

Gazprom: Gas Giant Under Strain

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About the National Oil Company Study

While the role of the state is declining in nearly every sector of world economic activity, in hydrocarbons the pattern is quite different. State-controlled oil companies—so-called national oil companies (NOCs)—remain firmly in control over the vast majority of the world's hydrocarbon resources. Some NOCs are singular in their control over their home market; others engage in various joint ventures or are exposed to competition. PESD's study on National Oil Companies focuses on fifteen NOCs: Saudi Aramco, NIOC (National Iranian Oil Co), KPC (Kuwait Petroleum Co), PDVSA (Petróleos de Venezuela), ADNOC (Abu Dhabi National Oil Company), NNPC (Nigerian National Petroleum Co), PEMEX, Gazprom, Sonatrach, CNPC, Petrobras, Petronas, ONGC, Sonangol, and Statoil.

These enterprises differ markedly in the ways they are governed and the tightness of their relationship with government. NOCs also vary in their geological gifts, as some are endowed with prodigious quantities of "easy" oil while others must work harder and apply highly advanced technologies; some have sought gas, which requires different skills and market orientation than oil, while others stay focused on liquids. These case studies explore whether and how these and other factors actually explain the wide variation in the performance of NOCs.

About the Author

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Previously, Dr. Victor was a Research Associate in the Economics Department at Yale University under Prof. William Nordhaus, where she developed a new spatially referenced economic database. At the same time she was involved in research at the Program for the Human Environment at Rockefeller University. There she analyzed the technical changes bearing on the environment, rates and patterns of technical change in the information and computer industries, and R&D in the energy sector.

Before she moved to the US in 1998, Dr. Victor was a Research Scholar at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. Her IIASA research included analysis of the long-term development of economic & energy systems, energy modeling at regional and global scales, scenarios of infrastructure financing, trade in energy carriers and environmental impacts. She had extensive collaboration with international organizations, including the World Energy Council (WEC) and the Intergovernmental Panel on Climate Change (IPCC). She holds a Ph.D. and a B.A. in Economics from Moscow State University.

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Gazprom: Gas Giant Under Strain

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Introduction

This study, which is part of a larger research project on state-controlled hydrocarbon resources, looks at the strategy, evolution and performance of Gazprom, Russia's largest state company. It explores the critical role that Gazprom plays in the Russian economy, as well as its growing and evolving role as an instrument of state.

Section I provides an overview of the Russian oil and gas sectors, with special attention to the history of gas as a Soviet ministry—the period when nearly all of Gazprom's legacy assets in gas fields and pipelines were developed.

Section II focuses on Gazprom as an organization, including its structure, revenues, and its activities within Russia, Western Europe and overseas. As the study makes clear, Gazprom is far more than the world's largest gas company. It is a monopoly controlled by the Kremlin, serving both economic and political agendas, as well as a multidimensional investment enterprise seeking a larger role on the world stage.

Section III looks at the “yin and yang” of Gazprom and the state, and the reasons for early privatization efforts following the demise of the Soviet Union, as well as the current “re-nationalization” of the oil and gas sectors as world prices have risen.

Summary

Russia holds the world's largest reserves of natural gas. It alone produces 22% of the world's gas, and in recent years has become the world's top gas exporter, mainly to Europe. In addition to the rich endowment of gas, Russia holds the sixth-largest oil reserves in the world, and now stands as the world's second-largest oil producer.

The Russian state has followed strikingly different paths in the oil and gas industries since the breakup of the Soviet Union. In the case of oil, Russia largely privatized all exploration and production activities, while keeping the pipeline infrastructure under state control for exporting oil. The privatization of oil production raised badly needed cash at a time when the Russian state budget faced particularly hard times. Privatization also allowed favors for individuals and enterprises that were at the time politically well connected to the Kremlin.

With gas, the Russian government followed a different strategy. It retained the largest stake in the Russian gas behemoth, Gazprom, and has been able to run the enterprise as a state-controlled firm. Only when it was confident that the enterprise was under unequivocal control of the Kremlin was the Russian government willing to sell larger stakes—while retaining a controlling share—to private investors and favored companies in the west.

Over the last five years the Kremlin has also sought to assert greater control over the oil industry, partly by building within Gazprom a large oil company. The result is that Gazprom is now Russia's most important "national energy champion," with enormous political clout, both at home and abroad.

By market capitalization and any reasonable valuation of its assets, Gazprom is the richest company in Russia. In 2005 Gazprom alone accounted for 8% of Russia's GDP, and provided about 25% of its earnings to the federal budget. Even before the new company acquisitions of 2005 and 2006, Gazprom had become the largest gas company in the world. It supplies most of the gas used by households and industry in Russia, as well as gas that generates around 50% of Russia's electricity.

Gazprom makes the largest portion of its revenues by exporting gas to Europe, for which it charges oil-linked world prices, which are roughly five times the prices paid by Russian consumers. If Gazprom optimized performance it would focus on export markets and on markets where it could charge similarly high prices. Indeed, it has done that in places where, politically, it could get away with that strategy—namely, by expanding the volume of export contracts to Europe and by raising the price of gas that it sells to the near-abroad in Ukraine, Belarus, Moldova and Georgia.

It is the home market, however, which is the key to Gazprom's political leverage. By tacit agreement with the state, it provides extraordinarily cheap gas to render support to a highly inefficient economy whose customers have yet to install meters. Gazprom is stuck between its largest market in terms of volume (Russia), for which it actually loses money, and its largest market in value (Europe today, but possibly China in the distant future).

The firm and the Kremlin have tried to bring the cost of domestically supplied gas into line—which would realign Gazprom's economic incentives and also help forestall a gas crisis by inducing much more efficient use of gas in Russia—but that has been politically difficult. Not only would higher gas prices be highly visible in cold Russia, but events in the gas sector would ripple through other industries, notably electricity.

This reflects Gazprom's insular history as a Soviet ministry and the fact that political control over the firm is rooted in the Kremlin rather than in production of gas (and now oil). Thus the paradox that western observers always note about Gazprom: on the one hand, it controls the world's largest gas resources and yet, on the other hand, it faces a looming gas crisis as production in its major fields continues to decline, while it fails to invest adequately in new fields.

That paradox is doubly puzzling for western observers because the oil industry in Russia produces large amounts of associated gas, but little of that potential is actually

delivered to market. Gazprom has refused to accept delivery of the gas. (A few independent gas companies exist in Russia, but they, like the oil industry, account for a tiny share of production. The most successful independent companies are those that have the closest political connections.)

By western standards Gazprom has extremely weak corporate governance—and that weakness explains why Gazprom is accountable to political masters rather than shareholders, even as privately owned shares rise to 49% of the enterprise. This weakness has been tolerated by shareholders in part because Gazprom’s partial privatization is new; in part because gas prices have been rising, and with them the value of the company; but mainly it has been that Gazprom’s political connections are seen as the keystone to its viability as an enterprise.

Gazprom’s system of governance is not a normal case of weak control by shareholders. Rather, it is what will be called here “false governance.” Because Gazprom shares are listed in the west (New York, Frankfurt, and London), Gazprom engages in a wide array of normal-looking reporting. This disclosure is part of a larger move to be a dominant energy champion, for which purpose Gazprom managers feel they must take part in western accounting practices.

This style of governance is consistent with the fact that Gazprom’s operation depends on its political connections within Russia. It explains, among other things, why Gazprom has become a central player in Russia’s media industry (notably television) when such investments make little sense for western gas companies. Control over television is essential to electoral control.

When compared with other state-controlled hydrocarbon enterprises, Gazprom’s economic performance appears to be among the worst. However, it is not clear exactly how well Gazprom would perform were it not saddled with two things: first, low internal gas prices, effectively set by the government; and second, the requirement to devote scarce resources to a variety of investments and enterprises that are far removed from the core functions of finding, producing and delivering natural gas.

Indeed, Gazprom is barely able to sustain production at current levels, and if not for a politically delicate agreement to import and transship gas from Turkmenistan as well as gas from independent producers, Gazprom would be unable to meet its current contractual commitments.

In the larger study of state-controlled hydrocarbon enterprises mentioned at the outset, Gazprom’s performance compares poorly with the other firms. However, one must take into account the fact that the comparison cases are oil-dominated companies, not gas companies. Gas distribution requires longer-time horizons and a much closer physical connection to the customer than is the case with oil. Indeed, we expect that Gazprom’s oil assets will post better performance than its gas assets because the Russian oil market is more fully governed by market economics and the oil network much less costly to operate. Gazprom’s performance is especially sensitive to the special economics and politics of gas.

When compared with western gas companies—as well as with many state-controlled hydrocarbon enterprises, such as Petrobras—Gazprom prefers to retain

extensive control of downstream marketing enterprises, as well as production. Indeed, when compared with those other firms Gazprom makes dramatically lesser use of contracted field services. The partnerships that Gazprom has established are hand-picked, often financed by Gazprom itself and are disproportionately outside Russia—notably with key gas marketers in Europe (Gazprom's most lucrative market).

Gazprom's investment strategy is not entirely irrational from the perspective of its enterprise managers. The company keeps time horizons short—usually to the next presidential election – and supply lines lean. Managers are convinced shortfalls in gas supply are not necessarily a disadvantage to the extent that they keep markets tight. To this end, managers often coordinate supplies from associated gas and independent gas companies to prevent oversupply to the market.

Indeed, managers are especially attentive to the risk of a decline in gas prices that would accompany an oversupply. Such risks make them wary of investing resources in large capital intensive projects like on the Yamal Peninsula, a project that would likely cost over twice as much as the historical production cost of new fields in Russia.

Section 1 – Russian Gas & Oil: Capabilities and Limits

1.1 History of Gas in Russia¹

Oil and gas development started in Russia on an industrial scale at the end of the nineteenth century with the financial and technological investment of major foreign investors, notably, the Rothschild family and the Nobel brothers. By that time, the major cities in Russia were supplied with a gas network, primarily for lighting, which was the first widespread application of gas. Gas was for the most part produced and used locally. (The early history of the Russian oil industry is summarized in Appendix 1.)

Russia did not lay long-distance gas pipelines until well after World War II. This was several decades after the appearance of the first long distance gas pipelines in the United States. By the early 1930s the Soviet economy consumed 10-15 million cubic meters annually, but within a decade, this figure had grown to 3.4 billion cubic meters (Bcm).²

By 1955, the USSR was producing only 9 billion cubic meters of gas from fields that were dispersed across the European part of Russia and in Ukraine. Khrushchev set the ambitious goal of catching the U.S. economically within 25 years, and to this end he defined targets for oil and gas. He understood that modern industry would require modern fuels. Oil was Khrushchev's principal focus, but gas also occupied a prominent role in his modernization plans. The desire to develop a gas industry was officially inserted into the Sixth Five-Year Plan (1956-1960), and the ambition was stepped up in the Seventh Plan (1959-1965).

As the small and dispersed gas fields west of the Urals and close to demand centers became depleted, net production shifted east. Khrushchev's Eighth Plan, which began in 1966, recognized the potential importance of the vast Siberian gas reserves to the east of the Ural mountains. This plan marked the beginning of the "Siberian period," with the opening of the world-class fields in Urengoi that were discovered in 1966 and first brought into service in 1978.

By the time of the "Siberian period" the persistent state sponsorship of oil during the preceding 15 years had finally paid off, catapulting oil to the top of the Soviet Union's primary energy supply. Gas development, however, was proceeding more slowly, in part because the infrastructure requirements for gas make it harder to handle, and in part because gas was not seen as uniquely qualified for any particular industrial application, unlike oil with its uses in petrochemicals and transportation.

The oil shock of 1973, however, put a premium on boosting gas production to replace oil, while also lifting the export price of gas that the Soviet Union could use to generate cash. The gas projects that followed through the middle 1980s had two basic goals. Projects for CMEA nations involved the Soviet parent selling gas at depressed prices and through complex barter exchanges to generate political support. The projects for Western nations, on the other hand, involved hard competitive prices for the gas and

¹ For more details, the reader is referred to "Bypassing Ukraine: exporting Russian gas to Poland and Germany" (Victor N.M. and Victor D.G., 2006).

² For comparison, the United States consumed about 50 bcm in 1935

arrangements for concessionary hard currency loans secured with the proceeds of a long-term gas purchase agreement, usually coupled with a guarantee from the Soviet and Western governments. By the 1980s, the Soviet Union was earning about US\$15 billion per year from gas and oil exports, or more than 62% of its total hard currency earnings.

The Soviet invasion of Afghanistan in 1979, coupled with Ronald Reagan's assumption of power in the U.S. in 1980, had the effect of "refreezing" the cold war and erasing the Western consensus on the acceptance of Soviet oil and gas exports. The U.S. initiated sanctions to limit access to the hard currency that the Soviets could earn through gas exports. The sanctions also blocked the exports of grain and essential high technology from the West to the USSR. From the European perspective, the U.S. stance was rooted in an imagined geopolitical threat. Nevertheless, the risk of U.S. sanctions served to slow numerous projects and led the Soviet Union to develop its own technology, including compressors.

The dissolution of the Soviet bloc in 1990, and the USSR in 1991, had a major impact on the contractual environment for gas exports to the West. In particular, the political changes created transit countries. The routes of all the pipeline projects connecting the European part of Russia to the outside world passed through Belarus and the Ukraine. In fact, at the time of the Soviet Union's dissolution, about 90% of Russia's gas exports were traveling through Ukraine. Although these new ex-CMEA nations created new uncertainties for gas supply, there were strong incentives for them to avoid disrupting Soviet-era gas export arrangements.

The collapse of the Soviet Union caused economic shockwaves that dramatically lowered the demand for gas in Russia as well as in the ex-CMEA nations. With the economy shrinking, gas consumption in Russia declined over 16% during the 1990s -- from 420 Bcm in 1990 to 350 Bcm in 1997 (BP, 2006). Gas exports to CIS countries also declined by 31% (from 110 Bcm in 1990 to 75.6 Bcm in 1998) in part because these countries economies were intertwined with the Soviet economy and thus suffered severe economic recession. In addition, they were now forced to purchase gas at semi-hard export prices, which were higher than the internal Soviet price but lower than the price charged for Western exports. Those higher prices discouraged gas consumption and promoted efficiency. However, even as consumption shrank, reported gas production declined only slightly (about 8%) from 1992 to 1998 because of the window that opened for gas exports. (Russia's total oil production, by contrast, fell nearly 23% during the same period).

Economic stagnation in the former Soviet Union and the commensurate shrinking in gas markets in the 1990s created the Russian natural gas surplus "bubble." As a result, Russia was able to increase gas exports outside the CIS from 90 Bcm in 1990 to about 150 Bcm in 2004. This large and growing surplus available for export allowed Russia to expand its role as the world's largest exporter of natural gas and to earn additional hard currency for the Russian economy.

1.2 Overview of the Russian Gas Sector

At the end of 2006, proven reserves of natural gas globally were 181.5 trillion cubic meters according to BP (see Figure 1). Russia's reserves, at 48 trillion cubic meters (Tcm), are by far the largest, accounting for 27% of the world total. Iran is a distant second with 26.7 Tcm.

About 80% of the Russian gas reserves are in West Siberia, where the existence of many giant and a few super-giant gas fields has been proved. Gas discoveries peaked in the early 1970s, although it is expected that more will be found offshore in the Arctic. The extremely hostile environment of the Arctic makes exploration for further gas reserves comparatively unattractive, at least in the near future. In any case, there is little incentive to go further at the moment, since nearly 60% of the known gas reserves are not currently being produced.

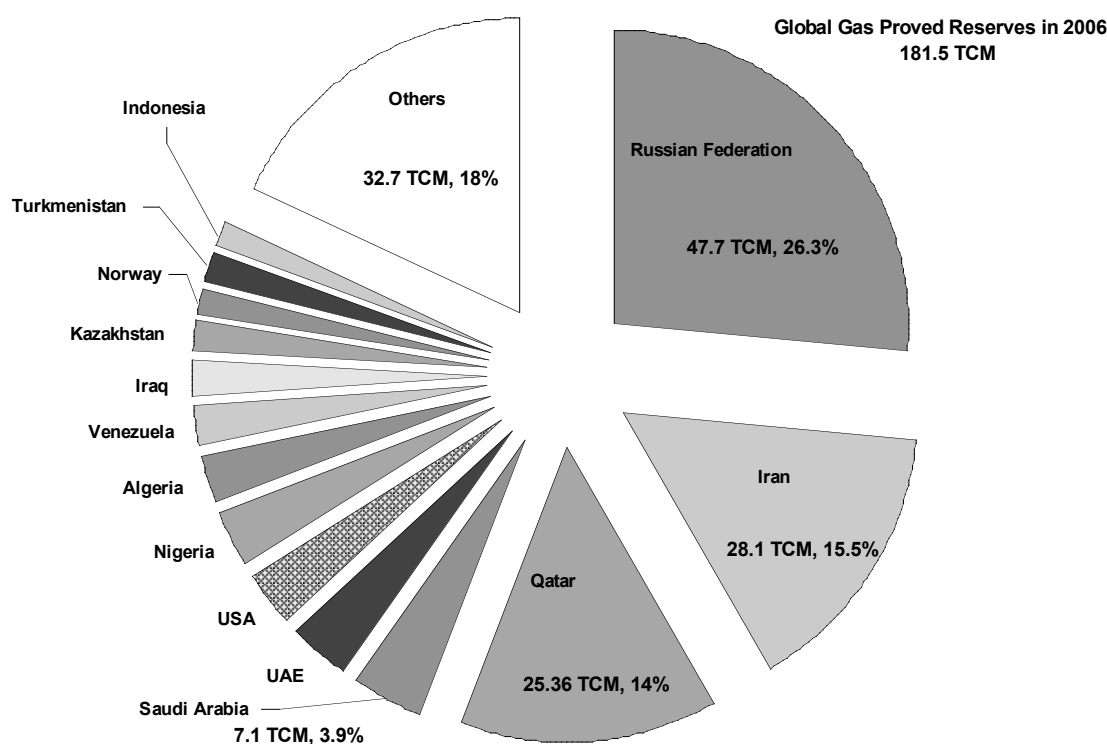


Figure 1. World gas reserves by country in 2006. Data Source: BP (2007)

The two key uncertainties in Russian gas production are the steady decline of three major gas fields, and a lack of strategy for the development of new fields. The stagnating production of natural gas in Russia is a direct result of the depletion of fields under production in West Siberia -- the Urengoyskoye, Yamburgskoye and Medvezhye (see Figure 2). The output from these older super-giant fields is declining at a fairly rapid rate, and huge investments will be needed to continue production or replace their output with production from new fields.

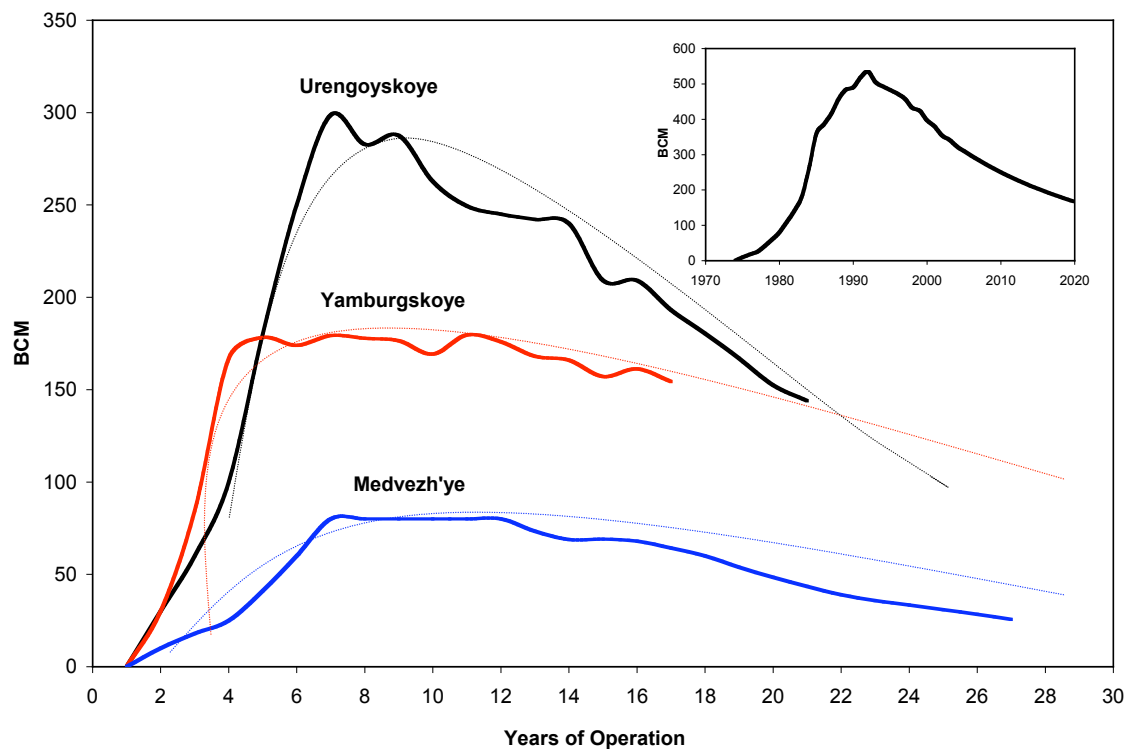


Figure 2. Production from major Russian natural gas fields in West Siberia.
Source: Stern (2005), IEA (2002), PESD (2006).

The Yamburg field is currently producing only 160 - 170 Bcm per year, down from its plateau production of around 180 Bcm. The Urengoy field peaked in 1988 at around 300 Bcm and is currently in decline, although total associated production of 270 - 280 Bcm has been maintained by bringing smaller satellite fields on-line. The Medvezh'ye field has been in decline since 1985, and has already produced a relatively high percentage of its initially recoverable reserves, though the associated production seems relatively stable. The speed of the decline at both Urengoy and Medvezhe will depend on future investments and additional compression at the fields.

According to our estimations these old fields will decrease production by about 4% annually, resulting in total production levels of roughly 200 Bcm by 2020 (many analysts believe that the aging fields' production levels will begin to contract by more than 5% a year).³

The commissioning of smaller Siberian fields to compensate for declines in production began in the 1990s. However, smaller satellite production is simply a band-aid for the maturing super-giant fields. The only large gas field to begin production in recent years is Zapolyarnoye, with total gas reserves around 3.3 Tcm. The reserve is located 200 km off Novy Urengoy in the Yamal-Nenets Autonomous region. It was discovered in 1965, but didn't begin production until October 2001. Gazprom expected to begin recovering 100 Bcm of gas per year from Zapolyarnoye in 2006. This volume

³ There has been an average rate of production decline at the three major gas fields of more than 22 Bcm year during the period 1999–2004 (see Stern, J., 2005) which corresponds to a 5% annual decline.

will only partially compensate for the decrease in recovery from the giant fields, but will certainly provide more than the small satellite fields.⁴

Even with the new production of Zapolyarnoye, gas production in Russia has stayed rather steady around 550 Bcm since 1997. The prospects of independent producers contributing more gas – and thereby allowing Russia to increase exports – will depend heavily on reforms of Gazprom, liberalization of internal gas pricing and whether the Gazprom transport network is effectively opened to private gas and oil companies.⁵

Unsurprisingly, predictions of future Russian gas production span a wide range. According to the IEA's latest reference scenario, gas production in Russia will reach 700 bcm in 2015 and 820 bcm in 2030 (WEO, 2007). Estimates for 2020 from the Russian Energy Strategy and VNIIGAZ range from 530 to 730 Bcm. The Russian Cabinet of Ministers predicts total Russian gas production between 742 and 754 Bcm in 2015, with independent producers holding only a 17-18% share despite owning 24% of the resource base. The Russian Energy Ministry (December 2006) expects that Gazprom itself will produce 561 Bcm in 2010 and 618 Bcm in 2015 (Vedomosti, 2006).

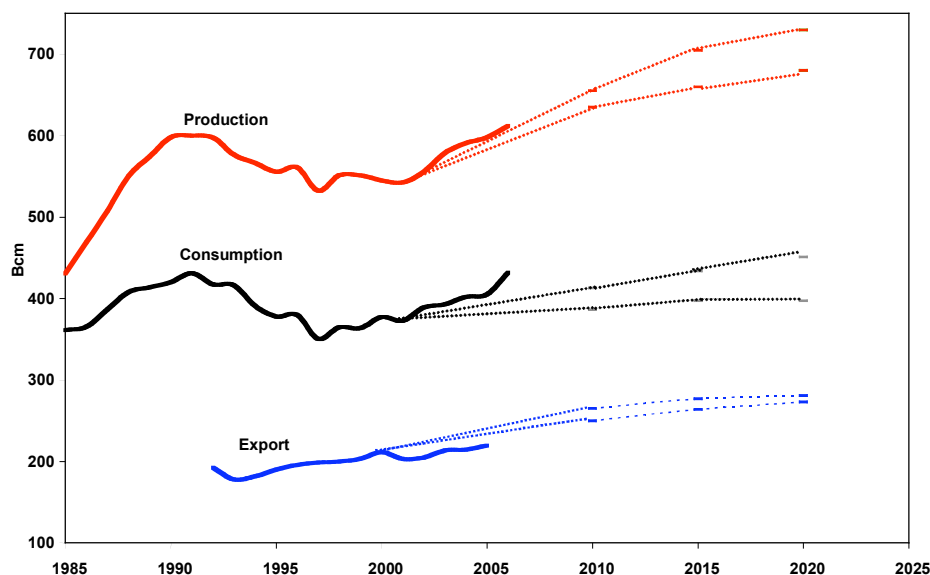


Figure 2. Russian Natural Gas Production, Export and Consumption: Historical Data 1985-2006 (solid) and Russian Energy Strategy Projections 2000-2020 (dotted). Data Source: Russian Energy Strategy (2000), BP(2007), IEA (2007)

⁴ Another field that will start production at the end of 2007 is Yuzhno-Russkoye that is located in the Yamal-Nenets autonomous area and contains proven reserves of 805 bcm of natural gas. The field is expected to reach an output of 25 bcm annually by 2011 and would be the main feeder of the proposed Nordstream pipeline.

⁵ According to Gazprom in 2006 it owns 29.1 trillion of cubic meters of gas in deposits, while independent companies (oil companies and specialized gas companies) own 11.5 trillion (24 percent), and 7.1 trillion are still undivided. Gazprom will keep getting licenses for new deposits.

A major uncertainty in the Russian gas balance of the future is internal gas usage. Currently Russia is the second largest gas consumer (after the United States), in 2006 consuming more than 432.1 Bcm of gas (about 7% higher than in 2005) to support an economy only one-sixteenth the size of the United States (IMF, 2006). This suggests a hearty and expanding appetite for gas in Russia, one only expected to grow with economic development. According to the Russian Energy Strategy, Russia will consume 390 – 415 Bcm in 2010 and 400 - 450 Bcm in 2020 (see Figure 3);⁶ however, Figure 3 shows that actual consumption has already outpaced the initial forecasts of the Russian Energy Strategy. It is extremely difficult to predict longer-term consumption trends – particularly uncertain is how domestic gas pricing will evolve, and how consumption will respond to increased prices.

One reason for high levels of consumption in Russia, and a major point of concern going forward, is the embedded inefficiency of gas usage. More than 90 percent of residential and industrial gas consumers don't have meters. Consumers can't get information on how much gas they are using and have no control over their own consumption (the problems of building design make the installation of meters very capital intensive and commercially unattractive). There is also no consistent information on the payments for gas consumed or whether consumers pay at all. Indeed, "payment" by consumers in Russia is more loosely defined than in other economies, with exchange possible via money, barter or a variety of other instruments. Overall, gas is cheaper than coal in Russia—the only large country where that is true. Future gas demand in Russia is highly dependent on much needed efficiency improvements.

The inefficiency extends to electricity as well, which is disproportionately produced from gas. In fact, 60% of total internal gas consumption is now used for electricity generation. The country's gas-fired electric generators operated at only 33% efficiency on average, compared with 50-55% for the modern combined-cycle generation plants in Europe. According to RAO EES (a Russian utility), Russia's power generation sector will consume 180-190 Bcm of gas in 2015.⁷ Anatoly Chubais, head of Russian power company UES, has committed to invest more than \$80 billion over five years to install 23 gigawatts of new capacity. UES needs to build tens, if not hundreds, of gas turbine plants to modernize the power system, which could in principle reduce internal gas consumption by up to 35%.

Russia is facing a looming gas crisis as it tries to meet growing internal demand and exports with diminishing supply. The new state policy of gasifying eastern regions means the Kremlin intends to supply Russia's easternmost regions first, before making any commitments to exports (the Russian Far East, connected to the rest of the country

⁶ Soviet cubic meters are measured at 20 degrees Celsius; we adjusted data to 15 degrees according to international standards.

⁷ Demand for electricity in Russia is expanding much more quickly than expected and it is now growing by 5% a year and up to 10% in high-growth areas (Moscow Time, 2006). Russia may face power supply problems already in the winter of 2008. It seems that Russian top energy officials have no clear concept for dealing with expected energy shortages. In addition there was no rapid deregulation of prices in the domestic gas market in 2007, and the government will continue subsidies in the energy sector.

only by two railways and by air, suffers chronic winter fuel shortages).⁸ To satisfy the consumers in the Volga region, the Urals, and the Central and North Caucasus regions, Russia may need to expand *imports* from Central Asia and Kazakhstan, perhaps to a level of 60-100 Bcm in 2010.

In recent years, Russia has filled the looming gap in gas supplies by squeezing Turkmenistan to sell gas to Russia at a deep discount. Today Russia continues to count on Turkmenistan to provide the bulk of this gap, with purchases slated to go to 70-80 Bcm a year as early as 2008. However, the Turkmen gas is poised to decline, and Turkmenistan's gas industry is barely functional due to the country's shaky political environment and associated risk for long-term investors.

Given the country's vast hydrocarbon resources, it seems that many producers, oil companies and gas independents in particular, could help fill the supply gap. Russian oil companies (and their ministerial predecessors) such as LUKoil, TNK-BP and Yukos have always produced substantial quantities of gas, both in association with crude oil production and as non-associated gas – in total, they account for 6% of gas production. However, the options available to oil companies to dispose of their associated gas are still not attractive because of the limited access to gas processing plants and to pipelines. For example, by 2010 these companies could produce about 50 Bcm in the Nadym-Purtazovsky region's new fields alone, but the necessary pipeline capacity will not become available for 3-5 years.

The lack of access to the Gazprom-controlled pipeline network explains why few oil companies even bother to look for gas, as they know they can't deliver what they find to the market. Many companies have no choice but to flare their gas due to a lack of transportation infrastructure.⁹ Gazprom swears that it doesn't have enough capacity in the transmission system. The claims could be true, as the gas pipeline system is indeed deteriorating. Over 70% of the high-pressure gas pipelines were commissioned before 1985. The average age of the Gazprom trunk pipelines is now about 22 years, and an estimated 14% of the pipelines are beyond their anticipated lifetime (see Fredholm, 2005). The key barrier to pipeline investment is the low tariff derived from low internal gas prices. Without updated policy to address this issue, there is no foreseeable resolution.

Itera and Novotek are independent gas suppliers that are now being pulled into Gazprom's orbit to help relieve the supply crisis. Itera was founded in 1992 as a company trading in consumer goods, oil and oil products in the former Soviet republics. It entered the gas market in 1994 through its good connections with Turkmenistan (Turkmen companies were unable to pay for goods except with gas). In 2000, Itera sold nearly 80 Bcm of gas to customers in FSU countries.

⁸ Gazprom wants to build a gas pipeline from Irkutsk eastwards to the Maritime (Primorye) Krai to provide the region with cheap and reliable fuel supplies. Both state and regional governments recently called for domestic supply in the region to take precedence over potential exports.

⁹ According to an IEA report, about 60 Bcm of gas a year is flared in Russia (an estimate arrived at from a study, using satellite imagery, conducted by the IEA and the US National Oceanic and Atmospheric Administration), see IEA, 2006.

OA Novatek (formally Novafininvest) was founded in 1994 and currently is a rapidly growing independent natural gas producer with upstream operations located in the Yamalo-Nenets Autonomous Region (it holds net estimated hydrocarbon reserves of 1.5 Tcm of natural gas). In 2003 Novatek produced 20.4 Bcm. Based on current development plans, Novatek forecasts its net production to increase between 45 Bcm to 50 Bcm over the next five years.

In 2006, Gazprom expanded its control over these two independent producers who will be increasingly called upon to provide additional gas supplies, buying a 19.9% stake in Novatek and taking control of Itera's largest remaining field.

The Kremlin is aware of the gas shortage. On October 19th 2006, President Vladimir Putin presented a new energy strategy. According to the new strategy, natural gas will be freed up for delivery under export contracts, while domestic energy needs will be reoriented toward other fuel sources. Indeed, in the electricity sector, restrictions are starting to be placed for the first time on gas deliveries to power stations in the summertime, forcing some switching to reserve fuels like coal and black oil. Unfortunately, there are few significant supply alternatives to gas beyond hydroelectric, coal and nuclear power, and bringing on major new capacity will require capital and time. The nuclear industry is already operating at full capacity, and it would take many years to bring new nuclear units on line. Coal is in many cases the most viable option.

Also on the Kremlin agenda was discussion of a price increase for domestic gas consumers. At the end of 2007, domestic natural gas prices in Russia were around \$52 per thousand cubic meters, or 13% higher than in 2006. Future price increases could be as high as 25% annually, with an approximate doubling of domestic gas prices by 2010 to \$100 per thousand cubic meters. Though this remains low by EU standards, where the price is around \$300 per thousand cubic meters now, it could still be politically and economically difficult to achieve. Nevertheless, most observers see the liberalization of the domestic market as unavoidable over the long term (see Kommersant, 2006c).

An internal gas price increase alone will not be enough to guarantee the security of the Russian energy system.¹⁰ Also essential is the development of the fields of the Far North and Eastern Siberia, as well as the shelf deposits of the northern and Far Eastern seas. Arctic shelf projects are very capital-intensive because of a lack of existing infrastructure. In addition, these types of projects require new advanced technologies, which Russia doesn't yet have. In such a situation, foreign investors would have to play a major role, and international businesses speak openly about their interest in developing such projects.

The reserves in Great Britain, Norway and Canada are being developed with 50% of the market share belonging to overseas participants. No company will agree to develop such projects as the Shtokman field independently, and Gazprom must accept this. The

¹⁰ The price elasticity for natural gas demand tends to be larger (in absolute value) than for oil, with world experience suggesting natural gas demand would decline at least by 1% for every 10% permanent increase in price. However, it is unclear whether this pattern would be observed in Russia: the domestic gas consumption dropped in 2007 by some 6 Bcm, but that decline was not due to higher prices, but rather to lower gas demand in the unusually warm winter. The Russian government has a hope that the higher domestic gas prices will encourage independent producers to produce more gas and supply about 50% of domestic industrial clients' needs by 2010, up from 29% currently.

company has to work with foreign partners, a difficult task that will be discussed in Section 2.

Huge investments are needed to replace Russia's dwindling supply of natural gas, and all the options for new production will prove costly and difficult. New fields in the far north and east of the country are distant from most of the Russian people and from export markets, requiring wholly new transport systems such as pipelines. Moreover, most of these new fields are located in extremely harsh environments where it is technically and financially difficult to operate. Gazprom controls neither the capital nor the technology needed for the task.¹¹ The state-controlled company is already highly indebted and faces many expensive obligations that drain its coffers, such as supplying Russia and its friends with cheap gas.

1.3 Overview of the Russian Oil Sector

Russia has become an important player in the world oil market. Since 2000 Russia has been aggressively increasing oil output to become the world's largest crude oil producer and the second largest oil exporter, despite setbacks in production in the 1990s. The Russian Ministry of Industry and Energy expects that the extraction of oil will increase to about 4 billion barrels per year through 2015 (see Sayenko, 2005).

Russia possesses the seventh largest proven oil reserves in the world—the largest among non-OPEC producers (see Figure 4).¹² Various sources estimate Russian proven oil reserves at 60–69 billion barrels (IEA 2004), equivalent to around a quarter of Saudi Arabian proven oil reserves. In its annual statistical survey of world energy, BP (one of the most reliable sources of information on resources) revised its estimates of Russia's total proven oil reserves to 79.5 billion barrels, 6.6% of the world's total, up from 55 billion bbl in 1998. But according to some auditors the real Russian potential reserves could be much higher.¹³

Russian reserves are expected to last for 22 years based on current production. According to current evaluations, West Siberia's oil reserves dominate quoted percentages but are in decline. East Siberian reserves, however, are expected to increase significantly with further exploration. Still, these new fields are not expected to come into full production for the next 10-15 years.

¹¹ Gas producers' operating costs are rising fast: in 2006 they stand at \$6 per 1,000 cm, having almost tripled since the late 1990s. On the Yamal Peninsula they will exceed \$20 per 1,000 cm because of extremely severe conditions. A geologist told RIA Novosti's reporter that Yamal is "a piece of something unknown frozen together over millions of years, and it is unclear how it will be possible to build or produce anything there." (see RIA Nivosti, 2006)

¹² Such analysis comes from three different systems for evaluating reserves in Russia: the SPE (Society of Petroleum Engineers), the SEC (Securities and Exchange Commission) and the Soviet/Russian system. The SEC definitions are stricter than those of the SPE – according to the SEC reserves are only proven if they can be extracted under existing economic and operating conditions. The SEC's estimations therefore need to be adjusted every year.

¹³ According to a study by energy reserve auditors DeGolyer & MacNaughton, Russia's true recoverable reserves are between 150 billion barrels and 200 billion barrels.

The business of estimating oil reserves is not only a contentious geologic and economic issue, but a political and competitive matter as well. Frequently, oil company estimates create the illusion of growing reserves when in fact previously discovered oil is just being reclassified into the “proven reserves” category for reporting purposes. Industry has always made conservative initial estimates (building instead an inventory of unreported reserves as a rainy day fund to tide them over in bad years and to reduce current taxes), so reserves accounts naturally grow over time. The evaluations of oil reserves are extremely complicated, and companies do not release the raw production and seismic data that would allow an outsider to check their estimates.

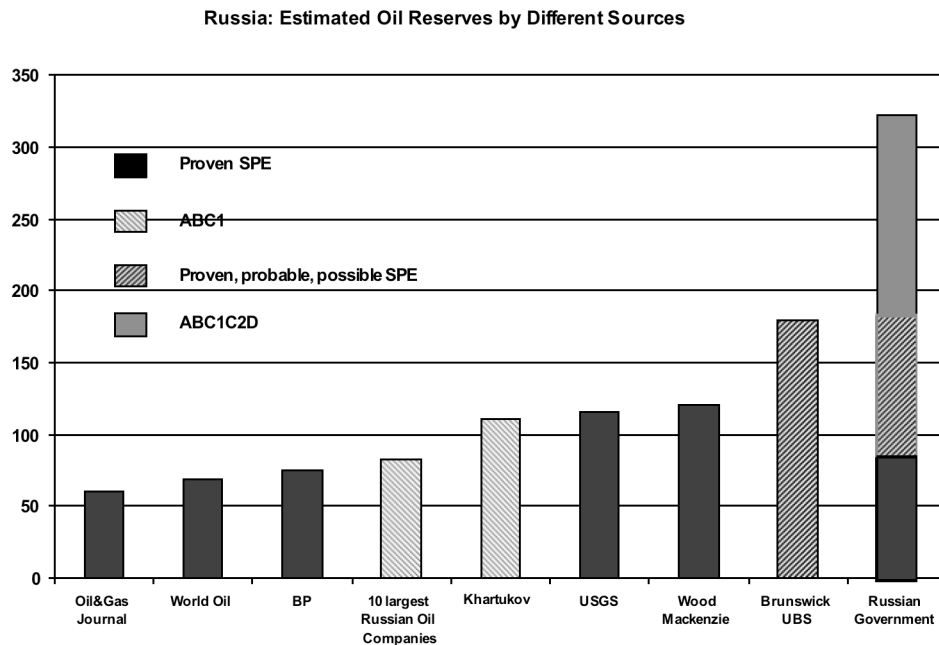


Figure 4. Russia: Estimated Oil Reserves by Different Sources

Note: ABC1 reserves are roughly equivalent to proven, probable and possible reserves; ABC1C2D reserves are equivalent to proven, probable, possible, inferred and yet to be discovered reserves.

Data Source: Oil & Gas Journal (2006): Oil includes crude oil and condensate; BP (2006): Oil includes crude oil, gas condensate, and natural gas liquids; World Oil (2006): Oil includes crude oil and condensate but excludes natural gas liquids; Russian Energy Strategy (2003): the Russian government presents “prognoses reserves” that are supposed to include proven (A), probable (B), possible (C), inferred and yet to be discovered reserves (D). In the Soviet Union (and now Russia) each oilfield was analyzed by the State Reserves Committee to calculate geological and recoverable reserves and was based on existing technology, but without “economics”. In recent years, Russia has used internationally recognized auditing firms to estimate its reserves. The audited amount averaged about 80% of the State Reserves Committee approved number. Including Russian majors, independents, condensate from Gazprom, state reserves and reserves of foreign companies operating in Russia, proven reserves are 110 billion barrels or 90 billion if the 80% factor is taken into account. International convention usually takes a 50% reduction factor in counting probable reserves (C2). Therefore, the Russian total of 40 Billion probable would add an additional 15 billion.

Currently, the Society of Petroleum Engineers (SPE) international standards are extensively used for reserves estimations. The SPE system takes into account not only geological information on available hydrocarbons, but also the economic viability of their recovery (commercial recoverability). The national system in Russia is different (see Figure 4). The Russian system is a remnant of the Soviet-era and is solely based on an analysis of the geological attributes of reserves, ignoring economics. There is a long-running debate between Russian and Western officials on which system is better for evaluating reserves. However, even applying SPE criteria there is some range in the estimates.

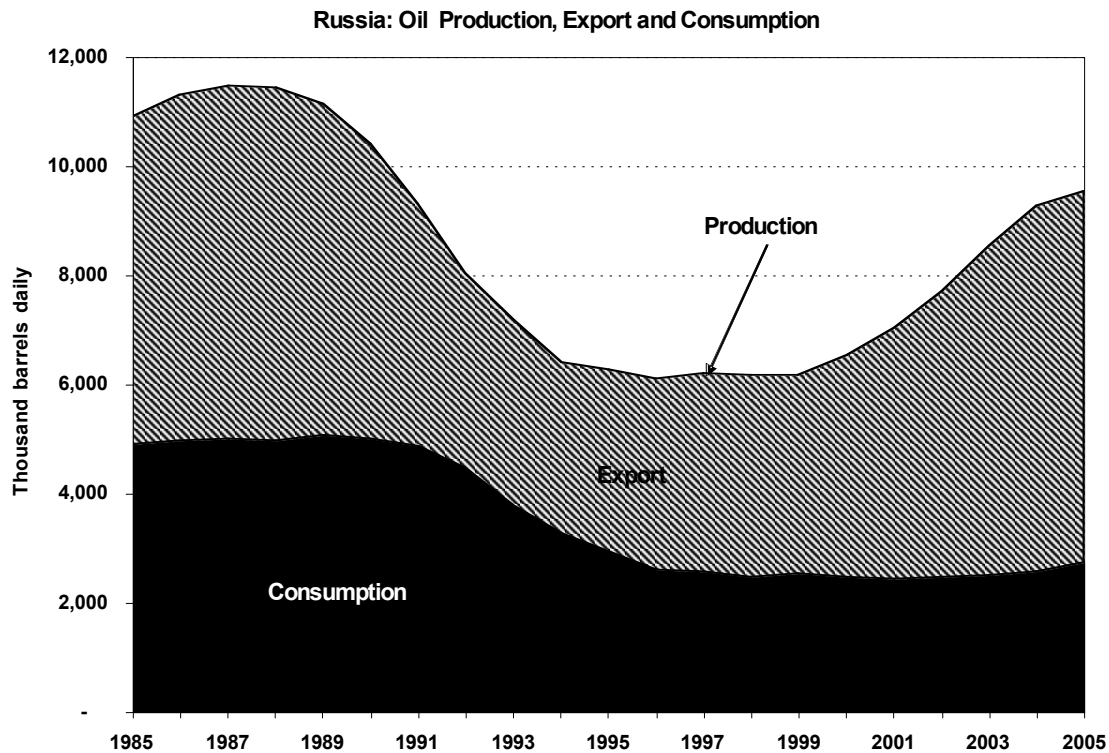


Figure 6. Russian oil production, export and consumption, 1985-2005. Data Source: BP (2006)

Russian oil production dropped by approximately 50% between 1988 and 1998, from over 11 million to around 6 million barrels per day (see Figure 6). It was the result of a sharp reduction in drilling, little or no investment in new wells, and depressed demand. The export of oil was also in decline from 1988 through 1994, dropping similarly about 50%. Oil production was slower to recover than oil exports (which were boosted in part by the depressed internal demand), taking five years of increased demand to respond. Analysts argue that eventual production recovery was a result of privatization of the industry, as well as usage of new Western technologies to rejuvenate old oil fields.

Despite huge reserves and high levels of production, the reserves-to-production ratio is slowly but constantly declining in Russia. Russia's oil production growth dropped to 2.3% in 2005, down from 8.5% a year before, and a far cry from the 8% to 10% annual rates of 2000-2004. Some officials in Moscow, who predict Russian output will range between 9.5 and 9.8 million barrels per day at least through 2008, consider the slowdown a result of Russia's unreasonable tax system. They argue that the tax system discourages exploration and development of new reserves and deters full recovery from mature fields (PIW Jan.16, p.7).

In the short-term, oil production in Russia will stabilize around 9 million bpd and oil exports will remain around 6.5 million bpd. However, the maturing oil fields of Western Siberia, in production for more than 40 years, will require advanced

technologies to maintain current production levels. Over the long term, new fields must be developed to keep oil production at current levels.

When oil prices were low in the 1990s, there was less reason for the state to try to control the oil sector. In recent years, with higher oil prices and the need to develop new fields to maintain the flow of funds into the Russian economy, the state has become more interested in the “renationalization” of the oil sector. This is the key reason Gazprom has indicated an interest in diversifying its activities into oil production.

In 2005, Gazprom agreed to buy most of Sibneft, the country's fifth-biggest oil firm. It was the biggest takeover in Russian history. Dmitry Medvedev, who is the chairman of Gazprom's board of directors and the first deputy prime minister, said this acquisition was the kind of deal you normally see in the marketplace. Was it? Gazprom's gas resources are already huge and the new subsidiary barely makes a difference to the company's financial profile. (In order for oil to account for half of its output, Gazprom would need to buy the entire Russian oil industry). Rather, the decision was not so much economic as political, in keeping with the prevailing trend towards renationalization. In 2005-2006, Gazprom spent more on outside acquisitions than it spent on new gas field development over the last ten years, despite the looming gas crisis. Capital has been directed towards hydrocarbons sector consolidation rather than to critical long-term investments in gas field exploration, development, and infrastructure.

1.4 Oil and Gas in the Russian Economy

The oil and gas industries are of growing importance to the Russian economy. The steady increase in world oil and gas prices since 1998 has accelerated Russia's GDP growth during the present decade (see Figure 7). Revenues from oil exports accounted for at least 25 percent of total Russian GDP in 2005 (see Russia Profile, 2006).¹⁴ Oil and gas exports accounted for 55% of Russia's total export income in 2004, and in 1999-2004 grew on average around 30% per year.

Figure 8 plots oil exports versus prices, and shows the resulting total export revenues for the Former Soviet Union (FSU). The dashed lines in the figure are isoquants reflecting constant export revenues. From 1991, oil exports increased on average 370 thousand barrels daily, with annual export revenues climbing from roughly US\$20 billion in 1991 to at least US\$140 billion in 2005 (in US'05\$). This is a seven-fold increase in export revenue. At the same time, gas export revenues also increased significantly due to export price hikes (see Figure 9).

¹⁴ The official figure of 9 percent is distorted by questionable accounting practices. A World Bank study published in 2004 raised doubts about the accuracy of official GDP statistics, and particularly the impact of transfer pricing. Transfer pricing is a common practice whereby oil and gas companies sell their output at a cheap price to a subsidiary located in a low-tax region. The subsidiary—which is registered as a trading, that is, services company—then sells the oil or gas at the market price, making large profits in the process. Once this effect is accounted for, the World Bank estimates that the oil and gas sector accounts for some 20-25% of GDP (see WB, 2004a and b).

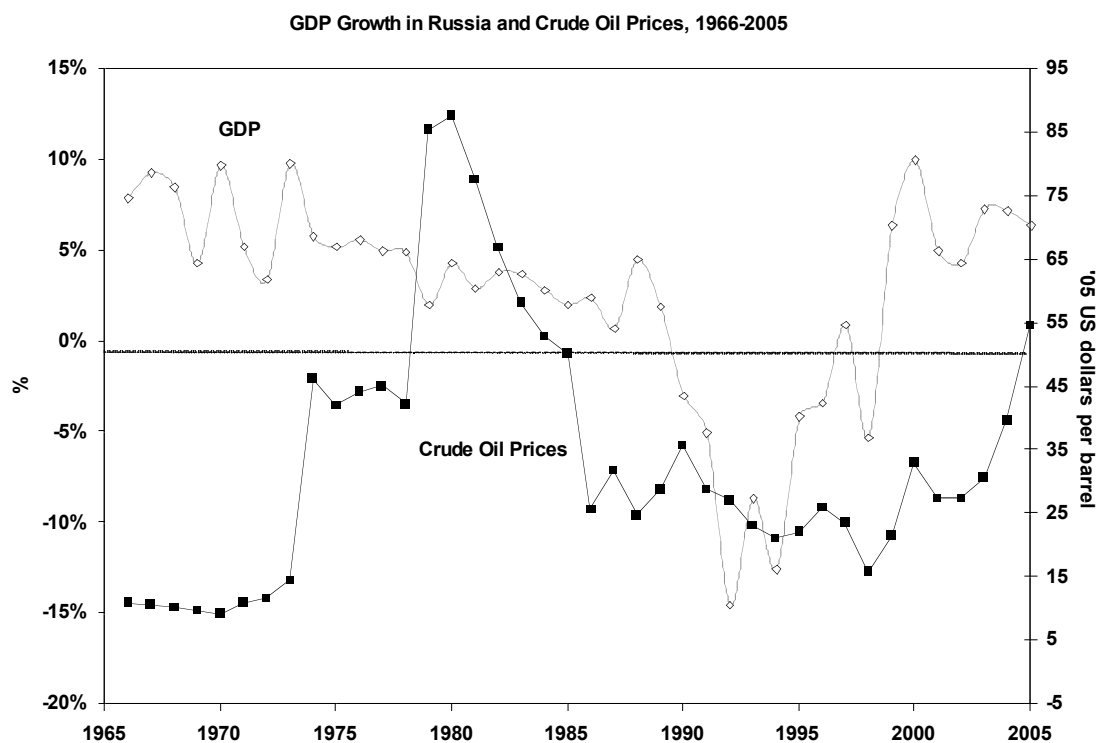


Figure 7. Russia: GDP Growth and Crude Oil Prices, 1966-2005. Data source: WB (2006), BP(2006)

The growing export revenues now fuel the economy, provide liquidity, and keep the current account in surplus. According to the estimates that are posted on the Bank of Russia's official web site, the country's balance of payments showed a surplus of US\$79.9 billion in January-September, 2006, up 29.5% from the US\$61.7 billion during the same period of 2005. The surplus is among the largest in the world. As a result, Russia has become a major financier of global deficits.

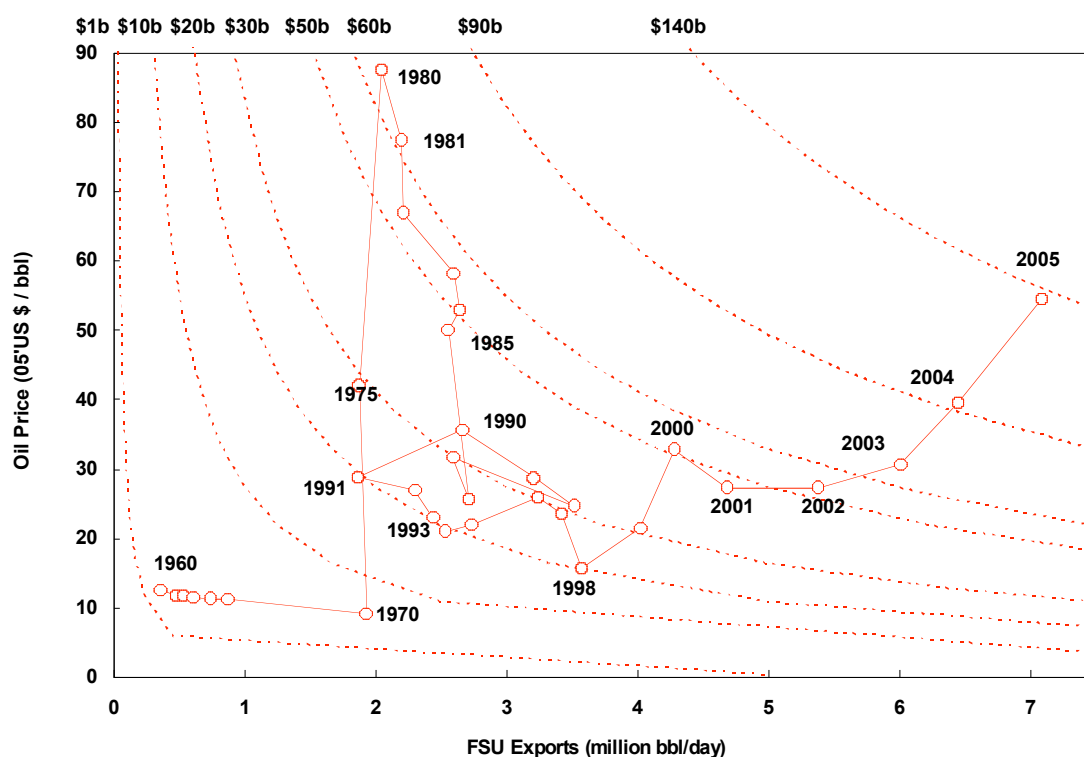


Figure 8. Oil exports from the Former Soviet Union. Data Source: BP(2006).

Large export revenues lifted the foreign exchange reserves of Russia, which amounted to more than \$US350 billion at the end of 2006 according to CBR estimations (see Table 1). Moreover, oil and gas exports as a share of total exports increased from 37% in 1994 to 63% in 2006. Currently about half of the federal budget revenues are from the oil and gas trade.

Thus, the Russian economy is highly dependent on the international oil and gas markets. Perhaps too dependent, as many analysts agree that Russia has become a country with progressing “Dutch disease”. Today, Russia has all the classic symptoms; the Russian national currency is becoming oddly strong while the competitive power of the economy not based on raw materials is diminishing.

Russia needs to devise a macroeconomic strategy. Sustaining growth in a resource dependent economy will require a stable investment climate, the rule of law and respect for property rights, as well as sound macroeconomic policies and fiscal discipline. Good fiscal policy can’t eliminate external vulnerability, but it can reduce it significantly. Fiscal irresponsibility, by contrast, will only magnify the effects of commodity price movements, probably leading to boom-and-bust cycles.

Since the beginning of 2004, Russia has collected a Stabilization Fund by taxing the oil sector. The Stabilization Fund has grown rapidly and at the beginning of October 2006 amounted to US\$71 billion, which is about equal to the Russian federation's total external debt. The purpose of the fund was to create a “rainy day reserve” for the future which could be used to cover budget deficits if oil and gas prices were to decline.

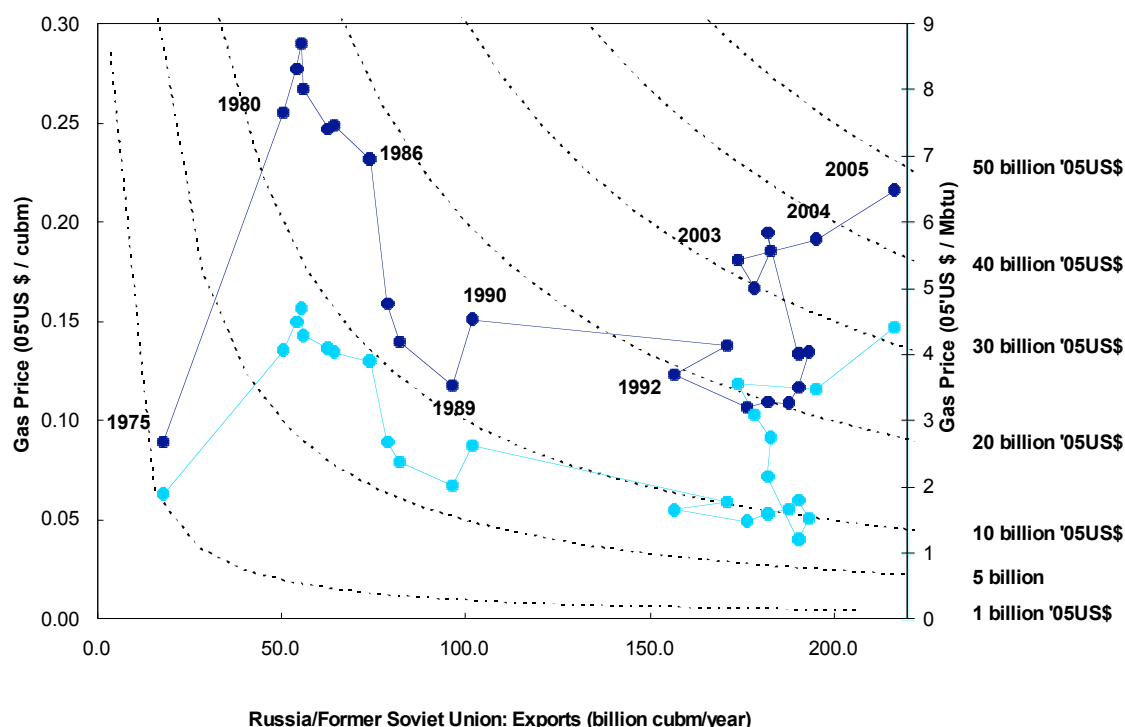


Figure 9. Gas exports from Russia. Note: Prior to 1992, FSU exports exclude movements between FSU countries. Data source: total volumes from BP (various years) for 1970-1990; EIA (2003) for 1992-2001. Prices from BP (various years). Dark line shows the total volume of trade computed using European CIF prices in constant 2005 dollars. However, trade with CMEA countries and (after 1992) CIS countries occurred mainly at prices far below the western rate. For these countries we estimated prices and made allowances for barter payment of transit fees in gas (rather than cash). The light line reports total value of exports from the USSR (pre 1992) and Russia (post 1992) revised downward to account for these lower prices. These estimates are based on the division of importing countries into three groups: CMEA, Western Europe, CIS. We assume that gas prices for Western Europe are the same as those reported by BP: for CMEA 50% of western levels, for CIS 25%. Barter trade is especially difficult to estimate and can lead to substantial error, although our estimates for the total value of Russian gas exports in recent years are quite close to the actual values reported by the Central Bank (see Table 1).

The critical decision to raise internal gas prices is constantly deferred by the Kremlin. Pre-election politics is not the only consideration, as the biggest challenge facing macroeconomic policy in 2007 is to get inflation under control. A doubling of gas prices, with associated increases in electricity tariffs, could result in an inflationary shock for the inefficient Russian economy.

Improving the investment climate in Russia must be central to any effort to foster economic diversification without resorting to the old-style industrial policies that have already failed. The weakness of the rule of law and the arbitrariness of enforcement mean that regulation all too often serves little purpose except to enrich corrupt bureaucrats. Foreign investment becomes more difficult with the visibility of such prominent examples as the Yukos affair and Shell's misfortunes in Sakhalin. They convey a clear message to entrepreneurs: Don't invest, or you'll lose everything.

Table 1. Russian Oil and Gas Export and Total Export Revenues

Year	Oil and Oil Products		Natural Gas		Total Export
	Million US'00\$	% in total export	Million US'00\$	% in total export	Million US'00\$
1994	13,191	22%	9,559	16%	60,815
1995	16,900	22%	11,165	15%	75,913
1996	21,973	26%	13,780	16%	84,172
1997	21,048	25%	15,661	19%	82,909
1998	13,995	19%	12,958	18%	71,817
1999	19,188	26%	11,110	15%	73,940
2000	36,191	34%	16,644	16%	105,033
2001	35,188	34%	18,196	17%	104,328
2002	42,056	38%	16,563	15%	111,794
2003	57,181	40%	21,261	15%	144,636
2004	84,915	43%	24,512	12%	199,157
2005	132,178	48%	35,705	13%	274,591
2006*	171,510	49%	50,710	14%	350,796

Data Source: CBR (2007); BEA(2007)

Note: * CBR's estimate

Section 2 – Gazprom: Profile of the Largest Company in Russia

If Gazprom were a country, its combined oil and gas reserves would rank only behind those of Saudi Arabia and Iran. Gazprom has grown to become the largest gas company in the world. In 2006, Gazprom controlled about 20% of the world's natural gas reserves, 70% of Russia's gas reserves and 94% of Russia's gas production. As previously discussed, it is on its way to becoming a significant oil company as well.

With a market capitalization above \$300 billion, Gazprom is now the largest company in Russia, and the third largest in the world. As of May 2006 it ranked just behind ExxonMobil (\$397 billion) and General Electric (\$354 billion), and just ahead of Microsoft (\$281 billion) and BP (\$258 billion). The company currently has about half a million Russian and foreign shareholders. In 2005, it employed over 397,000 people, and its tax contributions alone accounted for more than 25 percent of the Russian state budget (see Gazprom, 2005b).

2.1 International Reach

To boost its international presence in the gas market, Gazprom has acquired assets in many gas distribution companies throughout Europe. These include:

- Germany: Wingas (35% stake), the country's third operator;
- Czech Republic: Gas-Invest, a company controlled by its German subsidiary Zarubezhgaz;
- Finland: Gasum;
- Baltic States: Lietuvos Dujos, Eesti Gaas and Latvian Gaze;
- Hungary: Panrusgaz;
- Italy: Promgaz;
- United Kingdom: Gazprom UK Trading. At the time of writing, Gazprom had also indicated its interest in buying Britain's Centrica, which owns British Gas and is the country's largest utility firm, with more than 17 million electricity and gas customers.

A list of Gazprom's joint ventures is provided in Appendix 3.

Also at the end of 2006, Gazprom and Italian Eni signed a new agreement on a strategic partnership that enables Gazprom to supply gas directly to Italy. Gazprom has sealed similar agreements with Gaz de France, E.ON Ruhrgas, OMV, RWE and BASF.

Gazprom's international activities also extend to oil and gas exploration, production and marketing – the following examples from 2006 are typical:

Exploration & Production

- In Venezuela, Gazprom received licenses for research and development of hydrocarbon reserves of the Urumaco 1 and Urumaco 2 block deposits.
- In Libya, Gazprom agreed to swap a stake in its Yuzhno-Russkoyegas field for an interest in Libyan oil concessions.

- In Algeria, Gazprom and Sonatrach signed a Memorandum of Understanding on joint projects for gas exploration and production in Algeria, Russia and other regions. (This agreement appears to have ended as of late 2007.)

Marketing

- In the UK, Gazprom has acquired the retail supply business of Pennine Natural Gas Ltd., and signed a leasing agreement with the Vitol Company providing Gazprom 5-year access to 50% of Humbly Grove UGS in the south of Great Britain.
- In Denmark, Gazprom signed a 20 year agreement with DONG Energy to deliver 1Bcm of gas to Denmark. Gazprom Marketing & Trading (GM&T, a 100% subsidiary of Gazexport) signed a 15 year supply agreement with DONG for 0.6 Bcm of gas to be sold to the UK beginning in 2007.
- In the U.S., GM&T registered a LNG and natural gas marketing subsidiary, GM&T USA Inc., in Houston.
- In France, GM&T registered a retail marketing subsidiary, GM&T France SAS, in Paris.
- In Scandinavia, Gazprom signed an SHA with BASF and E.ON confirming mutual involvement in the Northern Europe Gas Pipeline (NEGP) through NEGP Company (Gazprom 51%; BASF and E.ON each with 24.5%)
- In Hungary, Gazprom agreed to swap stakes in E.ON Hungaria, Foldgaz Storage and Foldgaz Trade for stakes in Yuzhno-Russkoye.

2.2 Corporate Holdings

Gazprom is a fully diversified energy company managing the exploration, production, sale, and distribution of gas for both domestic and foreign markets; the production and sale of crude oil and gas condensate; and hydrocarbon refining operations. It also holds 10% of the largest Russian electricity producer, RAO UES, which supplies 70% of the domestic market, and owns 25% of Mosenergo, the provider of heat and electricity for Moscow. To increase the sale of its gas on the Russian market, Gazprom is striving to build up its presence in gas-fired power generation. As mentioned previously, Gazprom also wants to further expand into downstream gas assets.

Gazprom is the sole founder of about 60 subsidiaries and participates in the capital structure of almost 100 Russian and foreign companies. Gazprom's goal is commercial expansion on a broad front in diverse international markets, as well as new gas exploration/production activities abroad, including possible new opportunities arising in Central Asia, India and Iran.

Gazprom has a heavy presence in the petrochemical industry, in machine tools and metallurgy, and has also branched much further afield in recent years by moving into the media and banking sectors.

Gazprom's "networks" are organized around profitable firms that take control of non-profitable firms by exchanging debts for shares. (Appendix 2 provides a list of major companies with shareholding arrangements with Gazprom.) Gazprom has established

internal artificial transfer prices adapted to the specific funding requirements of the individual subsidiaries within each segment. Thus, Gazprom's stated financial results don't provide an accurate picture of the segment's financial position or the results of its operations. Generally speaking, internal transfer prices are set below the cost of gas production, so company independence is considerably compromised. Through this mechanism of artificial pricing, Gazprom also keeps the investments centralized.

2.3 Corporate Structure

Figure 10 shows the organizational structure of Gazprom in 2004 (the latest available information). Since 2001, the company has been in the process of intra-corporate reforms aimed at enhancing business efficiency. The reforms were to be carried out in two stages. During the first stage (2001-2003), the governance structure was to be improved through the identification of key responsibilities, the development of governance rules and regulations, and budget planning. The goal of the second stage (2004-2005) was to improve operating efficiency as a vertically integrated company. The crucial task was to optimize the business management structure in the various subsidiaries to ensure the transparency of financial flows.

In order to achieve these objectives, Gazprom set up specialized units within the subsidiaries that combined gas production and processing on the one hand and gas transmission and storage on the other. The structural changes were expected to differentiate the financial flows in gas (and liquid hydrocarbon) production from those in transmission, processing, underground storage and marketing. This would help, for example, to expose gas transmission expenses under regulated gas transmission tariffs.

It is unclear how successful the reformation process has been, but it's evident that it is still ongoing. Gazprom's top management submitted a new corporate reform plan to its board of directors on March 29, 2006. This latest reform involves two key steps and should take about two years to complete. In the first step, the Gazprom subsidiaries, which own or lease about 80% of the company's property, are to separate out their non-core assets into special "buffer" companies. In the second step, the "buffer" companies are to merge according to business segment. One company will then be selected to be the principal company at the core of the segment, and the others will be linked to it.

The buffer companies will be consolidated into six new entities managing different business segments: Gazprom-PKhG (underground storage), Gazprompererabotka (processing), Gazpromseverpodzemremont (northern underground maintenance), Gazpromyugpodzemremont (southern underground maintenance), Gazpromtrans, and Gazpromtrans-Kuban. Gazprom expects to increase its share in Gazpromtrans to 100%.

The projected reforms will likely increase bureaucracy and expand annual corporate administrative spending by \$100 million per year or more. That's the bad news. The good news is that the reorganization could help reveal Gazprom's actual expenses, and with such new transparency, market capitalization is expected to increase

by more than \$30 billion. A successful reorganization should allow the Gazprom management to find out whether or not its businesses are profitable.

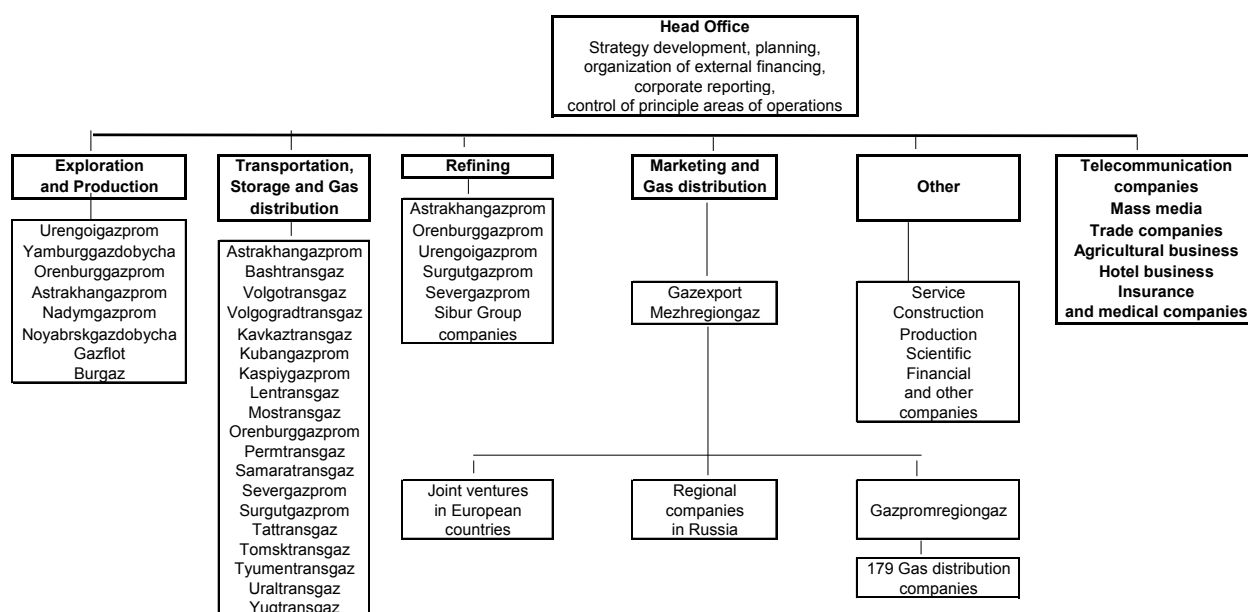


Figure 10. Gazprom organization (2004)

The reform of Gazprom has triggered much discussion. Until now the government has chosen not to initiate a complete reform of Gazprom, and has simply taken steps to increase its control over the firm. Gazprom was created from the Soviet ministry of gas, and it has retained many features of a centrally planned economy. The company combines commercial and regulatory functions, and retains tight control over information flows within the gas sector. As a legacy of its early days as a ministry, Gazprom has suffered from large-scale inefficiency and decreased labor productivity (see OECD, 2004b).

The future of the company's reforms is unclear, and will depend to a large extent on progress made within the larger economy. Specifically, the process of reforming the Gazprom monopoly should be linked with major reform in internal energy prices; otherwise, major economic distortions will ensue. However, the political and social acceptability of energy price reform, at least in the short term, is problematic. Price reform is likely to encounter strong political opposition at least until after the 2008 presidential elections.¹⁵

¹⁵ Reforms in Russia's gas sector could start in 2013-2014, head of the Russian Federal Anti-Monopoly Service Igor Artemyev told a conference in Moscow on 17 Dec 2007. He suggested reforms of the gas sector would proceed in the same way the energy reform had been carried out, such as by separating gas transportation from its extraction, providing non-discriminatory access to gas pipelines. Commenting on Gazprom's possible reaction to the plan to reform the sector, Artemyev said he assumed that the gas monopoly's resistance would be very strong. (NGV, 2007)

2.4 Reserves, Exploration and Production

Among the world's top 24 oil and gas companies, Gazprom holds third place in combined hydrocarbon reserves with roughly 200 billion barrels of oil equivalent. Natural gas constitutes the vast majority of the reserves. Saudi Aramco and the National Iranian Oil Company (NIOC) have reserves on the order of 300 billion barrels of oil equivalent (see Figure 11), with much larger percentages in oil.

In October 2005, Gazprom expanded its oil reserves when it bought the fifth-largest oil firm, Sibneft, for \$13.1 billion. This was an extraordinary deal, as the state paid near market price to buy back a firm it had sold for almost nothing in the “loans for shares” auctions a decade ago. This acquisition appears entirely political; from a commercial point of view it was not a rational way to invest Gazprom's funds. With the Sibneft purchase, however, Gazprom is now poised to be at the center of Russia's oil production expansion (see Table 2). Gazprom plans to continue to increase its reserves in the future, not through discovering new fields, but by gaining control over other companies (for example, Sibneftegaz, which holds the development license for the Beregovoye field)¹⁵ Gazprom daily production (taking into account Sibneft) is now equivalent to 10.3 million barrels of oil.

Table 2. Gazprom's Hydrocarbon Reserves

	2000	2001	2002	2003	2004	2005	2006
<i>Natural gas, ABC1, tcm*</i>	28.9	28.1	28.2	28	28.9	29.1	29.8
Natural gas, SPE, tcm**	18.5	17.7	18.7	18.5	18.5	20.9	20.73
Natural gas, ABC1, tcm**	24.3	24.5	25.2	25.3	27.7	27.6	27.8
Gas condensate, billion tons*	1.27	1.3	1.28	1.28	1.22	1.22	1.22
Crude oil, billion tons*	0.59	0.59	0.56	0.57	0.65	1.36	1.39

*All reserves amounts are given in proportion to Gazprom's actual shareholding in non-wholly-owned subsidiaries and joint ventures.

** Data presented include only those elements of the fields included by DeGolyer and MacNaughton in their evaluations of 17 fields as of 31.12.2001 and 31.12.2000, 19 fields as of 31.12.2002, 20 fields as of 31.12.2003, 22 fields as of 31.12.2004. All reserves amounts are given in proportion to Gazprom's actual shareholding in non-wholly-owned subsidiaries and joint ventures.

Data Source: Gazprom, 2007, http://www.gazprom.com/documents/Stat_Report_Eng.pdf

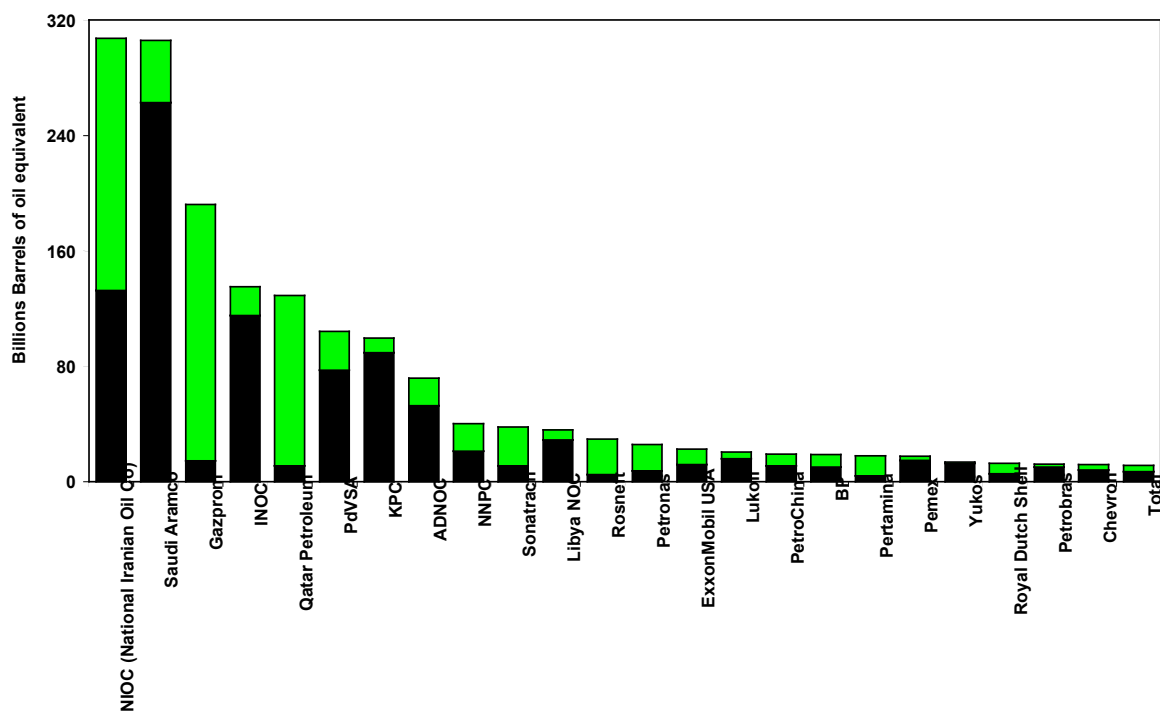


Figure 11. Combined Oil (“black”) and Gas (“green”) Reserves for the Top 24 Oil and Gas Companies, 2004. Data source: PIW, 2006.

Turning to the gas business, international estimates for Russia’s major fields are lower than Russian internal estimates (the only exception is the Kharasaveiskoye field). If the fields not yet in production (those of Bovanenkovskoye, Kharasaveiskoye and Shtokmanovskoye) are excluded, total reserves of the major fields are about 17 Tcm based on ABC1 criteria. This translates into a reserves/production ratio of about 30 years.

Gazprom is not short on gas reserves, but the decline in production highlights the importance of developing new fields. The most promising of these are the Yamal, Shtokmanovskoye and Kovyktinskoye fields. The Shtokmanovskoye field has development priority over the Yamal because the estimated cost for development is about one-half that of Yamal. Moreover, there are unresolved ecological issues associated with the development of Yamal. The second potentially large scale development will be the Kovyktinskoye field in the Irkutsk area. It is very likely that Gazprom will take control of the Kovyktinskoye field in the near future. Longer term, the growth of gas production in Eastern Siberia and the Far East will depend primarily on the profitability of gas exports to Asia-Pacific regions.

Until commercial production begins in Yamal sometime after 2012, Gazprom will not have adequate resources to compensate for the declining output of its major fields. The last large additional deposit, the Yuzhno-Russkoye field in the Nadym-Purtazovsky region, with annual projected output of 30 Bcm, will go into operation in 2008. (As

discussed in Box 1, this field is also of regional importance for its planned direct connection to Germany via the Nord Stream pipeline.) After that, Gazprom will have only gas reserves that will be difficult to develop and that have been in the planning stage for years.

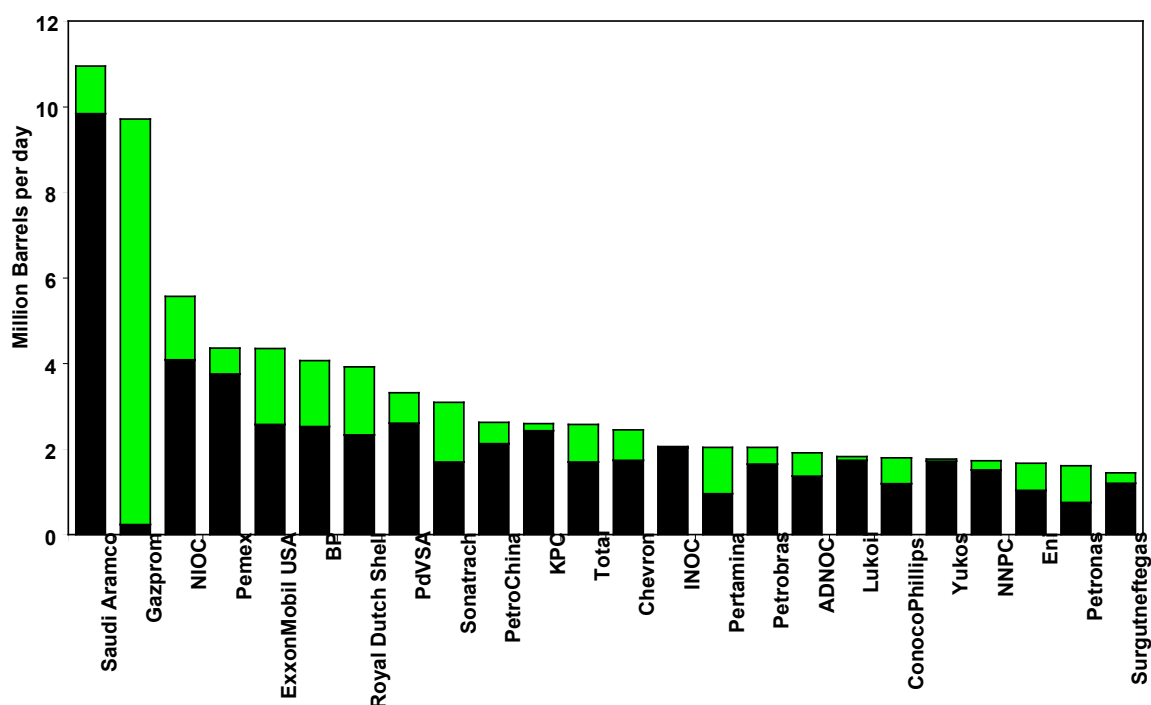


Figure 12. Combined Oil (“black”) and Gas (“green”) Production for the Top 24 Oil and Gas Companies, 2004. Data source: PIW, 2006.

Gazprom is by far the largest gas producer in the world, as shown in Figure 12. The company produced 547 Bcm in 2005, up only 0.5% from 2004. (Appendix 4 presents the major production, supply and financial indicators for the period 2001-2004). Russia’s supply is augmented by the independents. Novatek, Russia’s biggest independent gas producer, pumped 25.3 Bcm of gas in 2005. After Novatek, the next four largest gas producers are the four large oil companies: Surgutneftegas (14.4 Bcm), Rosneft (13.0 Bcm), TNK-BP (8.7 Bcm) and Lukoil (5.8 Bcm). Prices and pipeline access are big challenges for these players as they are for other non-Gazprom companies. Most of their gas is sold at the wellhead to Gazprom, at prices below those on the domestic market. For example, gas from Lukoil’s Nakhodkinskoye field in Yamal-Nenets, the first dedicated gas field developed by an oil company, is sold to Gazprom at the wellhead at \$22 per thousand cubic meters (mcm) under a long-term contract.

Gazprom’s gas production declined significantly in 2000 (by more than 20 Bcm) and 2001 (by more than 10 Bcm), increased slightly through 2004, and has remained relatively flat since. Gazprom projections suggest that the company’s gas production in

the best case will stabilize at 1999 levels and remain there through 2020. If correct, any increases in production would come from non-Gazprom production in existing producing regions, possible new production in Eastern Siberia and the Far East (where little gas is currently produced), from independent producers and from joint ventures. The independent producers are supposed to play a more important role going forward, and according to the Russian Energy Strategy will supply up to 20% of total gas production by 2010, extracting some 150 Bcm in 2010.

Given the forecasted decline of fields currently in production, a great deal of new capacity has to come on line over the next two decades. With lead times of five to seven years to bring large fields in the Nadym-Pur-Taz region into production – a region which already accounted for about 85% of total Russian output in 2004 – development plans need to be in place well ahead of time.

2.5 Transportation and Storage Infrastructure

One of the greatest problems facing Gazprom is the age and condition of its infrastructure. Gazprom owns the entire 150,000 kilometer gas-pipeline infrastructure in Russia, including the compressing stations, to control the delivery of gas to domestic and export markets.¹⁶ More than 70% of the large diameter transmission lines were commissioned before 1985, and more than 19,000 km of pipeline are beyond their designed life span and will need replacement soon. The investment requirements of the transmission system will increase sharply over the next two decades, as investment will be needed to connect new fields to existing pipelines, as well as to replace and refurbish old lines.

The idea of splitting transportation from Gazprom's production arm, long talked about by reformers in the 1990s, has been more or less been dropped. Gazprom says that it has no incentive to keep independent gas producers out of its transport system, since the more gas that is available for sale in Russia, the more gas that will be available for Gazprom to export to Western Europe at higher prices. However, lack of transmission capacity has precluded independent producers from gaining access.

As part of a larger strategy of international expansion, Gazprom has a stake in a number of transport companies outside Russia, such as SPP in Slovakia, and has also formed alliances and partnerships in key transit nations to secure deliveries. In 2006, Gazprom negotiated the purchase of Armrosgazprom from the Armenian government, along with a 40-km section of the Iran-Armenia gas pipeline.¹⁷ Gazprom will participate in the construction of the Iran-Pakistan-India pipeline, and the refurbishing of one or two lines at the Southern Pars deposit. Gazprom is currently adding assets all over the world.

¹⁶ Gazprom is the only company in Russia legally allowed to sell gas outside the borders of the Former Soviet Union. By Russian law, Gazprom is obligated to allow other producers to use its pipelines for domestic needs (not for foreign exports), but in the case of pipelines being filled to capacity it is allowed to refuse to do so, and this is usually what occurs.

¹⁷ Gazprom has agreed to supply gas to Armenia at a fixed price of US\$ 110 per thousand cubic meters until 2009 in return for control of Armenia's gas pipelines, part of a power station and a 40km section of a pipeline under construction between Armenia and Iran.

Expansion is the major goal of Gazprom, as buying overseas assets is the only way for the company to support its share price, given the declining output from its Russian fields.

In 2004, Gazprom operated 24 underground gas storage sites in Russia. Seven of these are in water-bearing structures, and 17 at depleted fields. In 2000, the nominal capacity of these facilities was 56.5 Bcm, with an average daily working-flow capacity of 387 mcm/day. The potential daily retrieval from UGSF was increased to 470.5 mcm per day by 2004.

Gazprom also has access to foreign storage sites in the Ukraine (17.5 Bcm), Latvia (1.9 Bcm) and Germany (1.5 Bcm). The company plans to refurbish and expand existing sites and to build new ones in several countries in the CIS, Eastern Europe and elsewhere. Russian energy strategy suggests that it will be necessary to lay 23,000 km of transmission pipelines (including for replacement capacity) up to 2020 and add 25 GW of compressor station capacity.

Gazprom's refining capacities (exclusive of the Sibur Group) include six facilities producing a wide range of products. The refineries are designed to process 52.5 Bcm of natural gas and 27.1 million tons of unstable gas condensate and oil. Gazprom acquired Sibur assets by using a bankruptcy procedure.¹⁸ As a result of the acquisition, Gazprom now owns Russia's largest natural gas-processing plant.

2.6 Non-Core Activities

Gazprom is a highly diversified enterprise, with activities ranging from banking to agriculture to media. Its non-core activities include technical supervision, maintenance and reconstruction of the Unified Gas Supply System, and also research on, development and production of both construction and telecommunications equipment. The company's assets include a manufacturer of mining equipment and a porcelain factory.

Gazprom is also the main shareholder of AB Gazprombank (ZAO), which meets most of Russia's domestic banking needs (other than borrowings). It is the founder of NPF Gazfund, the largest non-government pension fund in Russia, providing pension services to employees of Gazprom. It runs 26 cultural centers, many sports centers, and medical and therapy centers. The company owns an insurance company (Sogaz), and a media holding company (Gazprom Media).¹⁹

Gazprom is also the single biggest owner of agricultural land in Russia, keeping 2000 cows and 3000 pigs on its company farms. It owns a sausage factory and a brewery.

¹⁸ In 2002 Gazprom launched bankruptcy proceedings against its subsidiary, Siberian Urals Petrochemicals (Sibur) in an attempt to recover more than \$800m invested under its management. At issue are the consequences of a 1999 reorganization that transferred most of Sibur's assets to outside companies, leaving little to repay large debts owed to Gazprom (see Financial Times, 2002). Thus Gazprom used a relatively inexpensive means of retaining control over its subsidiary: instead of purchasing shares, has resolved to acquire them in return for settling some of Sibur's debts, avoiding the need for any direct financial payment.

¹⁹ From a commercial point of view Gazprom's media business seems less than rational. In 2001, Gazprom also controversially took over NTV, a television station whose founder, Vladimir Gusinsky, was the first of the "oligarchs" to fall out with President Putin.

A partial list of Gazprom's non-core assets include:

- Telecommunication companies
- Mass media
- Trade companies
- Banking and insurance
- Agriculture
- Hotels
- Medical companies

At the beginning of 2007, Gazprom joined a new entity to sell “hot air” – Gazprombank has set up a joint venture with Dresdner Bank to invest in the trading market for greenhouse gas emissions quotas. The joint venture will channel investment into key projects generating relevant certificates under the Kyoto Protocol, and also bundle carbon credits received into securities for resale on the secondary market.

Although Gazprom executives say they intend to drop the company's non-core assets, the company continues to make investments that have a clear political motive. In 2005, it expanded its media holdings with the acquisition of Izvestia, and in November 2006 the company announced the purchase of Komsomolskaya Pravda, Russia's largest circulation newspaper. It also bought a soccer team, Zenit, from St. Petersburg (Putin's hometown).

By 2006, the company held \$14 billion worth of assets unrelated to oil and gas, with 38% of its employees working outside the core business. Its non-core staff costs ran to \$1.4 billion in 2004 (the latest data available). Those employees worked in businesses that generated a loss of \$350 million that year, according to a report by Hermitage Capital Management.

In November 2006, the OECD released a report on the Russian economy that criticized the Russian government for its expansion into key economic sectors. It raised concern about the “seemingly insatiable appetite” of Gazprom (see OECD, 2006). The OECD report expressed alarm that instead of investing in gas production, Gazprom had been expanding its interests in oil, electricity, power generation machinery and media. Gazprom's investment in developing new gas fields has been minimal and its monopoly over the gas transportation infrastructure has constrained the development of independent gas producers. As discussed previously, this strategy is potentially dangerous at a time of growing concern about Russia's ability to sustain and increase its gas production.

2.7 Capitalization

Gazprom is currently the largest company in Russia by market capitalization, at \$300 billion as of May 2006. The company has about half a million Russian and foreign shareholders. Before 2006, a special “ring fence” system was implemented which prohibited foreigners from owning more than 20% of Gazprom stock. Foreigners were also not allowed to buy shares on the domestic market and were resigned to using “gray schemes” to buy Gazprom's ADRs at a premium to domestic share prices. The ring fence was removed in the last days of December 2005 when capitalization of Gazprom was only \$130 billion. The biggest Gazprom shareholder is the Russian Government. In

2005, as a result of Rosneftgaz's purchase of a 10.74% stake in Gazprom, the Government stake in Gazprom increased to 50.1% (see Table 3).

Table 3. Gazprom Shareholders as a Percentage of Capital Structure

Shareholder	2000	2001	2002	2003	2004	2005
The Russian Federation	38.37	38.37	38.37	38.37	38.37	50.10
Russian companies	33.64	34.06	35.07	36.10	36.81	29.48
Individual Russian citizens	17.68	16.07	15.06	14.03	13.32	13.07
Non-Russian companies	10.31	11.5	11.5	11.50	11.50	7.45
Total	100	100	100	100	100	100

Data Source: Gazprom (2007).

One of the political reasons for dismantling the Gazprom ring fence was to convince a cynical world that post-Yukos Russia is, in fact, a decent place to invest, and that the damage that was done in the Yukos affair had been surmounted by allowing foreigners the unlimited right to gain a minority position in Gazprom. Politically, with Russia assuming the presidency of the G-8 in 2006, the Kremlin was determined to avoid embarrassment. Economically, the ring fence removal had an enormous impact on Gazprom's position in the emerging-market stock world. It transformed Gazprom from being a reasonably insignificant entity in the capital markets into the one of the most liquid of the emerging market stocks. One potential benefit is the ability to bring in the substantial investments needed to maintain infrastructure and keep up production levels.

Trade in Gazprom's common registered shares began January 13, 2006 on the RTS (Russian Trading System) classic market. A proposal by the Russian Federal Property Fund (RFFI) to sell Gazprom's shares to foreign investors through a state organization (not through a stock exchange) was supported by the government. This arrangement helped the state to increase its stake in the company, as the RTS services are supposed to be paid in the company's shares. In the first 3 days after the ring fence was lifted, Gazprom's share price increased by 25%.

Alexander Medvedev, deputy chairman of the Gazprom board, said at the end of April 2005 that Gazprom's capitalization could more than triple in 10-15 years, exceeding \$1 trillion. (By contrast, Russia's entire stock market was valued at \$200 billion just a few years ago). The rapid growth of Gazprom's capitalization is not surprising, as it started from a very low base and owns huge gas and oil reserves. The capitalization could exceed \$350 billion in the near future as Sibneft becomes fully integrated into Gazprom organization. In the best case, with an efficiently run organization and high oil and gas prices over the next few years, the capitalization of Gazprom could easily climb to \$500 billion. The market currently discounts Gazprom's huge reserves because about 60% of its production is sold on the domestic Russian market at prices that barely cover Gazprom's production costs.

In April 2006, Gazprom applied to the US Securities and Exchanges Commission for registration of a new program of F-6 American Depositary Receipts (ADRs). The new, fully fungible ADR program replaces the old one, and all old ADRs were automatically converted into the new ones. The new ADRs are now traded not only on

the London Stock Exchange, but also over the counter in the US. The launch was complemented by an optimistic signal in terms of an ADR split: now one ADR consists of only four local shares, not ten as in the previous case. With this move, the ADR price has been returned to the \$30–70 range in the US markets, sending a signal that the stock is likely to continue growing. Gazprom expects that the lower unit price will make the ADRs accessible to more investors. The limit on the number of shares that can be traded as ADRs will be 35% of Gazprom's basic capital.

However Gazprom has a long way to go to match the performance of a western multinational. The company is still managed as "a Soviet enterprise" and its fundamentals provide little ground for optimism. It has one of the lowest returns on assets in the energy sector. Production is stagnant, infrastructure is decaying, the biggest fields are in decline, and costs are rising. The growth in Gazprom's market value has been driven by rising gas prices and the Kremlin's political support, which tends to hide the inefficiency and murkiness of Gazprom as a company.

2.8. Finance

Recent financial results of the world's oil and gas companies have been without surprises. Oil and gas prices have been high, providing companies with ample financial flexibility. Standard & Poor's took several positive rating actions in 2005, including upgrading the Russian majors TNK-BP, LUKoil and Gazprom. It's likely that Gazprom will be a candidate for positive rating actions in the future.

The financial outlook for Gazprom remains positive due to expected increases in export gas prices. Contributions from the new oil subsidiary Sibneft should help improve the group's free cash flow generation ability, which remains modest. In December 2005, Gazprom received a \$7 billion cash payment from Rosneftegaz for its treasury stocks, which helped to refinance a part of the debt created by the Sibneft acquisition.

Gazprom's total sales revenues in 2005 were \$46 billion, or 36% higher than the previous year (see Table 4). Profit climbed even faster; for 2005, profit was \$16 billion, an increase of 73% over the year before. The increased profit was almost exclusively a result of higher export gas prices – total sales in Bcm increased by only 3%. However, the company's debt increased by 60% in 2005 to about \$28.5 billion. Looking ahead, increases in debt, ambitious acquisitions, and a higher share of short-term debt or annual debt maturities could cause Gazprom's financial situation to deteriorate.

Table 4. Gazprom's Revenues for 2004 and 2005

	2004	2005	%
Sales Revenues			
Europe			
Gross sales revenue, million \$US	21,703	30,358	40%
Excise	-37	-5	-87%
Export Duties	-5,658	-8,242	46%
Net Revenue from sales	16,009	22,111	38%
Sales, bcm	153.2	156.1	2%
Average price, \$US/thousand cm	137.7	192.4	37%
FSU			
Sales (net VAP), million \$US	3,159	4,693	49%
Excise	-20	-106	421%
Export Duties	-682	-715	5%
Net Revenue from sales	2,456	3,871	58%
Sales, bcm	65.7	76.6	17%
Average price, \$US/thousand cm	46.7	60.7	30%
Russia			
Sales (net VAP), million \$US	9,020	11,119	23%
Excise	-75	-48	-36%
Net Revenue from sales	8,944	11,071	24%
Sales, bcm	209	211	1%
Average price, \$US/ thousand cm	30	36	23%
Gas Sales Revenue			
Gross sales revenue (net VAP), million \$US	33,882	46,170	36%
Excise	-132	-159	20%
Export Duties	-6340	-8958	41%
Net Revenue from gas sales	27,409	37,053	35%
Sales, bcm	524.6	539.7	3%
Other Sales Revenues			
Gas condensate & refineries sales (net VAP, excise, export duties), million \$US	4,366	7,623	75%
Crude oil sales (net VAP, export duties), million \$US		1,378	
Transportation services (net VAP), million \$US	1,037	895	-14%
Other sales (net VAP), million \$US	2,073	2,464	19%
Total Sales Revenues (net VAP, excise, export duties), million \$US	34,885	49,412	42%
OPEX			
OPEX without taxes, million \$US	-22,925	-29,129	27%
Taxes			
Mineral resource taxes, million \$US	-2,054	-3,115	52%
Properties taxes, million \$US	-347	-545	57%
Other taxes ,million \$US	-180	-410	128%
OPEX, million \$US	-25,506	-33,199	30%
Sales Profit, million \$US	9,379	16,214	73%
Net cash provided by financing activities,	1,036	-138	-113%

million \$US			
Profit before profit taxes, million \$US	10,415	16,076	54%
Profit taxes, million \$US	-2,853	-4,792	68%
Net profit, million \$US	7,562	11,283	49%
Net Debt, million \$US	17,852	28,481	60%
Investments, million \$US	9,790	12,594	29%

Source: Gazprom, 2007 (on-line:

http://www.gazprom.ru/documents/Gazprom_2005_MD&A-rus.pdf)

Note: for calculation we used a nominal exchange rate of 28 rouble against the US dollar.

About 25% of Gazprom's total revenue is derived from businesses other than gas, including oil, refineries and a wide range of non-core activities. The latter account for about 5% of total revenue. Oil operations are likely to be more significant in the future following the 73% acquisition of Sibneft in October 2005.

The table also shows the dramatic difference in prices in the three basic gas markets for Gazprom: the home market in Russia, the FSU, and Western Europe. The price of natural gas delivered to Western Europe was about three times higher than the gas price in the FSU, and about five times higher than the internal price in Russia. Gazprom delivers large volumes thousands of miles to Western Europe, primarily Germany, where pricing is more competitive. At the same time it sells natural gas especially cheaply in Russia, where gas heats most homes, factories and office buildings, and also generates half of the electricity.

Thus, increasing internal gas prices is one of the company's major opportunities. If Gazprom could sell gas to FSU and Russian consumers at the same price as it sells to Western Europe, Gazprom's revenues would almost double, and net profit would reach about \$36 billion, more than three times higher than currently. Moreover, the government would receive about \$33 billion in taxes from Gazprom, or almost twice as much as under the current price regime. The debt-to-profit ratio would decrease from 252% to 79%. (As a benchmark, ExxonMobil reported a debt-to-profit ratio of 22% in 2005.)

The state has repeatedly asked Gazprom to limit its borrowing. Gazprom's debt was around \$13 billion in 2003, \$17.8 billion in 2004 and \$28.5 billion in 2005. This means it has the highest corporate debt in Russia, with a debt-to-asset ratio well above average at 22% (Gazprom, 2007). The oil majors currently have a debt-to-assets indicator around 7% on average (for Exxon Mobil Corporation it is 3.8%, for Royal Dutch Shell 6%, for Chevron 7.4% and for BP 11%). Oil and gas companies overall have an 11% debt-to-assets ratio on average (see Reuters, 2007).

Borrowing is usually done in Western markets (80-88%) via Eurobonds. Gazprom continues to slash its short-term debt relative to total debt, and plans to have 25% in short-term loans soon instead of more than 30% at present (see Figure 13). The company will also focus on unsecured loans with the aim of gradually freeing up to 50% of its export revenues from collateralized agreements. At present, Gazprom's exports to Western Europe are almost entirely used as collateral against loans.

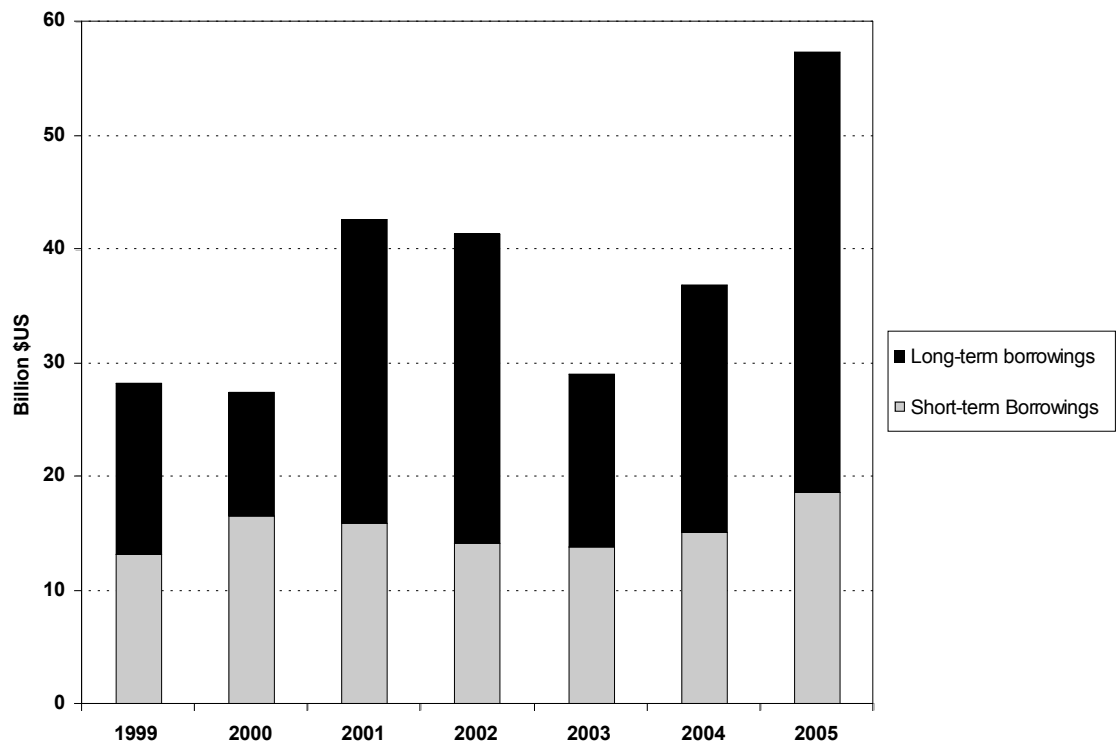


Figure 13 - Gazprom: Long-term and Short-term Borrowing, 1999-2005. Data Source: Gazprom, 2007 (Financial Report). Note: This figure shows the total debts (not a net debt balance), defined as the sum of short-term borrowings, current portion of long-term borrowings, short-term promissory notes payable, long-term borrowings, long-term promissory notes payable and restructured tax liabilities, net of cash and cash equivalents and balances of cash and cash equivalents restricted as to withdrawal under the terms of certain borrowings and other contractual obligations. According the preliminary report Gazprom's net debt was decreased by 16% as of 31 March 2006 compared with 31 December 2005. This can be explained primarily by decreased long-term borrowings and increased cash inflow from operating activities.

In 2004-2005, Gazprom failed to convert an extremely favorable gas price situation into free cash flows that could have been used to reduce debt. Instead, Gazprom's long-term borrowings increased. The situation with cash flows and long-term borrowing should improve, however.

Long-term bank borrowings in 2004 and 2005 included loans from Salomon, Morgan Stanley and Dresdner Bank, which have been secured by revenue from export sales of gas to Western Europe. Also, part of the long-term debt is money lent by the banks in the form of direct payments to equipment suppliers. Another source of borrowing (though with a smaller share) is the series Russian bonds. The total amount of loans Gazprom received in 2005 was about \$13 billion, and the total amount of loans repaid in 2005 was about \$8 billion (Gazprom, 2007).

2.9 Business Strategy

According to Gazprom's business plan, the major strategic priorities of the company are: (1) capitalization build-up, (2) gas production increase and strengthening of the mineral resource base, (3) development and modernization of the United Gas Supply

System, (4) large-scale international projects realization, and (5) production and economic efficiency improvements (see Gazprom, 2006).

Gazprom's ambitious goal is to develop itself into a world-class energy company. Gazprom's intent is to further globalize its operations and to get more deeply involved down the supply chain. At the same time, Gazprom remains a largely enigmatic company, with little consensus on its future development. The Kremlin treats Gazprom not just as a corporation, but also as a vehicle for promoting Russia's political interests (similar to the approach towards most national energy companies globally). But this may put the Kremlin's political ambitions in conflict with Gazprom's stated strategic priorities and business objectives.

The period from the present to 2010 is going to be a time of important decisions for Gazprom, one that will shape the future role of the company in the international gas business. Gazprom may not be able to increase gas supplies to Europe, at least in the short term, and the looming gas crisis will have global implications.

One of Gazprom's large-scale international projects is a pipeline from western Siberia to China. This project seems unrealistic in the short-term future as Russia struggles to meet the growing market demand closer to home. This may explain Gazprom's decision to abandon its long-nurtured plan to send gas from the Shtokman field to the US market as LNG, diverting the gas to Europe instead. The decision is a sign of desperation: sending Shtokman gas to Europe would free up gas from Siberia for domestic consumption.

Pursuing development of all the priority projects simultaneously is likely to prove overly expensive and risky for Gazprom. The company's options will largely depend on the position of the Russian government with respect to reforming the domestic gas market. Increasing gas prices for internal consumers would likely slow down the growth of the domestic market, increase the profitability of domestic gas sales, and thus reduce Gazprom's dependence on the European market.²⁰

The current policy, which gives priority to supplying the less attractive and less efficient domestic gas market, and places a requirement on Gazprom to finance selected projects having little to do with gas, makes the European gas market critically important to the financial health of the company. In the medium and long term, Gazprom has no real alternative but to develop the new gas fields to boost supply.

Although Gazprom holds regular board and stockholder meetings, the real decisions are made within an informal circle around the Russian president and communicated through Mr. Medvedev, the chairman and first deputy prime minister (see NYT, 2006)

²⁰ Gazprom estimated its losses in the domestic market at about 9 billion rubles (\$324.09 million) in 2006 and 11 billion rubles (\$396.11 million) in 2007.

BOX I. Major Gazprom Projects

1. Development of the Shtokman Field (on the arctic shelf of the Barents Sea)

Gazprom has estimated that it will cost \$20 billion to develop the Shtokman field, which contains more than 3.7 trillion cubic meters of gas. The Shtokman field is one of the biggest known offshore gas fields in the world – it is located more than 600 km from shore at a depth of 340 m. The Shtokman field was first discovered in 1988. Since the 1990s, a consortium of Conoco (12.5%), Fortum (12.5%), Norsk Hydro (12.5%), and Total (12.5%) and headed by Gazprom (50%) has been working on assessment and solutions to technical problems. The consortium participants spoke several times about their interest in the continuation of the project of developing and commissioning this gas field. However, Russia has been very slow to clarify the project situation and move forward in a coherent manner. In 2001, Gazprom announced its intention to develop the gas field together with Rosneft. In 2002, the license for the field development and recovery was transferred from JSC Rosshelf to Sevmorneftegas. In 2003, Gazprom and Sevmorneftegas prepared for the project of gas field development, based on analysis of the accumulated data. However, today Gazprom still does not have clear and reliable solutions to the questions of field development, as it has not gathered enough observations and information.

A preliminary development scheme envisions the construction of a sea platform above the field, an undersea pipeline, and a liquefied gas plant on the coast. Annual gas production is determined to be 60 bcm and the full development period 50 years. The total investments required for the field are estimated at more than \$20 billion, or \$30 billion with the addition of LNG. In 2005 representatives of Gazprom stated that foreign partners in the development of Shtokman would be announced in the last quarter of 2005; the decision was delayed, and analysts tried to explain the postponement primarily in political terms (including reasoning that Russia was holding Shtokman hostage over the WTO issue). In October 2006 Gazprom announced that the company will develop the Shtokman without Western companies, and will no longer send Shtokman gas to the US by LNG, but rather to Europe by pipeline.

In 2007, Gazprom and French energy company Total signed a framework agreement, according to which Gazprom and Total will set up Shtokman Development Company to organize the design, financing, construction and operation of the Shtokman phase one infrastructure. Later, a similar contract was signed between Gazprom and StatoilHydro. Shtokman Development Company will bear all financial, geological and technical risks related to the production activities. (Gazprom owns 51% of shares in Shtokman Development Company, while Total has 25% and StatoilHydro 24% of shares.)

2. Development of Yamal Fields

Development of the new Yamal fields has also been delayed. In 2000, Gazprom prolonged the licenses for the Yamal Fields, which under previous license terms should have been brought on-stream by the second half of 1990s. It is clear that the major Yamal fields will not be brought on-stream before 2011-2012. However, Gazprom is considering limited gas production on the Yamal Peninsula as early as 2008. There are 11 gas and 15 oil and gas condensate fields on Yamal Peninsular. Total reserves are estimated at 10.4 trillion cubic meters, with the three biggest fields – Bovanenkovskoe, Kharasaveiskoe and Novoportovskoe – accounting for about half.

In October 2005, Gazprom's management sanctioned the start of development of the Bovanenkovskoe field. Production is slated to begin in 2011 and will yield 115 Bcm of gas

annually. Long term, gas production is to be increased to 140 Bcm a year. Gazprom is entertaining the idea of building a large gas liquefaction plant in Yamal itself, although for many the transportation of LNG across polar seas is a frightening prospect.

Developing the Yamal - with resources predominantly on land - would require less new technology and involve lower risk. Unlike Shtokman, which would require investment and technology from Western companies, Russian companies could develop Yamal themselves.

3. Nord Stream pipeline

Nord Stream is a 1200-kilometer-long off-shore natural gas pipeline stretching through the Baltic Sea, from Vyborg, Russia to Greifswald, Germany which is to be built by Nord Stream AG. It is designed to be a new route for exporting Russian gas from Yuzhno-Russkoye, Yamal Peninsula, Ob-Taz bay and Shtokmanovskoye fields. It would link Russia directly to the all-European gas network, bypassing today's transit nations. Nord Stream will carry gas to Germany, from where it can be transported to Denmark, the Netherlands, Belgium, the UK, and France. The length of the sea section of the gas pipeline from Vyborg to Greifswald would be 1189 km. It would use a 1067 mm pipe operating under a pressure of 200 atmospheres. Nord Stream is scheduled to begin operation in 2010, and initially one pipeline will be built with a transport capacity of around 27.5 billion cubic meters of natural gas per year. In the second phase, a parallel pipeline will be laid to double the annual capacity to around 55 billion cubic meters. The second pipeline is planned to come on stream in 2012. The total investment for the offshore pipeline is estimated to be at least EUR 5 billion euros (the total costs of the project—including the onshore pipelines—could be around EUR 12 billion). Nord Stream AG was established on 2 December 2005 with the purpose of carrying out a feasibility study and building the Nord Stream Pipeline. Gazprom holds a 51% interest in the joint venture, and BASF and E.ON hold 24.5% each. The project is controversial both for perceived national security risks and environmental concerns.

2.10 Gazprom's Investment Strategy and Requirements

As indicated previously, the current gas shortage in Russia is not the result of limited reserves, but rather of Gazprom's investment strategy. Instead of investing in new oil and gas fields, Gazprom has pursued unrelated assets at home and abroad. It seems that many of Gazprom's investments were undertaken to serve the Kremlin's internal and foreign agendas, or to increase its capitalization.

Meanwhile, Gazprom's investment in its core activity (extraction/production) is steadily declining, dropping to 31% of total investment in 2005 (see Table 5). Mr. Gref and others in the government are unhappy about the company's investment policy, arguing that its attention should be focused on avoiding a gas shortfall. Gazprom, by contrast, is intent on becoming a global energy giant, with significant interests in oil and power, upstream and downstream, at home and abroad. Gazprom's position is that if it focuses only on production it will end up like the Middle East oil companies and never become a global player.

Table 5. Gazprom's Investments in 2002-2005

	2002 (million US\$)	2003 (million US\$)	2004 (million US\$)	2005 (million US\$)	2002 (%)	2003 (%)	2004 (%)	2005 (%)
Transmission	2568	2669	4504	6633	48%	40%	46%	53%
Extraction	2294	3279	3916	3943	43%	49%	40%	31%
Processing	212	160	490	697	4%	2%	5%	6%
Distribution	50	318	392	720	1%	5%	4%	6%
Other	248	235	490	600	5%	4%	5%	5%
Total	5371	6662	9790	12594	100%	100%	100%	100%

Source: Gazprom, 2005-2007 (on-line:

http://www.gazprom.ru/documents/Gazprom_2005_MD&A-rus.pdf)

http://www.gazprom.ru/documents/BSPC_bonds_MDA_rus_130705.pdf

More than half of Gazprom's investments in 2005 went into gas transit projects: construction of the NTR–Torzhok and Yamal Europe, and expansion of the Urengoi transit center. In gas production, funds were allocated towards pre-drilling construction, putting additional wells into production, or completing the compressor stations at the already developed fields.

In 2006 Gazprom also invested in key transit projects, including the North European gas pipeline, Yamal–Europe, NTR–Torzhok, underwater Blue Stream, Pochinki–Izobilnoe–North Stavropol UGSF, and Barnaul–Biysk–Gorno-Altai gas pipelines, and expansion of the Urengoi transit center. Gazprom's subsidiary, Mezhtregiongaz, invested about \$1 billion in building distribution networks as part of the Gasification Program for Regions of the Russian Federation.

However, only very limited funds were invested in 2006 in pre-drilling construction at already developed fields. This situation is really alarming, as it will take 3-5 years to put the new fields into production. The current investment strategy is related to Gazprom's vision that independent producers will fill the gap.

However, in order for the independent producers to prosper, Gazprom's control of pipeline and energy transport infrastructure must be eased. Boosting the independent producers output and allowing them direct access to the European markets will require some flexibility and market-based incentives. This will require an adequate return on investment in transmission system. According to Gazprom, there will be sufficient investment for the United Gas Transmission System modernization, and the problem of insufficient capacity will be resolved at the price level of \$35 to \$40 per mcm, with the transmission tariffs slated at \$1 per mcm. The Energy Strategy 2020 says that in order to achieve the required growth of investments, gas pricing should be raised to \$40 to \$41 per mcm in the near term, and to \$59 to \$64 per mcm by 2010 (excluding VAT and charges for gas transmission via gas distribution networks and for supply and sales services).

There is also a political dimension that helps explain why the Russian government has been so adamant in maintaining a hard line on the pipeline debate. The Russian daily “Kommersant” reported on March 3, 2006 that influential people close to President Putin are lobbying for the creation of a single, state-owned pipeline company, which would

include both oil and gas pipelines, and which would be under their control. The result would be a single state-owned pipeline company and one more opportunity for corruption.

We estimate the level of investments Gazprom will need to adequately meet future demand for gas as follows:

- Refurbishing Depreciated Pipelines ~ \$2 billion annually
- Paying for previous loans ~ \$3 billion annually
- Irkutsk Oblast gasification ~ \$1 billion
- Baltic Pipeline ~ \$12 billion
- Kovykta Field Development (for internal consumption) ~ \$20 billion.
- Shtokman Field Development ~ \$20 billion.
- Yamal Field Development ~ \$80 billion

It's clear that this level of investment cannot be obtained from foreign companies under today's rules. The role of foreign firms in the Russian energy sector is now strictly delineated: they can contribute expertise and capital to joint-ventures but no longer secure the strategic foothold that BP managed when, in effect, it bought half of TNK in 2003.

Gazprom is pursuing the Kremlin's ambitions as well as its own: to wrest back control of the energy assets lost in the rigged privatizations of the 1990s. In 2006, Gazprom rejected a proposal by an international consortium to invest in the \$20 billion Shtokman LNG development project. Shell, Mitsui and Mitsubishi sold a controlling stake in Sakhalin II after an environmental regulator threatened to freeze work on the \$22 billion showcase project. The same environmental agency has accused TNK-BP of illegal logging and drilling at the massive Siberian gas field of Kovykta. The TNK-BP dispute continues, and the best-case outcome for BP is that Gazprom will buy the Russian oligarch's part. The worst case is that Gazprom takes an even larger stake in the gas fields, including Kovykta, and then forces BP to accept its pipeline and marketing plans. However, any change in the TNK-BP structure could have serious impacts on BP.

The key players in Russia's oil and gas sector that could invest in gas production are listed in Table 6. The largest state oil company is Rosneft, which has recently acquired key Yukos assets. Leading non-state companies are Lukoil, TNK-BP, Surgut, Sibneft and Tatneft, which, together with the downsized Yukos, account for most of Russia's oil production, refining capacity and retail outlets. BP shares in the TNK-BP venture, Russia's main IOC interest. Conoco Phillips has a minority stake in Lukoil, while ExxonMobil, Royal Dutch Shell and BP are members of a consortium that is developing the Sakhalin fields. Total has a large minority stake in gas producer Novartek. It is unlikely that Russian oil producers will eagerly invest in gas production. They are not happy with Gazprom, which has preferred to buy their gas, transport it and sell it abroad at a substantial profit.

Table 6: Key Oil and Gas Companies in the Russian Oil Sector, 2004

Company	Ownership (%)	Liquids Reserves (millions boe)	Gas Reserves (Bcf)	Liquids Output (1000 Bls/day)	Gas Output (MMcf/day)	Revenues \$Millions (from PIW)	Number of employees
Gazprom	38.37% state	14,372	988,400	240	52,574	34,280	332,800
Lukoil	7.6% state, 20% Conoco Phillips	15,972	24,598	1,735	475	34,058	150,000
Rosneft	100% state	4,745	137,670	433	887	5,328	50,200
Sibneft	public	4,656	1440	682	189	8,886	47,000
Surgutneftegas	private	7,211	15,359	1,197	1,385	9,999	82,717
Tatneft	30.77% state	6,088	400	510	71	5,159	110,135
TNK-BP	private, 50% BP	4,009	1,793	720	388	7,149	113,000
Yukos	private	12,581	4,490	1,714	331		

Note: NA- not available. Source: PWI (2006), BMI(2005)

Section 3 –

Yin and Yang: Relationship between the State and Gazprom

The relationship between the Russian state and Gazprom has been changing in two fundamental ways. First, the goals and strategies set by the Kremlin for the gas sector have been transformed so that company has become as much an instrument of state as a commercial enterprise. Second, the particular tools that the government uses to affect behavior in the sector, including regulation, taxes and competition, have become more powerful.

Gazprom was created in 1965 as the Soviet Gas Ministry, when the Communist Party decided to aggressively develop the national gas industry.²¹ Today's political questions related to the proper balance between the management of the company and the executive branch of the government were then irrelevant, because Gazprom was a government body.

²¹ In the earlier history Gazprom traced its roots to 1943 when Glavgazprom was set up to build a pipeline from Saratov to Moscow.

In 1989, during the “perestroika” era, the goals of the state changed because the inefficient planning economy desperately needed reform.²² At that time, President Mikhail Gorbachev created Gazprom as a state unit responsible for gas production, distribution, and sales. The relationship between the state and Gazprom began to evolve according to larger institutional changes under way in Russia. In this section we will first consider the privatization process in the Russian oil and gas sector and then explore the recent “re-nationalization”. These two reversals highlight the major institutional dynamics in the intertwined yin and yang relationship between the state and the company.

3.1 Privatization of the Oil and Gas Sector in Russia

Following the break up of the Soviet Union in 1991, the Russian federal government gained jurisdiction over the major oil fields in Russia and along with it control over the transport and export of oil and gas resources. But oil exports were constrained by the capacity limitations of the old Soviet pipeline system and by a lack of investment. The Russian oil sector of the 1990s urgently needed investment and restructuring. Reformers of the newly democratized Russia saw only one way to do it – through privatization.

The first stage of privatization was set in motion via a presidential decree on November 17, 1992 titled “On Privatization and Transformation of State-Owned Enterprises, Production and Research Associations of Petroleum, Oil Refining Industries and Petroleum Product Supply Agencies into Joint Stock Companies,” (Volume 74, Presidential Ordinance Decree 1403 Of 17 November 1992).

The decree produced Lukoil, Yukos, Surgutneftegaz and Rosneft from pre-existing oil producing enterprises and refineries, and turned them into open-stock companies.²³ Russia's biggest companies were sold first through voucher auctions, with ownership limited to workers and Russian citizens. This first stage ended in June 1994, with the requirement that 38-45% of the shares in the companies would remain in government hands for at least three years, after which time the government share might be reduced.

In 1995, the Russian government implemented the second stage of privatization, a shares-for-loans scheme in which large blocks of government shares in certain joint stock companies (including five of Russia's oil giants) were auctioned to a group of Russian commercial banks for cash. The successful bidders were required to hold the shares in trust for a maximum of three years in return for providing loans to the government to reduce its budget deficit. At any time, the government could buy back its shares. In a

²² The joke about the State Committee for Planning (Gosplan) explains the economic situation in USSR—if Gosplan took over the Sahara, there would soon be a sand shortage.

²³ In accordance with the Civil Code joint stock companies fall into two categories: “closed” and “open.” The difference between an open and closed Russian stock company is that in an open company, shares may be freely sold to third parties, while in a closed company, share transfers are subject to the preemptive rights of other shareholders. Open stock companies have to comply with a number of requirements of the Russian securities authorities, and for this reason closed stock companies are generally preferred. A recent development (January 2006) is the adoption of amendments to the joint-stock company law to address the situation of minority shareholders. For any purchaser intending to hold after an acquisition more than 30% of shares in an open joint-stock company, the new procedures include notifying the company in advance and the right to make a voluntary public offer to purchase the shares of other shareholders.

series of auctions, stakes in the companies were transferred into trust accounts and then sold to insider banks for a fraction of their market value. Stakes often went to the very companies organizing the loan tenders for the government, and through the loans-for-shares scheme, assets estimated at more than \$25 billion were privatized and sold for just \$1.2 billion.

The second, shares-for-loan stage of privatization was being introduced just at the moment when the Russian budget deficit had climbed to 20% of GDP and the state was out of cash. The cash shortage offered an opportunity for fresh investment. New economic actors entered the oil sector: Mikhail Khodorkovsky of Yukos, Boris Berezovsky and Roman Abramovich of Sibneft.²⁴

Only the first stage of the privatization scheme was applied to the gas industry. As a joint-stock company, Gazprom was established in February 1993 in accordance with the 1992 presidential decree and a “Resolution of the Council of Ministers of 17 February 1993”. As with the oil industry, shares were divided among Gazprom employees and other domestic investors, while 40% of shares were left in government hands for at least three years. Nine percent of Gazprom's stock was set aside for foreign ownership.

Gazprom didn't go through the shares-for-loans stage, for several reasons. First, Chernomyrdin and company didn't want to lose control over the gas sector or introduce new competition that might weaken government control.²⁵ Second, the internal gas prices were too low and the sector considered too important to the economy to introduce market dynamics. Even after the 1998 crises, when the Russian government was looking for more cash, Russian President Yeltsin approved the sale of only a further 5% stake in Gazprom. Although foreign ownership of Gazprom stock was allowed to increase from its former limit of 9% to 14%, only a 2.5% stake was actually sold to Ruhrgas for \$660 million (the goal of this action was to establish a close liaison with the German company).

For most of the 1990s, Russia's new oil barons and their private money restructured oil operations to become more efficient than their state company equivalents. Part of their efficiency, however, was in significantly reducing tax revenues to the Russian state and moving large amounts of capital offshore. At the time, oil and gas prices were on the rise, but the Russian federal government's ownership in the oil and gas sector was limited to Rosneft (responsible for 5% of total Russian production) and a small share in LUKoil (about 7.6%). Including regionally-controlled companies, the government controlled only about 15% of total oil production. Moreover, the regional governments were highly independent and their policies often conflicted with federal rules (see Treisman, 1999). The government would have to look to gas to provide the much needed revenue.

²⁴ These new oil barons had no prior experience in the industry, but more important than experience, they had access to financial capital from private banks (which they owned and controlled) and close political connections to the Russian government.

²⁵ In 2000, the government owned 38% of Gazprom and the managers' official stake was around 35%, leaving about 20% in other, hidden hands. At least some of the hidden shares were likely also held by Gazprom insiders, and former Gazprom chairman and former Russian Prime Minister Viktor Chernomyrdin is rumored to be a major owner. (see Black, B., Kraakman, R., Tarassova, A., 2000)

Gazprom during the 1990s existed as a state within the state. The government was loyal to the gas monopoly, though there were a few attempts to change the situation. In 1992, the government of Prime Minister Yegor Gaidar tried to open the gas industry to competition, introducing for the first time the idea of establishing independent producing companies to supply gas to the centrally controlled gas transportation system. Gaidar ordered a review of Gazprom's foreign accounts (the government allowed the company to keep 38 percent of its currency earnings abroad). However, the “tail was smarter”, and Gazprom demonstrated its power as a lobbyist. After the audit by Gaidar was finished, Viktor Chernomyrdin became responsible for the oil and energy complex and was given the rank of vice-premier. Under Chernomyrdin, Gazprom was given exclusive rights to supply gas on the state's foreign contracts, and the company could keep 45% of the earnings from these contracts. The turnover on these operations was made tax exempt.

The defenders of the gas monopoly pointed to the very high degree of required technical integration between the different parts of the industry and the need to use central control to optimize the production and transmission of natural gas. These arguments, together with arguments about the gas industry's importance to the Russian economy and the non-payments problem, ensured the survival of the monopoly.²⁶

Gazprom became even more powerful when Chernomyrdin became prime minister at the end of 1992. In 1993 Boris Yeltsin signed a decree establishing a special stabilization fund for Gazprom. The company was allowed to divert up to one-third of the income it derived from the value added tax on gas to consumers into the fund (needless to say, the money directed to the fund was exempt from taxation).²⁷

In 1997, Boris Nemtsov became the first deputy prime minister and promised to split up Gazprom. There was some restructuring, but mostly to Gazprom's liking. All drilling enterprises within Gazprom were to be united under a specialized company, Burgaz, and production and transport companies were to delegate their sales functions to a limited liability company, Mezhhregiongaz.

One more attempt to take control from Gazprom took place in April 1997. Anatoly Chubais and Boris Nemtsov convinced President Yeltsin to terminate the trust agreement with Rem Vyakhirev, who managed the 35% state stake in Gazprom. Boris Yeltsin signed the decree while Prime Minister Viktor Chernomyrdin was on a two-day holiday. Once back from holiday, the prime minister promptly blocked the decree.

Russian oil and gas companies from the 1990s through 2004 could be classified as private, private with regional government influence, private with federal government influence, fully state-controlled companies, and Gazprom. Gazprom was *de jure* a partly state-controlled company, but *de facto* under control of a small group of bureaucrats.

²⁶ Gas exploration and distribution were handled by subsidiaries of Gazprom, though gas to end users was distributed by local gas distribution companies. Since most of the local gas distribution companies were controlled by local authorities, it was difficult to suspend gas supply on the grounds of unpaid gas bills. Thus, Gazprom provides “hidden subsidies” to customers by allowing non-payment of gas bills. Gazprom, in turn, delayed payments to budget and funds.

²⁷ In 1995 Anatoly Chubais, the first deputy prime minister and a promoter of a strict budget policy asked for the liquidation of the Gazprom stabilization fund and an investigation of its activities. In 1996 a tax scandal affected the relationship between Gazprom and the government: the accounts of some companies affiliated with Gazprom were frozen for tax arrears. The frozen property of Urengoigazprom amounted to about \$14 million.

The privatization of the oil sector was in truth only partial. The government retained control over the transportation and export of oil by holding all the voting stocks of Transneft (a monopoly operating and managing pipelines), through which over 95% of all Russian oil was transported. The export quotas and allocation rules remained under state control and practically unchanged from 1994-2000. Each oil company's quota was determined by the transport capacity of the Transneft system and the export production of the previous quarter. Until 2000, setting these quotas was the responsibility of the Ministry of Fuel and Energy, so political clout and favors were important in determining final allocations.

3.2 PetroKremlin: Renationalization of the Oil and Gas Sector

When Putin became president in 2000, the government didn't control the oil and gas sector as fully as it would have liked. Oil monies often circumvented the state budget and it was hard for Putin's government to control their flow. In addition, the new oil baron oligarchs became more involved in politics, and saw selling their companies' shares to foreign majors as a means of insulating their business from Russian bureaucracy. At the same time, world oil and gas prices started to climb. The new administration intended to take action, and it soon opened season on Russia's tycoons, beginning with ministerial changes.

In 2000, the Ministry of Fuel and Energy was restructured and became the Ministry of Energy. In the restructuring, the ministry lost a lot of its responsibilities to other state institutions. The responsibility of quota allocation was shifted to a special commission controlled by the vice prime minister. By March 2004, all former ministerial structures had been changed and divided. All federal ministries came under the direct jurisdiction of the president, and nine federal ministries were also placed under the prime minister's jurisdiction, including the new Ministry of Industry and Energy.

The Ministry of Industry and Energy became responsible for issuing resolutions and orders, but no longer had the right to make specific decisions, e.g., on issuing a license for a particular activity. Supervisory and control functions passed to the Federal Energy Agency (FEA). Thus, Putin separated the ministerial bureaucrats who determined the "interests of the state" from those in the FEA who actualized these interests. As a result, there were many conflicts of interest among the heads of agencies and services between and within the ministries. By 2004, the Russian Ministry of Industry and Energy had become a "Queen of England" functionary, a pure figurehead (only without the money of the English monarch). Direct management of state-owned energy enterprises had passed completely to FEA.

In 2000, the Kremlin sought greater control over Gazprom. A new chairman of the company's board of directors was elected, and Chernomyrdin was replaced by Dmitry Medvedev as the deputy head of the presidential administration. Medvedev was just the beginning, however, and 2001 became a turning point in the history of Gazprom. Rem Vyakhirev and his management team, which had been running the company for 10 years, were replaced by a new team from St. Petersburg headed by Aleksei Miller. Vyakhirev

lost the right to manage the state's stake in Gazprom.²⁸ All key financial posts were given to the St. Petersburg team. By May 2005, only three out of nineteen members of the earlier Management Committee remained.

The ownership changes in 2004-2005 involved moving fundamental control from the oil oligarchs and ex-soviet bureaucrats to the Kremlin's allies. The change of ownership was intended more as an economic turnover than anything else (compared to the "October Revolution" in 1917). Following "re-nationalization", the new oil actors, the so-called "St. Petersburg team", controlled almost 60% of oil production and nearly all gas production in Russia.

Re-nationalization was accompanied by a "merger mania" in Russia. The Kremlin sought to take over Surgutneftegas, Slavneft, at least half of TNK-BP, and the remains of Yukos, using the state giants Rosneft and Gazprom as the vehicles for consolidation.²⁹ An added benefit from the Kremlin perspective was that it could more easily control two consolidated oil and gas companies than many regional and private companies.

After taking Gazprom under the state control, Vladimir Putin signed amendments to the Federal Law "On gas supplies in the Russian Federation" allowing the government to have a controlling interest in the gas monopoly, by holding 50 % plus one share, while controlling the sale of Gazprom's shares to foreign investors.

However, liberalization of the shares did not mean that the government was ready to liberalize the gas industry itself. The goal was to establish discipline in the company's budgetary process and make financial transactions more transparent in order to attract foreign investment.

The Russian government still has good reason not to be interested in restructuring Gazprom. First, if the gas industry were to open itself immediately to competition, the income of the state budget might drop significantly, not a plus leading up to elections in 2008). Second, Gazprom has multibillion dollar credits and debts, and if the restructuring were to start now, the reaction of Western creditors could be difficult to predict. Last but not least, the low internal prices for gas, and the importance of gas for Russian consumers, make any decision to expose Gazprom to the market seem irrational to the public.

The latest example of how the legal machinery can be used in favor of Gazprom is the repeal of the anti-monopoly service's regulation so as to establish a legal basis for Gazprom being an absolute monopolist on Russia's gas market. The regulation that was restricting Gazprom from buying up gas assets has been invalidated in three instances

²⁸ His license expired and the Federal Commission on Securities postponed the issue of its prolongation indefinitely.

²⁹ The latest wave of oil companies' merging folded Russian oil and gas companies back under state control. The international majors were merging themselves, downsizing and outsourcing and not investing in new refineries. They knew that production was set to decline and that exploration opportunities were becoming fewer and fewer. These internationals in Russia had to sing to the stock market, so their mergers hid the collapse of the weaker company. On the state's side Gazprom and Rosneft were getting bigger for the same reasons – to look better for investors (though not because of lack of reserves as in the internationals' cases, but to conceal depleting fields and lack of investment).

recently. Now Gazprom is finally free to buy any Russian gas producing enterprise it pleases. There are no obstacles at present for Gazprom to set up a complete monopoly enterprise, not only on exports but also on the whole gas production system in Russia (Kommersant, 2007b).

Once Rosneft swallowed up the biggest private oil company (Yukos) and Gazprom bought Sibneft, the Kremlin gained control over a substantial portion of Russia's oil reserves (30%), and almost all of Russia's gas reserves and pipelines.³⁰ Although both companies are now controlled by the government, they are, according to many political analysts, associated with different factions in the Kremlin (the Liberals and the Silovikis). These factions have been competing for assets and access to pipelines. Thus, a cooperative agreement signed by Rosneft and Gazprom at the end of November 2006 seems less likely to be a contract about partnership than a nonaggression pact between rivals. It is perhaps an attempt to heal the rift between the two Russian state energy giants that has been slowing investment in the development of new fields. However, this is the companies' second attempt at cooperation; an earlier planned merger of Gazprom and Rosneft unwound in 2005 after Rosneft swallowed the largest production unit of the oil company Yukos.

Thus the relationship between Gazprom and the Russian state is rather complex and has changed over time. In the 1990s, Gazprom functioned as a state within a state and operated mostly in the interests of its management. The state was not able to control the gas giant either formally (most of the 38% of state shares were managed by Gazprom itself), or informally (Gazprom was a very successfully lobbyist). The government was by and large tolerant of Gazprom because the company supplied gas at very low prices to Russian consumers, and often without any payment at all. The Russian economy benefited from stable and inexpensive supplies of gas, and in return, Gazprom was able to exercise certain financial advantages like its privileged access to hard currencies from its exports. These funds to some extent allowed it to finance its own investments. Turning the organizational relationship between Gazprom and the state into informal networks allowed non-payments to be effectively managed and guaranteed the survival of enterprises throughout Russia.

Usually, the role of government is to develop policies to achieve long-term goals, but it must also deal with contrary short-term interests and short-term threats to political stability. The Kremlin is the political interface between society and Gazprom, and the Kremlin becomes particularly sensitive to the opinion of the electorate around presidential elections. Currently, nationalism in Russia is very popular (especially resource nationalism, which seeks to protect hydrocarbons from foreign hands) and popular political views will shape attitudes toward foreign investment. Thus, public opinion tends to exert political pressure on the government, which in turn reaches Gazprom.

Following a series of "gas wars" with CIS countries, which has undermined European confidence in Gazprom, the company wants to improve its image abroad. Gazprom planned to pay \$11 million in 2007 to PR firms headed by the PBN Company

³⁰ Yuganskneftegaz was delivered to Rosneft, though under original plan the company was supposed to be absorbed by Gazprom and Gazprom was supposed to merge with Rosneft. That deal fell apart, and the ostensible reason was Gazprom's aversion to the risk of litigation (informally, it was the struggle between different Kremlin groups).

for their services.³¹ Some analysts think the Gazprom campaign will be just part of a larger campaign by the Kremlin to improve its image in the West (Kommersant, 2007).

The political confusion between short- and long-term political interests can lead governments to embrace incompatible goals, like seeking greater revenue from the energy sector, while at the same time asking Gazprom to carry out social or political goals (for example, buying popular TV and radio stations or newspapers) that hamper its operations and increase its costs. Gazprom is an instrument of the state which helps the government achieve a number of policy objectives, even if these objectives conflict. This kind of institutional arrangement is most often used to ensure the survival of unprofitable enterprises, and therefore the protection of employment. In this sense, there is a fundamental institutional struggle between the government and Gazprom. Gazprom has technical and business expertise, but the government sets the rules of the game and determines whether, when, and how to introduce competition and invite foreign investment.

In 2000, Gazprom started to be re-aligned to act more completely as an agent of the Kremlin to pursue Russia's political interests and Putin's foreign policy. Gazprom's policy and the state interests began to march together. The Russian president is now in control of the energy giant, and his main priority is to reestablish Russia's status as a great power in a new world order.

Life has never been easy for foreign companies operating in Russia, and with the new legal changes it will be even harder.³² In order to be successful in Russia, a foreign company will need to be "big" and think "big", and perhaps more importantly, establish a joint venture with an existing Russian company. The risk of having to deal with the Russian state could be compensated, since the potential of Russia's oil and gas resources is much bigger than originally surmised. Usually investors buy when they feel greedy and sell when they feel scared. Russia may be one of the few countries where one will see foreigners buying on fear as opposed to greed.

The following section outlines the legal framework surrounding the Russian oil and gas industry; it covers the particular instruments that government typically uses to affect behavior in the economic sphere: regulation, taxes, and competitive policy.

³¹ Most likely, \$11 million (about 8% of Gazprom's 2007 PR budget) is a prepayment and the total expenses will be greater.

³² BP invested \$500 million in oil producer Sidanco in 1997 and four years later the asset had been mostly squeezed away, forcing BP to write off 40% of its outlay. BP stormed back in 2003 with an \$8 billion investment in a 50-50 joint venture with Tyumen Oil Co. (TNK). Today, TNK-BP contributes around 1 million barrels of oil per day net to BP, accounting for one-quarter of the UK super-major's total global production. In 2005 TNK-BP paid \$15 billion in taxes to the Russian government. Despite efforts to display an exemplary corporate governance record, TNK-BP recently got hit with a \$1.3 billion claim for tax arrears outstanding from 2002 and 2003. US major Marathon Oil failed to stay the course in Russia, leaving in 2006 three years after it bought a West Siberian producer for \$280 million and declared Russia to be a cornerstone of its future expansion plans. The compensation is that Marathon did not lose any money, having invested an additional \$230 million in its Khanty-Mansiysk fields before selling out to Lukoil for \$787 million. Marathon's adventure in Russia came unstuck because it failed to secure a joint venture with Rosneft giving the Russian state company access to Marathon's US downstream in exchange for access to production from Rosneft's upstream.

3.3 Russia's Oil and Gas Sector Tax System

The tax regime is one of the greatest concerns for foreign companies doing business in Russia. In 1999, Russia began to implement significant tax reform that was supposed to improve the procedural rules in favor of taxpayers. It reduced the overall number of taxes and has begun to reduce the overall tax burden (including through the elimination of turnover taxes).

In 1999, Part I of the new Russian Tax Code came into effect, having to do mostly with administrative and procedural rules. In 2002, the new profits tax and mineral extraction tax provisions of the Russian Tax Code took effect. However, certain provisions of the new Russian Tax Code were not immediately put into force, and a limited number of provisions of the old Tax System Law continued to apply until Part Two of the Russian Tax Code was enacted in full. Though this delay in implementation was explained as necessary to prevent potential conflict, it created confusion and uncertainty. Only in January 2005 was the old Tax System fully phased out.

Prior to 2002, the maximum profits tax rate for most businesses, including oil and gas companies, was 35%. Since 2002, the maximum tax rate for all companies has been reduced to 24%, which is payable at the rate of 5% to the federal budget, 17% to regional budgets (with a possible incentive reduction of up to 4%), and 2% to local budgets. However, the regional authorities may at their discretion, reduce their regional profits tax rate to as low as 12%, so the overall tax rates can vary from 20 to 24%.

Although Russia's tax system was in principle overhauled to simplify the tax regime, ease the fiscal load on taxpayers, and ensure stability for investors, the reality turned out to be quite different. Some analysts even say flat out that the tax reform has failed. At the very least, the Tax Code has not brought the long-awaited stability to business. Its provisions have become subject to non-stop amendments and revisions by the Duma and the Russian tax authorities.

In 2003, the Russian government reconsidered its approach with respect to various "tax optimization schemes" employed by Russian oil companies, and forced the legislature to amend the Tax Code to eliminate "tax havens". The tax authorities launched a campaign to collect underpaid taxes for 1999-2003 based on a new interpretation of the Tax Code. As a result, almost all businesses in Russia faced back-tax claims from the tax authorities for years 1999-2001 (more back-tax claims for 2002 and 2003 are expected). Quite often such claims were astronomical, as they included taxes due, late payment fees and other penalties. But since the claims were unreasonable, or arose as a result of changes in tax laws, most taxpayers either successfully challenged the claims or significantly reduced them.

The old Russian tax code was drafted with the help of major American accounting firms, and it was full of holes created by the uncertainty and lack of clarity of Russian tax law. One oddity of the Russian corporate income tax was that its revenues were dedicated to the Russian republics, with those republics in turn authorized to give tax "incentives" to corporations, ostensibly to encourage economic development.

Prior to 2003, there were a number of special tax zones within Russia (Ingushetia, Kalmykiya, etc.) where regional or municipal authorities had the right to provide tax

concessions and exemptions in return for investments in the respective region (see McIntyre, 2005). However this right was widely abused by corrupt officials. Presently, regional and local legislative bodies are no longer authorized to provide tax concessions, although regional authorities may still reduce their regional profits tax rate by up to 4%, thus reducing the overall tax rate to 20%.³³ Russian oil and gas companies are still able to significantly reduce their effective profits tax rate to under 20%, mainly through various exemptions and concessions remaining under regional and local laws and special tax regimes.

The actual tax burden on the gas industry was lower than the burden on the oil industry (see Ivanenko, 2002 and Gray, 1998b) for several reasons. Statutory tax rates were lower, and the tax structure does not adequately capture monopoly or resource rents for gas. Also there was less than full payment of tax obligations and a high share of non-cash settlements.³⁴ Some “accounting laundering” of Gazprom financials has been alleged as well. (An article in *The Economist* (see *The Economist*, 2002) reported that a foreign investing fund, Hermitage, sued PricewaterhouseCoopers for not revealing that billions of dollars of Gazprom assets were diverted to relatives of Gazprom managers.)

Until recently, Russian oil and gas companies almost universally employed transfer pricing between their production subsidiaries and their trading subsidiaries. The trading subsidiaries purchased oil and gas from the production subsidiaries at less than market prices, which they then turned around and sold at a considerable profit. A prime example is when Itera drained cash on the order of \$6 billion from Gazprom between 1997 and 2000 using the following scheme. Gazprom owed significant back taxes in the Yamal-Nenets region in northeastern Siberia and gave gas valued at \$2-\$4 per mcm to the tax authorities. Yamal-Nenets then contracted to transfer the gas at that same low price to gas trader Itera, which sold the gas on the CIS market at a competitive price, between \$30 and \$90 per mcm (see Moser, 2004).

The oil and gas companies in Russia stopped using internal transfer pricing as the industry came under much more strict governmental control. The reason for greater state control was not only economic (estimates of profits washed out of the country in the 1990s range from \$150 to 300 billion), but political as well (the Yukos case is a good example).

Facing declining oil and gas fields, the Russian government was preparing in 2006 to submit to the Duma a comprehensive package of long-term changes to tax laws. It included the amendments to improve tax administration, as well as to encourage oil production, index customs tariffs rates, and increase social payments as part of the income tax. The law applies a zero tax rate for mineral production in East Siberia and on the continental shelf. Plans are also in place to introduce a sliding coefficient for oil fields

³³ The republics where Yukos pumped and refined its oil weren't about to offer Yukos tax breaks as they already had the oil and the refineries trapped within their boundaries. But on the advice of its accountants Yukos found what it thought was a way around that problem: Yukos went to the Mordovia (Russian Republic) officials, and sought a tax break for its oil profits. Once Yukos got its tax exemption in Mordovia it simply transferred its profits, on paper, to that republic, and slashed its Russian income taxes down to near zero. All other oil companies in Russia applied the same approach.

³⁴ In 1998 Russian tax police seized the assets of two Gazprom subsidiaries in an attempt to boost revenue collection. Gazprom argued that it had not received sufficient support from the government in increasing payments from its domestic customers, and responded by cutting gas supplies to non-paying customers in St Petersburg and the Urals (the first time).

with cumulative production exceeding 80%. Lower severance tax could make their development cost-effective. Also excise payments would be switched to oil refineries.

The Russian government has discussed two possible options for a tax surcharge. Under the first option, the combination of a differentiated scale for the mineral extraction tax and for export tariffs on oil and oil products would be adopted. As an alternative, a fundamentally new taxation system for oil production companies is being considered. In this case, the present mineral extraction tax would be replaced with a taxation system that takes into account the amount of un-extracted oil reserves, where oil extraction rights granted under licenses would be considered when calculating the tax base. This is intended to encourage oil companies to accelerate the process of development and extraction of oil fields and to abandon fields not being developed by surrendering licenses. In addition, the Russian Government has decided that the oil and gas sector should be taxed based on the world market situation and market prices.

The Russian tax authorities have become a powerful instrument in the post-privatization “asset redistribution” campaign. In light of these developments in the Russian tax system and judicial practice, it appears that investors working in Russia should be very careful in dealing with the tax authorities. They are encouraged to be cooperative and avoid conflict with tax officials. Even a delay in providing answers to tax officials’ requests for information becomes potentially dangerous, and can be used to justify a denial of the rights and safeguards provided in the Tax Code.

3.4 Production Sharing Agreements (PSA) in Russia

Oil and gas companies extracting minerals under production sharing agreements (PSA) are subject to a special and completely different tax regime. The mineral extraction tax rate is set at US \$12 per ton of extracted oil and gas condensate. If the production level specified by the PSA has been achieved, the tax payable may be reduced by up to half, down to the marginal level of commercial extraction of oil and gas. Regional and local legislatures may exempt PSA contractors from the corporate property tax and the transport tax with respect to fixed assets and vehicles used directly for the purposes of oil and gas extraction under the terms of the PSA. At the same time, depending on the terms of the PSA, contractors may get a further refund of VAT, the unified social tax, payments for the use of natural resources and water objects, state fees, customs fees and duties, the land tax, the excise tax and the ecological tax previously paid to the budget under the PSA.

Completion of the PSA regime and its efficient implementation could in theory provide a mechanism to attract investment and bridge the gap while the Tax Code and investment laws are put in place. A key attraction of the PSA for foreign investors lies in the fact that it replaces energy-specific taxes, and eliminates many uncertainties about future tax as the division of profits between the company and the state becomes the subject of a contract.

The PSA chapter of the Tax Code was passed in February 1999, but necessary regulations to implement the PSA remained incomplete even a few years later. In order to reduce the uncertainties associated with PSAs, a presidential decree was issued to the effect that PSA projects would henceforth be handled by the Ministry of Economic

Development and Trade and not dispersed among three ministries as before. The decree was not put into effect until February 2001, and the consolidation of control reportedly led to further delays.

The mid-1990s saw the start of PSA projects with international firms: Sakhalin-1 in 1995; Sakhalin-2 in 1994; and the Kharyaga project in 1995. Foreign companies such as ExxonMobil, Royal Dutch/Shell, and Total of France led the way in developing these oil and gas projects. The first oil produced by PSA projects was in 1999, from Sakhalin-2 (owned by Sakhalin Energy Company) and Kharyaga (Total-Elf/Norsk Hydro).³⁵

But Russian oil companies believed that PSAs gave foreign firms a competitive advantage. After intense lobbying efforts by domestic producers, the PSA structure was relegated to a small list of fields approved by the State Duma. In 2001, several senior members of the Russian government complained that the first two PSA projects on Sakhalin proved to be disadvantageous for the Russian side (the Natural Resource Minister has been the most explicit opponent of PSAs). Warnings about environmental damage incurred at existing PSA deposits have been issued, although in Russia protection of the environment had never been a major consideration during oil or gas exploitation.³⁶

In 2002, the Duma gave initial approval for twenty-two fields for development under the PSA regime. However, as of 2004, it appeared that only the three grandfathered PSAs were in operation (Sakhalin 1, Sakhalin 2 and Kharyaga). These three covered only 1.3% of proven oil reserves, and 0.7% of proven gas reserves (see Bush, 2004). Another four PSA projects were considered likely to obtain permission: Prirazlomnoye (Gazprom and Rosneft); Shtokmanovskoye (Gazprom and Rosneft); Yamalo-Samursky (LUKOIL); and the Tsentralny blocks (LUKOIL, Gazprom, and KazMunaiGaz

Despite many positive statements in 2001 and 2002 about the need to further PSA legislation, in many respects there has been little forward movement. One of the most controversial issues with PSA projects has been the use of domestic employees (a minimum of 80% of all staff) and of domestically manufactured equipment (70%). The PSA may not involve more than 30% of the registered recoverable reserves, and each site needs to be approved by the State Duma. Also, more than a thousand separate approvals are needed to launch a PSA – as a result the process can take years (for Sakhalin-2 it took three years).

At the end of January 2004, a government commission on the implementation of the PSA annulled the results of the 1993 competition for the right to develop the fields of Sakhalin-3. (ExxonMobil and Chevron Texaco, which planned to operate under PSA terms, had won the tender.) At present, the Ministry of Natural Resources of Russia is proposing to put Sakhalin-3 on the list of fields with restricted access by foreign investors.

³⁵ Kharyaga had only 10% Russian participation and Sakhalin-2 has zero, although Gazprom is negotiating for 25% plus one share. A Russian official involved blames French Total for dragging its feet over the development of the Kharyaga field and also recommends that the Russian shares in PSAs should be raised to a minimum 51%.

³⁶ Citing damage to salmon-bearing rivers on Sakhalin Island, in September 2006 the Russian government withdrew environmental approval for Royal Dutch Shell's Sakhalin-2 liquefied natural gas project.

In September 2006, Russia's Ministry of Natural Resources decided to annul an environmental permit for a \$20-billion oil and gas project led by Royal Dutch Shell PLC. This was the result of a determination by the Russian General Prosecutor's office that the permit for Phase-2 of Shell's project to develop the oil and gas deposits of Sakhalin-2 was at odds with Russian law. At the same time, Russia's Ministry of Natural Resources announced that it has the ability to cancel the production licenses for any of Russia's three PSAs. The licenses can be pulled on the grounds that the companies are not meeting the technical and environmental specifications. It is still unclear whether the latest decisions are a limited attempt to force Gazprom into the Sakhalin-2 project, or whether they signal a more sweeping revision of PSA deals.

On October 9, 2006, the head of Gazprom, Aleksei Miller, said that his company would develop the Shtokman field without foreign partners, and that it would remain its sole user and owner. The company's priority will be to supply gas via the Nord Stream (the new title for the North European Gas Pipeline) to Europe rather than deliver LNG to the United States. Previously, Gazprom had planned to develop the deposit on the terms of the PSA, and the short list of prospective participants had included Statoil, Hydro, ConocoPhillips, Chevron, and Total. Europe obviously benefits from the decision on Shtokman, so there was little international response to it. Washington merely characterized it as "resource nationalism". (LNG supplies from the Russian deposit would have accounted for only 3% of the US market).

It would seem that economic reasons are largely behind the current changes in attitude toward the PSAs. When the first PSAs were launched, the arrangement was seen as the only possible way of exploring Russia's huge deposits, because Russian companies did not have the billions of dollars needed for investment. With high oil and gas prices, PSAs are no longer necessary for Russia. At an oil price of \$65 per barrel, the Russian government's revenues from Sakhalin-1 are estimated at about \$37.8 per barrel under a 50/50 PSA arrangement and \$45.6 under current tax regulations. (The disparity is even greater at higher oil prices.) According to the Sakhalin-2 PSA, the Russian government starts receiving its share of revenues only after Sakhalin Energy Investment Company has recovered its costs with a 17.5% real rate of return.³⁷ Even at this point, the Russian government receives only 10% of the revenues for two years, then 50% once SEIC has achieved a 24% real rate of return (see Rutledge, I., 2004). It is little wonder that PSAs are out of favor when Russia can extract immediate windfalls under current tax rules in current market conditions.

The level of government support for the PSA framework depends largely on the state of international oil and gas prices, the tax regime, and the economic situation in Russia. If prices fall, or if the tax regime worsens, or the Russian economy appears in danger, Russia will probably take a longer-term view of PSAs and see them in a more positive light.

3.5 The New Subsoil Law

Foreign investment in the Russian oil and gas sector is being held back by a political reorientation that could best be described as "resource nationalism". The Russian people, by a large majority, support Putin's re-nationalization of oil and gas, assuming

³⁷ SEIC is a consortium consisting of Shell, Mitsui and Mitsubishi

that criminals and foreign oil companies are likely to plunder Russia's rich reserves, take the money and run, and leave the Russian people with nothing. The new attitude about PSAs is one aspect of this "resource nationalism" phenomena. The new Subsoil Law may represent an even broader pattern of resource re-nationalization or redistribution of wealth.

The Law "On Subsoil" of February 21, 1992 established the regime for oil and gas exploration and production in Russia. The Federal Law "On Gas Supply in the Russian Federation" of March 31, 1999, and the Federal Law "On Natural Monopolies" of August 17, 1995, along with the 1992 Subsoil Law created a regulatory framework for natural gas exploration, production, transportation, storage and supply. Subsoil laws also include the Federal Law "On Production Sharing Agreements" of December 30, 1995, as well as corresponding parts of the Federal Law "On Internal Waters, Territorial Sea and the Contiguous Zone of the Russian Federation" of July 31, 1998, the Federal Law "On the Continental Shelf of the Russian Federation" of November 30, 1995, and the Federal Law "On the Exclusive Economic Zone of the Russian Federation" of December 17, 1998.

On June 17, 2005, the Russian government submitted to the State Duma a new draft Subsoil Law. If adopted, this new law would substantially modify the established regime. The Ministry of Natural Resources of the Russian Federation at the time stated its expectation that the new draft Subsoil Law, together with the implementation regulations, would come into effect in 2006. (At the time of this writing the new Subsoil Law has still not been implemented.) In addition, in July 2005 the Ministry of Natural Resources submitted to the Russian government for consideration amendments to the existing Subsoil Law. The amendments propose to restrict the participation of Russian companies controlled by foreigners in auctions for certain "strategic fields". The existing Subsoil Law contains no restriction on foreign companies directly or indirectly holding a subsoil license.

According to the most recent draft of the new Subsoil Law, only Russian-incorporated companies could hold a subsoil license. They could be partly owned by foreign companies, except in the specific case of fields defined by the government as restricted ("strategic"). In this context, the most important issue is the continuing debate around the definition of "strategic" fields. There would be the following fixed criteria for determining such fields: oil deposits exceeding 150 million tons, and gas deposits exceeding one trillion cubic meters (Tcm). The designation of offshore deposits as "strategic" would be done more cautiously, in recognition of Russia's special need for foreign investment and technology for opening up these difficult areas. Furthermore, the "strategic" status is to be given only to unallocated reserves, with protection afforded to existing licensees (including those controlled by foreigners), who through exploration at their own expense discovered what could otherwise be classified as strategic.

MNR has already named a few specific fields and mineral deposits that are likely to be classified as strategic: the Titov and Trebs oil fields in Timan-Pechora, the Chayandinskoye gas field in Sakha-Yakutia, and the Sukhoi Log gold deposit (Irkutsk Oblast) and the Udokan copper deposit (Chita Oblast). If this list was intended to be complete, it is considerably narrower than what might have been expected. Here again, informed interpretation will have to await further concrete legislative development.

It has been further proposed that the mineral resource field restrictions be treated separately from investments into other 'strategic sectors' – the latter case apparently to be regulated by a new Law on the “Manner of Carrying Out in the Russian Federation Direct Investments in the Charter Capital of Commercial Organizations Having Strategic Importance for the National Security of the Russian Federation”.

Before amendments to the Subsoil Law were added, exploration licenses were typically granted for up to five years, while production licenses were granted for up to 20 years. Though currently the maximum exploration term is still five years in the new version of the law, the production term may be as long as is required for rational full exploitation of the deposit. In practice, however, production licenses are still generally issued for 20 years.

The major difference between the draft of the new Subsoil Law and the old Subsoil Law is that the new law establishes federal ownership of all mineral and hydrocarbon resources and clearly delineates the powers of the federal and regional authorities to dispose of these resources. The regional authorities have the right to dispose of common minerals and sections of what lies underground in their regions. All other parts of what lies underground -- hydrocarbon resource deposits, solid mineral deposits, and shelf sections -- come under Federal authority.

The second fundamental innovation in the new law is that it establishes a gradual move from license-based mineral use to civil law contracts. Additionally, a mineral resources consumer must get the “liability and third party insurance for and against any and all damages, including those to the deposit and the environment”. The new law will also require an annual audit of the deposit cost evaluation and licensing. The Government will establish the audit procedure, and the mineral resource consumers must document the results of such audits in their accounting documentation.

This exotic idea to replace the licenses with contracts sets much more stringent requirements on mineral resource consumers, and in a number of cases this law increases the risks for companies developing minerals deposits. The Government is proposing to classify certain minerals as “strategic raw materials”, so the state may claim priority in obtaining them. This element of the Law could serve as the first step on the way to establishing a state monopoly on oil and gas recovery.

The Government sets limits on the sizes of deposit areas and on the number of licenses per one company. Mineral resources consumers may be denied participation in a tender or an auction if in debt to the state budget, or in default of certain obligations under the previously issued licenses, or if a license of such mineral resources consumer has been recalled less than two years prior to the tender or the auction in question.³⁸

Thus, according to the draft of the new law, the Government will have a regulation which will make the revocation of a license essentially risk-free for the authorities. It will also give the bureaucracy an opportunity to appoint a “friendly” investor without any competitive bidding to operate the field for a whole year. Some

³⁸ A subsoil license may be revoked if: there is an immediate danger to human health due to the operations in the field, there is a violation of the essential terms of the subsoil license, there is a state of emergency, the licensee fails to commence operations within the time stated in the subsoil license, or the licensee is liquidated. Thus, a license of any company may be recalled even for minor defaults.

analysts argue that this regulation is included in the law only with one purpose: to create legal background for massive transfer of licenses to “friendly” investors.

The proposed new restrictive legislation and Russia's Subsoil Law has been under debate in the Kremlin and Duma for over a year now. In February 2007 the Russian government gave initial approval to a long-awaited draft. Draft legislation prepared by the Ministry of Industry and Energy restricts access to 40 industries, including the aerospace, nuclear and military sectors and natural monopolies. When the new law might finally become effective is still unclear.

Conclusion

Gazprom is the world's leading producer of gas and the biggest Russian company by market capitalization. Gazprom has grand ambitions to become a global, vertically integrated energy company occupying a leading position on the world market. The company wants to compete with the majors on their own territory by developing upstream and downstream activities overseas.

The main financial objective of Gazprom has been to increase its stock price, and so far it has done so very successfully. Moreover, there is a potential for improvement. When comparing Gazprom to IOCs on the basis of market capitalization per barrel of proven reserves, Gazprom looks like an incredible deal. However, there are a lot of reasons to believe that the situation is not as good as it looks. To some degree, Gazprom behaves more like an instrument of state than a profit seeking firm.

The problems currently facing Gazprom are many and significant. On the one hand, questions are still being asked about the capacity of Gazprom to face up to the considerable investment needed to renew the major gas deposits developed during the Soviet days. Gazprom is already heavily indebted, while the profitability of its domestic market sales has still to be improved. On the other hand, the progressive deregulation of the European gas market, Gazprom's principal export market, most likely will bring significant changes to future long-term gas contracts.

The company is still managed as "a Soviet enterprise". An archaic system of distribution and consumption of gas (including the lack of meters), along with continuing under-investment in infrastructure, give little grounds for optimism. Indeed, there is a threat of energy catastrophe in this energy "super-state": Gazprom's production is stagnant, the biggest fields are in decline, investments are insufficient and costs are rising. The growth in the company's market value, which has been driven primarily by rising gas prices and the low level of Gazprom's initial market value, may be masking more fundamental long-term problems.

Gazprom's primary activity is selling natural gas in Europe at competitive market prices, and subsidizing low energy prices domestically (price ratio of roughly five to one). The low internal gas prices in Russia are a big problem, as they make gas sales inside the country unprofitable. But increasing gas prices in Russia could put the economic growth of the state at risk. The only competitive advantage of Russia's inefficient economy is cheap gas and electricity.

Where Gazprom as a company ends and Gazprom as a tool of the state begins is a purely rhetorical question. For example, the Russian government has taken a stand against the European Energy Charter and its Transit Protocol because it will reduce Gazprom's monopoly powers. The export monopoly benefits the state by guaranteeing the Kremlin's control over what has become Russia's most powerful foreign-policy tool. The business decisions of Gazprom often have a political context. For example, the decision to build one or two gas pipelines to China rather than a liquefied natural gas plant was the Kremlin's political choice. The bluster in negotiations with the former Soviet republics has some political context as well.

The price of oil and gas rarely figures explicitly into the political strategy, but surely it is a very important driving force. When prices were low in the 1990s there was less reason to try to control Gazprom, while at the same time there was an urgent need for outside capital. Thus, the government was interested in PSA contracts. It was the combination of Putin's rise in the Kremlin (with a state-controlled “champions” model of industrial development) and high energy prices (which created the revenues for Russia) that made the strategy of asserting control over Gazprom feasible and attractive. On the other hand, if oil and gas prices were to go down in the future, the Kremlin’s internal and foreign policies would likely change again.

At present, Gazprom faces significant obstacles to becoming an efficient company. The company has the potential to improve operations substantially. However, the future of Gazprom is uncertain, as it depends not only on the company’s effort, but also on political and economic uncertainties, such as world oil and gas prices, the economic and political situation inside Russia, and the government’s foreign policy priorities. If the main driving forces for Gazprom’s decision making continue to be predominantly political rather than business oriented, it will be hard for Gazprom to reach its ambitious goals.

References

- BEA (2007), Bureau of Economic Analysis, U.S. Department of Commerce, National Economic Accounts, <http://www.bea.gov/national/index.htm>
- Berkowitz, D., Semikolenova, Y., Privatization with Government Control: Evidence from the Russian Oil Sector, Department of Economics, University of Pittsburgh, Pittsburgh, PA, January 26, 2006
- Black, B., Kraakman, R., Tarassova, A., (2000), Russian Privatization and Corporate, 52 Stanford Law Review 1731-1808 (2000), <http://www.worldbank.org/research/inequality/pdf/black.pdf>
- BMI (2005), Business Monitor International, on-line
- BP (2006), Statistical Review of World Energy 2005, BP p.l.c., 2006
- BP (2007), Statistical Review of World Energy 2006, BP p.l.c., on-line <http://www.bp.com/productlanding.do?categoryId=6842&contentId=7021390>
- Britvin, O.V. (2006), The report of the first vice-president of Board The Russian Open Society UES of Russia, About measures on perfection of fuel policy in electric power industry for the period till 2015 (in Russian), Из доклада первого заместителя Председателя Правления ПАО "ЕЭС России" О.В.Бритвина "О мерах по совершенствованию топливной политики в электроэнергетике на период до 2015 года.", on line <http://www.rao-ees.ru/ru/news/speech/confer/show.cgi?280300britvin.htm>
- Bush, K. (2004), Russian Economic Survey, December 2004, U.S.-Russia Business Council, on-line: <http://www.russiaexpert.net/RussianEconSurvey2004.doc>
- CBR, The Central Bank of the Russian Federation, Balance of payments of the Russian Federation for various years, on-line: http://www.cbr.ru/eng/statistics/credit_statistics/
- Economic liberalization and integration policy: options for Eastern Europe and Russia, New York : Springer, 2006
- The Economist (2002), Russian audits: Brother's keeper?, The Economist, April 18th 2002
- EGM (2006), European Gas Markets, 28 February 2006, p.14-15
- European Commission (2000), Green Paper – Towards a European Strategy for the Security of Energy Supply, Luxemburg: Commission Document COM.
- ExxonMobil (2007), 2005 Financial & Operating Review, on-line: http://www.exxonmobil.com/Corporate/Files/Corporate/fo_2005.pdf
- Financial Times (2002), Jack, A., Gazprom launches Sibur bankruptcy proceedings, February 11, 2002

Fredholm, M. (2005), The Russian Energy Strategy & Energy Policy: Pipeline Diplomacy or Mutual Dependence?, Working Paper, Conflict Studies Research Centre, Russian Series 05/41, September 2005.

Gazprom Annual Report, various years, on-line:

http://www.gazprom.com/documents/Annual_Report_Eng_2004.pdf

http://www.gazprom.com/documents/annual_eng.pdf

http://www.gazprom.com/documents/gazprom_eng.pdf

Gazprom Financial Report, various years, in Russian, on-line:

КОНСОЛИДИРОВАННАЯ ФИНАНСОВАЯ ОТЧЕТНОСТЬ,

ПОДГОТОВЛЕННАЯ В СООТВЕТСТВИИ С

МЕЖДУНАРОДНЫМИ СТАНДАРТАМИ

ФИНАНСОВОЙ ОТЧЕТНОСТИ (МСФО)

http://www.gazprom.ru/documents/IFRS_2005_rus.pdf

http://www.gazprom.ru/documents/IFRS_2004_rus_240605_final.pdf

http://www.gazprom.ru/documents/IFRS_2003_rus_300604_final.pdf

Gazprom (2005a), Gazprom in Figures, 2000-2004, Gazprom, 2005, on-line,

Gazprom (2005b), Annual Report 2005, on-line:

http://www.gazprom.com/documents/Annual_Report_Eng_2005.pdf

Gazprom (2006), Management's Discussion and Analysis of Financial Condition and Results of Operations, Gazprom, 2006, on-line

http://www.gazprom.ru/documents/MDA_eng_1Q_2006.pdf

Gazprom (2007), Gazprom, the Open Joint-Stock Company, on-line:

<http://eng.gazpromquestions.ru/page4.shtml>

Gray, D. (1998a), Tax Reform in Russia and Other Former Soviet Union Countries, Finance & Development, September 1998, p. 31-34

Gray, D. (1998b), Evaluation of Taxes and Revenues from the Energy Sector in the Baltics, Russia, and Other Former Soviet Union Countries, International Monetary Fund, Working Paper 98/34, 1998

IEA (2002), World Energy Outlook 2002, International Energy Agency, Paris, 2002

IEA (2004), World Energy Outlook 2004, International Energy Agency, Paris, 2004

IEA (2006), Optimizing Russian natural gas: Reform and Climate Policy, International Energy Agency, Paris, 2006

Ivanenko, V. (2002), Statutory Tax Burden and Its Avoidance in Transitional Russia, University of Western Ontario, Department of Economics, Working Paper,

http://economics.uwo.ca/econref/WorkingPapers/researchreports/wp2002/wp2002_7.pdf

Janssen, E. (2005), Can Russian Oil Growth be Sustained? , Briefing Paper, Clingendael International Energy Programme, October 2005,
http://www.clingendael.nl/publications/2005/20051000_ciep_briefing_russian-oil.pdf

Juurikkala, T. and Ollus, S-E. (2006), Russian energy sector – prospects and implications for Russian growth, economic policy and energy supply, BOFIT Online 2006 No. 4 , <http://www.energia.fi/attachment.asp?Section=2122&Item=19083>

Kommersant (2006a), Grib, N., The monopolist will keep absorbing Russia's natural gas resources, "Газпром" поздравили с днем месторождения: Монополист продолжит поглощать газовые ресурсы страны (in Russian), Kommersant.ru, 11–20–2006, on-line: <http://www.kommersant.ru/doc.html?DocID=723023&IssueId=30256>

Kommersant (2006b), Grib, N., Skornyakova, A., Skorlygina, N., Chinese Go for the Resources, March 22, 2006, on-line: <http://www.kommersant.com/page.asp?id=659597>

Kommersant (2006c), Grishkovets, E., Grib, N., Kornysheva, A., Coming In with the Coal, President changes strategy, October 20, 2006,
http://www.kommersant.com/p714916/new_gas_RAO/

Kommersant (2007a), Gazprom to Launch Major PR Campaign, January 16, 2007, on-line: <http://www.kommersant.com/p734218>

Kommersant (2007b), Gazprom Free to Buy Up Russian Gas Producers, January 15, 2007, on-line: http://www.kommersant.com/p733954/r_500/Gazprom_Gas_Production/

Komori, G. (2005), Issues Involved in the Russian Crude Oil Transportation System and the Role of the State-Owned Pipeline Company, Transneft, The Institute of Energy Economics, Japan, IEEJ: August 2005, <http://eneken.ieej.or.jp/en/data/pdf/292.pdf>

Lane, D. (1999), The political Economy of Russian Oil, edited by David Lane, Oxford, England, 1999

Locatelli, C. (2003), The Viability of Deregulation in the Russian Gas Industry, Journal of Energy and Development, 28, 2003, pages n. 2, pp. 221-38

McIntyre, R. S. (2005), Tax Cheats and their Enablers, Citizens for Tax Justice, Working Paper for Economic Policy Institute Tax Enforcement Forum, April 12, 2005

Moscow Time (2006), Winter Energy Crunch Looming, Simon Shuster and Miriam Elder, Moscow News, November 9, 2006

Moser, N. (2004), Transfer Pricing and Calculating Russian GDP, Moscow Times, June 10, 2004

Murrell, P. (2001), Assessing the value of law in transition economies, edited by Peter Murrell, University of Michigan Press, c2001.

NGV (2007), Oil and Gas Vertical, Нефтегазовая Вертикаль, on-line:
http://www.ngv.ru/shownews_en.aspx?newsID=100672

NYT (2006), The Business of Russia, Putin's Long Reach: Workers' Paradise Is Rebranded as Kremlin Inc. By Kramer, A.E. and Myers, S.L., The New York Times, Published: April 24, 2006

OECD (2004a), Russian Federation: Progress and Reform Challenges, Organization for Economic Co-operation and Development, Paris, 2004.

OECD (2004b), OECD Economic Surveys: Russian Federation, Paris: OECD, 2004.

OECD (2006), OECD Economic Survey: Russian Federation 2006, Organization for Economic Co-operation and Development, 27th November 2006

Quasto, O., Locatelli, C. (1997), Russian natural gas policy and its possible effects on European gas markets, Energy policy, 1997, vol. 25, no2, pp. 125-133

RIA Novosti (2006), Opinion & analysis, RIA Novosti economic commentator Vasily Zubkov, Why Russia has a gas shortage, 17/ 11/ 2006, on-line:
<http://en.rian.ru/analysis/20061117/55747646.html>

Robinson West, J. (2005), The future of Russian energy, The National Interest, Jun 1, 2005

Rosefielde, S.(2005), Russia in the 21st century : the prodigal superpower, Cambridge, UK ; New York : Cambridge University Press, 2005

Reuters (2007), Oil & Gas - Integrated: Company Rankings, on-line:
<http://www.investor.reuters.com/business/BusRankingsCompanies.aspx?showallrows=1&target=%2fbusiness%2fbussecindustry%2fbussecindfake%2fbusrankcomp&industry=OILINT&rankcategory=8>

Russia Profile (2006), Economy & Business, on-line:
<http://www.russiaprofile.org/resources/business/index.wbp>

Russian Energy Strategy (2003), in Russian, Энергетическая стратегия России на период до 2020 года, on line: <http://www.gazprom.ru/documents/strategy.doc>

Rutledge, I., (2004), The Sakhalin II PSA –a Production ‘Non-Sharing’ Agreement, Analysis of Revenue Distribution, November 2004, Sheffield Energy & Resources Information Services (SERIS)

Sayenko, V. (2005), Presentation, 3rd International Conference on Mergers, Acquisitions and Licenses in the Russian Oil and Gas Industry, Moscow, 30-31 May 2005.

Stern, J.P. (2005), The Future of Russian Gas and Gazprom, Oxford University Press, New York, 2005

Ter-Sarkisov, R. M. (2004), The current situation and perspectives of Russian gas industry, Presentation on Fourteenth Session of the Working Party on Gas, UNECE, Geneva, 20-21 January 2004 <http://www.unece.org/ie/se/pp/gas/wpnrul.pdf>
<http://www.unece.org/ie/se/pp/wpgas.htm>

Treisman, D. (1999), After the Deluge: Regional Crises and Political Consolidation in Russia, University of Michigan Press, 1999.

Vedomosti (2006), Alexander Bekker, The gas price-list, Газовый прейскурант, Ведомости, 2006/11/21, in Russian, on-line:

<http://www.vedomosti.ru/newspaper/article.shtml?2006/11/21/116160>

Victor, N.M and Victor, D.G, (2006), Bypassing Ukraine: exporting Russian gas to Poland and Germany, in Natural Gas and Geopolitics: From 1970 to 2040, Cambridge University Press, 2006, pp. 122-169

WB (2004a), Russian Economic Report, no. 7, 2004a, World Bank, www.worldbank.org.ru,

WB (2004b), From Transition to Development: A Country Economic Memorandum for the Russian Federation, Draft, 2004b, World Bank, www.worldbank.org.ru.

WB (2006), Key Development Data & Statistics, The World Bank, 2006, on line:
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20535285~menuPK:1390200~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>

World Oil (2006), Vol. 227, No.9, September 2006

WEO (2007), World Energy Outlook 2007 - China and India Insights, The International Energy Agency, 2007

Appendix 1. The Early History of the Russian Oil and Gas Sector

State domination in the oil and gas sectors of Russia was not how the story began. The first oil well in the world was drilled in 1846 at Bibi-Aybat near Baku (at that time part of the Russian Empire), and this event marked the birth of the modern-day oil industry. By 1913 there were 3500 wells in Baku area. The changes in oil production technologies and commercial development brought institutional changes. In the 1870s, a new relationship between the Russian government and the oil producers was established. Until the 1870s, there were no significant changes in the farming system for exploiting the oil reserves. Oil field land could be rented under certain conditions from khans (the historic owners) for temporary use (usually 5 years). The leaseholder had the right to export oil, and had an obligation to pay a fixed price to the khan and thereafter to the treasury of the Russian state.

The new rules were ratified when large-scale oil production began in Baku. According to these rules, farmed oil reserves were to be transferred to individuals by auction. The old system was replaced by introducing two laws: the “Law on Oilfields and Liability for Excise Tax on Oil Products” and the “Law on the Auction Sale of Oilfields Belonging to Leaseholders to Private Person”. Then, the new Directorate of the Mining Industry was formed and the oilfields were grouped and sold to private individuals.

The end of the farming system brought a decisive change to the entire oil industry. The demand for oil started an “oil fever” that observers compared only with the gold fever in the Klondike. Intensive exploitation of the Baku oil fields started, creating a large flow of capital for the foreign oil companies. Within a short period of time, departments and representatives of Swiss, English, French, Belgian, German, and American firms were established in Baku, the most famous among them the firms of the Nobels and the Rothschilds.

The Rothschild family and the Nobel brothers played a major role in the development of the oil industry in Baku, and the industry grew rapidly: oil production in Russia tripled between 1890 and 1900, and the Russian Empire accounted for over 40% of global production in 1900 (see Figure A1). Shell Transport & Trading, which later became part of Royal Dutch/Shell, began life by ferrying oil produced by the Rothschilds to Western Europe.

At the second half of the 19th century, Russia began to discover oil fields in other parts of the country. In 1864, a well was drilled in Krasnodar Krai (the northern Caucasus). Later the first oil well was drilled on the banks of the river Ukhta (Komi republic), and commercial production on the Cheleken peninsula (Turkmenistan) was started in 1876. The rapid development of oil production was accompanied by the construction of various plants for processing crude oil, along with a lubricants plant.

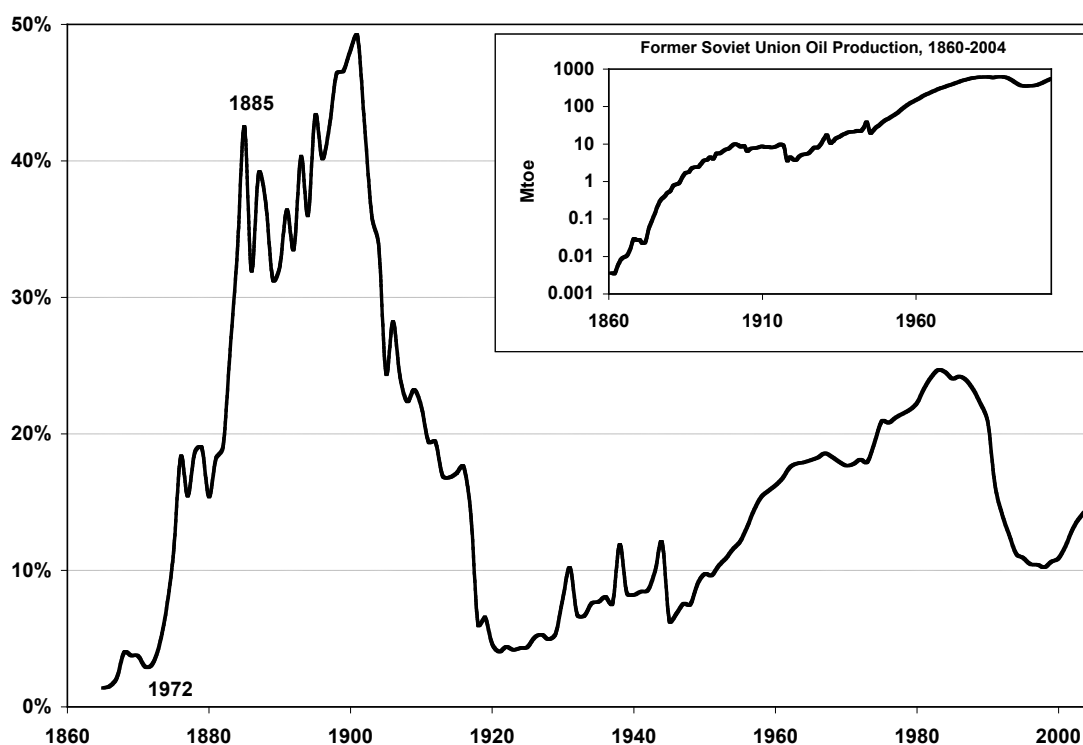


Figure A1. Share of the Former Soviet Union in Global Oil Production, 1865-2004

The revolution in Russia, civil war and political instability had a huge impact on the industry. Azerbaijan with its oil reserves was very important for Lenin's ambitious plans, and on April 27, 1920, the Russian Red Army crossed the border of Azerbaijan and began to move towards Baku. The first thing the Red Army did after the victory was to deliver oil and oil products to Russia. This intervention was declared as "the socialist revolution of the workers and peasants". Azerbaijan lost its independence and all its private property (including oil wells and factories).

The Nobels sold a significant part of their Russian assets to Standard Oil of New Jersey, which was later to become Exxon. Standard Oil protested the decision to nationalize the oil fields and refused to cooperate with the new Soviet government, but other companies (for example, Vacuum and Standard Oil of New York) invested in Russia.³⁹ The development of the oil industry was very important for the Soviet Union and continued after the establishment of the Soviet power. The Caspian and North Caucasus remained the center of the Soviet oil industry until World War II, and the continued inflow of foreign investments helped Russian oil production to recover. By 1923, oil exports had climbed back to about their pre-revolutionary levels.

Caspian oil production once again slowed down during World War II, but began to pick up after the end of the war. It reached a record high of some 850 thousand barrels a day in 1951. Baku remained the center of the industry, but at the same time, Soviet planners began to accelerate development of the Volga-Urals region, as fields in this region were close to existing transportation infrastructure, and the geology was favorable.

³⁹ Standard Oil of New York later becomes Mobil

By 1950, the new fields accounted for 45% of Soviet oil production. The growth in production allowed the USSR to begin increasing exports of oil. The Kremlin was keen to maximize hard currency earnings from oil exports, and by the early 1960s, the Soviet Union had replaced Venezuela as the second largest oil producer in the world. The arrival of lots of cheap Soviet oil on the market forced many Western oil companies to cut their posted prices for Middle Eastern oil, thus reducing royalty revenues for governments of the Middle East. This dynamic was one of the driving forces behind the formation of OPEC.

Appendix 2. List of major companies with full or partial Gazprom ownership
(as of July 1, 2006)

100% ownership	Ownership above 50%	Ownership 50% and less
1. Astrakhangazprom	1. Brestgazoapparat	1. AVTOGAZ
2. Bashtransgaz	2. Centrenergogaz	2. ArmRosgazprom
3. Burgaz	3. Dialoggazservis	3. Azot Agrichemicals Corporation
4. Ecological and Analytical Center for the Gas Industry	4. Ditangaz	4. Belgazprombank
5. Gazexport	5. Druzhba	5. BSPS B.V. (Blue Stream Special-Purpose Company)
6. Gazflot	6. Electrogaz	6. Caspian Oil Company
7. Gazkomplektimpex	7. ForaGazprom	7. Eesti Gaas
8. Gaznadzor	8. Future Fatherland Fund	8. EuRoPol Gaz
9. Gazobezopasnost	9. Gazenergосervis	9. Gas-Oil
10. Gazoenergeticheskaya Kompaniya	10. Gazcom	10. Gasum
11. Gazpromavia	11. Gazmash	11. Gaz-Agro-Friport
12. Gazpromenergo	12. Gazprombank	12. Gazavtomatika
13. Gazprom Finance B.V.	13. Gazpromgeofizika	13. Gazpromtrans
14. Gazprom UK Ltd.	14. Gazprom нефт	14. Gaztransit
15. Gazprominvestarena	15. GazpromPurInvest	15. Gaz-Truby
16. Gazprominvestholding	16. Gazpromtrubinvest	16. Horizon Investment Company
17. Gazpromokhrana	17. Gaztelekom	17. Imperial Bank
18. Gazpromrazvitiye	18. Gaztorgpromstroy	18. Interconnector (UK) Limited
19. Gazpromstroyengineering	19. Gazstroydetal	19. International Gas Transportation Consortium
20. Gazsvyaz	20. Giprogaztsentr	20. Interprivatizatsiya International Fund
21. Informgaz	21. Giprospetsgaz	21. Intest Insurance Company
22. Informgazinvest	22. Krasnodargazstroy	22. IVECO-URALAZ
23. Irkutskgazprom	23. Krasnoyarskgazprom	23. KazRosGaz
24. IRTs Gazprom	24. Kaunas CHP	24. Khimsorbent
25. Kaspiygazprom	25. Lazurnaya	25. Khoroshevskaya Energeticheskaya Kompaniya
26. Kavkaztransgaz	26. Lengazspetsstroy (LGSS)	26. Latvijas gaze
27. Kubangazprom	27. NEGP Company (NEGP operator)	27. Lietuvos dujos

28. Lentransgaz	28. Orgenergogaz	28. Moldovagaz
29. Mostransgaz	29. PeterGaz B.V.	29. Moskovsky Vekselnyi Bank
30. Mezhregiongaz	30. Promgaz	30. Mospromagrotorgdom (Promagrokontract)
31. Nadymgazprom	31. SevKavNIPIgaz	31. Motor Technologies
32. Nadymstroygazdobycha	32. Sibur	32. Noyabrsky Gorodskoy Bank
33. NIIgazekonomika	33. Spetsgazavtotrans	33. Olimpiysky Commercial Bank
34. Nord Transgas	34. Spetsgazremstroy	34. ORFIN (Orenburg Finance Company)
35. Novy Urengoy Gas Chemicals Company	35. Stimul	35. Overgas Inc.
36. Noyabrskgazdobycha	36. Tsentrgez	36. Permskiye Motory
37. Orenburggazprom	37. TsKBN	37. Prometey-Sochi
38. Permtransgaz	38. Urengoystroygaz	38. Promstroybank
39. Podzemgazprom	39. VNIPIgazdobycha	39. Regionreestr
40. Podzemgidromineral Science & Production Center	40. Volgogaz	40. Rosneftegazstroy
41. Samaratransgaz	41. Volgogradneftemash	41. Rosshelf
42. Servisgazprom	42. Vostokgazprom	42. Rus-Gaz Trade House
43. Severgazprom	43. Zapsibgazprom	43. Russian Gas Universal Exchange
44. Severneftegazprom	44. Zarubezhneftegaz	44. Sibur Holding
45. Sevmorneftegaz		45. Slovrusgas
46. Surgutgazprom		46. SOGAZ
47. Surgutstroygaz Construction Company		47. SR-DRAGA
48. Szhizhenny gaz (Liquefied gas)		48. Stella Vitae
49. Tattransgaz		49. Stroytransgaz
50. Temryukmortrans		50. TsentrCaspneftegaz
51. Topenergy		51. Turusgaz
52. Tomsktransgaz		52. Ural Bank for Reconstruction and Development
53. TyumenNIIgiprokaz		53. Vega Investment Company
54. Tyumentransgaz		54. VIP-Premier
55. Uraltransgaz		55. Vologdapromresurs
56. Urengoygazprom		56. Volta S. p. a.
57. Volgogradtransgaz		57. YugoRosGaz
58. Volgotransgaz		58. YuzhNIIgiprokaz
59. VNIIGAZ		59. Zavod TBD

60. Yamalgazinvest		
61. Yamburggazdobycha		
62. Yugtransgaz		

Appendix 3. Gazprom's Major Joint Ventures and Overseas Subsidiaries (incomplete)

Country	Entity	Gazprom Share	Joint Venture Partner(s)	Description
Armenia	Armrosgazprom	45%		Gas marketing, trading
Austria	GHW ZGG	50 %	OMV, Centrex	Gas marketing, trading
	Zarubezhgazneftechim Trading GmbH	66%		
	ZMB Gasspeicher Holding GmbH	67%		
Belarus	Belgazprombank	50%		
Bulgaria	Overgas Inc. AD Topenergo	50% 10	Overgas Holding AD	Gas marketing construction/operation of transportation network
Cyprus	Leadville Investments Ltd			
Czech Republic	Gas-Invest S.A.	37.5%	Centrex Europe Gas & Energy AG, other shareholders	Gas marketing, distribution and general trading activity
	Vemex s.r.o.	33%	ZMB, Centrex	
Estonia	AO Eesti Gaas	37%	E.ON Ruhrgas AG, Fortum Corporation, Itera-Latvia, other shareholders	Marketing of natural gas, development of Estonia's gas transportation networks
Finland	Gasum Oy	25%	Fortum Corporation, E.ON Ruhrgas, the Republic of Finland	Gas transportation and marketing
	North Transgas Oy	100%		Planning and construction of North European Gas Pipeline
France	FRANGAZ	50%	Gaz de France	Gas distribution and general trading activities
Germany	WIEH GmbH&Co KG	50%	Wintershall AG	General trading business
	Agrogaz GmbH	100%		
	Ditgaz	49%	E.ON Ruhrgas	

	Verbundnetz Gas	5.3%	EWE, VNG Verwaltung und Beteiligung, Wintershall, EEG– Erdgas Transport	
	Gazprom Germania GmbH	100%		
	ZMB GmbH	100%		
Germany	VINGAZ GmbH	35%	Wintershall AG	Construction and operation of trunk gas pipelines, gas transportation, general trading business, wholesale gas trading
Greece	Prometheus Gas S.A.	50%	Copelouzos Bros. Corp.	Gas marketing and construction of gas transportation network
Hungary	Panrusgaz Rt.	40%	MOL Gas, E.ON Ruhrgas, Centrex Hungária	Gas marketing and distribution
	Borsodchem	25%		
	TVK	13.5%		
	DKG-EAST Co	38.1%		
Italy	Promgaz SpA	50%	ENI	Gas marketing and distribution
	Volta SpA	49%	Edison S.p.A.	
Kazakhstan	KazRosGaz	50%	KazMunayGas	
Kyrgyzstan	Munai Myrza			
Latvia	AO Latvias Gaze	25%	Itera-Latvia, E.ON Ruhrgas, other shareholders	Marketing of natural gas and liquefied gas, development and modernization of Latvia's gas and services industries
Lithuania	AO Lietuvos Dujos	37%	E.ON Ruhrgas AG, the Republic of Lithuania, other shareholders	Marketing of natural gas, development of Lithuania's
Lithuania	OAO Stella Vitae	30%	Other shareholders	Oil, gas and gas refinery products trading
	Kaunas CHP	100%		
Moldova	Moldovagaz	51%	Transdnistria	Shipments of Russian gas to Moldova
The	BSPS B.V.	50%		Operator of the Blue

Netherlands	Gazprom Finance B.V.	100%	Heerema Oil and Gas Development Company	Stream pipeline
	PeterGaz B.V.	51%		
Poland	SGT EuRoPol GAZ S.A.	48%	PGNiG S.A., Gas Trading S.A.	Transportation, construction, ownership and operation of the Polish section of the Yamal-Europe pipeline
Poland	Gas Trading S.A.	35%	PGNiG S.A., Bartimpex S.A., WIEH GmbH&Co KG, Wenglokoks	Gas marketing, liquefied gas trading
Romania	WIROM	25%	WIEE , DISTRIGAZ	
Serbia	JugoRosGaz	50%	NIS, Progres, Progres-Gas Trading	
	Progress Gas	50%	NIS	
Slovakia	Slovrusgaz a.s.	50%	SPP	Gas transportation and marketing, general trading business
	SPP	16.3%		
Slovenia	Tagdem	85%	Geoplin	
Switzerland	Baltic LNG AG	80%	OAD Sovkomflot	Development and sale of LNG Operator of the planned Nord Stream pipeline
	Nord Stream AG	51%	E.ON Ruhrgas, Wintershall, Gasunie	
	ZMB (Schweiz) AG	100%		
	WIEE (Wintershall Erdgas Handelshaus Zug)	50%	Wintershall	
Switzerland	Gas Project Development Central Asia AG (Zug)	50%	Centrex Gas & Energy Europe AG	Production and development of oil and gas fields in Central Asia
Turkey	Turusgaz	45%	Botas International Ltd., Gama Industrial Plants Manufacturing and Erection Corp.	Gas marketing
Turkey	Bosphorus Gas Corporation A.S.	40%	Tur Enerji	Transportation and distribution of natural gas
Ukraine	YuzhNIIgiprogaz			

The United Kingdom	Gazprom Marketing and Trading Limited (GM&T)	100%		
	Interconnector (UK) Limited	10%	BG Group, E.ON Ruhrgas, Distrigas, ConocoPhillips, Total, ENI	Operator of the Interconnector pipeline

Appendix 4.

Gazprom's Major Production, Supply and Financial Indicators in 2001-2004

	Units	2001	2002	2003	2004
Gas production	bcm	512	521.9	540.2	545.1
Condensate and oil production	Mtoe	10.2	10.6	11	12
Gas supplies to Russian consumers	bcm	282.1	283.5	291	292.1
Gas export to Europe*	bcm	126.9	128.6	132.9	140.5
Gas export to CIS countries and Baltic states*	bcm	39.6	42.6	42.6	52.5
Trunk pipelines and pipeline branches put into operation	km	500	818.2	1786.5	1013.6
Sales of goods, products, work, services (net of VAT, excise taxes and other obligatory payments)**	million US\$	16267	19853	25460	31972
Sales profit	million US\$	5654	3579	6770	7625
Net profit	million US\$	2466	1728	4229	5832
Net assets***	million US\$	53460	51665	55682	66737
Dividends	million US\$	187	342	309	589
Earnings per share (EPS)	US\$	NA	NA	0.20	0.25
Net assets per share	US\$	NA	NA	2.35	2.82
Short-term borrowings***	million US\$	11007	11043	8994	7220
Long-term borrowings***	million US\$	6818	9282	10196	16560
Capital expenditures (net of VAT)	million US\$	4113	4671	5665	6470

* In this Annual report export figures concern export deliveries of Gazprom

** In accordance with the accounting (financial) statements except for the capital expenditures. Figures for 2003 may differ from the respective figures in the Annual report for 2003 due to the restatement to the comparable data in the preparation of the 2004 accounting (financial) statements.

*** Net assets as well as short-term and long-term liabilities for 2003 are shown based on the data in the column «at beginning of reporting year», while those for 2004 are shown based on the data in the column «at end of reporting year» in Gazprom's balance sheet as of December 31, 2004.

Source: Gazprom's Annual Reports 2001-2004.

Appendix 5. Gazprom's financial and products flows in 2005

