Chapter 10
Russia’s vantage point in a dynamic interregional gas market

10.1 Introduction
Having concluded in Chapter 3 that Russia wants to build on its natural resources to achieve a relative advantage, this chapter is essentially a follow up of this line of argumentation. Both Russia, as a principal, and Gazprom, as an agent, operate in a space with geo-economic opportunities and constraints. Russia as a state can influence the boundary solutions for Gazprom, both in terms of domestic and foreign policies. This may help secure, for example, flows on the Eurasian continent, which was once part of the Soviet system of production and distribution. Understanding Russia’s priorities and goals as well as its export strategy with respect to current and new potential markets will enable one to understand how it should carefully balance internal versus external focal points.

Internally, Russia has to ensure a stable and reliable revenue stream from its natural resources, partly in order to plan and guarantee investments in other sectors with the aim of modernising and diversifying the Russian economy. The Russian government has to provide incentives so as to allocate gas production areas to both Gazprom and other Russian gas firms (i.e., independent gas producers). In addition, Gazprom must live up to its public service obligation to supply Russian citizens with relative low-priced gas (although this is planned to change).

Externally, Gazprom aims to maximise its revenues, which takes into account both access to markets (possibly via vertical integration), as well as possible moves to do the same by rivals. The growing import-dependence of the European market(s) presents Russia with an opportunity to maintain or expand market share even as it seeks to export to large and diverse gas markets, such as China and the US. Russia is shifting from a regional, captive supplier to a more global one, both by pipeline as well as LNG.

Section 10.2 is an overview of Russia’s gas reserves and current gas balance. Section 10.3 provides an impression of Russia’s gas sector in terms of revenues, institutionalisation, decision-making, and foreign participation. In Section 10.4, attention is paid to Russia’s domestic gas needs and strategy. Next to this, Section 10.5 addresses Russia’s gas export ambitions by pipeline and LNG flows to the CIS, European, Asian, and the US markets. Section 10.6 provides the main uncertainties related to Russia’s merit order. Section 10.7 concludes.

The term ‘independent’ has become increasingly unsuitable since Gazprom formed strategic relationship with and has taken (minority) equity stakes in these companies [Stern 2009].
10.2 Russia’s current gas balance

Of the few major gas suppliers in the world, Russia is the largest in terms of conventional reserves, production and exports (see also Chapter 3 and 8). Domestically Russia is also a large consumer of gas, the second largest after the US (domestic Russian gas consumption amounted in 2008 to 462 bcm) [IEA 2009]. According to Gazprom’s data, Russia exported 170 bcm and 83 bcm in 2008 to Europe and the CIS countries, respectively, through Russia’s export infrastructure, linking it first with CIS and then with European markets (see Chapter 12). These volumes were accompanied in 2008 by 59 bcm worth of imported Central Asian volumes by Russia and then either consumed domestically or re-exported [Gazprom 2009]. In 2008, Gazprom accounted for 75 percent of total Russia’s production, see Figure 10.1.

Figure 10.1 Russia’s gas balance in 2008

As far as reserves within Russia are concerned, Gazprom controls roughly 56 percent (28.9 tcm), implying that it controls 13 percent of the world’s gas reserves. The so-called ‘independent’ gas producers control the remaining share of Russia’s reserves, 44 percent (18.9 tcm). The most important production areas in the Russian gas industry are those which have been producing for decades, located in Western Siberia, south of the Yamal area in the NPT area, good for some 80 percent of Russia’s gas production. The Russian gas industry is at a cross-roads as it must shift production from these mostly mature production

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295 75 Percent of Russia’s gas fields are concentrated in 20 (ultra) gigantic deposits (more than 1 tcm), mostly controlled by Gazprom. In addition, there are dozens of the ‘large-scale’ fields (0.3-1 tcm) and more than 600 medium and small fields (about 10 bcm) [Zhiznin 2007].
sites to the potential producing areas in parts of Eastern Siberia, the Far East and in the region north of the Arctic Circle as well as other parts of the Yamal peninsula [IEA 2008c]. There are three categories of major gas fields located in various provinces: (1) major gas fields which are in decline; (2) those which have reached a plateau production profile; and (3) the ‘new’ gas fields, often in new gas provinces at a considerable distance from Russia’s current infrastructure. See Map 8.1 for a geographical overview of the most important gas fields in (and outside) Russia.

**Mature fields and production areas**
The mature fields include the super giant gas fields south of the Yamal peninsula, which have provided the bulk of Russia’s gas production during the days of the Soviet Union, i.e., Medvezhe (2.69 tcm), Urengoy (2.5 tcm), Yamburg (2.6 tcm). These fields are also known as the ‘big three’ and are in a significant decline at a rate of some 20 bcm/y – ‘very mature’ in geological terms [Stern 2005; IEA 2009].

**Fields with a flat production profile and brownfields**
Most of the relative ‘smaller’ fields have entered in a flat production profile. Some of these fields, mostly located in Western Siberia, offer possibilities of brownfield investments to increase production in order to hold up the decline in the big three fields (sometimes mentioned as the Russia’s small field policy). Zapolyarnoye is the most significant, it has peaked as recently as 2005 at 100 bcm/y and is currently also entering its decline [Stern 2005]. Brownfield investments in the NPT area are another option in the shorter-term to accommodate falling production rates. Of additional importance are the resources at the Obskaya- en Tazovskaya bays, south of the Yamal peninsula, also in western Siberia near the ‘supergiant’ Yamburg field, which may add their weight of 2 tcm worth of reserves to supplementing production from the Yamal area [Gazprom 2006; 2008].

**The new gas provinces**
The main ‘new’ gas provinces are parts of Western Siberia, Yamal, East Siberia, Sakhalin and the Barents Sea, which includes the next generation of very large gas fields [Stern 2009]. The Bovanenskovkoye (3.2 tcm) and Kovytka (1.9 tcm) gas fields, amongst a number of other, smaller gas fields and constellations of gas fields, are those currently earmarked for either domestic consumption or exports. The Shtokman gas field (3.6 tcm), the equivalent of Norway’s entire proven resource base, is located in the Barents Sea [Stern 2005; 2008]. According to the latest plans, gas from Shtokman is expected to come on

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296 These fields are all close to the existing infrastructure, and as was mentioned also, they are therefore relative more “economically practicable to develop”. [Gazprom 2006; Gazprom 2008b, p. 40.].

297 These fields are estimated to have a production potential of up to 82 bcm/y [Stern 2009].

298 The location of the gas fields in remote areas far from the main UGTS areas are known for their harsh climactic conditions involving permafrost and, worse yet, thawing permafrost [Stern 2009].
stream in the late 2010s, in 2016 with pipeline and in 2017 with LNG volumes to Europe and the US [Platts LNG Daily 2010].

Given their size, the reserves at Yamal (e.g., Bovanenkovskoye and Kharasavei) could form the bulk of Gazprom’s production well into the next decades. The collective output from Yamal at Gazprom’s accounts is estimated at 135-175 bcm/y by 2020, and 310-360 bcm/y by 2030 [Gazprom 2009; Stern 2009]. The Yuzhno Russkoye oil and gas deposit (1 tcm) is due to produce 25 bcm by 2009 at design capacity and is tied to the Nord Stream project (see also Case study 3 in Chapter 11) [Gazprom 2008]. Gas from the Kovyrtka field and other fields in Eastern Siberia and Far East (such as Chayandinskoye) may be put into production for the development of Russia’s domestic market. This is likely to be done in combination with exports by pipeline to Asian countries, such as China, South Korea and Japan (see Section 10.5.3).

For a more detailed account of possible Russian gas production (including old, plateau and new fields) by region to 2030, see Figure 10.2. In addition, production from independents is estimated to become substantial in Russia’s supply portfolio: from 17 percent in 2008 to almost 25 percent in 2030.

Imports from Central Asia, mainly from Turkmenistan and Kazakhstan, are also estimated to grow due to newly-signed contracts (70-100 bcm/y by 2010; see Chapter 9) [Stern 2009]. By 2011, production from Yamal’s Bovanenkovo field is expected to reach 8 bcm/y (which will increase to 140 bcm/y in the long-term, according to Gazprom) [IEA 2009].

The frontrunners amongst the independents in 2007 were Novatek (28.5 bcm), Rosneft (16.2 bcm), Lukoil (14.3 bcm), Surgutneftegaz (14.1 bcm), and TNK-BP (10.1 bcm) [Stern 2009]. A somewhat artificial division can be made between the independent gas companies as follows: companies whose main business is oil but have significant interests in (non)associated gas, which includes Lukoil, Rosneft, Surgutneftegaz and TNK/BP. Then there are companies whose main hydrocarbon reserves and business are gas-related, these included mainly Itera and Novatek, but including all the companies that comprise the Union of Independent Gas Producers (Soyuzgaz). Another category includes companies in which Gazprom has a substantial shareholding, such as Sibur and Purgaz.

However, the amount is uncertain due to lower Turkmen exports to Russia following an explosion in the CAC pipeline. It might be possible that Russia will import a substantial amount of gas from the gas field Shah Deniz II in Azerbaijan (see Chapter 9). This is not included in Figure 10.2.

For instance, Cambridge Energy Research Associates (CERA) estimates that gas production will be lower after 2014, compared to UBS’s [2008] projection, largely as a result of lower production from the Yamal fields. Gazprom sets out targets of 610 bcm-615 bcm/y by 2015 and 650-670 bcm/y in 2020. By 2020, according to Gazprom, new fields will...
The development costs for all these new fields are tremendous, costing in the tens of billions of dollars over a period of at least twenty years [Gazprom 2009]. Thus massive greenfield investments are required, which include not just production costs but also infrastructural costs for link-ups with the UGTS as well as processing facilities.\textsuperscript{104}

\textsuperscript{104} Due to neglected maintenance and refurbishments (especially during the 1990s as a result of shortage of funds and the economic chaos), large parts of the UGTS in Russia (and other CIS countries) are in a deplorable state and need to be refurbished. For example, by 2001 the capacity of pipelines exporting gas from NPT had fallen from the design capacity of 577.8 bcm/y to 518 bcm/y [Stern 2009; Mitrova et al. 2009]. Concerning a new project, for example, in 2008 the total development costs (production and pipeline and LNG transportation capacity) for Shtokman alone are estimated to exceed $40 billion [Stern 2009].
10.3 The Russian gas sector

Oil and gas revenues in the Russian economy

Oil and gas revenues are vital to the Russian state budget, as in all oil and gas producing and exporting countries. As Gaddy and Ickes [2005] note, energy rents in the days of the Soviet Union peaked in 1981 at 40 percent of GDP, sinking to an all time low throughout the 1990s due to low oil and gas prices, the privatisation process and the lack of a stable tax regime. Despite higher oil and gas prices in the period 2004-2006, the contribution of oil and gas to the Russian GDP was only 9 percent in 2006 (according to Russia’s official statistics). However, assuming nominal prices of energy in Russia, it would have contributed almost 20 percent of GDP in 2006 [World Bank 2007]. In 2006, the contribution of the gas industry to Russian GDP was 8-9 percent [Stern 2009]. Energy products accounted for 62.7 percent of Russia’s exports in 2006 ($189.2 billion in 2006, compared to $28.2 billion in 1998) and about 50 percent of its tax revenues. More specifically, petroleum products accounted for 46.8 percent of the total merchandise exports in 2006, whereas gas accounted for 14.2 percent. Other energy products, e.g., coal and electricity, accounted for only 1.8 percent of the total export revenues [CASE 2008]. Thus, oil revenues still account for the most important contribution to Russia’s energy incomes, whereas export revenues from gas are becoming comparatively more important.

Figure 10.3 Gazprom’s sales and revenues in different markets in 2008

Gazprom provides for around 20 percent of federal budget income and total currency earnings from foreign trade [Zhizhin 2007]. In 2007, Gazprom’s income ($93 billion) came to 7 percent of Russia’s GDP [Nemtsov and Milov 2008].
Russia is nowadays dependent on Europe for its gas exports, from which it earns hard currency income. During the last years, Gazprom accounts for almost a third of overall government revenues [Goldthau 2010]. Prices in the Russian domestic market and markets in most CIS gas markets are regulated at relatively low price-levels, perhaps reaching export parity by 2011-2012 (see below). The result is that Gazprom’s sales and revenues differ immensely by export market sold, with European exports yielding 68 percent of its actual revenues in 2008, while these volumes themselves only account for a disproportional 32 percent of the total volumes sold (see Figure 10.3). Conversely, domestic Russian sales accounted for a mere 18 percent, while these volumes account for the remaining 51 percent of exported volumes. Note that the Baltic countries and some CIS countries pay already European-level gas prices.

Current institutionalisation

In order to try to balance earnings from the oil and gas sectors and the differences between CIS and European gas market, the Russian leadership under Putin intends to employ an integrated long-run energy strategy. Upon observation, one can discern that Russia has come to see gas as a spearhead for its long-run economic development. The lack of control exercised during the politico-economic crisis of the 1990s (see also Part II) led Putin to restore some measure of order through state-centred reforms, returning Russian society to a state of relative stability, see also Chapter 3 [Åslund 2007].

The reorganisation of the gas industry during the 1990s and Putin’s restructuring included a shift from the planned production system of Gosplan to a more market-based, profit-maximising system, embodied by Gazprom [Stern 2005]. In order to ensure a stable and reliable revenue stream from its natural resources, the Russian government has since 2004 increased state control over and ownership in its energy sector around national champions. The higher oil prices (due to stricter OPEC production policies towards the end of the 1990s) ensured the inflow of greater export revenues, which led to a partial implementation of policies [Åslund 2007].

For a historical overview of the institutionalisation of the Russia’s gas sector, see Part II. In Putin’s dissertation (‘Strategic Planning of Replacement of Regional Mineral Reserves in Conditions of Forming Market Relations’), Putin argued already that the transfer of control of Russian strategic sectors, such as oil and gas, to private owners was a costly mistake. This experience from the nineties should be reversed – not necessarily by re-nationalisation. For Russia, from Putin’s point of view, the mixture of state-private ownership has to be the best solution for strategic companies, so that the state can regulate these sectors. According to his dissertation, Russia should welcome foreign investors for their knowledge and financial resources [RusEnergy 2005].

One of the most prominent cases was the arrest and conviction of Yukos’ chief executive Michael Cherkdorkovski. This led to the dismantling of the Yukos’ Empire. Moreover, Russia had limited the access to its resource for international energy firms [Fredholm 2005].
It is in this light that the creation of national champions was an effort, in the first instance to halt further asset stripping and embezzlement, and in the second place to reverse the overall trend of decentralisation which had set in under Yeltsin (see also Chapter 6). Russia’s national energy firms are Gazprom in the gas sector and Rosneft and Lukoil in the oil sector. The Kremlin has also tried to assert greater control over the oil industry via Gazprom, and thus forming Gazprom into a national energy firm [Victor 2008]. These state-controlled companies can be used by the state as an instrument of internal and external policies [Ministry of Energy of the Russian Federation 2003]. Decentralisation during the 1990s was felt especially in the oil sector, while the gas sector remained centralised with a large minority Russian government stake, changing little between 1993 and 2004. Putin had set out to strengthen the government’s control over Gazprom in an apparent conviction that privatisation and free market capitalism in key Russian sectors was not in Russia’s national interest. In addition, Gazprom argued that any degree of vertical separation would erode its economies of scale and the functioning of the entire production, transport and distribution system [Mitrova 2009]. With the new stake of 50.002 percent in the vertical-integrated company as of late 2005, the Russian Federation now had direct control of its operations and its management (see also Figure 10.4). The vision emerging in 2004 was that Gazprom should become a multinational oil and gas

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508 However, Gazprom continues to spend its money in a questionable fashion by taking stakes in non-core businesses and selling some entities below market value [Hartley and Medlock III 2008; Nemtsov and Milev 2008]. Additionally, Putin established another way to ensure substantial incomes for members of government (and top managers in Gazprom) via secondary positions, besides their main (governmental) position [Business week 2009].

509 The ownership of the company changed remarkably little during this period, while Russian legal entities owned a further 35 to 40 percent, Russian individuals, including employees owning 15 to 20 percent and foreigners between 10 and 12 percent [Goldman 2008]. Former Gazprom’s CEO, Vyakhirev, however, was not in full control of the company and significant asset stripping weakened the company as Gazprom executives established their own little empires at the expense of the company (see Part II).
company, representing interests of the government both domestically and internationally [Stern 2005]. Becoming a multi-market player is thus one of Gazprom’s purposes, and indeed, that of the Russian government [Gazprom 2009; Ministry of Energy of the Russian Federation 2003; Fredholm 2005]. Ultimately, merging Gazprom and Rosneft into one single very large national energy firm would have been the first step in giving this national energy firm a position in the international oil market as well as the interregional gas market. Yet, this step has not been taken.

Gazprom as a firm must take into account Russian government priorities as well as make decisions in the interest of its business continuity. From a government perspective, Gazprom can be an engine for maximising social wealth by utilising gas revenues for fuelling domestic economic growth and diversity, padding the government budget and the stabilisation fund. Developing a gas-based industry (in order to diversify its economy) may also shape Russia’s domestic gas strategy and policy. Maintaining relatively low regulated gas prices in Russia will likewise play a role. From a corporate perspective, Gazprom’s role consists of maximising (windfall) profits from domestic, CIS, and other export markets.

Since 2006, Gazprom officially attained an export monopoly over the gas flows from Russia to its foreign markets. Russia’s challenge in devising a gas strategy as is to balance and control a set of interlocked agents of which Gazprom is but one of several agents. Without the independent gas producers and the Central Asian producers (Turkmenistan, Kazakhstan and Uzbekistan) and in the future possibly Azerbaijan, Gazprom may probably not fulfil its export obligations to Europe.

**Decision-making process within the gas sector**

Increasingly since Putin came into power, Gazprom’s strategy became an important priority of Russia’s government. ‘Gazprom became the first business structure in which Putin by deliberate plan seized the commanding height’ [Nemtsov and Milov 2008, p. 4]. On a strategic level within the Russia’s gas industry, decision-making is very centralised, and
largely influenced by the government [Mitrova 2009]. As mentioned by Mitrova [2009], Gazprom operates in many ways as a ‘quasi-ministry’, like it was during the Soviet times.

In principal, the administration of the Russian Federation (including the Kremlin) is responsible for strategic decision-making. The administration is led by the president (currently Dimitri Medvedev), which in turn is advised by the Presidential Secretariat. The Prime Minister’s Cabinet and relevant ministries, Duma and the Senate, influence this process, as well as members of Gazprom’s management board. Gazprom is largely responsible for the implementation of Russia’s gas strategy. The chairman of Gazprom’s board of directors, Viktor Alexeevich Zubkov, is also the first Deputy Prime Minister of Russia. Informal links between the different governmental and corporate bodies, such as between the president and the Prime Minister (Medvedev and Putin respectively), make the process of decision-making comparatively opaque. Figure 10.5 gives an approximated overview of Russia’s decision-making in the gas industry.

Figure 10.5 Approximated schematic schedule of the decision-making process in the Russian gas industry

A large number of people working at Gazprom are part of Putin’s network.

The role of Sechin (Deputy Prime Minister and chairman of Rosneft’s board of directors) is relatively more important for decision-making within the oil sector.

This overview is designed to provide a simplified, perhaps even oversimplified impression of decision-making in the Russian gas sector. Informal and formal forces may also be at play to such an extent that it is beyond the scope of consideration for this study.
Foreign participation in Russia’s gas sector

After the dissolution of the Soviet Union and the first years of transition until mid-1990, the Russian energy sector became relatively open for foreign investors, especially the oil sector. The gas sector remains largely centralised. However, some gas fields were developed by foreign companies, such as Royal Dutch Shell, Mitsui and Mitsubishi in Sakhalin II (founded in 1994) and BP via TNK-BP (founded in 2003) in the Kovytka field. A number of foreign companies met difficulties and had to reduce (e.g., Royal Dutch Shell in Sakhalin II) or even cease their activities in Russia. The traditional form of foreign participation in development gas fields was subject to conditions specified in PSAs. Under Putin, the priority has been given to other contractual forms, particularly to public-private partnership (PPP), which is a means of better organising the development of resources under conditions determined by the state. In most of the large fields, Gazprom has a majority stake for strategic reasons [Zhiznin 2007; Mitrova 2009]. These foreign participations are often part of a broader cooperation through vertical asset swaps (see below). Cooperation with major foreign corporations is desirable in terms of their large financial and technological potential and corporate experience [Zhiznin 2007; Stern 2005]. The most important foreign partners, in addition to the above-mentioned companies, with stakes in the Russian gas sector are BASF/Wintershall, ENI, E.ON Ruhrgas, Total, ExxonMobil, Sakhalin Oil and Gas Development Corp. (SODECO), Indian Oil and Gas Corporation (INGC) and StatoilHydro [Zhiznin 2007; Mitrova 2009].

10.4 Domestic gas needs and strategy

Russia’s primary energy mix in 2008 (684.6 Mtoe) was composed as follows: 55 percent of gas, 19 percent of oil, 15 percent of coal, 5 percent of nuclear and 6 percent of hydro-power [BP 2009]. Russia is thus a major gas consumer, where domestic demand in Russia takes up almost three quarters of Russian production, see Figure 10.1 [IEA 2009]. Russian per capita consumption of gas is similar to that in Canada, but consumption per US dollar of GDP is roughly five times higher than IEA countries [IEA 2007], hinting at vastly less efficient consumption in Russia. Due to TPA and sales restrictions, oil companies have to flare significant volumes (estimates are around 15-50 bcm/y or even more) [Stern 2005; Stern 2009]. Russia’s economic growth (when measured by GDP from 1999 until the economic crisis in 2008: 5-8 percent per annum), combined with relatively low, subsidised domestic prices resulted in a high gas demand [Stern 2009]. Gas prices are

For an extensive overview of foreign participation in Russia, see for example Zhiznin [2007], Stern [2005; 2009] and Part II.

For an extensive analysis on the Russian gas strategy within Russia and CIS, see for example Pirani et al. [2009], Stern [2005], IEA [2008].
subsidised in order to provide Russian industrial and residential consumers with some leeway. In addition, low gas prices have forced other fuels out of the power generation and industrial sectors, the share of gas in Russia’s grew from 43 percent in 1990 to 55 percent in 2008 [BP 2009].

The Russian gas market itself is in transition. During the 1990s, in the aftermath of the collapse of the Soviet Union and the economic chaos that ensued, demand for gas in Russia fell substantially. With the Russian financial crises in 1993 and 1998, demand fell even further and the Russian domestic gas market was plagued with a default of payments by customers, both in the residential and industrial sector [Stern 2005; 2009]. After 1998, when the Russian economy picked up again owing in part to a devalued Russian rouble, gas demand began to rise to pre-1991 levels (from 418.2 in 1991, to 352.8 bcm in 1999 and 420.2 bcm in 2008) [BP 2009]. With the onset of the 2008-2009 financial and economic crisis, Russian domestic demand significantly dampened [WGI 2009b]. Stern [2009] projects a domestic demand of 385-440 bcm in 2015.

Gazprom supplied Russia’s domestic market with 260 bcm, see Figure 10.3 [Gazprom 2009]. Further downstream, Gazprom holds ‘blocking-stakes’ in more than 70 percent of gas-distribution plants [Mitrova 2009]. The independent gas producers fulfill other domestic demand, although Gazprom is increasingly trying to control the Russian gas sector [Hartley and Medlock 2008]. Deliveries from the independent gas producers are almost entirely concentrated in the power and industrial sector and are not delivered to residential customers or even distribution companies [Stern 2005]. Of Gazprom’s sales in 2008, the largest shares went to non-household sectors: 32.5 percent went to power generation, 16.8 percent to the utility sector and much of the remainder to the industry sectors. Russian household consumers were responsible for 16.8 percent of the total Gazprom’s sales in Russia [Gazprom 2009]. In the face of high domestic demand until recently, the difficulty for Gazprom has been to develop the required infrastructure to accommodate flows from the independent gas producers without running the risk of seeing empty pipelines long before they have been amortised [UBS Investment Research 2008]. Nevertheless, the independent gas producers provide Gazprom with the opportunity to share the investment burden. A growing share of gas investments in Russia is expected to come from the independent gas producers, contingent upon them gaining access to Gazprom’s transmission system [IEA 2008c].

In 2006 the Russian gas exchange (Mezhregiongaz) was launched with the aim of liberalising the Russian gas market and introducing market principles in the traditionally state centred Russian energy supply system. The volumes traded thus far are only at experimental levels not exceeding 10 bcm in 2007 (less than 2 percent of gas sold in Russia) and

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For example, in 2006, Gazprom purchased a 20 percent stake in Novatek and had established ‘strategic partnerships’ with Lukoil and Rosneft [Hartley and Medlock 2008].
constitutes thus only a small step towards liberalisation [Stern 2009]. The liberalisation allow Gazprom and the independent gas producers to sell on spot terms when prices are well above those set for the domestic market and securing the independent gas producers’ access to the pipeline network.

In addition, with the proper legislation and tax structures in place, it is possible to provide an incentive to the independent gas producers to develop non-strategic fields, channelling the volumes to foreign markets through Gazprom. Gazprom in turn could then be in charge of maximising the value of these volumes and distributing the resulting added value to the independent gas producers as a means of sharing the risks and benefits. The proposal for this mechanism has been put forward to the Russian Duma [CIEP 2008].

The currently relative low domestic gas prices contribute to the overall importance of energy for the Russian economy, manifested in the national accounts, distorting efficiency incentives and discourage investment in Russia’s gas sector [Åslund 2007; Gazprom 2008a]. Long demanded by the IMF, WTO and EU, in November 2006, the Russian government took the decision to gradually increase regulated gas prices (with a difference between the industrial and household prices), so that by 2011 they will reach export parity with Europe, excluding transmission costs and customs duties [Stern 2009; Gazprom 2008]. According to Stern [2009], this policy will have some important consequences:

- sales of gas from the relatively more expensive new fields (such as Yamal) could be profitable on the domestic market;
- there will increasingly be an incentive for (particularly independent) producers to maximise its production and sales for the domestic market;
- a gas exchange (or hub) will allow gas prices to float as they do on European hubs, properly reflecting demand and supply conditions. The amounts of gas exchanged should reach 15 bcm by the end of 2008 [Platts International Gas Report 2007].
- Initial 2006 deals indicated an average price of $60/mcm, or $1.70/Mbtu, compared with the average domestic price of $1.25/Mbtu, reflecting the willingness of some industrial consumers to pay more for volumes than state-regulated prices for volumes beyond those provided by Gazprom on a long-term basis [WGI 2008b]. Besides the introduction of spot sales, long-term contracts for industrial customers were introduced. Gazprom insists that the general scheme on the country’s gas sector development until 2030 should be adopted before the implementation of regulations on non-discriminatory, third-party access for independent gas producers to the pipeline system [WGI 2009b].
- Indeed, Russia’s FAS has been instructed by the cabinet to amend the Gas Export Act in order to enable Gazprom to share export profits with the independent gas producers [Kommersant 2008].
- Gazprom has invested heavily over the last few years to expand the Urengoy transportation system to enable the independent gas producers to boost output from the region’s fields [UBS Investment Research 2008].
- During the 1990s the gas sector moved away from a principle of ‘cost-plus’ pricing to de facto ‘price-cap’ regulation [Mitrova 2009].
- See Table 2.9 in Stern [2009, p. 74] for the estimated average Russian gas prices from 2007 to 2011. The approach of relatively gradual and controlled increases aims to support the government’s general anti-inflationary policy, including tight monetary supply [Mitrova 2009].

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• investments in efficiency and energy saving will be more profitable;\textsuperscript{127}
• In the longer-term, a netback parity with West European prices would make the domestic Russian market more attractive than exports (due to additional transport costs).\textsuperscript{128}

Russia’s export potential is thus directly linked to domestic developments not only in terms of domestic Russian prices but also Russia’s primary energy mix. The most important domestic concern of the Russian government is ensuring that domestic demand in Russia is met first, and Gazprom as an agent of the state, is tasked with a public service obligation in this respect. This is a political as well as an economic priority for the Russian government [Gazprom 2007]. Relatively high gas prices, e.g., by mid-2008, but also the current economic downturn could delay the current scheme of gradual price gas increases [Stern 2009].

10.5 Gas export ambitions and strategy
During the late Soviet times, Russia was dependent on Europe as a hard currency-earning market, while providing its CMEA and Soviet allies with cheap, subsidised energy.\textsuperscript{172} Gazprom’s current exports should be seen as split into European and CIS exports. Within Europe, one can distinguish former CMEA countries and West European countries and Turkey. Russia benefits not only from its location and the size of its resource base, but also from its status as the key incumbent in Europe, where it can affect the supply-demand balance such that it can have knock-on effects in the Atlantic LNG basket [Baker Institute 2005; IEA 2007]. As mentioned above, Russia has, at the political level as well as in the commercial sense, more global ambitions. Specifically for its export markets, Gazprom aims to [Zhiznin 2007]:

1) secure its present market position in price and volume terms;
2) enter new regional markets, such as Asia-Pacific and the US market by pipeline and LNG exports;
3) evolve new business models of sales, such as self-contracting and integrate vertically by controlling storage and downstream activities closer to the market;
4) explore short-term contracts and spot trade in Europe;
5) minimise its reliance on troublesome transit countries such as the Ukraine and Belarus\textsuperscript{173}, collect debt from and increase the profitability in its CIS export markets;

\textsuperscript{127} Mitrova [2009] suggests a rule of thumb for the power sector that gas-saving measures will become economically justified when prices are above $100/mcm.

\textsuperscript{128} From Russia’s governmental point of view, exports to the foreign markets, however, are still more attractive to Russia (as a government), due to export duty revenues (30 percent on exported gas), except for the member of the Customs Union (Russia, Belarus and Kazakhstan) [Mitrova 2009]. Nevertheless, in the short-and mid-term, import prices of Central Asian gas are expected to be higher than Russia’s domestic prices [Stern 2009].

\textsuperscript{172} For a historical overview of Russia’s export strategy, see Part II. Stern [1999; 2005].
\textsuperscript{173} Some 80 percent of Russia’s gas exports to Europe now travel through the Ukrainian network.
6) ensure that it remains the only economically viable transit route to Europe for Caspian gas; and
7) developing upstream exploration and production opportunities in other countries.\textsuperscript{331}

The diversification of Gazprom’s export activities is schematically portrayed in Figure 10.6.

**Figure 10.6 Diversification of Gazprom’s export activities**

<table>
<thead>
<tr>
<th>Gazprom’s gas sources</th>
<th>(New) pipeline facilities</th>
<th>(New) LNG facilities</th>
<th>Export markets</th>
<th>Level of market penetration</th>
<th>Types of contracts</th>
</tr>
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<tbody>
<tr>
<td>Own produced gas</td>
<td>Ukraine transit</td>
<td>Sakhalin*</td>
<td>CIS countries</td>
<td>Wholesale gas sales</td>
<td>Long-term contracts</td>
</tr>
<tr>
<td>Gas produced by JVs with Gazprom (in and outside Russia)</td>
<td>Direct connections to CIS/Baltic/Finland</td>
<td>Shтокман*</td>
<td>Europe</td>
<td>Midstream activity</td>
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<tr>
<td>Gas from IGPs</td>
<td>Yamal-Europe</td>
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<td>Gas sales to end-users (i.e. Gazprom M&amp;T)</td>
<td>Spot sales</td>
</tr>
<tr>
<td>Gas from the Caspian region</td>
<td>Blue Stream</td>
<td></td>
<td>North America*</td>
<td></td>
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<tr>
<td></td>
<td>Nord Stream*</td>
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<td></td>
<td>South Stream*</td>
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<td></td>
<td>Altai pipeline*</td>
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<td></td>
<td>Sakhalin-Khabarovsk-Vladivostok pipeline*</td>
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<td></td>
<td>Far East pipelines*</td>
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</tr>
<tr>
<td>* Under construction/committed or planned/proposed.</td>
<td>Source: own analysis, based on RPI [2005].</td>
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</tbody>
</table>

10.5.1 Near abroad: export to CIS markets

Gazprom’s gas sales in the CIS were 83 bcm in 2008 [Gazprom 2009].\textsuperscript{332} Most of the CIS sales is concentrated in Russia’s transit countries: Ukraine (61 percent) and Belarus (23 percent). Other less important export markets are Kazakhstan (10 percent), Moldova (2 percent), Armenia (2 percent) and Georgia (1 percent) [Gazprom 2009]. Although the energy mix differs by CIS country, gas is an important contributor to their energy needs. The share of gas in the Ukraine’s energy mix is more than 40 percent, whereas in the case of Belarus this is almost 70 percent [BP 2009]. These CIS countries are heavily dependent on Russia’s (and other CIS’s) imports [Pirani et al. 2009].

Gazprom’s strategic challenge in the CIS is about how to govern the increasingly complex interdependent relationships with three groups of countries in an effective way:

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\textsuperscript{331} Additional aims of Gazprom, although less related to its export strategy, are (1) lower dependence on import equipment and services, and (2) attracting foreign investments [Zhiznin 2007].

\textsuperscript{332} Excluding the Baltic states. See Pirani [2009] for an extensive overview of CIS gas strategy.
1) Central Asian countries and Azerbaijan, on which Gazprom’s dependence for key gas supplies could rise, as well as countries which one in some cases necessary for transit purposes (see below);\textsuperscript{333}

2) Caucasus countries where it had to compete with gas flows from Azerbaijan and Iran [Tokmazishvili 2009; IEA 2008c];

3) Ukraine, Belarus and Moldova where Gazprom will be selling gas as well as needing territory to ship gas to Europe (from Central Asia as well as Russia). Gazprom has a problematic transit relation with a number of CIS countries, which has led to various disputes (such as in 2006 and 2009) [Stern 2005; Mitrova et al. 2009].\textsuperscript{334}

As the 2000s unfolded, several important developments in addition to a change in management saw Gazprom take CIS gas trade back under its control. This includes moving away from barter and trading intermediaries (which sold gas from Central Asia and Russia) [Pirani 2009]:

- a change in Gazprom’s supply position led to a corresponding rise in the strategic value of Central Asian gas in its future supply portfolio, although it becomes more expensive; and
- the economic recovery of CIS economies, combined with Gazprom’s new geo-economic framework (see Section 8.2), raising Russian prices and higher import prices from Central Asia, leading to a new commercial framework: more profitability and increasing export prices to the principal of European netback pricing [Stern 2005; Mitrova et al. 2009; Yafimava 2009].\textsuperscript{335}

Due to the maturity of CIS markets, the desire to reduce its dependency on Russian gas and its increasing convergence to European gas price, in terms of volumes, there are relatively small market opportunities in CIS markets from Russia’s perspective.\textsuperscript{336} On the one hand, Gazprom is attempting to secure and maintain market share by buying equity in large gas consuming components of the value chain, such as transport, power and indus-

\textsuperscript{333} Russia’s strategy towards the Caspian region changed during the period after the collapse of the Soviet Union (see also Part II). During the 1990s, Gazprom replaced gas (barter) trade between Turkmenistan and other CIS countries (mainly Ukraine) by intermediates, like Itera. These middlemen companies captured most of Central Asian resource rents. As a result of increasing competition, combined with the strategic importance of Caspian production for Gazprom’s gas supply portfolio, Gazprom changed its strategy to a more commercial relation [Victor et al. 2006; Stern 2005].

\textsuperscript{334} See Part II and Case 4 in Chapter 11 for a (historical) overview of Russia’s transit relation with and its policy towards Ukraine, Belarus, and Moldova.

\textsuperscript{335} In addition, the Russia-Ukraine gas disputes (in 2006, 2008, and 2009) have accelerated European netback price implementation for Ukraine [Mitrova et al. 2009]. However, avoiding vulnerability to disruptions of Gazprom’s supplies to Europe in transit through the western CIS and geopolitical considerations may delay the implementation of its netback policy in the western CIS [Pirani 2009].

\textsuperscript{336} Although it is difficult to predict, Stern [2009] estimates similar volumes (75-85 bcm in 2015), excluding Azerbaijan and Kazakhstan, to those of the mid 2000s.
trial enterprises. On the other hand, it may want to keep its current contractual flexibil-
ity (e.g., Gazprom’s current volume contract with Ukraine need to be signed every year) as
a tool of managing Gazprom’s supply portfolio [Parani et al. 2009].

**Figure 10.7** Gas prices for Gazprom’s gas in different markets: 2003-2008

As far as Gazprom’s export markets are concerned, prices differ immensely by market (see
Figure 10.7). As mentioned above, prices in Russia itself are regulated, and amounted to
$67/mcm in 2008. CIS and Baltic prices were $149/mcm on average, while European
prices stood at $313/mcm [Gazprom 2009]. Much of these price differences are attribut-
able to the path-dependency aspects of a transition from Soviet-era gas pricing and subsi-
dies to the current, more market oriented setting (see Part II).

### 10.5.2 Far abroad: export to European markets

Gazprom’s supply to Europe has increased by around 73 percent between 1990 to 2008.
The sales to Western Europe (including Turkey) have more than doubled, with a rela-
tively sharp climb since 2002 (almost 5 percent per year growth). This is not the case for
Central and Eastern Europe, where Gazprom’s gas sales increased by only 1 percent be-
tween 1990 to 2008. The total sales of Gazprom in Europe were 170 bcm in 2008. In
Western Europe, Germany (34 bcm), Turkey (21 bcm), Italy (20 bcm), the UK (19 bcm),
France (10 bcm) were the largest European markets for Gazprom. In Central and Eastern

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85 For example, it has taken equity stakes in Armenian, Kazakh, Moldovan and Belarusian transportation assets [Mi-
trova et al. 2009].

86 Gazprom’s contract with Belarus will end in 2012 [Yafimava 2009]. The ‘commercialisation’ of Russia’s trading
relation with western CIS countries could, however, entail long-term contracts [Pizani 2009].
Europe, Hungary (8 bcm), Czech republic (7 bcm), Poland (7 bcm) and Slovakia (6 bcm) are also significant markets for Gazprom. Figure 10.8 shows the development of Gazprom’s gas sales in Europe from 1990 to 2008, whereas Figure 10.9 gives an overview of Gazprom’s sales and markets share per country.

**Figure 10.8** Export volume of Gazprom to Europe: 1990-2008

![Chart showing export volume of Gazprom to Europe from 1990 to 2008.](image)

* Including Turkey.
** Including Baltic and Balkan countries.
Note: in European bcm's.
Source: own analysis, based on Gazprom annual reports and Stern [2005].

From a Russian point of view, the European gas market as a whole can be fallen into four different categories, or sub-regions: SEE, NWE, North and Northeastern Europe (NNEE) and other Central and Eastern European (CEE) countries.339 Each of these different sub-regions exhibits different gas use intensity, depends to differing degrees on Russian gas and each region has its own infrastructural level of development. As a result, Russian gas plays a disproportionally large role in terms of share and end-usage in a number of countries. Some of these countries may try to curb their dependency, which implies a decrease or limit of Russian gas imports. Figure 10.9 includes Gazprom’s market share in total gas consumption and in power generation. The absolute values of Gazprom’s market shares are greater in countries of Western Europe than in Central and Eastern Europe. In Germany and Italy, for example, Russian gas enjoys a larger market share but on average, in terms of power generation, the share is actually quite small (except from Turkey). Both countries’ gas markets may be heavily reliant on Russian gas, but in power generation

339 Southwest European countries (including Spain and Portugal) could not be reach economically by pipeline with Russian gas. In the future, Russian LNG might be shipped to this region. For instance, in October 2009, Gazprom and Spanish oil and gas company Repsol have signed a MoU on cooperation in oil and gas projects [RIA Novosti 2009].
terms it is less significant. In Central and Eastern Europe the absolute volumes of Russian gas are smaller, but Russian gas has a much greater market shares in terms of total gas consumption and power generation.

Figure 10.9 Gazprom’s sales and market share in European countries in 2008

Gazprom’s strategy is likely to hinge on the potential for growth in maximising the space for acceptable import-dependency in each sub-region, mainly in major countries in NWE and SSEE, such as Germany, Italy, UK, France, the so-called Big Four. In addition to market opportunities, Turkey has a special role, because geographically it lies in a strategic area between Europe and the Middle East as well as the Caspian region. Suffice it to say for now that Turkey is a major potential transit hub for a variety of gas flows by pipeline, primarily from the Middle East (Iraq), Caspian region and of course Russia (see also Chapter 11). The NWE region offers hub trading opportunities and some storage, as does CEE, while simultaneously the other regions are smaller in terms of volumes (e.g., NNEE) or depend more on LNG. In its gas strategy, Russia is reaching out to those countries with the strongest economic and commercial interests in Russia (e.g., Germany, Italy and France), while limiting to the greatest extent possible any intrusion on the part of the newer EU member states (see also Section 8.2) [Trenin 2007]. Besides the framework of the EU-Russia Energy dialogue, as a political basis for long-term energy cooperation, Russia has established bilateral energy dialogues on governmental level with, for example, the Big Four [Zhiznin 2007]. Through these partnerships Gazprom aims to secure downstream positions through joint ventures and asset swaps (see below).
Midstream: Cooperation in storage and export route diversification pipelines

Gazprom’s Yamal-Europe, Blue Stream, Nord Stream, and the newer planned South Stream pipelines are all ostensibly part of a strategy aimed at ensuring Gazprom’s market position in price and volume terms, as well as reducing reliance on Ukrainian transit. Notwithstanding some of the risks, miscalculations and costs, gas supplies through the Yamal-Europe pipeline have broken up Ruhrgas’ monopoly in the German market, while the Blue Stream pipeline helped establish a strong position in Turkey. The Nord and South Stream is aimed to ensure its market position at the NWE and, respectively, SSEE sub-regions. In addition, by having a combination of different export routes to the European market, Russia can, in theory (and as Norway already does with its various pipelines), shift its volumes intra-regionally as and when spot and short-term prices shift, mitigate transit risks, and/or increase its bargaining position towards western CIS countries, see also Chapter 12.

Additionally, the transit risks in western CIS countries could also be solved by taking majority ownership stakes and/or by Russian ratification of the Energy Charter Treaty and its Transit Protocol. However, currently Ukraine refuses to allow Russia to have a controlling stake. Meanwhile, Russia refuses to ratify the Energy Charter Treaty (ECT) treaty due to (1) the current political climate between Russia and EU; and (2) it is seen in Moscow as a threat to Gazprom’s commercial interest [Pirani 2009]. Therefore, this governance system to mobilise investment is being reviewed in Russia (in addition by other stakeholders too), by treating foreign investments in its energy sector at its own sovereign discretion. As a result, in April 2009 Russia launched a new conceptual approach to a legal framework for energy cooperation. In July 2009, it subsequently decided to withdraw from the ECT, see also Van Agt [2009].

Another focal point for securing capacities in pipeline and storage is to create flexibility and arbitrage opportunities. Gazprom owns pipeline capacity in Germany via Wingas, in the Interconnector (10 percent) between Belgium and the UK and has an option on 9 percent in the BBL pipeline (from the Netherlands to the UK). Various countries in Europe have storage capacities, with Austria and Hungary being important focal points in

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Other information and notes:

- The offshore pipeline Nord Stream (2 times 27.5 bcm/y), connecting Russia directly to Germany via the Baltic Sea, will be linked to the UGTS in Russia, with the reserve base being the Yuzhno Ruskoye field and Shтокман. See Case study 3 and 4 in Chapter 11 for an extensive overview and analysis on this investment.

- South Stream, with a planned capacity of 63 bcm/y up from the initially planned capacity of 31 bcm, is a planned and proposed pipeline running from Russia over the Black Sea to Bulgaria. Two possible routes are under review for South Stream’s onshore section from Bulgaria – one, northwestwards and the other, southwestwards. The resource base for the South Stream pipeline is likely to be the Urengoy field in West Siberia or Caspian reserves [Gazprom 2008; WGI 2009a]. See Case study 2 in Chapter 11 for an extensive overview and analysis on this investment.

- In exchange for a 9 percent stake of Dutch Gasunie in the Nord Stream pipeline.
Central Europe and Germany and Benelux being focal points in NWE. Gazprom has commercial interests in both storage markets, mostly via Wingas. It is expected that Gazprom will develop more storage capacity in Europe.\footnote{Storage is an essential tool in the gas value chain for handling (seasonal) variations in consumption. Demand is particularly high during the winters, while storage can be used during summers to pick up the stock in demand. Storage can come in the form of LNG storage tanks, ‘linepacking’ (storage in the pipeline itself), in underground caverns and in depleted gas fields or aquifers. In late 2008, Gazprom signed a MoU with Taqa to “pursue a partnership to jointly develop the Bergermeer gas storage facility” in the Netherlands. In addition, it will provide cushion gas to the Bergermeer gas storage project in the Netherlands. (Cushion gas refers to the gas injected into the underground storage facility to bring it up to operating pressure.) This is an interesting development since this would constitute an important storage joint venture with another national energy company in northwestern Europe [Platts LNG Daily 2008].}

Sales strategy in Europe
Having dealt with the volumes, more attention can be paid here to the actual Russian sales strategy in Europe in terms of long- versus short-term sales and vertical integration (i.e., business models). Gazprom’s export subsidiary ‘Gazprom Export’ is responsible for Gazprom’s exports. Based on Gazprom’s current long-term contractual agreements to Europe the export volumes are about 180-200 bcm/y in 2015 (minimum and maximum deliveries respectively), an increase of 10-20 bcm/y from 2008. Most of these current, additional contracts are related to the construction of the Nord Stream pipeline (see also Case study 3 in Chapter 11) [Stern 2009]. In Europe, Gazprom is currently in renegotiation of supply contracts (e.g., the long-term contract with E.ON Ruhrgas) to the effect that minimum off-take obligations were lowered.

1) Traditional long-term take-or-pay contracts. Gazprom has historically sold gas to European consumers at their respective borders using netback pricing (linked to oil prices) in long-term take-or-pay gas contracts (with a duration of 20-30 years) with European mid-streamers (see also Part II) [Stern 2009]. Many of Gazprom’s contractual commitments have been signed in the 1980s and 1990s, some of which will continue well into the 2010s. Gazprom signed new long-term agreements with a number of countries in 2005-2007.\footnote{Long-term contracts have been signed with various European countries: Italy (until 2035), France (until 2031), the Czech Republic (until 2035), Austria (until 2027), and Germany, with four long-term contracts extended until 2035 for a total of 20 bcm [Gazprom Export 2008].}

2) Direct sales: Cooperation and (vertical) asset swaps. As a result of liberalisation in Europe, an effort can be seen on Gazprom’s part of to sell its gas further downstream.\footnote{For an overview of Gazprom’s interests in various EU countries as of late 2007, refer to [Meijknecht 2008].} As mentioned in Chapter 7, Gazprom’s downstream activities in Europe started through the creation of a joint venture with BASF/Wintershall (Wingas). The amount of gas sales of Wingas has increased significantly: from 3.4 bcm in 1995 to 27.4 bcm in 2008 (an average annual growth of more than 17 percent) [Wingas 2006; 2008]. Other joint ventures have been formed, for example, with Italian (ENI) and French (Gaz de France) companies, in order to sell gas directly in these markets [Zhiznin 2007]. In most of the cases, joint operation in
gas storages and transport routes to and within Europe (see above) and vertical asset-swaps are part of this business model when it comes to cooperation with midstreamers. Through vertical swaps, Gazprom has gained direct access to European markets by cooperating with European midstreamers. Two cases stand out here: Gazprom’s swaps with partners in Germany centred on the Nord Stream pipeline and Gazprom’s cooperation with ENI from Italy centred on the Blue and South Stream pipeline. In both cases, Russian gas ends up on the German and Italian markets, ownership stakes are exchanged across the chain (also in Russia’s upstream sector) and the parties involved share the profits. In addition to this model of cooperation, other business models of selling gas directly to European customers are: (1) wholly-owned greenfield operations or (2) M&As.

3) Direct sales: Greenfields. In one of the first steps of taking a foreign position outside Russia, Gazprom set up the wholly-owned Gazprom Marketing and Trading (Gazprom M&T) in 1999. The focus of Gazprom M&T is to optimise the usage of its capacities on the Interconnector pipeline as well as on leasing and natural gas trade, involving spot-based sales and non-Russian gas. It is designed to focus on its own trading activities in NWE on the NBP, Zeebrugge, Title Transfer Facility (TTF), and PEG hubs. Gazprom M&T sells gas to end consumers through subsidiary (retail) companies in the UK and France [Gazprom 2008]. According to Gazprom M&T [2009], Gazprom M&T’s gas sales increased from 1.2 bcm in 2003, to 4.1 bcm in 2005 and 25.1 bcm in 2008.

4) Direct sales: Acquisitions. Gazprom is attempting to secure and maintain market share by buying equity in power and industrial enterprises, which are large gas users. This M&A strategy is mostly occurring in mature markets, while greenfields are likely to be explored in growth markets [De Jong 1989]. Due to Gazprom’s high market capitalisation a merger with a European mid- and downstream player seems not applicable (if desirable, only with international energy firms, such as BP or Royal Dutch Shell). Most of the past and current acquisitions are occurring in Russia and in Central and Eastern Europe, also in order to control its transit pipeline network. Gazprom is increasingly bidding for (retail) assets in Western

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347 Wintershall (a subsidiary of BASF) is an important stakeholder in a joint venture with Gazprom, centred on the Siberian Yuzhno Russkoye gas field: Gazprom owns 51 percent, while Wintershall owns 24 percent in Sverneftegazprom (the Russian license-holder to the exploration of the Yuzhno Russkoye gas field) as well as 10 percent worth of no-voting right preferred shares. Wintershall is also engaged in the joint venture Achimgaz, in which Wintershall owns 50 percent and Gazprom the other 50 percent, an upstream venture in which Wintershall provides some of the technical expertise. In exchange for its minority stake in Yuzhno Russkoye, they have agreed to increase Gazprom’s minority stake to 49 percent and to swap oil interest in Libya. The two partners will also take up a 50-50 percent share in Wingas Europe, a venture designed to market Russian gas in Europe at large, outside Germany [see also Case study 3 in Chapter 11].

348 Gazprom Marketing & Trading Ltd is a 100 percent subsidiary of ZMB GmbH, which is a 100 percent subsidiary of Gazprom Germania GmbH. Gazprom Germania is 100 percent owned by OOO Gazprom export, which is a 100 percent subsidiary of OAO Gazprom. The headquarters of Gazprom Marketing & Trading Ltd is based in London. Other 100 percent subsidiaries of Gazprom Marketing & Trading Ltd are Gazprom Marketing & Trading France SAS in Paris and Gazprom Marketing & Trading USA, Inc in Houston [Gazprom Marketing & Trading Ltd 2009].
Europe as well, for example in the UK [Argus Gas Connections 2007a]. In these markets, Gazprom is exploring both a strategy of horizontal and diagonal (e.g., the power and/or the oil sectors) integration.

From the schedule mentioned above, one can discern that Gazprom combines a long-term sales strategy with a short-term, optimisation-based one [CIEP 2008]. A possible gap may provide room for volumes through the renewal of potential long-term contracts and any volumes traded above that level can be traded on a short-term basis, either in the form of shorter-term contracts or on spot markets at hubs such as NBP, TTF and/or Baumgarten. In a seller’s market, as and when Gazprom increases its share on European hubs, Gazprom could push these prices upwards as it increasingly becomes a marginal supplier in shorter-term European markets [Komduur 2007].

10.5.3 Far abroad: export to the Far East markets

Russia aims to develop, export and integrate its eastern gas resources with those in western Siberia by means of extensive greenfield investments. The Far East also encompasses Northeastern China (Manchuria) and Japan as well as the Koreas. According to Stern and Bradshaw [2008], the gas market in East Siberia and the Far East is expected to grow to 27 bcm in 2020 and 32 bcm in 2030, which could rise to 41 and 46 bcm, respectively (when account is taken of the rising demand of gas-processing industries). In the mean time, pipeline gas exports to China and Korea could reach 25-50 bcm by 2020, and LNG exports to the Asia-Pacific region could reach 21 bcm by 2020 and 28 bcm by 2030, which would imply a doubling of Sakhalin 2’s 12.8 bcm/y LNG export capacity. The vast majority for Russian domestic consumption and exports is expected to be produced at Yakutia and Sakhalin, while Irkutsk and Krasnoyarsk will themselves play a marginal role [Stern and Bradshaw 2008]. From a Russia’s point of view, pipeline exports to the Far East are part of the regional Russian gasification strategy. Gazprom’s drive to integrate reserves is expected to be a major policy priority for the period 2010-2020 in a massive greenfield-based drive to optimise Russia’s hitherto untouched eastern resources from Western Siberia (Yamal and Shtokman), to Siberia (with Kovytka as the centrepiece) and the Far East (where Sakhalin forms the main reserve base).

Indeed, Gazprom’s internationalisation is based on three rationales: (1) attempting to vertically integrate into Europe’s downstream gas market; (2) globalisation of its gas exports to markets other than Europe; while (3) diversifying its reserve base [Locatelli 2008]. Gazprom has at its disposal several options for diversification: ‘going east’ as far as a re-

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349 Gazprom has acquired a 50 percent stake of the Baumgarten hub in mid 2007. It co-owns the hub with the Austrian gas company [Argus Gas Connections 2007b]. The hub is the end point of Gazprom’s planned and proposed South Stream pipeline and is located near some of Austria’s main distribution pipelines. It also possesses storage facilities with a combined capacity of 2.1 bcm.

350 For a detailed overview of developments and plans concerning Russia’s Eastern Siberian and Far Eastern resources, refer to [Stern 2008].
Regional initiative is concerned within Russia itself (gasification) and the accompanying export development to China, in order to add a third export market to Gazprom’s portfolio. However, it is LNG that potentially offers Gazprom the means of becoming a more (flexible) global player. The 2003 ‘Russian Energy Strategy’ placed significant emphasis on the development of Far Eastern gas resources, with the possibility of expanding production up to 106 bcm/y by 2020. During the same year, it is stated that the region will become accountable for 15 percent of total Russian gas exports [Stern and Bradshaw 2008].

**Russian volumes to China**

On the pipeline side, China has pursued a gas import and pipeline construction deal with Turkmenistan as well as Kazakhstan and this has a major impact on potential volumes from and deals with Russia, which would have to compete with Central Asian volumes. Indeed, with a Chinese choice for Central Asian gas instead of Russian gas through the Altai pipeline (for China’s West-East pipeline) from Western Siberia seems to have improved China’s bargaining position vis-à-vis Russia and have diminished the prospects for the Russian Altai pipeline (30 bcm/y when completed) [Stern and Bradshaw 2008]. If Russia’s Far East projects will be realised, the Kovytk field is the most obvious choice for forming the basis for Russia’s far eastern export route [Stern and Bradshaw 2008]. In addition to the Altai pipeline from Eastern Siberia to China’s Xinjiang province, plans have been drawn up for two pipelines to enter China’s Manchuria province from Russia’s Far East, fed by Sakhalin I and surrounding resources. A MoU was signed between Gazprom and CNPC at the meeting of the Chinese and Russian presidents in Beijing, in March 2006, regarding two gas pipeline projects: one from Western Siberia and the other from gas fields further east with a projected 68 bcm/y worth of Russian gas to be exported to China in 2020 [WGI 2006]. A renewed understanding was made in October 2009 on the supply of 70 bcm of gas starting in 2014-15, with pricing issues still not resolved to a conclusive agreement (although China accepted market prices on gas from Australia) [WGI 2009]. Gazprom is already planning to start with construction of the Yakutia-Khabarovsk-Vladivostok, in operation in 2012 at the earliest [WGI 2009].

One of these pipelines is in fact the Yakutia-Khabarovsk-Vladivostok pipeline, linking Sakhalin to Russia’s Far East, planned to form the backbone of Russia’s far eastern gas supply network in the region (for exports to China and South Korea). The other pipeline branches off from the Chayandinskoye-Khabarovsk pipeline (from eastern Siberia to the Far East) and is to enter China near the Russian town of Blagoveshchensk. Ultimately, this entire network is planned to be connected to existing infrastructure in eastern Siberia as well as planned infrastructure in that region. Finally, this will be interconnected with the network in West Siberia (and Urengoy) from which the Altai pipeline is to branch off. It is

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53 China had build the Turkmenistan-China pipeline stretching from eastern Turkmenistan to Xinjiang Province, with a capacity of some 30 bcm/y; which started to operate by the end of 2009 [WGI 2008a].
questionable however if, from a commercial logic, it is necessary to build all these inter-
connections within Russia.

*South Korea*

Russia agreed on a supply contract with South Korea at a government-to-government level in September/October of 2008, with the formal signing of the agreement is planned in 2010. South Korea would be supplied through the pipeline from Yakutsk and Sakhalin from 2015 onwards with 10 bcm/y. This represents the equivalent of 30 percent of South Korea’s annual LNG consumption. South Korea is the biggest LNG importer after Japan and gas is good for 13 percent of its primary energy mix. Russian pipeline supplies appear to be in favour with the South Korean government, these volumes seen as a reliable complementory source of gas with respect to a LNG market.

**10.5.4 Far abroad: export to different regional markets by LNG**

The LNG trade is, in the coming decade and beyond, likely to reposition Gazprom from being a regional player (in either Europe and/or Asia), to a more global one. Only Sakhalin II now provides Gazprom with the opportunity to sell LNG to the Pacific Basin, which is seen by Gazprom as part of a global strategy [Stern and Bradshaw 2008, p. 239.]. As far as proper Russian LNG is concerned, there are three main areas of attention: Sakhalin II for the short-term and Sakhalin III and IV, Shтокман and Yamal for the longer-term. The exchange of technology between Gazprom and LNG-oriented players (such as Royal Dutch Shell) takes place in the Sakhalin II project, and it could be intensified along the value chain on the whole of Sakhalin island. This may involve further integration, for example also, with the Sakhalin I project, led by ExxonMobil.

With the apparent onset of climate change and, specifically, global warming, in the long-
term, Murmansk and Yamal LNG may increasingly have a global reach with the melting of the ice in the Arctic Ocean giving way to shorter and thus less costly routes to both East and West. Then, both locations will be within an economically acceptable distance of both the Atlantic and Pacific basins. The distance between Russia’s north Siberian liquefaction areas and US and Asian markets will be almost equal and will give Gazprom thus favourable arbitrage possibilities (as Qatar already does today).

**10.6 Uncertainties related to Russia’s merit order**

There are many uncertainties with respect to the development of a new merit order for Russia (and Gazprom). First, there are uncertainties concerning the level of domestic

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952 Gazprom’s export chief, Alexander Medvedev, has said that "joining the Sakhalin-2 project provides a powerful impetus for accomplishing a large-scale project in the energy supply sector to Asia Pacific countries and North America. It will stimulate implementing a stage-by-stage entering strategy on the world LNG market." [Gazprom, 2007].

953 Royal Dutch Shell was invited in mid-2009 to help develop Sakhalin III and IV.

954 In this section, some main uncertainties will be outlined. In Chapter 12 a detailed analysis will be presented.
demand in Russia. The availability of gas from existing sources of production may increase due to the rise in domestic gas price levels, energy conservation and reducing dependency on gas fired power generation. The growing Russian economy may on balance require more gas for its domestic market, although this has become more uncertain due to the economic instability since the autumn of 2008. From a government perspective, supply to this market will be given priority over exports. Second, the levels of gas imports from Central Asia to Russia and gas production of independent gas companies are uncertain. There is increasing competition from Asia and Europe for Central Asian gas, which makes it not self-evident that the gas flows will go to Russia. Uncertain government policy towards independent and foreign gas producers within Russia makes the production from these producers also more volatile. Third, the present uncertainty about future gas demand in Europe and Asia, stimulated also by the recent economic instability, may delay new commitments on contractual agreements and therefore new investments. There are also price uncertainties, especially in China, which negatively influence Gazprom’s investment programmes. Uncertain government policy measures and regulator affairs (in Europe) will also increase uncertainty in respect of new investments for Gazprom [CIEP 2008; Correljé et al. 2009].

All these uncertainties, combined with the current economic crisis which has a large impact on Gazprom (as a result of exposure to short-term liabilities), will influence new investments along the Russian gas value chain as far as investment decisions currently on the table are concerned. In the upstream for example the pace of additional gas production from new gas fields (mainly Zapolyarnoye, Yuzhno-Russkoye, Shtokman and Yamal Peninsula) in order to replace declining production from the four giant gas fields (Medvezhye, Yamburg, Urengoy, and Orenburg) and increase production for the export market. In the midstream, green- and brownfield projects in order to allocate new supplies to growth markets, like the Nord and South Stream, could be suspended. Also new Russian LNG projects could be delayed due to the above-mentioned uncertainties. In the downstream, new greenfield investments for direct sales (in corporation with foreign companies) may be deferred [CIEP 2008]. Map 8.1 gives an overview of the existing and possible projects of Gazprom.

10.7 Conclusion
Russia has the largest gas reserves in the world (roughly a quarter of the world’s gas reserves), which vastly exceed its oil reserves (in tons of oil equivalent). For Russia, gas plays an important long-run economic role as source of economic well-being. Against the backdrop of record-breaking energy prices during the period of 2004-2008, the Russian State began a process of restoring majority state control and ownership over the Russian energy sector, in order to use export oil and gas revenues for fuelling and diversifying its economy.

The position vis-à-vis foreign participation in Russia’s upstream gas sector could positively changed as a result of the economic crisis of 2008/09.
Through Gazprom as government-controlled entity, Russia wants to benefit from value-maximising gas revenues as a long-run source of hard currency earnings, just as oil has done up to today and still does so.

It must carefully balance internal, e.g., politico-economic agendas and domestic gas demand, with external focal points in order to develop a gas strategy capable of dealing with momentous investment challenges. Its positioning vis-à-vis the Caspian Sea countries, other gas-exporting countries and their own respective export strategies will determine to a large extent how Russia will fulfil its interregional role as a major pipeline gas exporter. In addition, the geopolitical dimension, as well as regional market aspects (including market uncertainties, among others), offer opportunities as well as constraints in Gazrom’s growth strategy.

In order to maintain and capture additional market share in a dynamic inter-regional gas market, Gazprom has repeatedly announced their new gas export investment strategy for new gas production areas (e.g., Yamal Peninsula, the Barents Sea, and Eastern Siberia) and midstream projects, including those to mitigate country and transit risks (e.g., Nord and South Stream, LNG and Asian pipeline projects). Furthermore, besides its traditional long-term contracts with mid-streamers, Gazprom is taking increasingly stakes in downstream markets and explores new business models, involving flexible, intra- and in the long-run interregional supplies.

Nevertheless, developing Russia’s merit order is a dynamic process (see also Chapter 3), with great uncertainties, including domestic demand, levels of imports from the Caspian region, government policies in export markets and other market uncertainties (encouraged by the current economic down-turn). With regard to competition in the different (sub)regions, it could be profitable for Gazprom in the long-run to sequentially invest in new project(s), such as Yamal and Shtokman, so as not to loose market share. These new investment commitments will also depend on its success or failure of cooperation with international energy firms and mid-streamers. A portfolio analysis of Russia’s investment policy on a project- and macro-level and the institutionalisation of strategy will be further discussed in Chapter 11 and 12.