neither rise nor fall unduly over time, then the pipeline network should be valued today at a price which reflects its current replacement cost depreciated to reflect its remaining useful life. This is known as the "Depreciated Replacement Value". With this approach the cost of new investment which maintains the infrastructure just balances the depreciation each period, so that the size of the overall capital base remains constant.

3.4. *The structure and powers of regulatory institutions*

Since the assets involved in the gas industry are long-lived, investors care not just about the prices today but also the prices many years into the future. Therefore it is important not just how prices are set today, but the structure and powers of the institution which is responsible for setting those prices.

At present we understand that the authority for setting prices rests with the FEC and the RECs. These bodies are themselves subject to governmental decrees. This structure leaves open the possibility that prices may be held low for political reasons (and, in fact, there has been a nominal price freeze since 1997). In addition, we understand that the RECs may have control over not just the price of gas delivered to final customers, but also the price of wholesale gas to local distribution companies.

In order to ensure that investors have a reasonable expectation of an adequate return on investment (including investment in maintaining and expanding capacity), we consider that there should be some form of commitment to the principle that prices should be such as to allow a reasonable expectation of an adequate return on prudently-incurred investment. If it is not possible to impose this principle as a binding rule on the central government, an alternative is to enhance the independence of the regulatory institutions. By setting up an independent regulatory institution the government is essentially committing itself to the rules under which that institution operates. For this reason we support strengthening the independence of the FEC.[7]

At the same time, independence can allow an institution to be "captured" (*i.e.*, act in the interests of just one of its stakeholders). This is especially a risk in the Russian natural gas industry where Gazprom is particularly dominant. Introducing competition reduces this risk. New actors in the industry will have a strong incentive to monitor the actions of the regulator and complain in the event of perceived imbalance or unfairness. In addition we consider that the regulator should be subject to the oversight of another authority with overall responsibility for natural monopolies such as the Ministry for Antimonopoly Policy.

It does not make sense for RECs to have control over the price paid for wholesale gas (*i.e.*, the price at which Gazprom sells to the local distribution company). Each REC, which presumably acts in the interests of its region, would like to see this price be set as low as possible, to keep the price of gas in its region low and to force other regions to pay a greater share of the costs of Gazprom. These wholesale prices can only effectively be set centrally, by an agency which takes into account the total revenues and costs of the gas transportation network. We support moves towards a greater centralisation of the price regulation role. The price at which local distribution companies sell gas to final consumers can, however, be regulated at the local level.

Control over prices should be extended to any gas company that holds a dominant position in the market – this is likely to include all local distribution companies and most transmission pipelines. Price control should not be limited to just Gazprom and its affiliates. As new pipelines are constructed, or as existing pipelines are divested from Gazprom (as recommended below), these new companies may need to be regulated. If Gazprom is regulated while other dominant companies are not, Gazprom has a strong incentive to voluntarily divest assets in order to avoid the price control regulation. This may be one explanation for Gazprom's transactions with Itera.

3.5. *Introducing competition in the competitive parts of the gas industry*

Many of the participants at the seminar, especially the OECD participants, raised the possibility of introducing some form of competition in the natural gas industry. Two forms of competition were discussed: competition between gas producers and competition between pipelines. The US has both substantial competition between gas producers (of which there are more than one thousand) and competition between pipelines. Even where there is only one pipeline providing service to a region there can still exist a degree of competition – holders of long-term rights to a share of the capacity of a pipeline are able to sell that capacity in competition with the pipeline owner itself. Such long-term rights to a share of the capacity of a pipeline are known as a "virtual pipeline".

The OECD experts pointed to some of the benefits of introducing competition. In particular, it was pointed out that allowing for competition greatly enhanced the scope for new investment in gas production, as almost any company can obtain a licence to extract gas and become a potential producer. Under a monopoly network company a potential gas producer must obtain an agreement with the monopoly company before it can find an outlet for its gas. The monopoly network owner will, in negotiating an agreement, seek to extract some or all of the rents of the gas producer, limiting the incentives of potential producers to engage in gas exploration and development. In addition, since oil and gas are commonly

found together, enhancing the incentives for investment in gas production also enhances the incentives for oil exploration. In Russia, allowing competition could facilitate the development of hundreds of small gas fields.

A related consequence is that, under competition, gas exploration and development becomes much more responsive to changes in the demand for gas. The US expert noted that the recent rapid rise in the price of natural gas in the US led to a doubling in the number of gas drilling rigs within just one year.

For the same reason, allowing competition in gas pipelines can facilitate new investment in pipeline facilities. Since any new pipeline is almost certain to interconnect at one or both ends with the existing pipeline network infrastructure, regulating access enhances incentives to build new pipelines by limiting the rents that the existing pipeline infrastructure can demand for the right to interconnect. The US expert noted that when prices of gas in California rose recently, due to limited capacity on existing pipelines, the national regulator received numerous applications for the right to build a new pipeline out to the American west.

Introducing competition in the natural gas sector requires, at a minimum, *a*) allowing customers to choose their gas supplier and *b*) a rigorous and effective regime for access to the natural gas pipelines. In particular, the regulator should ensure that gas producers can have their gas carried over existing networks at non-discriminatory terms and conditions.

The primary difficulty with access regulation is that an existing pipeline network typically has a strong incentive to refuse access to a third-party gas producer – that is to deny or discriminate in the carrying of gas for a third-party gas producer. The pipeline operator may do this by seeking to charge a high price for transportation, insisting on an inconvenient point of interconnection, or denying that adequate capacity exists for the carriage of the rival's gas. To control this behaviour the regulator needs a substantial amount of information, to verify the network's costs, to determine appropriate interconnection points and to verify the level of available capacity.

As the EU has become more aware of the difficulty of ensuring non-discriminatory access for third-parties, they have tended to become stricter in their regulatory requirements, moving from "negotiated" access agreements to "regulated" access agreements and moving from requiring only accounting separation to requiring legal separation (or "legal unbundling"). From the experience of Europe and the US we consider that access regulation in Russia should be on the basis of regulated access (*i.e.*, at prices set by the regulator) and, as a minimum, Gazprom should be required to legally separate transportation from its other activities.

Gas competition cannot become established unless there are several independent gas producers. Although there are potential alternative gas producers in Russia at the moment, establishing effective competition may require divestiture

of gas production facilities from Gazprom. It is likely that competition would be facilitated if Gazprom were required to divest some of its gas reserves and gas production facilities and/or long-term contracts for gas supply. In addition, foreign gas producers (such as those in the CIS countries) should be allowed to compete to supply gas to consumers within Russia.

At the same time, if competition is to develop, it is necessary that gas consumers must have the ability to switch supplier. It may be necessary to prevent Gazprom locking-in customers by expanding its use of long-term contracts with end-users. It may also be necessary to go further to break existing long-term contracts for gas supply between Gazprom and end-users. The EC Directives explicitly recognise that long-term contracts which lock customers in to one supplier, entered into in the anticipation of subsequent opening to competition, should be invalidated.

As long as Gazprom remains vertically-integrated it will have an incentive to discriminate against rival producers. It can discriminate in a variety of ways that are difficult to detect and to control. The US expert pointed out that even with the level of competition in the US gas market, the US regulator continues to face problems with pipelines discriminating in favour of their own affiliates.

Requiring separation of the different parts of the gas industry can eliminate the incentive to discriminate in favour of "affiliated" companies. The recent OECD Recommendation on Structural Separation recommended that, in situations such as this, consideration be given to structural separation – that is, separation of the natural monopoly from the competitive sectors. In other words, separating the gas transmission pipelines from the other activities of Gazprom (such as production and distribution). This separation should be full ownership separation. If there remains an ownership connection between the separated transmission operator and Gazprom the transmission operator will have an incentive to favour Gazprom in its dealings. It may be difficult to overcome this incentive without very strict and intrusive monitoring and oversight of the transmission operator.

In addition to competition between gas producers, the Russian gas industry may also be able to support a degree of competition between gas pipelines or between gas transporters that makes use of existing pipelines. A first step to introducing competition in gas pipelines is to allow non-Gazprom companies to construct new pipelines and to connect to the Gazprom network at any feasible point. Competition between gas pipelines could be further facilitated by requiring divestiture of selected pipelines. For example, competition could be facilitated by requiring divestiture of a pipeline whenever more than one pipeline serves a large consumer of gas, such as a local distribution company.

In addition, as mentioned earlier even without divestiture of an entire pipeline it is possible to establish competition between "virtual pipelines" by allowing

companies to enter into long-term contracts for gas transportation capacity over existing pipelines at regulated rates. These companies can then carry gas in competition with Gazprom and other gas transporters. To facilitate this, we consider that Gazprom should be required to lease or use all the available capacity on all its pipelines. Ideally, Gazprom would be required to lease capacity rights to the point where Gazprom no longer holds a dominant position in gas transportation capacity over any given route.

In this note we have not discussed the issue of access to storage. The scope for competition in storage differs from country to country according to the availability of storage facilities. At this stage we do not have sufficient information to determine whether access to storage is an essential part of the liberalisation process in Russia but we note that access to storage is a key element of liberalisation in many other countries.

4. Other issues

4.1. *Payments discipline*

Several participants at the seminar emphasised that if domestic prices for natural gas rise, there may be an increase in non-payment of gas bills. Certainly, it appears that in the past Gazprom has been forced to accept, or has accepted, non-payment (and the associated accumulation of debts) or payment through various forms of non-equivalent transactions, especially by local gas distribution companies and electricity generators (RAO UES).

In any country, it is difficult to use the threat of cutting off supplies of gas or electricity as a tool to enforce payment. The consequences of cutting off gas or electricity supplies, especially in winter are politically unsupportable. This is especially the case in Russia. It is therefore especially critical in this industry that there are other mechanisms (besides cutting off supplies) for enforcing contracts and insisting on the payments of debts.

We understand that local courts are sometimes under the influence of regional or local administrations, so utility companies may have difficulty enforcing payments of debts, especially to enterprises owned by the local administration (such as the local gas distribution company). For this reason, Gazprom has entered into a number of contracts with local administrations under which Gazprom offers special terms, or offers to provide certain public services, in exchange for the co-operation of the local administration in the collection of debts.

In our view, such special agreements are undesirable and should be unnecessary. If competition is to develop, Gazprom and other gas companies must be able to effectively enforce contracts and recover debts, without special arrangements with local authorities. We therefore urge the strengthening of the court system, the

independence of the courts from the local authorities and continued strengthening of the effectiveness of the bankruptcy law. As another OECD report notes: "For financially sound or competitive gas and electricity sectors to develop in Russia, it is imperative that neither consumers nor state authorities have the ability to hold up gas and electricity firms through non-payments or the threat thereof".

A policy of tolerating non-payment may also be undesirable for corporate governance and taxation reasons. Since it is very difficult to account for the value of the assets offered in exchange for gas, the ability of Gazprom to accept lesser forms of payment places a significant amount of discretion in the hands of Gazprom's managers. They may be tempted to use that discretion in ways that enhance their own interests at the expense of the company. The lack of transparency in such barter transactions may also enhance the ability of Gazprom to avoid taxes.

A greater insistence on cash payment (which is already, we understand, Gazprom and government policy) will significantly enhance the transparency of any discounts or subsidies that are offered, improving the transparency of Gazprom's operations and improving the overall corporate governance of Gazprom. In addition, it will improve the potential for competition – a rival gas company will be unable to compete against Gazprom if Gazprom managers can undercut by offering deals that cannot be replicated by rivals.[8]

5. Conclusion

The Russian natural gas industry is, arguably, the most important natural gas industry in the world. Given the magnitude of reserves in Russia relative to the rest of the world, it is likely that the world market share of Russian gas will increase over the next few decades. The Russian government is already well-advanced in reform plans for this industry and we commend the broad direction of those reforms.

This note has recommended further reforms in two broad directions. The first broad set of reforms seeks to ensure that prices allow investors to earn a fair rate of return, to strengthen payment discipline and to eliminate cross-subsidies. These measures would improve incentives for choosing the most efficient energy source and provide a sound foundation for competition and for attracting capital, including foreign capital, to the industry. The second set of reforms builds on this basis, through liberalisation and opening to competition. The development of competition in this sector, coupled with close monitoring by the competition authorities, has the potential to ensure that this industry makes its full potential contribution to Russia's economy.

Notes

1. The information in this section is taken from three sources: *a*) preliminary work by the OECD Economics Directorate for the forthcoming OECD Economic Survey of the Russian Federation, which will be published in early 2002; *b*) work by the IEA for the IEA Russia Energy Survey which will be published in December 2001 and *c*) information provided at the seminar.
2. It is true that some regulatory incentive schemes are designed to improve the incentives on the regulated firm for cost efficiency by breaking the link the regulated prices and the monopolist's costs. However, in practice it is only possible to break the link between regulated prices and costs for the short-to-medium term. Eventually, if prices are to be neither "too high" nor "too low", it is essential to consider the underlying costs.
3. Improving the quality of the information provided by the regulated firm may also have a secondary effect of improving confidence in the regulator (by making it easier for the regulator to prove that it is doing its job). This may, in turn, allow the government to grant more independence to the regulatory body.
4. Of course, such separation might also impose costs. In particular it might raise production costs if there are economies of scope. It might also raise transactions costs.
5. In effect, we are assuming here that Gazprom is a price-taker in the European gas market. If, as seems more likely, Gazprom has some market power in the European market, the argument still applies, but with revenue replaced by marginal revenue.
6. At least, in the absence of other market distortions such as, *e.g.*, environmental issues.
7. Strengthening the independence of the FEC might also allow the government to avoid the opposite criticism – that it is being too light on Gazprom, of which it remains a 38% owner.
8. We also note that enhancing the level of metering of individual households may reduce non-payment of individual households. If households have some control over their gas bills they may be less likely to withhold payment.

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