

Oil and gas: strengthening two basic drivers for long term growth in Russia

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ABSTRACT

Oil and gas have been the two basic drivers of the Russian economic recovery. However, time before the present world economic crisis, there were doubts not only about the ability of the energy sector to maintain a steady pace of growth through 2020, but also about the sustainability of the Russian growth strategy, two much dependent on natural resources. This paper argues that recent institutional changes both in oil and gas sector seek to strengthen this strategic sector. After these changes, production will very likely maintain faster growth than domestic demand. Therefore, oil and gas exports will have room to grow for quite some time, which is especially important now that energy prices are falling down.

Keywords: Oil, gas, Russia, investment, energy policy.

Oil and gas: strengthening two basic drivers for long term growth in Russia

Oil and gas have been the two basic drivers of the Russian economic recovery. However, time before the present world economic crisis, there were doubts about the ability of the energy sector to sustain output and exports growth in the long run. In fact, gas production has slightly grown since 2000, despite hiking prices and domestic economic recovery. These doubts increased since 2005, when quarrying activity in the oil sector starts to slow. The annual rates of change in 2006 and 2007 were “only” 2.25%. This declining trend was reinforced during the first half of 2008, when, before crude prices began to retreat, the growth rate registered a fall of 0.6%.

These trends have fueled controversy not only about the ability of the energy sector to maintain a steady pace of growth through 2020, but also about the sustainability of the Russian growth strategy, too much dependent on natural resources. This paper argues that recent institutional changes both in oil and gas sector seek to strengthen this strategic sector. After these changes, production will very likely maintain faster growth than domestic demand. Therefore, oil and gas exports will have room to grow for quite some time, which is especially important now that energy prices are falling down. The greater or lesser intensity of that growth will depend on different factors, but very especially on the reaction by investors to sector changes promoted by the Putin energy policy. Depending on this reaction, we find three likely scenarios for Russian exports. In the most positive, foreign sales will be strong enough to develop a strategy that combines expansion of trade to Europe with greater penetration into major East Asian markets. In the most negative, despite further increase in sales abroad, Russia will have scant opportunity to develop an export diversification strategy.

The article is structured as follows. First, we look at the supply side, paying particular attention to changes in energy policy and to the investment strategies of oil companies. Second, we forecast oil and gas production through 2020, and then we evaluate the potential of domestic consumption to maintain a low-growth path. Third, we present three main scenarios for export growth, derived from the above analysis.

2. PRODUCTION OUTLOOK: THE PROBLEM IS NOT RESERVES, BUT INVESTMENT

Proven reserves of oil, amounting to 10.9 billion tonnes (bt), represent 6.4% of world total (BP, 2007), a volume similar to that of Venezuela and less than that of only five Persian Gulf countries. However, these reserves face a dual complication. On the one hand, the traditional basins (Western Siberia, Volga, the Urals and Caucasus), in operation since Soviet times, are very close to peak production, and all indications are that their growth will stop between 2010 and 2020. On the other hand, quarrying activity in major reservoirs on the northern coast and in easternmost Russia remain nascent and is not likely to be ready to begin production at full capacity.

The same dual situation affects to gas reserves. The bulk of reserves A+B+C1 are in Nadym-Pur-Taz (NPT), within the autonomous region of Yamal-Nenetsk in West Siberia. There are also proven reserves in the old fields of Orenburg and Astrakhan, in

southern Russia, in the Yamal Peninsula, in the Barents Sea, and in the bays of Ob and Taz, South of Yamal. These reserves are supplemented by others which are mostly classified as C1 and C2: offshore in the Caspian and Kara Seas, onshore in East Siberia, in the regions of Krasnoyarsk, Irkutsk, and the republic of Sakha, as well as farther east, on Sakhalin's island. However, the only two regions currently in production are those located in Orenburg and Astrakhan (Southern Russia) and at NPT (West Siberia), where most fields are owned by Gazprom, and the two largest fields of these productive regions -- Urengoy and Yamburg, located in NPT -- reached their peaks in 1987 and 1994, respectively, and they may be depleted before 2025.¹

Despite this dual scenario, the problem is not reserves themselves, but investment. More precisely, highest/lowest rate of increase in quarrying activity will depend mainly on how the recent sector reorganization impact on investment in order to solve the reserves puzzle. In this respect, analysis of the current situation allows different interpretations of an almost opposite nature. The more pessimistic interpretation considers the latest energy policies as introducing serious disincentives to investment. The most optimistic view considers that this new energy policy will be able to refocus investment strategies, from the short-term perspective prevalent during 2000-05 toward a longer-term horizon.

2.1. Oil outlook: refocusing investment

a) Investment strategies during the 2000-05 period

During 2000-05, from the start of the hike in oil prices through the subsequent recovery of the Russian economy, Russian oil companies developed business strategies that were more financial than productive. On the one hand, they carried out major operations -- acquisitions and mergers of companies -- based on criteria of doubtful productive profitability (asset stripping); and on the other hand they focused on the pursuit of immediate liquidity, trying to maximize exports, in order to inflate the current value of stock market assets (cash stripping)².

Thus, the resources spent during 2000-05 by all oil companies on gross fixed capital formation were lower than those used for purchasing financial assets. In productive investment, approximately one third went to capital amortization³, while the proportion given to quarrying activities hovered between 25% and 30%. Finally, investment in exploration accounted for less than 3.5% of gross capital formation, while companies like Yukos and Sibneft invested under 2%, or less than \$1 per ton produced (Kryukov y Moe 2007, p.349; Dienes 2004, p.323).

¹ Since 1996, Urengoy's decline in production has been higher than expected, at about 14 billion cubic meters (bcm) a year, so its present production is closer to half that achieved in 1987. But in Yamburg the pace of depletion has recently slowed. Output in the region will increasingly depend upon the large field at Yuzhno-Russkoye¹ (where there are two large reservoirs, Zapolyar and Pestzov), and on other, smaller, scattered fields and of poorer quality and with higher extraction costs (due to greater depth) (Stern, 2005: 1-19).

² Several works emphasize the short-term nature and financial rather than productive vocation of the oil Russian companies (Boussena and Locatelli 2008, p.8; and 2005, p.92; and Dienes 2004, pp.320-25).

³ This depreciation policy has now become a serious handicap to the development of large investment projects in the future, since reduction of benefits and tax avoidance by companies accelerated the timing for depreciation of its capital, even via the addition of amortization funds which capital installed prior to the privatization of the sector (Kryukov and Moe 2007, p.351-53).

This investor profile made possible the large growth in output during the period, although only a fragment of that growth came from extractions made in new territories. The reactivation of productive capacities stopped or underused following the huge production collapse of the 1990s, scarcely requiring new investment, contributed 30% of output growth. Another 30% of the growth was obtained through investments with relatively low fixed costs, such as the implementation of new techniques to intensify production in large wells opened during the Soviet era, or the reopening of other wells that had been closed or almost abandoned in the past. The remaining third of output growth absorbed the bulk of the investment effort: drilling works in six large fields in Western Siberia, opened during the previous decade, and (to a lesser extent) extraction activities in new, small fields located in the great traditional watersheds (Sagers 2006, p.514). In sum, strategies for maximizing production in the short term led major companies to turn toward intensive exploitation of traditional basins, sacrificing the development of the rich Timan-Pechora deposits and especially those of the Far East and Eastern Siberia⁴.

This policy was common to all companies, with the relative exception of Surgutneftegaz, which developed a modest investment policy aimed at expanding the stock of reserves and the exploitation of new fields. This company, which in 2000 was responsible for 40% of open post-USSR wells, 45% of output, and 50% of new drilling, was by 2005 the owner of more than 60% of those few wells opened since 1999⁵ (Dienes 2004, p.322; Sagers 2006, p.519). In the case of Lukoil, new wells added into production came through acquisitions and mergers with other companies. Meanwhile, other major companies such as Yukos, Sibneft, and TNK-BP concentrated their investments in the opening of a few large wells. The first two, Yukos and Sibneft, highlighted the introduction of stimulation techniques, the development of horizontal drilling, and the use of high-capacity pumps for extracting oil from large fields opened during the 1970s and 80s. Not by chance, these companies nearly doubled their exports in 2000-05, while foreign sales of Lukoil and Sugurteftgaz increased by "only" 50% (Ahrend 2006, p.109)⁶.

The result of such short-term strategies was mixed: while they led to strong growth in output during 2000-05, they also put at risk the sustainability of productive growth in the medium term, as the stage of "easy" production (quick-extraction with low operating costs in the traditional basins) may begin to dry up before new product areas are ready to take over⁷. This suspicion is the main factor in dampening optimism for the oil outlook throughout the decade 2010-20. In Grace's words (2005, p.204): "the higher they drive over 10 million b/d, the more technically brittle the production base becomes, and, the more likely that the Russian industry will face the sharply diminishing returns to investment experienced so vividly by the Soviets in the eighties".

⁴ In 2005, production in the eastern regions was 4.6 mt (Sakhalin 3.9 mt, Yakutia 0.4 mt, Irkutsk 0.2 mt, and Evenk 0.1 mt). In total, this meets only half of schedule in the strategic plan published in 2003 by the Ministry of Natural Resources.

⁵ In 2005, only 7.5% of oil quarried came from wells opened after 1999.

⁶ For further information on the business structure of the oil sector, see Fuster (2006), Sebille-Lopez (2006).

⁷ The 2003 plan estimated that the fields of Western Siberia, which in 1990 were quarried at 370 mt, would reach 350 mt in 2010, further falling to 315 mt in 2020. Dienes (2004, p.326) is not confident that this basin could delay its peak beyond 2010.

However, confirmation of pessimistic forecasts comes at the expense of the effect that recent deep reorganization of the oil sector may have on investment. If these changes are able to act as a stimulus for long-term investment, they could help soften the expected decline in the rate of output growth. If, to the contrary, this new policy seeks only to impose new mechanisms for collecting oil sector revenues without altering the investment strategies of the major companies, then such interventionism by the State could further hinder the slow growth in output.

b) New drivers for investments

The change in energy policy since the final year of Vladimir Putin's first presidential term has, in little more than three years, pulled much of the oil sector under the State control⁸. Currently, the State exercises control in three ways. First, in a direct manner, through: i) Rosneft, responsible for 16% of oil production; ii) Transneft Transneftprodukt, exclusively owning all pipeline networks transporting crude oil and petroleum derivatives; and iii) Gazprom, the gas monopoly which broke into the sector through the purchase of Sibneft in 2005, meanwhile displacing foreign companies in the Sakhalin-2 project. Second, and less directly, the State also plays a role through its complicity with the managers and owners of Lukoil and Sugurtneftgaz, which together provide a third of production. Finally, and more generally, the State's influence is felt through the discretionary management of key issues in the organization of the industry: licensing, revision of licenses previously granted, fiscal conditions, access to the public pipeline network (and therefore to export routes), etc. (Locatelli and Boussema 2008, pp.13-18)⁹.

Faced with this new main role of the State, some regional actors maintain their share of power within the sector but have lost much of its taxable capacity; also, their ability to grant privileges and charge commissions has been significantly reduced, given that they now occupy a purely advisory position in the State licensing body. The oligarchs have likewise lost prominence, and some who occupied positions of utmost importance in the Yeltsin period are currently imprisoned or banned. Finally, foreign capital has not been vetoed, but its negotiating position has been greatly weakened following the government's decision to rethink the regulatory framework for production share agreements (PCAs)¹⁰. This change in the legal framework comes in addition to other events that might signal discretionary treatment of foreign investment by the State: the veto of ExxonMobil's entry into Yukos, but also of Total's into Sibneft, the opposition to

⁸ Prior to 2003, other changes were made in regulating the sector, especially with regard to the management of exports, but the Government continued to count on continued progress in the sector's liberalization and to facilitate the entry of more foreign investors (after a successful precedent for BP in Sidanco and TNK). In 2002, the State sold 75% of capital owned Slavneft to the investment fund Invest-Oil, linked to companies Sibneft and TNK, and even foresaw the possibility of further divisions in Rosneft until its ultimate sale to the private sector.

⁹ For further analysis of the consequences of the State control of the oil industry, see Fernandez (2008).

¹⁰ Since 2003, only if a public offer is not fulfilled may the CPPS be called upon, on a case-by-case basis (Baghat, 2004, p.139). A bill passed in May 2008 established the obligation of foreign companies requesting permission for acquisitions to supply 10+% of the capital of a private Russian company and 5% where the State has shares. For an update on the legal and economic changes taking place in the Russian economy, see www.bof.fi.

efforts to build private oil pipelines to Murmansk and China, as well as the entry of Gazprom into Sakhalin-2, forcing Shell to swap assets with the Russian company¹¹.

Although this profound redesign of the sector's organization has not altered the appearance of the 1990s institutional framework -- maintaining the formal principles of plurality of ownership, competition among enterprises, and productive fragmentation -- many of its gears have been dismantled. These gears led to a deadlock where short-term, business-oriented strategies held sway, and where none of the actors involved (heirs to the old regime, new-style oligarchs, central and regional governments) were interested in giving the sector a more transparent institutional framework, subject to the rule of law and with clear and secure property rights, for fear of losing the gains conferred by the prevailing opacity.

The untangling of this Gordian knot has been the most important consequence of the new energy policy. The frontal attack on the interrelated forces built up during the 1990s has put an end to the institutional blockade which had prevented an escape from short-term strategies developed during 2000-05, meanwhile doing away with an opaque and barely effective system of oil revenue redistribution¹². However, this about-turn is not enough to guarantee a sufficiently ambitious agenda of long-term productive investment.

Indeed, there is a risk that the opposite may happen. On the one hand, attacks to business groups for unclear reasons, revisions of production share agreements with foreign companies, renegotiation of licenses previously granted, and a host of other discretionary actions by the State have raised uncertainty, creating a climate without legal security which may further shrink investment decisions. On the other hand, the fixing of extraction taxes without consideration of the cost of production, coupled with strong fiscal pressures over export revenues, may also inhibit investment rather than speed it¹³.

To these factors we must add other considerations, more political than economic. In this sense, the most far-reaching criticism has been that expressed by authors such as Tompson (2006), who suspects that energy policy is nothing more than a set of jumbled decisions, with no strategic sense, beneath which lies a mere struggle for political and economic power between the old Yeltsin elite (built up through the financial sector) and the new Putin elite (of administrative origin). Even more critical of this policy are those who argue that the State's direct involvement in organizing the

¹¹ However, foreign capital maintains its presence in the consortium exploiting the resources of Sakhalin. Moreover, the American ConocoPhillips was authorized to purchase of 7.5% of Lukoil in order to lead one of the exploitation projects for Timan-Pechora (Sagers 2006, p.533; Milov 2006, p.300).

¹² Gaddy and Ickes (2005) is the work of reference on the formal and informal mechanisms for redistribution of oil revenues. Kubowina, Tabata, et al (2005) show that until 2004 the oil companies used very different routes to avoid the growing tax burden. The challenge to harness the energy bonanza to boost the productive diversification and a dynamic for a more sustainable economic development has led to interesting analysis: see Ahrend (2005 and 2006), Ellman (2006), Gavrilencov (2006), and Mañé House (2005), Oomes and Kacheva (2007).

¹³ The law passed in 2004 raised the tax on quarrying from 347 to 400 rubles per ton (without discriminating on the basis of the cost of production) and also imposed a tariff of 45% on export revenue, with prices ranging between US\$20 and \$25 per barrel, anticipating the increase of that burden to 65% if oil prices exceeded \$30 per barrel. Following the adoption of this law, more than 90% of additional revenue from price increases above \$30 goes to the state budget.

sector will lead to inefficiency in resource management and lack of incentives for investments guided by the search for firm profitability (Milov, et al 2006, p.307).

However, all these risks are often presented in a one-sided way, as a set of factors that will inexorably lead to an arena dominated by the lack of incentive and investment. But such risks may be offset by other factors that push and reorient the nature of investments already made during the prior period. The likelihood of this happening is based on increasing State power, which could translate into a boost for medium- and long-term productive investments, both public and private. This might occur if the State comes to understand that this kind of investment is necessary in order to reach several objectives simultaneously: to ensure continued economic growth, based on the strength of the energy sector; to strengthen the State itself, as a backbone of economic activity; and to reaffirm the position of Russia as an energy superpower for the next half century.

Some of the most recent government decisions have moved in this latter direction. On the one hand, the investment program approved by the Council of Ministers in March 2008, which replaces the 2004 provisions, plans to devote \$15 billion to the exploration of mineral resources, a nominal doubling of the amount provided in the previous program. On the other hand, to encourage private investment, the government is contemplating the possibility of eliminating the fee of \$29 per ton for revenue earned, until a minimum price of \$15 per barrel, maintaining the 65% tax on the rest of revenues, but also leaving the first year of production on offshore platforms tax-free (www.bof.fi/bofit).

2.2. Gas outlook: from changes in Gazprom toward changes in investment

a) Changes in the Gazprom-State relationship, but not in the investment strategy

Over two decades, the gas industry has accumulated an enormous investment deficit in new fields due to the Soviet crisis and the 1990s economic collapse. More recently the state-owned company has undergone significant changes in both its organization and strategies, but during the 2000-04 period Gazprom did not change its short-term investment strategy towards the gas sector.

After Vladimir Putin became President, the State quickly acquired control over 51% of the company's shares, while a share offer to increase capital opened the door to new owners, breaking the security ring built by managers appointed during the Yeltsin period.¹⁴ Finally, in 2001, the new political power took full control of the company, installing Alexei Miller as head of the board. In doing so, the once-dubious position of Gazprom within the structure of the State was clarified in very short order: this economic colossus would serve the State, becoming its most powerful weapon.

After replacing the leadership at Gazprom, the government announced in 2003 a definitive renunciation of plans to divide this natural monopoly and liberalize the gas

¹⁴ During the nineties, Gazprom's managers simultaneously played accomplice and alternative to the power of the President. This struggle in the shadows became more open on the eve of the financial crisis of August 1998, as Russia was approaching its 2000 presidential election. A good summary of the evolution of Gazprom since the beginning of the Russian transition can be found in Stern (2005: 170-198) and Sanchez-Andres (2006).

sector.¹⁵ This announcement was consistent with the new energy policy which began to be assembled during President Putin's first term. This policy asserts that major oil companies and the gas monopoly should behave as business firms, but without renouncing their central position in the strategies and economic policies of the State. At the same time, redefinition of the institutional role of Gazprom came concurrent with the economic strengthening of the firm due to Russia's economic growth, which has facilitated a reduction in defaults by their Russian customers, and the rise in international energy prices, which has increased export earnings and improved the company's financial position.

This greater economic strength, coupled with a new strategic approach based on political-business criteria, explain the present priorities of Gazprom to boost its expansion on three levels: i) formation of a large, vertically integrated energy company, through expansion into the oil sector and electricity, where it already owns the former Sibneft, as well as one tenth of the RAO-UES electricity monopoly and a quarter of Mosenergo (the leader in electrical distribution); ii) creation of a conglomerate with significant presence in all key sectors of the economy -- industry (especially chemistry and metallurgy), finance, and communication; and iii) transformation into a large transnational, "the national champion to global enterprise", in the words of Alexei Miller. From the international perspective, the compatibility of the strategic interests of the company with Russian foreign policy is almost absolute, which naturally strengthens the positions of both company and State against other nations and companies. Also, on the second level (of expansion within the Russian economy) the interests of both parties, which are committed to making Gazprom a huge financial-industrial conglomerate, are again mutually reinforcing.

However, much more difficult to coordinate has been the tandem Gazprom-State policy towards the gas sector. In this regard, uncertainties have mainly affected pricing policy, opening the market to independent operators, as well as (and most importantly) investment policy. In fact, during the 2000-05 period, Gazprom's investment policy has not been ambitious at all, despite the economic boom and rising prices. In those years, the company spent less than 30% of its investments on development of productive capacities, and its rate of reserve replacement, although higher than in the nineties, was still below 100%.¹⁶ Gazprom preferred the old Soviet fields with low operating costs, giving preference to foreign demand, whereas the domestic deficit was covered by supplies from independent producers and imports from Central Asia.

During this time, Gazprom's strategy was justified by two main factors: uncertainties surrounding the renewal of long-term supply contracts with large European companies, and a Russian policy of subsidized prices that prevented the company from obtaining benefits from their sales in the domestic market¹⁷. This approach, reluctant of

¹⁵ Since dodging the threat of partition, Gazprom's managers have carried out an administrative reorganization designed to gain efficiency in the management of this colossal enterprise, thereby gaining accuracy and transparency in the handling of the vast amounts of information and resources available to the company.

¹⁶ In 2005, the replacement rate was above 100% for the first time since 1990. Gazprom added 583 bcm with an output of 555 bcm. And in 2006, proven reserves again increased by 590 bcm, with an output of 556 bcm (www.gazprom.com).

¹⁷ In 2000, the domestic price was below \$20 per 1,000 m³, while the international price was at \$120. In 2006 the domestic price ranged between \$40 and \$50, while the international price exceeded \$250. This makes it difficult to trust the commitment that in 2011 the price of industrial

investment and critical of the pricing policy, seemed to position the company against the interests of the State. For the latter, the dual-pricing system serves a vital role in promoting and diversifying the manufacturing industries, while major investment programs for production and transport infrastructure are essential to the strengthening of Russia's position as a major energy superpower.

b) Changes in the investment policy

In the end, since 2005, the solution to this dilemma has been to support the strategy of Gazprom. Thus, the Russian government has allowed a gradual increase in gas prices, while trying not to confront the interests of industrial enterprise, thereby fostering the growth in Gazprom's profits and strengthening its financial position. In exchange, company management was compelled to spearhead major expansion projects within the gas industry, most often sharing the risk of these projects with capital and foreign technology.

Thus Sevmorneftegaz, a subsidiary of Gazprom, has taken over exploitation of the Prirazlomnoye field in the Barents Sea, while the launch of the Shtokman field in 2007 involved a consortium with France's Total (25%) and Norway's StatoilHydro (25%), with Sevmorneftegaz maintaining the rights to exploit and market the resources of the giant offshore oilfield (with reserves of 3.8 tcm C₁+C₂, expected to produce 27 bcm of gas per year from 2013). Another solution has been the exchange of assets, as was the case in the 2005 agreement between Gazprom and BASF. The Russian company committed itself to increasing its stake in the joint venture Wingaz (founded by Germany's Wintershall, a subsidiary of BASF), whereas Wintershall put up a quarter of the capital of Severneftegazprom, which holds the license for exploitation of the Yuzhno-Russkoye field in Nadym-Pur-Taz. Thanks to this agreement, BASF-Gazprom officially declared the launch of quarrying operations in this area in December 2007. In that same year, Gazprom's share in Wingaz went up to 50%. Also, in July 2005, Gazprom and Shell signed an agreement under which Gazprom delivered half the shares of the project for development of deposits at Zapolyaroye in western Siberia in exchange for taking a 50% stake in "Sakhalin-2", leaving Shell and Japan's Mitsui and Mitsubishi in minority positions.¹⁸

Finally, the purchase by Gazprom of 20% of Novatek in 2006 appears to close the circle of this strategic reorientation. Novatek is the most important company among the Russian independents, which account for 8% of domestic gas production. After the acquisition of Novatek's capital, these might transform from competing firms to subsidiaries of the public monopoly.¹⁹ At the same time, the State also enjoys the

gas will be set equal to the international price. In addition, prices paid by power plants and households are still lower than for industry and are not subject to such a commitment of equalization. In this context, Gazprom continues to argue that, with prices so low, it is difficult to afford investment in new deposits (<http://www.gazprom.com>). On the subject of pricing policy see the work of Tabata, Ahrend, and Tompson in Ellman (2006).

¹⁸ Agreements with foreign firms have also been common in transport infrastructure projects. In the *Nordstream* project, Gazprom (51%) has partnered with Germany's BASF and E.ON (20% each); and with Holland's Nederlandse Gasunie (9%) and Italy's ENI to develop the *Southstream* project. Gazprom has also signed a protocol with China's CNPC to build the pipeline that will supply gas to that country beginning in 2011.

¹⁹ The "independence" of these companies is hardly compatible with their dependence on Gazprom, in regard to the provision of infrastructure for processing, transportation, and access

complicity of oil companies (Lukoil, Sugurtneftgaz, Rosneft, Tatneft, and Bashneft), which currently provide another 8% of gas production and which control one quarter of reserves.²⁰ A sharp increase in their gas production is expected over the next decade. This package of initiatives shows that the second term of Vladimir Putin represented a turning-point in Gazprom's investment strategy. Since 2005, the State has fostered a vast program to expand the productive capacities of the gas sector, compatible with the company's goal of internationalization. For this reason, former forecasts must be reconsidered.

3. OUTPUT FORECAST: PRODUCTION CONTINUES TO GROW THROUGH 2020

3.1. Oil production forecast

From the above analysis, certain corrections can be made to recent production forecasts for the decade 2010-2020. In the early years of this decade, the Power Strategy published by the Ministry of Energy (2003) provided that, in an optimistic scenario, oil production could reach 490 mt in 2010 and 520 mt in 2020; while another, more pessimistic view asserted that production would not reach 450 mt by 2020²¹. During the same years, estimates from various other agencies did not stray far from those provided by Russian authorities. In 2002, the International Energy Agency forecast that the extraction of crude oil would reach 518 mt in 2010, but would rise above 530 mt in 2020. A few years later, the EIA (2005) and OPEC experts Shibab-Eldin, Hamel, and Brennan (OPEC, 2004) foresaw a production slightly under that of the IEA in 2010 (498 and 513 mt, respectively) but somewhat higher in 2020 (573 and 558 mt). Even more pessimistic was Grace (2005), who forecasted, "in highest cases", a production level exceeding 450 mt in 2010, being far less likely to break 500 mt; through 2020 output growth would be at expense of East Siberia and Sakhalin.

However, in light of what happened to the growth dynamic in the 2000-05 period, and taking into account the upward trend in oil prices until 2008, the latest revisions have been slightly more optimistic. Thus, recent estimates conducted by various ministerial experts have put the range of production in 2015 between 510 and 540 mt, reflecting a rate of growth of 1% per annum which, if maintained until 2020, could reach a level of 535 to 570 mt. At the same time, Sagers (2006), an expert from Cambridge Energy Research Associates (CERA), puts production at 523 mt in 2010 and at 564 mt in 2015, allowing 2020 levels to near 600 mt.

to final consumers, without which they cannot market their gas. Moreover, they have vetoed exports, and their market prices do not have room to rise much more than 10% over Gazprom's low price. This fact restricts their profit rates and makes it difficult for them to become long-term investors.

²⁰ Only TNK-BP, which contributes 17% of the associated gas production and holds the license for exploitation of the Kovykta field, near the Chinese border, is outside of State control. This is why some authors suggest that Gazprom is hindering the transportation of gas from the field, to force TNK-BP to hand over its license (Economides, 2007). This problem is in turn linked to the conflict between Russian and British shareholders, which emerged in the summer of 2008, when those accused the British of wanting to subordinate the international strategy of the Anglo-Russian company to the BP group's interests .

²¹ The optimistic scenario assumed prices of around \$30 per barrel. The pessimistic forecast was based on a price between \$18 and \$20, with the most critical forecast below \$15.

Based on these latest estimates, crude oil production in 2020 should enter the range of 560 to 600 mt, or 90 to 130 mt above 2005 production. However, the uncertainty introduced by the recent price fall and the aforementioned institutional component suggests that the range may be wider. Thus, the development of a new energy policy affecting more positively on investment decisions could raise the production ceiling to as high as 620 mt. Conversely, if oil prices fall beyond 30\$ and increased State interventionism merely serves to slow the investing dynamic and to lessen the efficiency of productive activity, the output level in 2020 could be below 540 mt, as some government sources still envision.

Taking into account that production had already reached 491 mt in 2007, the average annual rate of growth in even the most optimistic scenario for the 2007-20 period would be a modest 1.8%, or four-tenths below the growth recorded during 2005-07. In the most pessimistic scenario, evolution of the sector will be near stagnation, with an average annual rate of 0.7%.

3.2. Gas production forecast

Only a few years ago, authors such as Locatelli (2005) and Stern (2005) observed the future of the gas industry with great pessimism. Stern (2005: 32) foresaw that the output of Gazprom in its productive regions could conceivably fall to 527 billion cubic meters (bcm) in 2010, and to as low as 344 bcm in 2020. Therefore, Stern argued that, if the company wanted to maintain 2005 production levels (545 bcm), it should put the Bovanenko field in Yamal into operation by 2015 and begin to open the first offshore wells in either Shtokman or in the bays of Ob and Taz.

The International Energy Agency (IEA) agreed with this assessment: if Gazprom wanted its production in 2020 to remain near 2005 levels, it would have to exploit new fields, so that within fifteen years these new territories could share 40% of total output. For this reason, the IEA stated that "Gazprom could face a growing difficulty to meet its export contracts if it does not advance the agenda of investment in new fields" (IEA, 2006b: 34). The fear was echoed by a European Commission Green Paper prepared in March of that same year (EC, 2006), as well as by the British analyst Clark (2006) and the American analyst Economiades (2007), who at present continue to defend this argument. Others, like Milov, et al (2006: 303), very critical of state interventionism, doubt the ability of Gazprom to increase its future production figures and assume that Russia will be forced to choose between limiting domestic demand or reducing exports. However, in its 2006 report, IEA compensated for its mistrust of Gazprom's ability to raise current production levels with remarkable optimism around the prospects for growth of independent companies. Based on calculations provided by the companies themselves, the IEA (2006b: 34) reported that they could as much as triple production over the 2005-20 period. Based on this assumption, gas production in 2020 would be in the range of 680-730 bcm, with 530-550 bcm corresponding to Gazprom and 150-180 bcm to the rest of the producing companies.

Gazprom's own outlook in 2005 was slightly more optimistic. The company acknowledged that it faced a new scenario, recognizing that it could not continue to live only from resources provided by the large Siberian fields opened in Soviet times; but new company managers felt confident in their ability to maintain a moderate upward trend, allowing Gazprom to achieve 580-90 bcm in 2020.

These forecasts were consistent with those announced in the Power Plan published in 2003 by the Ministry of Industry and Energy, where it was estimated that by 2020 Gazprom production would be at 580-590 bcm. The same plan provided that the fields of West Siberia would increase output until 2010 before starting to decline toward near-2000 levels by 2020. As a balance, they hoped that the new gas regions would significantly increase their production through 2020. Moreover, this government outlook attributed to the independent companies a significant increase from their current levels of production, estimating that by 2020 output could reach around 100-150 bcm. Thus total gas supply would grow, according to this official plan, from the 627 bcm recorded in 2005 to around 680-730 bcm in 2020 -- exactly the same range suggested by the IEA.

However, the latest production data has made necessary an upward revision of former forecasts, since the current output of Gazprom exceeds 550 bcm, matching estimates floated by the IEA and other Western specialists for the year 2020. Based on this data, in the first half of 2008 the company reassessed its production targets in the medium term. According to this latest revision, Gazprom intends to reach 610-620 bcm in 2015 and 650-670 bcm in 2020, representing an average annual growth rate of 1.5%.²² In order to do so, Gazprom is confident that in 2020 nearly half of quarrying will come from new territories, including Yamal and the Barents Sea, which is consistent with calculations made by the IEA in 2006. This new positive forecast is obviously based on the new expectations generated by the investment strategy of the Gazprom-State tandem operation.

Taking into account the new investment and production goals, these are substantial changes from scenarios provided until just a few years ago. Today it is reasonable to work with the following scenarios:

- 1) The most optimistic would result from the combination of a doubly positive evolution for both the State company (650 bcm) and the independents (150-180 bcm). In this case, production in 2020 could reach 800-830 bcm.
- 2) If more moderate growth by the independent companies (100-150 bcm) comes concurrent with the fulfillment of Gazprom's growth expectations (650 bcm), the output in 2020 could range between 750 and 800 bcm. In the same way, if there is significant distrust around the ability of Gazprom to meet its current projections, but independent companies are considered likely to grow, the overall result would be similar: 600-620 bcm by Gazprom and 150-180 bcm by the rest, for an average range of 750-800 bcm.
- 3) The counterpart to the above scenarios would arise where both the public company and the independents fall far below their most optimistic projections. If this happens, output in 2020 would remain at a more modest level (720-750 bcm). But even in this case, the forecast is higher than that presented by both the government and outside specialists until scarcely a year ago.

²² The Bank of Finland's *Institute for Economies in Transition* (BOFIT Weekly 25/2008) confirms this information (www.bof.fi/bofit).

4. DOMESTIC DEMAND OUTLOOK: FIGHTING AGAINST GROWTH

4.1. Limits to reducing consumption levels

The Russian economy still has high levels of energy intensity. Currently, the ratio of per capita consumption exceeds 4.5 toe and is well above the average for the EU-15, despite the fact that the EU enjoys a higher standard of living. The ratio of energy consumption to GDP (or PPP) is about 0.5 toe per thousand US\$ (constant 2000), or more than four times that of most EU-15 countries, and more than double that of any, including Sweden and Finland, which also suffer the "Nordic" factor (IEA, 2006a). It follows that ample room remains for energy saving and reduction of consumption, through measures that improve efficiency and changes in production structure.

In the case of oil, modernization of refineries and the continuous growth of the service sector are to be the two most influential factors. If official figures are considered, the contribution of the service sector to the economy is already very high, but if the corrections introduced by Tabata (2002) and Kuboniwa, et al (2005) are accepted, the industrial sector still represents more than 40% of GDP, leaving much room to reduce the current level of energy intensity as less energy-intensive tertiary activities continue to increase their participation in productive activity. However, the brake mechanisms inherent to economic development (greater power efficiency and growing service activities) will be offset by the sharp fall in consumption of crude oil accumulated during the 1990s, transport's increasing demand and substitution effects caused by changes in pricing policy. This pricing policy pursued by authorities since the beginning of the transition has boosted the consumption of gas compared to coal and oil, helping to reinforce the strong asymmetry of the Russian energy balance²³. Thus, the gradual reduction of the price differential between gas and oil could lead to substitution effects.

On the other side, the future growth of gas consumption due to economic recovery may be then offset by this additional factor: a shift share towards other energy sources; together with the dynamics of structural change towards less energy-intensive branches; and, most importantly, improvements in energy efficiency due to the modernization of equipment for processing, transporting, and consuming gas.

The scope for savings in gas consumption through any of these three channels is very wide²⁴. However, it is difficult to assess the eventual impact that might bear on these factors in the consumption. Beyond the usual complications to forecasting economies embedded in intense growth dynamics and structural change, we here encounter the added uncertainty related to the pricing system and to future reforms to regulation of the power sector. In this respect, the uncertainty is twofold, around the actual scope of announced measures and their impact on decision making.

In this respect, the most likely far-reaching measure explicitly aimed at improving efficiency in the final consumption of gas has to do with Gazprom. As owner of the

²³ The share of oil in the structure of primary energy consumption is less than 20%, while natural gas accounts for 53-54%. In other developed economies, such as United States and Western Europe, gas share is between 20% and 25%.

²⁴ The Power Strategy (2003: 25) believed that if the intensity levels of 2000 are maintained, then consumption in 2020 would be 3.4 times higher. However, structural change will allow consumption to increase by 2.5 times, and along with technological improvements and cost-saving measures, consumption in 2020 will exceed that of 2000 only by 40%, representing a growth rate of 1.7% per annum.

extensive national distribution network, the gas company can strive to reduce the heavy losses recorded in the transport system. Price increases could in this case serve as a stimulus for gas savings, either as a market incentive -- by increasing Gazprom's costs through unnecessary losses -- or as an explicit agreement with authorities, where rises in pricing come in exchange for Gazprom's commitment to upgrade networks, especially those medium- and low-pressure gas networks that feed final consumers (APEREC, 2003: 64-67).

However, the biggest opportunity for gas savings lies in intermediate consumption. The indiscriminate use of gas to generate heat and electricity could be significantly reduced if the RAO-UES electricity monopoly (especially after Gazprom's entry) undertakes the replacement of old plants by new, combined-cycle turbines. In addition, the low price of gas over coal leaves a relatively large margin for encouraging substitution effects, especially given the abundance of Russian coal resources (17% of world reserves).

4.2. Consumption forecast: modest growth, with mild variants

a) Oil forecast

Taking into account all the above factors, it is possible to forecast that short-term domestic consumption of oil will continue to rise, moved by the intense growth in national income. Later, this oil demand should slow down gradually as the brake mechanisms related to structural change and energy efficiency are noted.

In this respect, a medium term scenario may be divided into two stages. In the first phase (2007-15) the rate of growth is at close to 1%, slightly higher than that recorded since the beginning of economic recovery (+0.5% per year), whereas in the second phase, consumption tends to moderate toward stagnation, with annual rates of growth within a range of 0% to 0.5%. The result of this development would be a level of domestic consumption close to 140 mt in 2020.

This forecast is lower than that published by the Government in 2003. The latter predicted that that total primary oil supply would move in a range between 195 and 205 mt in 2005, and between 252 and 283 mt in 2020. If from this data we assume that foreign demand of petroleum products will grow as fast as domestic demand, then internal consumption will reach, according to these sources, 130 mt in 2005 and 170 to 190 mt in 2020. That would mean an average annual rate of growth in domestic demand rising at between 2.2% and 2.8%, representing a rate substantially higher than that expected for the whole of domestic energy demand, which the energy plan sets at between 1.3% and 1.8%.

However, it is likely that foreign demand for petroleum products will continue to grow significantly above the internal, as it did during the 2000-05 period. In this case, the estimates given by the energy plan would lower the level of domestic consumption to around 150 to 160 mt in 2020. This forecast is slightly higher than ours but supports the idea that the pace of domestic demand growth will be moderate in any case, moving from an annual average rate of 0.8% in a low scenario, at 140 mt in 2020, to 1.4% in the intermediate stage, at 150 mt, and to 1.9% in an upward scenario, to 160 mt.

b) Gas forecast

Despite structural change, improvements in energy efficiency, and savings made through the substitution of sources, domestic demand is unlikely to stop growing through 2020.

The above analysis suggests that, overall, the demand elasticity to price changes is low, and that only in the (unlikely) scenario of very significant increases in domestic gas prices would short-term consumption levels fall. Therefore, the replacement of old equipment for other, more energy-efficient technology in the power sector, the gradual modernization of industrial capital, and slow renewal of the housing stock appear, for this chronological order, as the main sources of energy savings.

So it seems reasonable to consider that the short-term consumption of gas will continue to rise, dragged upward by economic growth, albeit at a modest pace (due to its high level of departure and the implementation of some cost-saving measures). But this rise may slow gradually as the brake mechanisms inherently linked to economic development and structural change are noted -- especially those related to the renovation of residential and industrial equipment.

Most gas forecasts move within this framework. Thus, Stern (2005: 55) presents a scenario close to stalling, with rates conceivably below 1% per year starting in 2010, especially if the economy takes a path towards freer markets in which the economic agents respond more effectively to price signals. Official power outlook provided in 2003 an annual growth rate in 2005-20 of 0.8%-1.2%, versus 1.3%-1.8% for total energy demand. As domestic consumption in 2005 was 405 bcm, that growth would drive gas consumption in 2020 to 460-485 bcm, which is very close to the 2006 IEA estimate, which placed it around 470 bcm.

However, recent data seem to contradict this type of approach. In just two years (2005-07), domestic consumption of natural gas increased by 8.3%, reaching 439 bcm. Applying the growth rates envisaged in earlier works to this level, gas consumption in 2020 would reach 495-515 bcm. But if it is understood that the current pace of growth raises doubts around the trend of gradual moderation in gas consumption, it is not unlikely that domestic demand could reach higher levels, closer to 530 bcm, with the annual average rate nearer to 1.5% than 1%.

5. EXPORTS OUTLOOK: OIL AND GAS HAVE ROOM TO GROW

5.1. Export scenarios

a) Oil exports

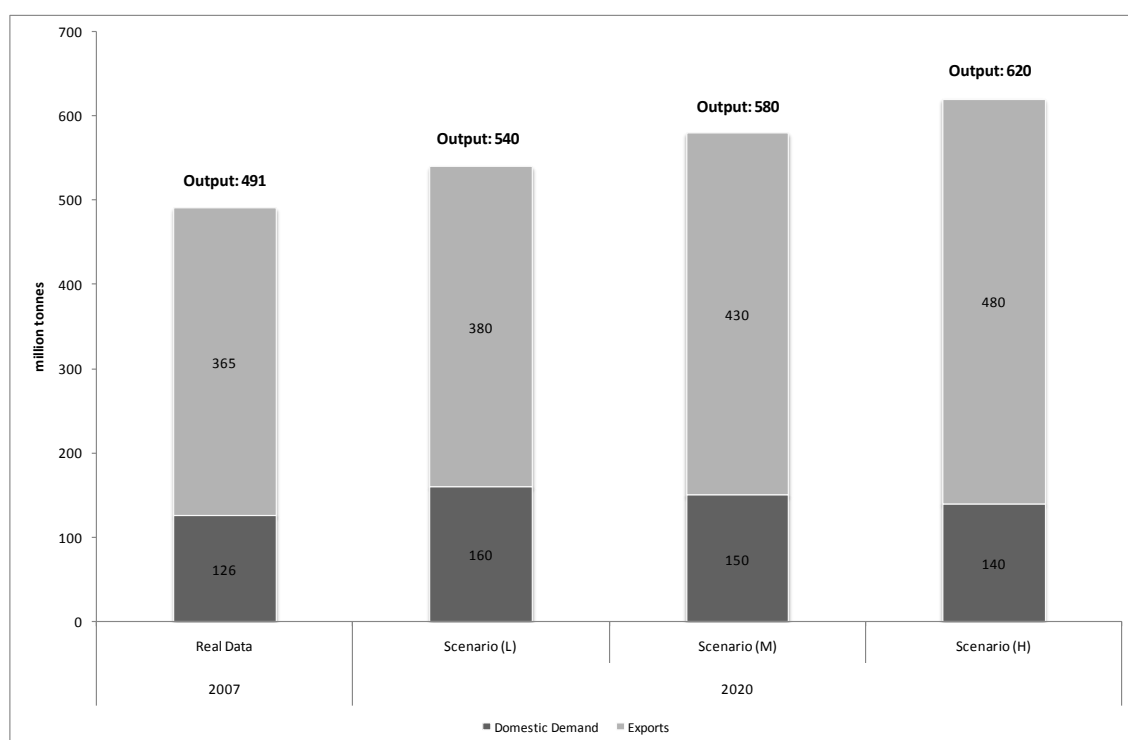
From the above analysis concerning both brake and push factors, which will drive the evolution of oil production and domestic consumption, it is possible to conclude that the Russian oil industry still has significant scope for further increase of its export supply. Therefore exports can continue growing (not so intense as in years past), although the effective growth rate will also depend on foreign demand performance after the world economic crisis. Nonetheless, considering only brake and push internal factors, it is worthwhile to consider three different likely scenarios in order to clarify the alternatives for foreign markets.

The uncertainty surrounding the evolution of production and consumption moves logically into forecasts on the evolution of exports. However, given the necessary

caution that such a forecast requires, it might be proposed that in 2020 domestic consumption will be near the range of 140 to 160 mt, while at the same time production moves into a range of 540 to 620 mt. Based on these projections, the export potential can be summarized through three different scenarios, which are reflected in Figure 4. In the first, moderate consumption (140 mt) is combined with a good rate of increase in production (620 mt), so that sales abroad could be targeted at 480 mt. In the second scenario, both production and consumption are at medium levels of 150 and 580 mt, respectively, while exports are at 430 mt. In the third scenario, domestic consumption rises to 160 mt and production exceeds 540 mt, limiting the export amount to only 380 mt.

It follows that, after the unique export boom period of 2000-05, the trend for exports, like that for consumption and production, will follow a more normal trend over the next few years. This means annual change rates ranging from 0.3% (in the moderate-growth scenario) to 2.1% (in the most optimistic scenario). In numbers, the increase in exports will move between 15, 65, and 115 mt, depending on the various combinations that may be established between the rates of increase in production and domestic consumption.

Figure 1. Production, consumption, and exports forecast for oil in 2020



L) Low growth; M) medium; H) high.

Source: Own data.

Obviously, these are three likely scenarios, assuming that in the medium term no major changes arise in substantive issues to affect the dynamics of economic growth and/or

the evolution of international energy prices²⁵. On the other hand, any tendency toward the most extreme positions (an increase of barely 15 mt in the most negative scenario, or up to 115 mt in the most positive) would be largely influenced by the attitude and effectiveness of the actions of the State, insofar as it has become a central player in the oil sector and in economic activity. In a pessimistic scenario, if the sector redesign does not serve to change strategies or the short-term economic dependency on oil revenues, this could lead to a slowdown in the pace of growth in extraction activity, severely limiting the increase in quantities available for export. In an optimistic scenario, if the State is able to intensify the pace of investment so as to substantially raise the production ceiling, lifting it to above 600 mt, the increase in exports could well be above 100 mt.

a) Gas exports

The stagnation in production and the recent rebound in domestic consumption led to a slight cut in exports in 2006-07, which seems to confirm fears regarding Russia's difficulties in ensuring compliance with its export contracts. However, the above analysis leads to a supposition that domestic consumption will maintain a moderate pace of increase, but that this pace will always be lower than the rate of output growth. Thus, export supply will continue to grow through 2020, unless foreign demand suffers further falls.

Leaving apart foreign factors, we consider three likely scenarios in order to clarify the alternatives for foreign markets (see Figure 1):

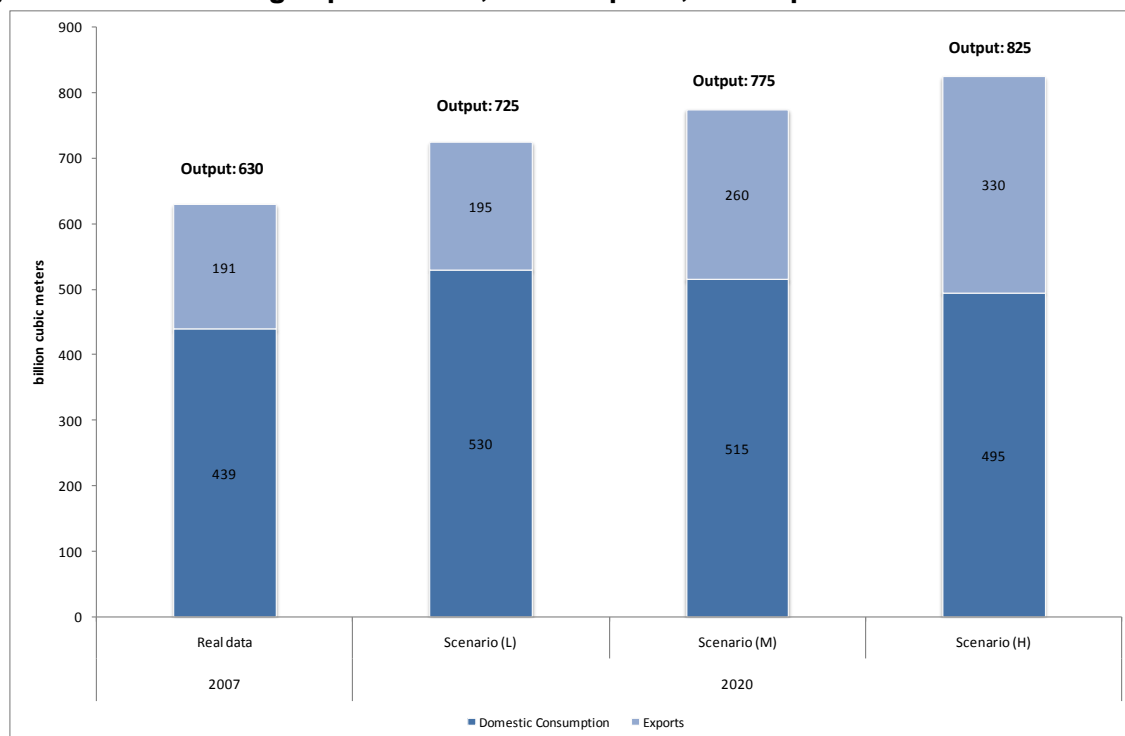
i) In an optimistic scenario, the joint production of Gazprom and independent companies will reach 825 bcm, while domestic consumption grows at a moderate rate, remaining around 495 bcm. In this way, the amount exported in 2020 would be 330 bcm, meaning an increase of 140 bcm with respect to 2007 exports.

ii) In an intermediate scenario, production will grow at 1.5% annually, reaching 775 bcm, while consumption reaches 515 bcm. In this case, exports will also increase, though more moderately, rising in 2020 to 260 bcm, an increase of 70 bcm.

iii) In a more pessimistic scenario, results are close to predictions that Gazprom and independent companies will fail to raise their production beyond 575 and 150 bcm, respectively, so that gas production will not exceed 725 bcm. If, moreover, domestic consumption grows at 1.5% and reaches 530 bcm, the scope for increased exports would be minimal. They would reach 195 bcm, increasing by only 5 bcm relative to the level reached in 2007.

²⁵ In a medium-term scenario, it might be presumed that oil prices will tend to stabilize around a level high enough to ensure the sustainability of both economic growth and the profitability of oil investments.

Figure 2. Forecast for gas production, consumption, and exports in 2020



L) Low growth; M) medium; H) high. Source: Own data.

5.2. Alternatives for exports

a) Oil alternatives

In our most optimistic scenario, Russia would have leeway to combine the expansion of its presence in European markets with diversification into Asia and the United States. If, by contrast, the volume of exports grows at a moderate pace, then a trade-off between markets will occur. The dilemma would lie in whether exports should be geared towards European countries (the largest consumers of Russian oil), or whether they should serve to open markets in the U.S. and East Asia, which currently account for just one-tenth of Russian sales.

At the same time, the solution of this dilemma will depend very much on how the issue of the geographic duality of oil reserves is resolved. If output growth is based on further implementation of intensive extraction techniques for old and new wells in Western Siberia, with the complement of the Timan-Pechora fields, then it is highly likely that most of the increase in exports will go to Europe and, to a lesser extent, to North America. In contrast, if the regions of Eastern Siberia and the Far East start to become large productive regions, then a considerable increase of exports to the countries of East Asia might be expected, with little growth in sales to the European continent. In this sense, a third aspect to be considered is the rapid expansion in production of crude from Kazakhstan, which could also influence the Russian export strategy if (as seems to be the case) Kazakh sales grow preferentially toward China and other Asian countries²⁶.

²⁶ Because currently proven reserves are of little importance, Russia's resources in the Caspian region are not considered in this article. Only Filanovskiy seems to be a mainly oil field. The other four are gas fields.

It is still too early to know which option will be ultimately taken, although it may be recalled that the 2003 plan envisioned extraction in the eastern territories as reaching 38 mt in 2010, 70 mt in 2015, and 106 mt in 2020. This ambitious goal gives an indication of the interest of the authorities in stimulating production in Eastern areas. However at the current rate of production, it is more than unlikely that this goal can be met. In 2005, Siberian production was less than half a million tonnes, while that of Sakhalin remains stabilized at 3.5 to 4 mt. This trend suggests that difficulties in the productive development of these regions remain greater than originally planned. Thus, the most conservative estimates of Sagers (2006, p.541) attribute to these regions a production of 28 mt in 2010 and of 40 mt in 2015, half of which corresponds to Sakhalin projects 1 and 2. This implies that in 2015 extraction in Eastern Siberia will be no more than 20 mt, much lower than estimated by the government. By contrast, expectations of increased production in Timan-Pechora are far more promising, both because the quarrying activity is more developed and because it enjoys better communication with foreign markets²⁷.

Therefore it can be argued that, if the growth of export supply were very small -- with annual rates of less than 1% -- it is likely that the vast majority of that increase would go to European markets, not only because the increase won't be sufficient for diversification but also because such a low growth rate would be the consequence of very limited progress among the quarrying activities in the eastern regions.

If the investment strategy becomes more ambitious, but heavily concentrated around the opening of new wells in western Siberia and the development of fields in Timan-Pechora, exports to Europe could rise above 50 mt, with possible intensification of trade relations with the U.S. but only at the expense of the geopolitical interests of both powers.

Finally, if the export-investment strategy is able to generate a larger increase in output (to around 620 mt), due to increasing production in the western basins (sources of export to Europe) as well as growing output in Eastern Siberia and Sakhalin (keys for diversification into Asia), increased sales could be shared between Western and Asian markets, especially China²⁸.

²⁷ The oil output in 2006 in the Republic of Komi and in the Arkhangel oblast (Nenets) reached 30 mt, doubling the figure registered in 2000. In the East, production is significant only in Sakhalin (4 mt), where levels remain very similar to those obtained in 2000. On the other hand, under operation since 2001 is the Baltic Pipeline System, which connects the Timan-Pechora region with the Russian port of Primorsk, north of St. Petersburg. At present, about 30% of Russian exports to Europe leave from this port. In the East, everything seems to be waiting on termination of the Eastern Siberia-Pacific Ocean pipeline (ESPO), intended to connect the Western Siberian network with Eastern basins and then with ports on the Pacific Ocean. Currently the pipeline reaches Taishet, starting from Tyumen and going through Omsk and Tomsk. The ESPO continues to north of Baikal Lake, to Skovorodino, in the eastern area of the Russian-Chinese border, but still lacks construction of the branch to China (with capacity to transport 30 mt) and to the Pacific coast (capacity 50 mt) (www.transneft.ru).

²⁸ The expansion of trade with the United States is dependent not only on the overall progress of exportable supply from Russia, but also on the smooth development of political relations between the two governments. In this respect, this is a strategic option, perceived to be more and more distant, because at present both Administrations are not apparently determined to improve relations. On the current state of U.S.-Russian relations, see Graham (2008).

b) Gas alternatives

Very similar conclusions fit for the gas sector. Thus, the most optimistic scenario offers Russia leeway to combine the expansion of its presence in European markets with diversification into Asia and the United States. The intermediate scenario supports an increase in exports to the European continent, but a delay in diversification into new markets. Finally, the most pessimistic outlook avoids a reduction in sales to Europe only by renouncing the opening of markets into East Asia and the United States.

However, these general conclusions must be qualified by two additional points. On the one hand, it is very likely that the next decade will see a gradual cutback in sales to former Soviet republics (which still reached 74 bcm in 2005) as a result of the continued rise in prices, decreasing dependence on transit, and the ample opportunity for these economies to reduce consumption by improving efficiency. On the other hand, Russia holds the possibility of importing gas from Central Asia, which it may then use either for export or domestic markets, releasing its own national production for sale abroad. The recent agreements reached with Central Asian countries allow a forecast of substantial increase in these imports.²⁹

Therefore, previous estimates added to the above two considerations do not justify EU fears about the sustainability of Russian exports. In the future, it is reasonable to expect that Russian exports can rise from the 120 bcm registered in 2007 to 180-200 bcm in 2020; in the most optimistic forecasts, this would be simultaneously compatible with the export of gas to other regions. In the most promising scenario, exports to the EU could possibly increase to over 200 bcm, if Russian strategy remains essentially oriented towards EU markets. All this means that, for the EU, Russia will not only remain a key supplier but will also help fulfill Europe's goal of increasing gas imports from outside the continent, as Norwegian production begins to decline and the intra-EU begins to be depleted.

Obviously, this does not mean to say that Russian sales will grow at the pace required by its importers, since the pace will of course be subject to Russia's own limits and uncertainties. The first such limit is the scope and effectiveness of the investment plans led by Gazprom, while others include the uncertain ability of independent companies to increase their participation in the sector, the pace of increase in domestic demand, and the level of compliance with agreements to supplement domestic supply through imports from Central Asia. Beside these factors, two others must be considered: falls in demand from the formerly Soviet CIS countries and the geographic location of investments to be carried in years to come.³⁰

In this respect, if most investments continue to be located in the basins of West Siberia and the Barents Sea, then the scope of exports to East Asia will be reduced very significantly, given that these exports greatly depend on developing the huge gas fields of East Siberia and Far East. Betting on Central and Western basins, however, admits the possibility of diversifying exports towards either Asian or American markets. The problem here is that these options rely on completion of the Altai pipeline for Asian exports, and on developing the GNL platform in Shtokman for American exports.

²⁹ If the current agreement with Turkmenistan is met, imports from this country might be around 80 bcm from 2009. However, these imports are dependent on inter-governmental negotiations, so it is not possible to completely confirm this increase.

³⁰ All this is further subject to the outcome of the current financial difficulties, and to the expectation that prices will not fall beyond certain limits.

Furthermore, both options depend on more than just economic factors, and the American expansion in particular may not enjoy the backing of both governments.³¹

6. CONCLUSION

Growth strategies by oil and gas companies account for much of the production boom that occurred during the 2000-05 period, but these strategies were not the most appropriate to ensure the sustainability of growth in the medium term. As the times of "easy" quarrying -- quick extraction with low operating costs in the old Soviet basins -- become a thing of the past, production increases will depend on adding new productive capacities at both old and new deposits.

Putting northern and eastern fields into operation will require especially large investments, since neither the State nor the private companies were willing to make them in previous years. Therefore, the allocation of public funds, as well as stimuli for private companies to alter their short-term policies, are essential to ensure moderate but steady growth of oil production through the next decade.

Since 2003, a radical shift has occurred in energy policy in order to redirect investment in this direction as part of a wider State strategy of recontrolling and strengthening this sector. If this positive scenario for long-term investment comes to pass, oil and gas production could grow at an average annual rate near 2% during the period of 2008-20. At the same time, consumption is likely to follow an upward path, as the result of a net balance between the drivers and brake mechanisms. The growth gap between production and consumption rates allows a forecast of moderate export growth. More specifically, it may be forecast that oil exports could grow at range of 15 to 115 mt from 2007 to 2020, and gas exports at a range of 5 to 140 bcm.

Such growth suggests that Russia has room to combine the intensification of sales in Europe (its largest market) with diversification into other partners (China, Japan, and other East Asian countries highlighted among them, expectations for the U.S. market being less positive for commercial and geopolitical reasons). The intensity of export extension to Europe, versus diversification into East Asia, depends on commercial and strategic criteria for both sides, and will also be conditioned by the evolution of the main quarrying areas.

If quarrying in Western Siberian fields continues to expand, with a certain complement from other areas, it might be expected that most increased trade will move toward the European continent. In contrast, if Eastern Siberian and new Far East basins start to win greater attention, then an increasing proportion of oil exports will go to East Asia, whereas the rate of export growth to Europe should be very low.

³¹ Gazprom's sales of liquefied gas to the United States under its agreement with BP do not draw from Gazprom production within Russian territory (www.gazprom.com).

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