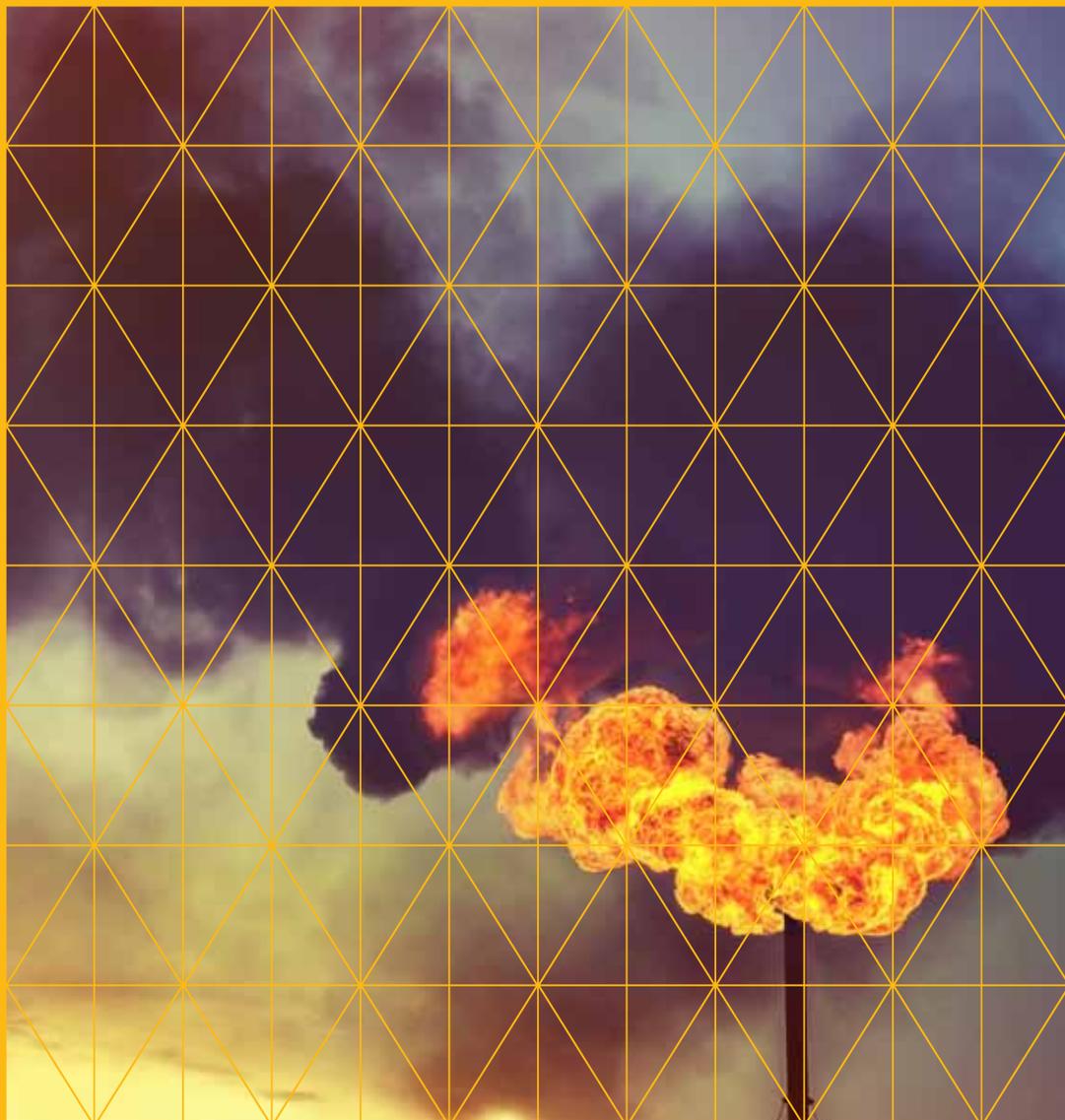


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# AT CROSSROADS

CURRENT PROBLEMS OF RUSSIA'S GAS SECTOR

Szymon Kardaś

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Szymon Kardaś



**OSW** |

CENTRE FOR EASTERN STUDIES  
OŚRODEK STUDIÓW WSCHODNICH im. **Marka Karpia**

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# Contents

EXECUTIVE SUMMARY /5

INTRODUCTION /8

## I. THE UPSTREAM SECTOR /11

- 1.** Main gas production regions in Russia /11
- 2.** Main gas producers in Russia /14
- 3.** Stagnation in the upstream sector /18
- 4.** Factors underlying the erosion of Gazprom's position /20
  - 4.1.** Negative trends in export markets /20
  - 4.2.** Declining gas consumption in Russia and fiscal burdens /21
  - 4.3.** Growing competition from the so-called independent gas producers /23
- 5.** Resource base and prospects of gas production growth /25
- 6.** Development of domestic gas infrastructure /29
  - 6.1.** The transmission network /29
  - 6.2.** Gas storage /31
  - 6.3.** Gas processing infrastructure in Russia /31

## II. THE RUSSIAN GAS SECTOR'S EXPORT STRATEGY IN 2000-2016 /33

- 1.** Objectives of the gas sector's export strategy /33
- 2.** Russia's gas exports in the years 2000-2016: export destinations and volumes /34
- 3.** Existing and planned export pipelines /36
  - 3.1.** Diversification of export routes to Europe /36
  - 3.2.** Plans for new export gas pipelines to Europe and their prospects /38
  - 3.3.** Plans to build gas pipelines to China /44
- 4.** LNG projects /45
  - 4.1.** Projects in operation and in implementation /46
  - 4.2.** Projects in the planning phase /46
  - 4.3.** The reasons for delays in Russia's LNG projects implementation /48
  - 4.4.** Share of Russian companies in global LNG trade /51
- 5.** The export outlook /53

### **III. GAS MARKET REFORM: PLANS AND PROSPECTS /58**

- 1. Advocates and opponents of reform /58**
- 2. Liberalisation of prices and the problem of transmission tariffs /59**
- 3. Fiscal changes /62**
- 4. Plans for a transformation of Gazprom and de-monopolisation of exports /63**

**Appendix I.** Russian gas supplies by destination and volume (excluding LNG) in 2002–2016 (billions m<sup>3</sup> a year) **/68**

**Appendix II.** Russian gas exports via pipelines (billions m<sup>3</sup>) **/70**

## **EXECUTIVE SUMMARY**

- 1. Gas production in Russia has been stagnating in recent years because of a significant decline in Gazprom's output. The share of Russia's largest gas company relative to total domestic production has also been shrinking systematically. The main causes of the weakening of Gazprom's position in Russia's gas market concern, on the one hand, the unfavourable situation in external markets (especially the decline in the volume of gas supplies to Ukraine), and on the other, declining gas consumption in Russia itself and rising competition from Russia's so-called independent gas producers (Rosneft, Novatek). The fiscal policy towards the gas sector has also exacerbated these negative trends.**
- 2. Despite the Russian government's optimistic expectations and the ambitious plans of Russia's gas companies, the outlook for gas production growth in Russia is pessimistic. While the gas companies do have an adequate resource base enabling them to increase production in the short term, the demand for gas in Russia and in external markets is unlikely to increase over the medium and long term. Moreover, in the longer-term perspective, delays in the development of new fields may generate problems and become a major barrier holding back the growth of domestic gas production.**
- 3. Although Russia's internal gas transmission network underwent expansion during the years 2000-2016, boosting the levels of access to gas networks throughout the country, its current state is still well below what Russia expected to achieve. Moreover, the existing transmission infrastructure is largely obsolete and requires much more substantial investment than what Gazprom has so far allocated to it.**
- 4. Russia has only partly achieved the strategic objectives of its gas export policy. It has managed to diversify gas export routes to Europe by building the Yamal-Europe and Nord Stream gas pipelines. At the same time, however, its tendency to use gas supplies as a foreign policy instrument, of which the developments concerning Ukraine (2005/2006, 2008/2009 and 2014-2016) are the most glaring example, has led to adverse political implications for Russia and negative economic consequences for Gazprom and the entire sector. Despite its efforts, Russia has not managed to significantly diversify its export markets, since a binding legal base for joint Russian-Chinese gas projects was only established in 2014-2015.**

- 5. In view of the current trends in external markets as far as demand for gas is concerned, i.e. declining gas consumption and lack of prospects for a marked growth in Europe, as well as the fact that projections of gas consumption in Asia have been revised downwards several times, it does not seem realistic for Russia to substantially increase its gas exports in the short and medium term. It is highly likely that, in the next five years, Russia will manage to maintain its current share of the European market (around 30%), owing to the existence of many long-term contracts, the fact that Russian gas is still relatively competitive price-wise, Russia's increasingly flexible trade policies, as well as the still rather pedestrian progress of Europe's efforts to diversify its gas supplies. In the medium and long term, however, the expected increase in the supply of LNG may pose a serious challenge to Russia by considerably boosting competition among global gas exporters. Genuine diversification of Russia's export markets, i.e. access to the Chinese market via pipelines, is a matter for the more distant future, and the expected volume of exports to China (38 billion m<sup>3</sup> a year under the contract concluded in 2014) will not make China a viable alternative to the European market, which remains of primary strategic importance for Russia.**
- 6. The strategy to develop the liquefied gas sector has so far been unimpressive, partly due to inaction and lack of political will on the part of the Russian government and energy companies (especially Gazprom), but also, to a certain degree, because of the dynamic changes in external energy markets, especially the rising competition and oversupply, as a result of which prices have been falling and the future profitability of Russia's expensive LNG projects has dwindled. Finally, the financial problems experienced by Russian companies have also contributed to the delays.**
- 7. Despite many previous announcements and discussions within the sector, Russia has not managed to comprehensively and systemically reform its gas sector yet. The most problematic issues concern price liberalisation, transmission tariff setting, the gas sector's taxation system, as well as the restructuring of Gazprom and a further curbing of its export monopoly, as demanded by the advocates of change. As the so-called independent gas producers grew stronger in recent years, the likelihood of the Russian gas sector undergoing serious reforms has increased (the opening of the possibility for the independents to export LNG is an**

**indication of that). Nevertheless, Russia's deteriorating economic situation, uncertainty in the energy markets, the complex nexus of problems which need to be resolved in a comprehensive manner, combined with president Putin's reluctance to take risky political decisions, will all postpone the prospect of reforms by at least 5 to 10 years.**

## INTRODUCTION

For Russia's finances, the gas sector is less important than the oil industry: while taxes on oil extraction generated a revenue of nearly RUB 4 trillion in 2014, gas taxes accounted for a mere RUB 0.4 trillion.<sup>1</sup> However, the gas sector plays an important role in other spheres of the economy, mainly because Gazprom serves as an instrument for the attainment of Russia's internal social and economic policy objectives, and because gas accounts for more than 50% of Russia's primary energy consumption, with electricity generation accounting for 48% of total gas consumption, followed by industry (12%), households (11%), transport (7%) and other sectors (22%).<sup>2</sup>

The state-controlled Gazprom is nonetheless one of Russia's biggest tax payers, contributing RUB 805.1 billion to the state budget in 2015 (for comparison, the top contributor Rosneft paid RUB 1.12 trillion in the same period).<sup>3</sup> Rosneft accounted for 50% of all the taxes paid by state-controlled companies in 2015, while Gazprom's share was 35%.

The significance of gas exports as a source of budget revenue has nonetheless been systematically dwindling. This is partly due to the decreasing volume of exports (mainly to post-Soviet states other than the Baltic states) but, more importantly, to the drastic slump in prices related to the decline in global oil prices. In 2014, the average price of Russian gas sold to European customers stood at US\$ 345 USD per 1000 m<sup>3</sup>, yet by 2015 it had dropped to US\$ 243.3 per 1000 m<sup>3</sup> and in 2016 declined further to a mere US\$ 167 per 1000 m<sup>3</sup>. As a result, the value of Russia's gas exports, which had reached a record level of US\$ 69.1 billion in 2008, fell to around US\$ 31.3 billion in 2016.<sup>4</sup>

Gazprom remains the largest producer and supplier of gas to the internal market, and as such it is an important instrument through which the state indirectly subsidises domestic industrial production. In particular, this refers to such crucial sectors as steel production, the arms industry, agriculture or the electricity

<sup>1</sup> ФНБ на всех не хватит, <https://www.gazeta.ru/business/2014/10/22/6271465.shtml>

<sup>2</sup> Figures of: <http://ac.gov.ru/files/publication/a/9162.pdf>

<sup>3</sup> «Новая модель развития» России зависит от нефтегазового сектора, <https://cont.ws/post/437729>; «Роснефть» в 2015 году заплатила налогов на 1,12 трлн рублей, <https://rns.online/energy/Rosneft-v-2015-godu-zaplatila-nalogov-na-112-trln-rublei-2016-06-30/>

<sup>4</sup> Figures of the Central Bank of Russia: [http://www.cbr.ru/statistics/?Prtid=svs&ch=Par\\_27472#CheckedItem](http://www.cbr.ru/statistics/?Prtid=svs&ch=Par_27472#CheckedItem)

sector. The availability of low-cost gas gives Russian products a significant competitive advantage, which is particularly apparent in the steel sector.

The state also uses Gazprom to supply gas to those regions of Russia which would generate losses for suppliers if guided strictly by economic calculation. For example, the company supplies gas to the Arkhangelsk, Yaroslavl, Tver or North Caucasus Oblasts, which are among the company's biggest debtors.<sup>5</sup> Moreover, the state also taps into the revenues generated by Gazprom to finance its costly undertakings, such as the organisation of the Winter Olympics in Sochi or the 2018 FIFA World Cup.

The company's activities are also an important source of profits for the political and business elite of Russia. Even though Gazprom's revenues have been shrinking in recent years, the remunerations of the management board members and directors have been systematically rising. In the first three quarters of 2016, the company's revenues slumped by more than 30%, while the income of the management board members (including benefits and bonuses) increased by around 22%.<sup>6</sup>

Because of the changes taking place in external markets and inside Russia, the Russian gas sector has recently found itself at a crossroads. The factors adding to the uncertainty include the growing rivalry between Gazprom and the so-called independent gas producers, the multiplicity of reform concepts for the sector, and the need to take into account the state's economic as well as political interests.

The purpose of this paper is to present the upstream condition of the Russian gas sector and its prospects. To a limited extent, the paper also discusses the wider context of the changes that occurred in the Russian gas sector in the years 2000–2016.

Part I analyses the condition of the upstream sector, including the changing balance of power between the actors involved and the factors which have contributed to the current stagnation in gas production. Part II tentatively summarises the outcomes of Russia's export policy in the gas sector and looks at the

<sup>5</sup> Долги потребителей за газ выросли до 162 млрд рублей, <http://izvestia.ru/news/601977-#ixzz4KnJEnFt5>

<sup>6</sup> «Газпром» увеличил вознаграждение членам правления на 22%, <http://www.vedomosti.ru/business/articles/2016/11/15/664851-gazprom-uvelichil-voznagrazhdenie>

export destinations and volumes of gas exports and the implementation status of the projects undertaken to diversify gas exports (including both pipeline and LNG projects). Part III is devoted to the plans and prospects for the sector's reform and looks at fiscal issues, price liberalisation and the plans to change Gazprom's ownership structure and limit the export privileges of Russia's largest gas company.

## I. THE UPSTREAM SECTOR

According to the BP Statistical Review of World Energy published in June 2016, Russia's proven natural gas reserves of 32.3 trillion m<sup>3</sup> are the world's second largest (after Iran's) and account for 17.3% of global reserves. Russia is also the world's second largest gas producer after the United States, accounting for 16.1% of global production.<sup>7</sup>

### 1. Main gas production regions in Russia

The main gas-producing region of Russia is invariably **Western Siberia**, in particular the Yamalo-Nenets Autonomous Okrug (see map 1 for the location of fields), which accounted for around 79–83% of Russia's total gas production through the years 2000–2016.<sup>8</sup> The Western Siberian gas fields altogether account for around 90% of Russian gas production, with the Yamburg, Urengoy and Medvezhye fields accounting for around 3/4 of total production (see Table 1 for a list of Russia's most important gas fields). Other important Western Siberian fields include those located in the Khanty-Mansi Autonomous Okrug, the Komi Republic and the Arkhangelsk and Orenburg Oblasts. Gas is also produced in some southern regions including the Krasnodar Krai, The Stavropol Krai and the Saratov Oblast.

**Table 1.** Russia's largest gas fields

Field name	Proven reserves (billions m <sup>3</sup> )	Owned by	Start of the extraction	Output (billions m <sup>3</sup> )			
				2013	2014	2015	2016
<b>Urengoy</b>	5 333	Gazprom	1978	90.6	85.5	n/d	n/d
<b>Bovanenkovo</b>	4 304	Gazprom	2012	22.8	42.8	61.9	67.4 <sup>9</sup>
<b>Shtokman</b>	3 939	Gazprom	-	-	-	-	-

<sup>7</sup> <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>

<sup>8</sup> Figures of ТЭК России – 2015, <http://ac.gov.ru/files/publication/a/9162.pdf>; n/d – no data.

<sup>9</sup> Газпром в 2015 г. в 1,5 раза нарастил добычу на Бованенково, <http://www.oilru.com/news/506418/>; «Газпром» запустил новый трубопровод Бованенково – Ухта – 2, <http://www.vedomosti.ru/business/articles/2017/01/19/673576-gazprom-bovanenkovo-uhta>

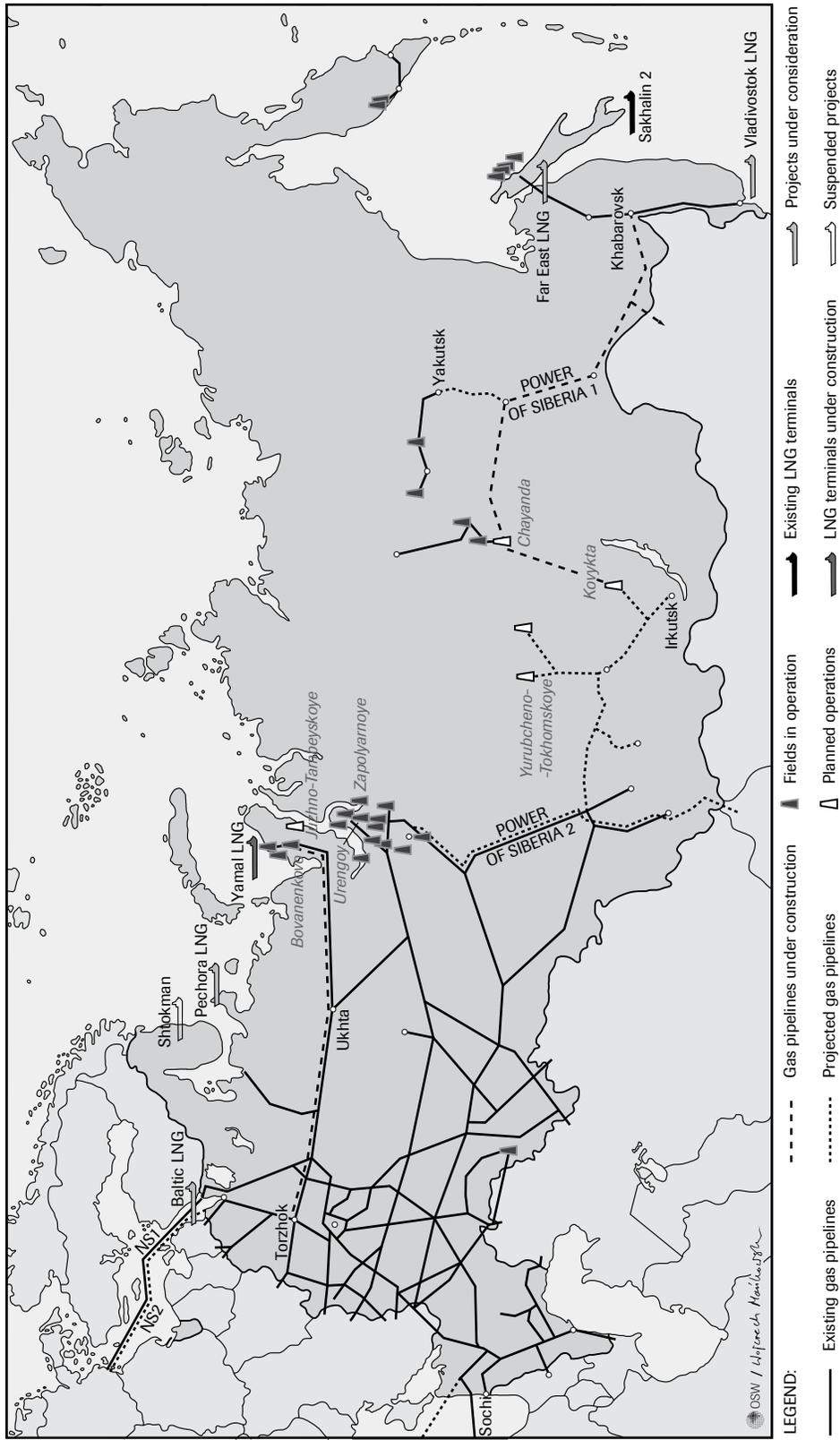
Field name	Proven reserves (billions m <sup>3</sup> )	Owned by	Start of the extraction	Output (billions m <sup>3</sup> )			
				2013	2014	2015	2016
<b>Yamburg</b>	3 109	Gazprom	1986	75.3	62.8	n/d	n/d
<b>Astrakhan</b>	3 087	Gazprom	1987	11.7	11.1	n/d	n/d
<b>Zapolyarnoye</b>	2 353	Gazprom	2001	117.5	97.9	78.8	76.3
<b>Kovykta</b>	1 563	Gazprom	2022	-	-	-	-
<b>Kharasavey</b>	1 422	Gazprom	2019-2024	-	-	-	-
<b>Krusenshtern</b>	1 349	Gazprom	2022-2025 2027-2030	-	-	-	-
<b>Juzhno-Tambeyskoye</b>	1 003	Gazprom	2024-2027 2029-2030	-	-	-	-
<b>Yuzhno-Russkoye</b>	862	Gazprom	2007	25.1	25	25	25.1
<b>Severo-Tambeyskoye</b>	862	Gazprom	after 2029-2030	-	-	-	-
<b>Chayanda</b>	708	Gazprom	2018	-	-	-	-
<b>Orenburg</b>	664	Gazprom	1971	16.9	16.3	n/d	n/d
<b>Medvezhye</b>	559	Gazprom	1972	12.2	10.4	n/d	n/d

Author's compilation based on figures of the Russian Ministry of Natural Resources and figures published by the Interfax, Argus and Neft Rossii (Нефть России) agencies.

**However, most of the Western Siberian fields are nearing depletion.** These are mostly fields where production has been going on since the 1970s and the 1980s: the Yamburg field is currently more than 50% depleted, the Urengoy field is more than 60% depleted, and the Medvezhye field – more than 80% depleted. Field depletion has also been showing up in the output figures of Gazprom's daughter companies. The largest slumps have been recorded by the companies operating in the Western Siberian fields of Zapolyarnoye, Urengoy and Yamburg.

Efforts have been made to develop new fields in the gas-rich regions in northern Russia (the Yamal Peninsula and the Arctic shelf) and in eastern parts of the country (Eastern Siberia and the Far East). However, contrary to original plans, the dynamics of production growth in the new production regions is

**Map. Location of gas fields and transmission infrastructure**



**Source:** Итоги работы Минэнерго России и основные результаты функционирования ТЭЖ в 2015 году, <http://minenergo.gov.ru/node/4913>

rather weak. In Bovanenkovo, one of Gazprom's most promising fields located in the Yamal Peninsula,<sup>10</sup> the output in 2013 was less than 30 billion m<sup>3</sup> of gas, instead of the projected 46.3 billion. Although in 2015 production increased to 61.9 billion m<sup>3</sup>, that was still below the target for that year (75 billion m<sup>3</sup>). In 2016 output increased again to 67.4 billion m<sup>3</sup>, which nonetheless proves that the plans to increase the Bovanenkovo field's output to 115 billion m<sup>3</sup> of gas a year in 2017 are unrealistic.<sup>11</sup>

The situation is similar in the Far East and Eastern Siberia. Russia's Energy Strategy, until 2030, predicted that in 2015, gas production in the region would reach 58 billion m<sup>3</sup> in the optimistic scenario and 44 billion m<sup>3</sup> in the pessimistic scenario. In reality, it was just slightly over 41 billion m<sup>3</sup>.

## **2. Main gas producers in Russia**

Currently there are around 260 gas-producing companies in Russia. The state-owned Gazprom is still the biggest player in this group, which single-handedly accounts for around 63% of Russia's total gas output (68.1% with controlled companies and joint ventures). The private-owned Novatek is the second largest gas producer, accounting for 8% of Russia's production (10.7% with its controlled companies and joint ventures). Other players in the sector include the large oil companies and especially Rosneft, which accounts for 7.2% of Russian production (9.4% with its controlled companies and joint ventures) and smaller private companies. Table 2 presents a list of the most important gas-producing companies, and Table 3 presents a list of the most important joint ventures of Gazprom, Novatek and Rosneft.

<sup>10</sup> Gas production in the field officially started in October 2012; the preparatory works that had to be carried out to enable extraction cost around US\$ 41 billion, making the field one of the top ten most expensive extractive projects in the world. Падение спроса на газ ставит планы освоения Ямала под вопрос, <http://barentsobserver.com/ru/energiya/2013/05/padenie-sprosa-stavit-plany-osvoeniya-yamala-pod-vopros-23-05>

<sup>11</sup> The target production volume of the field is 140 billion m<sup>3</sup> of gas a year.

**Table 2. Gas production in Russia in 2000-2016 by company (billions of m<sup>3</sup>)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Gazprom</b>	523.2	515.5	519.9	540.2	542.8	547.1	550.3	550.14	550.9	462.3	509	510.1	478.5	476.4	432.2	408.6	405.7
<b>Gazpromneft</b>	0	0	0	0	0	0	2.1	1.8	2.2	4.3	4.9	9	10.9	12.7	13.4	14.2	15.6
<b>Novatek</b>	0	0.04	0.04	0.03	0.03	25.4	28.8	28.5	30.8	32.8	37.8	53.5	51.3	53.1	53.7	52	50.9
<b>Rosneft</b>	5.6	6.1	6.4	7	9.4	13	13.6	15.5	13	17.4	17.3	18.6	20.2	40.6	44	46.7	50.4
<b>LUKOIL</b>	3.6	3.7	4.1	4.8	5	5.8	14.1	13.7	14.2	14.8	17.4	17.9	18.1	19.5	19.8	19.7	17.6
<b>Surgut- neftegaz</b>	11.1	11.1	13.3	13.9	14.3	14.4	14.6	14.1	14.1	14	14	13.2	12.4	12.2	9.5	9.6	9.8
<b>Russneft</b>	0	0	0	0.7	0.8	1.1	1.6	1.6	1.3	1.8	1.9	2.1	2.1	2	2	2.1	2.5
<b>Slavneft</b>	0.7	0.7	0.6	0.8	0.9	1	0.9	0.9	0.9	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1
<b>Tatneft</b>	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1	1.03
<b>Bashneft</b>	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.7	0.7	0.8	0.98
<b>TNK-BP</b>	2.7	4.3	3.6	5	8	8.7	8.7	8.6	10.1	13.1	13.6	14.7	15.7	0	0	0	0
<b>Others</b>	36.2	38.6	45.9	46.8	51.2	23.4	20.5	16.42	26.1	33.6	47.2	45.9	59.8	64.8	77	92.6	95.7
<b>Total</b>	584.2	581.2	594.94	620.33	633.53	641	656.2	654.13	664.8	596.6	665.6	687.5	671.5	684	654.3	648.4	651.31

Author's compilation based on figures published by the Argus agency.

**Table 3.** Private gas producers controlled by Gazprom, Novatek and Rosneft

Company name	Shareholders	Output in 2015 (billions m <sup>3</sup> )
Arktikgaz <sup>12</sup>	Gazpromneft, 50% Novatek, 50%	23.6
Nortgaz	Gazprom, 50% Novatek, 50%	10.9
Purgaz	Rosneft, 49% Gazprom, 51 <sup>13</sup> %	12.4 <sup>14</sup>
Sakhalin Energy	Gazprom, 50% plus 1 share	17.3
Sibneftegaz	Rosneft, 50%	11.8
Terneftegaz	Novatek, 51% Total <sup>15</sup> , 49%	2.4
Taymyrgaz	Rosneft, 51% <sup>16</sup>	2.2
Tomskneft	Gazpromneft, 50% Rosneft, 50%	2.1

Author's own compilation based on figures published by Interfax agency.

<sup>12</sup> The Arktikgaz consortium has total proven reserves of 695 billion m<sup>3</sup> (as of 31 December 2014). Its output has record growth dynamics: back in 2012 the consortium produced a mere 1.78 billion m<sup>3</sup> of gas, followed by 5 billion m<sup>3</sup> in 2013, 7.78 billion m<sup>3</sup> in 2014 and as much as 23.6 billion m<sup>3</sup> in 2015 and around 26 billion m<sup>3</sup> in 2016. Figures published by the Argus agency.

<sup>13</sup> Gazprom *de facto* controls the company: even though its daughter company Gazprom Noyabrsk formally holds 49% of shares in the consortium, Gazprombank holds another 1.7% of shares. Gazprom decided to transfer the 1.7% stake to Gazprombank to avoid having to pay higher NDPI tax (extraction tax). Not formally controlled by Gazprom, the Purgaz joint venture is treated as a so-called independent gas producer, i.e. paid lower extraction tax. However, after the Federal Tax Service, supported by the Investigative Committee of Russia initiated an enquiry and accused Purgaz of trying to circumvent the law, the company had to pay outstanding tax for the years 2013–2015 (around RUB 13.5 billion). Налоговый маневр «Пургаза» стоил уголовного дела для гендиректора и 13 млрд рублей выплат в ФНС, [https://newdaynews.ru/yamal\\_ugra/562294.html](https://newdaynews.ru/yamal_ugra/562294.html)

<sup>14</sup> The figures come from statistics published by the consortium shareholders, "Пургаз" отдаст ФНС всю выручку за год, <http://www.kommersant.ru/doc/2939944>

<sup>15</sup> As a shareholder in Novatek, Total is the largest foreign investor in Russia's energy sector.

<sup>16</sup> Rosneft purchased the shares in the joint venture in 2014; the Federal Anti-Monopoly Service authorised the transaction on 6 October 2014. ФАС разрешила "Роснефти" купить 51% "Таймыргаз", <http://www.interfax.ru/business/400454>

Significant volumes of gas are also produced by undertakings established under **production sharing agreements**. Currently there are three such projects in Russia.

**The largest one** is the **Sakhalin 2 project** operated by the Sakhalin Energy consortium (the year 2014 marked the twentieth anniversary of the project). Its members include Gazprom (50% plus 1 share), the British-Dutch Shell (27.5% minus 1 share) and Japan's Mitsui (12.5% of shares) and Mitsubishi (10% of shares). Sakhalin Energy's output was 27.8 billion m<sup>3</sup> in 2013 and 17.4 billion m<sup>3</sup> in 2016.

**The second largest production-sharing project** is **Sakhalin 1** operated by Exxon Mobil (30% of shares in the consortium). Apart from the US operator, the consortium includes Rosneft (20%), India's ONGC (20%) and Japan's SODECO (30%). Sakhalin 1 has been struggling to increase its output due to problems with access to the transmission infrastructure. The consortium is considering building an LNG plant. In 2013 the project's output was 9.96 billion m<sup>3</sup> of gas and in 2016 – 9 billion m<sup>3</sup>.

**The third production sharing project** is **Kharyaga** in the Yamalo-Nenets Autonomous Okrug. The partners include France's Total (40% of shares)<sup>17</sup>, Norway's Statoil (30% of shares) and Russian companies Zarubezhneft (20% of shares) and Nenets Oil (10% of shares). However, the project's output is not large – in 2013 Kharyaga produced 207 million m<sup>3</sup> of gas and in 2016 only around 100 million m<sup>3</sup>.<sup>18</sup>

**The production of so-called associated gas, a by-product of oil extraction, has been growing systematically in Russia, even though the growth dynamics have been weak for the time being.** According to the Russian Ministry of Energy, around 42.6 billion m<sup>3</sup> of associated gas was produced in 2005, and over 82 billion m<sup>3</sup> in 2016. Rosneft remains the leader in the production of associated gas (35.6 billion m<sup>3</sup> in 2016), followed by LUKOIL (11.1 billion m<sup>3</sup> in 2016), Surgutneftegaz (9.5 billion m<sup>3</sup> in 2016) and Gazpromneft (8.2 billion m<sup>3</sup> in 2016).<sup>19</sup> The increase of associated gas output is a direct consequence of official policy requiring oil companies to systematically increase the level of associated

<sup>17</sup> Total signed the deal in 1999 for 29 years. In 2016, the company decided to sell half of its shares in the project to Zarubezhneft, as a result of which the stake of the latter increased to 40%. After the transaction was finalised, Zarubezhneft also took over as the project operator. Source: «Зарубежнефть» получила Харьягу, <http://www.kommersant.ru/Doc/3053025>

<sup>18</sup> Figures published by the *Neftegazovaya Vertikal* (Нефтегазовая Вертикаль).

<sup>19</sup> Добыча природного и попутного нефтяного газа, <http://minenergo.gov.ru/node/1215>; figures by FSUE Argus.

gas utilisation; the 2020 target is to utilise 95% of associated gas (in 2016, 90% was utilised<sup>20</sup>).

The problem is that this segment of the gas sector is highly unprofitable. With strictly regulated gas prices, utilising associated gas is costly. The downside to this is that Russia remains the infamous world leader in burning off associated gas. According to some reports, it wastes around 50 billion m<sup>3</sup> of gas a year in this manner.

### 3. Stagnation in the upstream sector

**The Russian gas upstream sector has been stagnating for the last several years.** While back in the years 2000–2008 Russia’s gas output grew systematically, increasing from 584.2 billion m<sup>3</sup> in 2000 to 664.8 billion m<sup>3</sup> in 2008, during the years 2009–2016 gas production remained relatively stable within the range of 640–670 billion m<sup>3</sup> a year (the one exception concerned the deep slump in 2009, which was mainly due to the economic slowdown caused by the international financial and economic crisis of 2008–2009). For detailed figures on the production of gas in Russia in the years 2000–2016, see Table 4.

In 2015 gas production decreased to 648.3 billion m<sup>3</sup>, the lowest level since 2010. It was lower than predicted in the Russian Federation’s Energy Strategy until 2030 and much lower than in the General Scheme of Gas Industry Development until 2030 (predictions formulated for the purposes of the most important strategy documents for the gas sector are presented in Table 5). It is worth noting that the actual production levels were also lower than the predictions formulated by the International Energy Agency in its World Energy Outlook.

**The decline of gas production in Russia is mainly due to the considerable decrease in Gazprom’s output,** which reflects a consistent tendency observed throughout the last decade.

In the years 2005–2016 Gazprom’s output declined by more than 25% (from around 547 billion m<sup>3</sup> in 2005 to 408.6 billion m<sup>3</sup> in 2015 and 405.7 billion m<sup>3</sup> in 2016). Gazprom’s performance in the last decade was much lower than the company’s own projections made in 2008. At that time, the company predicted that in 2015 its own gas production would be in the range of 620–640 billion m<sup>3</sup> a year;

<sup>20</sup> Нефтекомпании РФ в 2016 г повысили уровень утилизации ПНГ до 90%, <http://prime.ru/energy/20161227/826988596.html>

but the actual levels are lower even than the projections revised in 2009 (which predicted output in the range of 549–553 billion m<sup>3</sup> of gas a year in 2015).

Gazprom has been making such downward revisions to its projections ever more frequently, with every successive release giving rise to more doubts as to the real output prospects. In 2012 the company maintained that it was ready to increase gas production to 670 billion m<sup>3</sup>, in 2013 it expected to produce 620 billion m<sup>3</sup>, in the autumn of 2014 the figure was 550–560 billion m<sup>3</sup>, and in February 2015 – only 490–555 billion m<sup>3</sup>.<sup>21</sup>

**A more long-term tendency, visible since the early 2000s, concerns the gradual shrinking of Gazprom’s share in Russia’s total gas production.**

Back in 2003, Gazprom accounted for nearly 87.1% of total output, but by 2016 its share had decreased to 62.2% (see Table 4). In recent years, the company’s position was strengthened slightly because of growing gas production in fields controlled by Gazprom’s daughter companies and joint ventures. However, including their output does not significantly alter the overall trends, which remain unfavourable to Gazprom.

**Table 4.** Gazprom’s share in gas production in Russia in the years 2000–2016 (billions m<sup>3</sup>)

Output	Gazprom	Russia total	Gazprom share (%)
2000	523.2	584.2	89.5
2001	515.5	581.2	88.7
2002	519.9	594.9	87.4
2003	540.2	620.3	87.1
2004	542.8	633.5	85.7
2005	547.1	641	85.3
2006	550.3	656.2	83.9
2007	550.14	654.13	84.1

<sup>21</sup> «Газпром» понизил ориентир добычи газа к 2020 году, <https://lenta.ru/news/2015/02/13/gazprom/>. In presentations delivered in February 2015 during the Investors Days in Hong Kong and Singapore, Gazprom representatives announced that in 2020, the company’s output would be in the range of 476–531 billion m<sup>3</sup>, including around 390 billion m<sup>3</sup> in the Nadym-Pur-Taz region (Western Siberia), between 60 and 115 billion m<sup>3</sup> in the Yamal Peninsula, and around 10 billion m<sup>3</sup> in Eastern Siberia and the Far East. Output in 2030 was to be in the range of 580–620 billion m<sup>3</sup>, including around 210 billion m<sup>3</sup> in the Nadym-Pur-Taz region, between 250 and 290 billion m<sup>3</sup> in the Yamal Peninsula, and around 60 billion m<sup>3</sup> in Eastern Siberia and the Far East. Source: Uncertain outlook for gas output, Argus FSUE, 12.02.2015, p. 6.

Output	Gazprom	Russia total	Gazprom share (%)
2008	550.9	664.8	82.9
2009	462.3	596.6	77.5
2010	509	665.6	76.5
2011	510.1	687.5	74.2
2012	478.5	671.5	71.2
2013	476.4	684	69.6
2014	432.2	654.3	66
2015	408.6	648.4	63
2016	405.7	651.3	62.2

Author's own compilation based on figures published by FSU Argus.

#### 4. Factors underlying the erosion of Gazprom's position

One of the main reasons why Gazprom's output has been declining concerns **the negative demand trends in the company's important external markets and the changed situation in the domestic market**, including declining gas consumption in Russia, systematically falling investments in the upstream sector and rising competition from the so-called independent gas producers.

##### 4.1. Negative trends in export markets

**The main reason for the steep decline in Gazprom's gas production concerns the dwindling volume of exports to European markets and the post-Soviet states (except for the Baltic states).** In 2008, Gazprom supplied a total of around 278.9 billion m<sup>3</sup> to external markets, in 2015 the volume was 233.4 billion m<sup>3</sup>, and in 2016 – 214.1 billion m<sup>3</sup> (including supplies to the parts of Donbas occupied by pro-Russian separatists).

The slump in exports is particularly visible in the post-Soviet markets. Back in 2006, Gazprom exported 96.1 billion m<sup>3</sup> of gas to those countries (the record volume for the 2000–2016 period), but by 2016 its sales to the post-Soviet states had declined to around just 26 billion m<sup>3</sup>, mainly due to the dramatic slump in supplies to the Ukrainian market (from 59.2 billion m<sup>3</sup> in 2006 to 7.8 billion m<sup>3</sup> of gas in 2015, and to a total discontinuation of Russian gas imports by Ukraine in 2016).<sup>22</sup>

<sup>22</sup> However, Gazprom consistently reports gas supplies to the areas occupied by pro-Russian separatists of the so-called Donetsk and Luhansk People's Republics around 2.4 billion m<sup>3</sup> in 2016).

**Russian gas exports to the EU** also declined noticeably in certain periods. In 2008 Gazprom supplied around 159.2 billion m<sup>3</sup> of gas to the European Union, but in the years 2009–2012 the volume of exports decreased to 130 billion m<sup>3</sup>. Afterwards, exports increased again to 157.5 billion m<sup>3</sup> in 2015 and just below 154 billion m<sup>3</sup> in 2016 (see Part II for detailed figures and a wider analysis of Russia's export strategy).

#### 4.2. Declining gas consumption in Russia and fiscal burdens

**Another important factor concerns the altered situation in Russia's domestic gas market**, where most of the gas produced in Russia is sold. The largest gas consumers in Russia traditionally include the electricity generation sector (around 48%), industry (12%) and households (around 11%).<sup>23</sup>

**Firstly, gas consumption has been slowly decreasing in Russia**, falling from 491.4 billion m<sup>3</sup> in 2005 to 454.6 billion m<sup>3</sup> in 2015.<sup>24</sup> The decline was particularly noticeable in Gazprom's sales in the domestic market, which fell from 307 billion m<sup>3</sup> in 2005 to 221.2 billion m<sup>3</sup> in 2015.<sup>25</sup>

Gas consumption was lower than predicted in the key strategic documents for the gas sector. According to the General Scheme of Gas Industry Development until 2030, domestic gas consumption in 2015 was expected to be within the range of 465–485 billion m<sup>3</sup>.<sup>26</sup>

The main cause of the decline in gas consumption concerns the economic slowdown in Russia. The consumption levels projected in the General Scheme of Gas Industry Development until 2030 were based on the assumption that Russia's economy would grow at an average rate of 6.9% over the years 2007–2010 and 6.3% over the years 2010–2015. Meanwhile, real GDP growth in these two periods was much lower: 2.6% and 1.3%, respectively.<sup>27</sup>

**Another important cause concerned systematically increasing prices, both for industrial consumers and households.** Prices paid by industrial

<sup>23</sup> Figures: <http://ac.gov.ru>

<sup>24</sup> Figures of the Ministry of Energy of the Russian Federation.

<sup>25</sup> Figures of Gazprom.

<sup>26</sup> Генеральная схема развития газовой отрасли на период до 2030 года, Москва 2008, р. 2–4.

<sup>27</sup> Figures published by Rosstat.

consumers increased 3.6 times (in roubles) and 2.7 times (in US dollars) in the period between 2005 and 2014. Thus, gas became less competitive compared to other resource and, on the other hand, rising prices stimulated energy efficiency improvements and made the so-called independent gas producers more interested in the domestic market.<sup>28</sup> However, while the initial assumption was that the domestic market would become increasingly profitable (gas prices were expected to rise by 15–20% a year to reach a level comparable with export prices in 2014, and Gazprom was indeed gradually ceding ever more of its market share to the so-called independent producers), in reality those expectations never materialised. Moreover, the dynamics of gas consumption in Russia is expected to be weak in the foreseeable future, and consequently, gas producers will most probably start to lose interest in the domestic market and turn to foreign markets (for more information on the liberalisation of prices in Russia's domestic gas market, see Part III).

**The tax regime in Russia has also contributed to the decline in gas production.** In particular, this concerns the high rates of the gas extraction tax (NDPI) and an unequal distribution of fiscal burdens among the different companies. In 2011, a single NDPI rate applied to Gazprom and the other actors in Russia's gas market but, in the years that followed, the rates were raised in a differentiated way that was preferential to the so-called independent gas producers. In 2012 Gazprom's rate was RUB 509 per 1000 m<sup>3</sup>, and the rate applicable to the other gas extraction companies – RUB 251 per 1000 m<sup>3</sup>. In 2014 those rates increased to RUB 700 and RUB 471 per 1000 m<sup>3</sup>, respectively, in 2015 – to RUB 788 and RUB 552 per 1000 m<sup>3</sup>, and in 2016, Gazprom's rate was increased to around RUB 1078 per 1000 m<sup>3</sup>, and a new increase of RUB 413 per 1000 m<sup>3</sup> is expected in 2017.<sup>29</sup>

Finally, the **energy efficiency improvement in Russia's industrial sector** also contributed to the decline in gas consumption. Energy efficiency was growing at the fastest rate in the years 2000–2008 (by 5.8% a year on average<sup>30</sup>).

<sup>28</sup> Внутренний рынок газа: как выйти из бермудского треугольника?, *Нефтегазовая Вертикаль*, Issue 13–14, 2015, p. 68.

<sup>29</sup> Минфин переливает топливо, <http://www.kommersant.ru/doc/3118953>

<sup>30</sup> [http://earchive.tpu.ru/bitstream/11683/32173/1/conference\\_tpu-2016-C11\\_V2\\_p989-992.pdf](http://earchive.tpu.ru/bitstream/11683/32173/1/conference_tpu-2016-C11_V2_p989-992.pdf)

### 4.3. Growing competition from the so-called independent gas producers

**The third internal factor concerns the growing competition that Gazprom has been facing from the so-called independent gas producers.**

Though the total volume of gas production in Russia remained relatively stable over the years 2005–2016 (with small increases in the years 2010–2013), this was due to increasing output from the so-called independent gas producers. In 2005, their total output was 86,9 billion m<sup>3</sup>, and by 2016 it had tripled to around 245 billion m<sup>3</sup> of gas (corresponding to nearly 38% of Russia's total gas production). This growth was much higher than had been predicted in the energy sector's planning documents. As recently as January 2013, the long-term gas output projections of the Russian Ministry of Economic Development predicted that even by 2030 the share of the so-called independent gas producers would amount to just 27.6%.<sup>31</sup>

**The main actors among the so-called independent gas producers include Novatek**, the largest private gas producer in Russia, and **Rosneft**, the largest state-owned oil company in Russia.

Back in 2004, **Novatek** produced a negligible volume of gas, but its output increased to around 25.4 billion m<sup>3</sup> of gas in 2005 and had more than doubled by 2015, reaching around 53.7 billion m<sup>3</sup>. Novatek's main gas fields are in the Yamal Peninsula.

**Rosneft's** output more than tripled during the last decade, increasing from 13 billion m<sup>3</sup> in 2005 to 46.7 billion m<sup>3</sup> in 2015. While most of Novatek's gas (84%) is extracted in dry form from gas deposits, the gas produced by Rosneft is mainly associated gas extracted as a by-product of oil extraction. This sort of gas accounted for around 76% of Rosneft's total output in 2015.

Rosneft has increased its share of domestic gas production mainly through acquisitions. In August 2012, the company acquired 51% of shares in a joint venture established with Neftegazovaya Kompaniya Itera (NGK Itera).<sup>32</sup> NGK Itera's

<sup>31</sup> Прогноз долгосрочного социально-экономического развития Российской Федерации на период до 2030 года, [http://economy.gov.ru/minrec/activity/sections/macro/prognoz/doc20130325\\_06](http://economy.gov.ru/minrec/activity/sections/macro/prognoz/doc20130325_06)

<sup>32</sup> As a joint venture established with Itera. The joint venture produces 12.6 billion m<sup>3</sup> of gas a year (2011 figure), mainly from the Beregovoye field (in operation since 2001) and the

contribution to the joint venture included 49% of shares in the Purgaz gas field (the remaining 51% was owned by Gazprom), 49% of shares in the Sibneftegaz company (the remaining 51% was owned by Novatek at that time) and 67% of shares in the Uralsevergaz gas trading company. In exchange, Rosneft transferred 100% of shares in the Kynsko-Chaselskoye Neftegas to NGK Itera and paid US\$ 173.4 million.

In December 2013 Rosneft purchased 51% of shares in Sibneftegaz from Novatek, thus acquiring full control (100% of shares) of the company. In 2014, it finalised the takeover of NGK Itera, thus consolidating its assets. In 2013, Rosneft took over the TNK-BP company. The company has also acquired stakes in several important gas joint ventures (see Table 3 for a detailed specification). The launch of a gas pipeline connecting the Vankor field with Gazprom's pipeline system also contributed to the company's growing sales by enabling Rosneft to utilise an extra 8.2 billion m<sup>3</sup> of associated gas produced at the Vankor field.

In May 2013 Rosneft declared that it was interested in buying the gas assets of the Russian Alrosa company (the fields are in Western Siberia, near the Beregovoye and Pyreynoye fields). Rosneft initially intended to have completed the acquisition of Alrosa's gas subsidiaries, Geotransgaz and Urengoyskaya Gazovaya Kompaniya, by the end of 2013. However, the transaction has not been finalised yet because no agreement could be reached about determining the value of the companies to be sold.<sup>33</sup>

**Rosneft has been systematically increasing the volume of its gas contracts with domestic consumers.** In 2015, Russia's largest oil company delivered 58.7 billion m<sup>3</sup> of gas to domestic consumers. Back in 2013 the company revealed that under the contracts already concluded, the total of volume of domestic supplies as of 2016 would reach 72 billion m<sup>3</sup> of gas per year. The company's major contracts include the deal concluded in September 2013 for the supply of 4 billion m<sup>3</sup> of gas to OGK-5, owned by Italy's Enel, in the years 2014–2025; the

Gubkinskoye field (in operation since 2007). The production potential of these two fields is 11 billion m<sup>3</sup> and 15 billion m<sup>3</sup> of gas a year, respectively. Itera sells around 22 billion m<sup>3</sup> of gas in the domestic market (2013), of which 12.6 billion m<sup>3</sup> is gas extracted by the company (2011), and the remainder is purchased from third parties (it had a contract with Novatek, valid to 2016, for the supply of 7 billion m<sup>3</sup> of gas a year).

<sup>33</sup> Газовый бизнес Роснефти: независимым придется потесниться, *Нефтегазовая Вертикаль*, Issue 5, 2014, p. 38–43; "АЛРОСА" и "Роснефть" возобновят переговоры по газовым активам в следующем году, <http://www.finmarket.ru/database/news.asp?fid=88885&l=42&fs=T&id=4036400>

contract for the supply of gas to Russian power plants owned by the Finnish company Fortum to 2019, concluded in September 2013; the 2012 deal for the supply of a total of 4.65 billion m<sup>3</sup> of gas in the years 2013–2015 to the E.ON power plants in Russia; the 2012 contract for the supply of 875 million m<sup>3</sup> of gas a year to Inter RAO for the years 2016–2040 (the contract provides for the supply of a total of 32 billion m<sup>3</sup> of gas). Moreover, Rosneft is still bound by the contracts, concluded in May 2014, for the supply of gas to Rusal, the Russia aluminium producer, EuroSibEnergo, the Eastern Siberian electricity company, and the Russkie Mashiny industrial complex. Rosneft will supply a total of 20 billion m<sup>3</sup> of gas per year to those companies to 2029.<sup>34</sup>

The volume of Rosneft's contracts for supplies to domestic consumers exceeds the company's current production capacity and Rosneft buys some of the gas it supplies from third parties (13.3 billion m<sup>3</sup> in 2014). In order to meet its new contractual obligations, the company will have to considerably increase its output (which should prove to be difficult since the new fields may yield only 48.5 billion m<sup>3</sup> in the years 2018–2019<sup>35</sup>), acquire new assets or purchase more gas from third parties. For these reasons, its objectives set in 2013, of increasing annual output to 100 billion m<sup>3</sup> and reaching a 20% share in the Russian gas market, will be difficult to achieve.<sup>36</sup>

**Novatek** has also been expanding its portfolio of lucrative contracts. In October 2015, the company and a Russian subsidiary of Italy's Enel concluded a contract for the supply of 2 billion m<sup>3</sup> of gas a year to the Nevinnomyskaya power plant in southern Russia for the period 2016–2018.

## **5. Resource base and prospects of gas production growth**

**The main actors in Russia's gas market have very ambitious plans concerning gas production, but they seem unlikely to materialise.**

<sup>34</sup> Роснефть поставит газ и нефтепродукты РУСАЛу, ЕвроСибЭнерго и «Русским машинам», <http://inosmip.ru/news/6593-rosneft-postavit-gaz-i-nefteprodukty-rusalu-evrosibenergo-i-russkim-mashinam.html>

<sup>35</sup> The production forecasts for Rosneft's gas assets in the years 2018–2019 are as follows: Rospan – 18 billion m<sup>3</sup>, Sibneftegaz – 15.5 billion m<sup>3</sup>, Karampur – 9 billion m<sup>3</sup>, the Kynsko-Chaselsky group fields – 6 billion m<sup>3</sup>. Source: Rosneft to sign more gas contracts, Argus FSUE, 21.08.2014, s. 4.

<sup>36</sup> «Роснефть» бросает вызов «Газпрому», [http://www.vedomosti.ru/business/articles/2013/04/24/rosneft\\_posopernichaet\\_s\\_gazpromom](http://www.vedomosti.ru/business/articles/2013/04/24/rosneft_posopernichaet_s_gazpromom)

**Gazprom** has declared that it is prepared to produce around 490–555 billion m<sup>3</sup> in 2020. **Rosneft**, too, has ambitious plans to increase its share of the domestic market. Back in 2013, the company’s CEO, Igor Sechin, announced that Rosneft was planning to increase production to 100 billion m<sup>3</sup> a year by 2020, and the Rosneft deputy CEO, Vlada Rusakova, said that the company would account for 20% of domestic gas supplies by 2020. Rosneft’s gas strategy, announced in December 2014, re-stated those objectives (i.e. the plan to become Russia’s second largest gas producer after Gazprom), but instead of the date 2020 it referred to the “medium-term perspective” without defining a specific period. **Novatek’s** plans no less ambitious – the company intends to increase its gas production to 120 billion m<sup>3</sup> by 2020.

**What may impede the implementation of those plans is not the absence of a potential to increase production, but rather the negative projections concerning domestic consumption and the prices of oil and gas, as well as the pessimistic export outlook.**

The positive thing for **Gazprom** is that the company still has a lot of room to increase output. However, the gas fields in question are problematic because they are in areas which require ever greater investments to develop, such as the Yamal Peninsula, the Arctic shelf, Eastern Siberia and the Russian Far East. Gazprom is currently able to produce 1.7 billion m<sup>3</sup> of gas per day, i.e. 580–620 billion m<sup>3</sup> a year.

**Novatek**, too, has sufficient potential to expand production, especially in Eastern Russia and the Yamal Peninsula. In Eastern Siberia, Novatek controls the third largest gas reserves, i.e. the Angaro-Lenski bloc <sup>37</sup>(1.22 trillion m<sup>3</sup> of gas), larger than all but the Kovykta and Chayanda fields. The company’s most promising project in terms of the potential to increase gas production is the SeverEnergiya undertaking implemented together with Gazpromneft (the gas produced is sold to Gazprom). Novatek’s main focus is on LNG production in the Yamal and Gydan Peninsulas<sup>38</sup> (for more information on the LNG projects, see Part II).

**Rosneft has also considerably expanded its holdings.** In 2011 the company was reported to have reserves of around 900 billion m<sup>3</sup> but a mere three years later in December 2014 it announced that it had expanded its reserves to

<sup>37</sup> Gennady Timchenko holds 50% of shares in the Angaro-Lenski bloc via his company Petromir.

<sup>38</sup> Внутренний рынок газа: как выйти из бермудского треугольника?, *Нефтегазовая Вертикаль*, Issue 13–14, 2015, p. 73.

6.5 trillion m<sup>3</sup>, partly by taking over Itera and TNK-BP. The new acquisitions are both new and existing fields; the new ones include the Karampur field (with around 800 billion m<sup>3</sup>, or 906 billion m<sup>3</sup> according to other estimates, and with a production capacity of 30 billion m<sup>3</sup> a year), the Kynsko-Chaselskaya group (284 billion m<sup>3</sup>), Vankor, Rospan (formerly owned by TNK-BP), Sakhalin 3 (the Severo-Veninskoye field) and Sibneftegaz. The existing fields are mainly those formerly owned by Itera: Beregovoye (in operation since 2001) and Gubkinskoye (in operation since 2007).

**Given the persistent negative market trends, both in Russia and in external markets, the Russian gas sector is unlikely to achieve the long-term targets set out in the Energy Strategy to 2030**, i.e. an increase in gas production to 803–837 billion m<sup>3</sup> a year in the years 2020–2022, and to 885–940 billion m<sup>3</sup> a year by 2030.

**Table 5.** Projections for gas production in Russia

Russia's Energy Strategy until 2030 <sup>39</sup>				
	2013–2015		2020–2022	2030
Projected gas output (billions of m <sup>3</sup> )	685–745		803–837	885–940
General Scheme of Gas Industry Development until 2030				
	2015	2020	2025	2030
Projected gas output (billions of m <sup>3</sup> )	781–845	850–941	871–974	876–981

Author's own compilation based on figures published in the successive versions of the Energy Strategy of the Russian Federation and the General Scheme of Gas Industry Development until 2030.

The outlook for gas consumption in the domestic market is less than optimistic (see Part II for more information). The competitive advantage of Russian gas in the European markets, however, may offer some opportunities for increasing the volume of exports. In 2016, the average price of Russian gas for the EU was US\$ 167 per 1000 m<sup>3</sup> (for comparison, back in January 2015 it was US\$ 305 per 1000 m<sup>3</sup>). The prices at gas hubs were higher: US\$ 243.51 per 1000 m<sup>3</sup> at the TTF and US\$ 245.28 per 1000 m<sup>3</sup> at the NCG. The falling prices have led

<sup>39</sup> Энергетическая стратегия России на период до 2030 года, Moscow 2009, <http://minenergo.gov.ru/node/1026>

to increased gas exports to Germany (3.6 billion m<sup>3</sup> in June 2016, 20% more than in May 2016).<sup>40</sup>

The restrictions which the so-called independent gas producers face when trying to access the Gazprom-owned gas transmission network are **one of the barriers** holding back the growth of gas production. The independents have been increasingly using this argument when lobbying for liberalisation of the Russian gas market. To some extent, the problems are gradually being overcome. In 2014, a gas pipeline was launched which connected the Vankor field to a LUKOIL-owned gas pipeline in Western Siberia, which, in turn, is connected to Gazprom's gas pipeline system at the Yamburg node.

**One of the Russian gas sector's biggest current challenges is to expand the available gas reserves, since output growth in Russia has recently been achieved mainly by renewing extraction in old fields instead of developing new ones.**

The difficult-to-access fields are yet to be put into operation. They include the Yamal fields (Krusenshtern, Kharasavey, the Tambey Group), Eastern Siberian fields (Kovykta, Chayanda) and offshore fields (especially the Shtokman field). Several problems impede their potential development. Firstly, the fields are located far from the potential gas consumers. Secondly, they are in regions with exceptionally harsh environmental or climate conditions. Thirdly, the new gas production centres have insufficiently developed infrastructures. And finally, some of them contain gas which needs to be highly processed before it can be used, in addition to deposits of other resources such as helium in the case of the Eastern Siberian fields.

The Ministry of Energy of the Russian Federation expects that gas production in Russia will increase to 655 billion m<sup>3</sup> in 2018 and that gas producers will invest around RUB 813 billion (US\$ 12.6 billion) in the upstream sector and a further RUB 1.6 billion into transport infrastructure in the years 2016–2018.<sup>41</sup> If Russia's total gas production is to increase in line with the stated objectives to 1 trillion m<sup>3</sup> a year by 2030, then very costly preparatory works will have to be carried out. According to calculations by the industry journal *Neftegazovaya Vertikal*,

<sup>40</sup> Gazprom price falls below hub levels, Argus FSUE, 9.07.2015, s. 4; Газпром: Цена на газ в ЕС в 2017 г составит \$180-190 за тыс кубов, <http://prime.ru/INDUSTRY/20170228/827193654.html>

<sup>41</sup> Gas output to rise, Argus FSUE, 29.10.2015, s. 5.

in order to maintain the production volume of around 650 billion m<sup>3</sup> a year and thus reach a total volume of around 10 trillion m<sup>3</sup> in the years 2016–2030, it will be necessary to develop fields with reserves of around 15 trillion m<sup>3</sup> (according to the General Scheme of Gas Industry Development until 2030, it might even be necessary to develop deposits of around 25–26 trillion m<sup>3</sup>). The cost of enabling gas extraction in fields containing around 15 trillion m<sup>3</sup> of gas has been estimated at US\$ 23–28 billion a year, which is much less than Gazprom’s total investment in geological works and the gas upstream segment in general. Although attracting foreign investors could be a way to raise the funds needed, Gazprom has so far been reluctant to create the mechanisms for co-operation needed to enable such investments.<sup>42</sup>

The necessary measures seem even less likely to materialise if one considers the evolution of gas reserves in the existing strategic fields, which constitute the resource base of gas production in Russia. In the years 2002–2013, a total of 6.56 trillion m<sup>3</sup> of gas was produced in Western Siberia, but the reserves decreased by 3.4 trillion m<sup>3</sup> in the same period as new reserves of around 3.16 trillion m<sup>3</sup> were developed. However, in the total volume of the new reserves in Western Siberia, only 180.9 billion m<sup>3</sup> was in new fields. The evolution of offshore reserves looks slightly better: the total reserves of 5.23 trillion m<sup>3</sup> include 3.5 trillion m<sup>3</sup> in the so-called old fields in the Barents Sea and the Kara Sea and 1.73 trillion m<sup>3</sup> in new fields (mainly Gazprom-owned fields in the Sea of Okhotsk and the Kara Sea).<sup>43</sup> However, with the current persistently low gas prices, the exploitation of shelf deposits remains unprofitable.

## 6. Development of domestic gas infrastructure

### 6.1. The transmission network

Russia has the world’s most extensive gas pipeline network, which consisted of 171,200 kilometres of pipelines in 2015. The gas transmission infrastructure in Russia is owned by Gazprom.

<sup>42</sup> As illustrated by the small number of joint upstream projects with European companies and the reluctance to accept undertakings entailing the involvement of Chinese companies in the Russian gas upstream sector, despite the interest in such projects expressed by the Chinese side.

<sup>43</sup> *Нефтегазовая Вертикаль*, Issue 16, 2015, p. 51–60.

In the years 2001–2014, more than 20,000 km of new gas pipelines were built in Russia, which considerably improved the level of **access to the gas network**. Over the last 15 years, access rates increased from 49.8% in 2000 to 66.8% in 2016. Currently, access to the gas distribution networks is higher in cities (70.4%) than in rural areas (56.1%). Gazprom’s investments in the development of the gas network have also increased from RUB 9 billion in 2005 to a record level of RUB 33.9 billion a year in 2013.<sup>44</sup>

Still, these rates are much lower than predicted in the plans announced in 2009, when Gazprom pledged to achieve universal access to gas networks by 2015. Moreover, during the last two years Gazprom started to scale down its investments in gas network expansion: in 2016, it planned to spend RUB 25 billion on such projects.<sup>45</sup>

On the other hand, **the existing domestic transmission infrastructure is largely worn out**. According to Gazprom, in 2012 the infrastructure was 70% through its useful life on average, and 90% in the case of compressor stations. The average age of Russia’s main gas pipelines was higher than 23 years. While back in 2004 gas pipelines older than 33 years accounted for around 17% of the entire transmission infrastructure, in 2014 that percentage was already 46%. Gas pipelines younger than 10 years, on the other hand, account for slightly less than 12% of the entire transmission infrastructure (see Table 6 for details).<sup>46</sup>

**Table 6.** Age of gas pipelines in Russian territory

	2004	2009	2014
<b>Total length of gas transmission infrastructure (thousands of km)</b>	152.8	160.4	170.7
Gas pipelines in operation for less than 10 years (%)	11.1	9.8	12.1
Gas pipelines in operation for 11-20 years (%)	30.9	18.3	12.1
Gas pipelines in operation for 21-33 years (%)	40.7	44.5	29.6
Gas pipelines in operation for more than 33 years (%)	17.3	27.4	46.2

Author’s own compilation based on figures published by Gazprom.

<sup>44</sup> <http://www.gazprom.ru/about/production/gasification/>

<sup>45</sup> "Газпром" сокращает расходы на газификацию РФ, [http://www.ng.ru/economics/2016-07-22/4\\_gasprom.html](http://www.ng.ru/economics/2016-07-22/4_gasprom.html)

<sup>46</sup> On the basis of figures disclosed in Gazprom’s annual reports in 2000–2015.

**For many years, Gazprom has been investing mainly in new export gas pipelines, at the expense of maintaining the domestic infrastructure.** The company spends around RUB 150 billion a year on upgrading the transmission infrastructure, which is insufficient in view of the real needs, estimated at 1.5 to 2 times as much.<sup>47</sup>

## 6.2. Gas storage

Gazprom has also expanded its network of domestic gas storage facilities; however, their total capacity is lower than initially planned. In 2000, the company's total gas storage capacity was 57.8 billion m<sup>3</sup>, in 2005 – 62.6 billion m<sup>3</sup>, in 2010 – 65.4 billion m<sup>3</sup> (while the plans drafted in 2005 predicted that a capacity of 82 billion m<sup>3</sup> would have been reached by that time), and in 2015 – 73.6 billion m<sup>3</sup>.

## 6.3. Gas processing infrastructure in Russia

The processing of natural gas consists mainly of separating the hydrocarbon fractions (ethane, propane, butane and their mixtures) from non-hydrocarbon components (nitrogen, helium, sulphur compounds). Gas condensate, which is often extracted in gas fields alongside dry gas, can also be processed to produce fuels.

Currently there are more than 30 gas processing plants in Russia; the most important ones are owned by Gazprom, SIBUR and LUKOIL. Gazprom's plants in Orenburg, Astrakhan and Sosnogorsk have the highest production capacity. Gazprom also has a helium processing plant in Orenburg, a condensate stabilisation plant in Surgut and a plant for preparing condensate for transportation in Novy Urengoy. The total production capacity of all the plants is 53.5 billion m<sup>3</sup>.<sup>48</sup>

Gazprom holds the largest share in the segment of raw natural gas processing (accounting for 96% of Russia's total raw natural gas processing). SIBUR, on the other hand, holds the highest share in the segment of associated gas processing (56%).

<sup>47</sup> Либерализация газового рынка: ломать не строить, *Нефтегазовая Вертикаль*, Issue 1-2, 2016, p. 18.

<sup>48</sup> Газ. Добыча и переработка. Новая волна спада, *Нефтегазовая Вертикаль*, Issue 23-24, 2014, p. 107-108.

The General Scheme of Gas Industry Development until 2030 predicted a dynamic development of the gas processing sector in Russia, which was expected to grow from 70.9 billion m<sup>3</sup> in 2007 to 133–143 billion m<sup>3</sup> in 2015, 246–278 billion m<sup>3</sup> in 2025 and 243–275 billion m<sup>3</sup> in 2030.<sup>49</sup>

However, the actual figures for the last ten years demonstrate that those predictions were unrealistic. According to figures from the Russian Ministry of Energy, the volume of gas processing increased from 62.7 billion m<sup>3</sup> of gas in 2006 to 71.9 billion m<sup>3</sup> in 2015, i.e. was just over half of what the General Scheme had predicted (for detailed figures, see Table 7).

**Table 7.** Natural gas processing in Russia in 2006–2016 (billions of m<sup>3</sup>)

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
62.7	63.7	66.2	64.9	68.8	69.8	70.7	71.2	72	71.6	n/d*

\* n/d - no data

**Source:** Ministry of Energy of the Russian Federation.

Gazprom is planning to build two large new gas processing plants, one in the northern part of the Tyumen Oblast and the other in Yakutia, but the plans are expected to be implemented no sooner than the mid-2020s.

<sup>49</sup> Генеральная схема развития газовой отрасли на период до 2030 года, <http://www.energyland.info/files/library/112008/7579b56758481da282dd7e0a4de05fd1.pdf>

## II. THE RUSSIAN GAS SECTOR'S EXPORT STRATEGY IN 2000–2016

### 1. Objectives of the gas sector's export strategy

**The most important stated and actual objective of Russia's export strategy in the gas sector has invariably been to diversify export markets and, to that end, to expand the gas transmission infrastructure.** The expectation was that those efforts would also indirectly involve the development of new gas fields, especially those in regions with harsh environmental or climate conditions, such as the Yamal Peninsula, the Arctic shelf, Eastern Siberia or the Far East.

Under Vladimir Putin, **Russia's export strategy has effectively been regarded as an instrument for pursuing economic aims as well as political objectives** of vital importance for the Russian state.

The most important **economic objective** has been to maintain, and in the longer term strengthen, the position of Russian gas in the strategically important European markets, and especially the most lucrative markets of the EU member states. The rationale behind the construction of new export gas pipelines has been not only to reduce transit dependence on third countries (especially Ukraine) but also to enable Gazprom to more flexibly respond to the changing situation, including changing demand, in the various segments of the European market.

In view of the promising outlook for gas consumption in Asian markets, and especially China, Russia has also been aiming to launch gas supplies to China via a system of projected pipelines and in the form of LNG, bearing in mind the persistently high LNG prices in Asia.

Since Vladimir Putin came to power, the gas sector has also served as an important instrument in the pursuit of Russia's **political objectives**. Efforts to develop closer gas co-operation with other actors were often made with a view to building political influence in the states or groups of states concerned. The reason why Russia has tended to favour bilateral or regional co-operation in its relations with EU member states is because it wanted to render it more difficult for the EU institutions and member states to come up with a common energy policy based on principles that would run counter to Russia's interests (such as diversification of gas supplies, reducing gas dependence on Russia,

or imposing rules on Russia's presence in the EU market through regulatory change). This tactic has been visible in Russia's incessant efforts to push through its successive gas pipeline projects (Nord Stream 1, South Stream, Turkish Stream, Nord Stream 2), with the ancillary objective of building regional 'gas axes'.

## **2. Russia's gas exports in the years 2000–2016: export destinations and volumes**

**Russia has not managed to achieve the levels of gas exports projected in the strategic documents for the gas sector and pledged by Gazprom.** According to the General Scheme of Gas Industry Development until 2030, Russian gas exports were expected to reach 347–375 billion m<sup>3</sup> of gas by 2015.<sup>50</sup> The actual volume of Russian gas supplies to external markets was lower by as much as 100 billion m<sup>3</sup>, mainly because of the drastic decline in exports to the post-Soviet countries, and especially Ukraine.

Ukraine, which back in 2006 imported around 59 billion m<sup>3</sup> of gas from Russia (a volume more than 10 billion m<sup>3</sup> larger than the exports to Germany, currently the largest importer of Russian gas), used to be a key market for Gazprom in the post-Soviet area. However, Russian exports to Ukraine declined systematically, reaching a level of 25.8 billion m<sup>3</sup> in 2013. In the aftermath of the political change in Kyiv, Russia unilaterally cancelled all the discounts previously granted to Ukraine and reinstated the high contractual price of US\$ 486 per 1000 m<sup>3</sup>. This led to objections on the part of Kyiv, which demanded a replacement of the price formula stipulated in the 2009 gas contract with a market mechanism. As the parties failed to reach agreement, in June 2014 Russia completely halted gas exports to Ukraine and introduced a system of prepayments. Supplies were resumed after agreement was reached on the so-called winter package,<sup>51</sup> but the interruption in supplies for nearly six months resulted in a decrease in the 2014 yearly volume of supplies to 14.5 billion m<sup>3</sup>. As a result of the diversification efforts undertaken by Kyiv,

<sup>50</sup> Генеральная схема развития газовой отрасли на период до 2030 года, <http://www.energyland.info/files/library/112008/7579b56758481da282dd7e0a4de05fd1.pdf>

<sup>51</sup> For more information, see: Sz. Kardaś, W. Konończuk, A. Łoskot-Strachota, Success? The Russia/Ukraine/EU gas agreement, *OSW Analyses*, 5.11.2014, <https://www.osw.waw.pl/en/publikacje/analyses/2014-11-05/success-russia/ukraine/eu-gas-agreement>

in 2015 gas supplies from Russia decreased yet again to 7.8 billion m<sup>3</sup>,<sup>52</sup> and in 2016 Ukraine stopped buying gas from Russia altogether.<sup>53</sup>

**Gas supplies to the EU member states have been a key export destination for Gazprom and that has never changed during the last sixteen years.**

The largest EU buyers of Russian gas include Germany, Italy, France and the member states of the Visegrad Group (the Czech Republic, Poland, Slovakia and Hungary). In recent years, (2013–2016) supplies to the British and Dutch markets have been surprisingly high, mainly because Gazprom increased its share in the volume of gas bought by those countries from European intermediaries.

**Turkey remains the largest non-EU market for Russian gas.** The volume of supplies increased by more than 150% in the years 2002–2015, from less than 12 billion m<sup>3</sup> in 2002 to 27 billion m<sup>3</sup> in 2015 (in 2016 exports to Turkey decreased slightly to 24.7 billion m<sup>3</sup>).

Figures on the volumes of Russian gas transmitted via the export pipelines and data on Russian gas exports quoted by the Central Bank of the Russian Federation (see Appendix II) show that the share of Russian gas in external markets is lower than indicated in Gazprom's statistics. That is because the latter show total volumes of gas supplied to individual countries, which often include some quantities of gas from Central Asia and small amounts of gas from Azerbaijan, as well as certain quantities of gas bought by Gazprom or Gazprom Export from trading companies operating in the European market.

The proportion of gas imported from Central Asia in Russia's gas exports has decreased considerably in recent years. Back in the years 2006–2008, the volume of such gas was 56.9–61.4 billion m<sup>3</sup> a year, but in 2009 it decreased to 35.7 billion m<sup>3</sup>, in 2013 – to 28.5 billion m<sup>3</sup>, and in 2015 – to 19.2 billion m<sup>3</sup>.<sup>54</sup> Gazprom has been losing interest in Central Asian gas (mainly from Turkmenistan) because of the changing internal and external circumstances. Some of the gas from Turkmenistan used to be supplied to the southern regions of Russia, which is no

<sup>52</sup> For more information about Ukraine's gas diversification, see: T. Iwański, Ukraine: successful diversification of gas supply, *OSW Analyses*, 3.02.2016, <https://www.osw.waw.pl/en/publikacje/analyses/2016-02-03/ukraine-successful-diversification-gas-supply> and statistics published by Gazprom at [www.gazprom.ru](http://www.gazprom.ru)

<sup>53</sup> For more information, see: T. Iwański, Ukraine: a record year for Naftohaz, *OSW Analyses*, 8.02.2017, <https://www.osw.waw.pl/en/publikacje/analyses/2017-02-08/ukraine-a-record-year-naftohaz>

<sup>54</sup> Figures from the Ministry of Energy of the Russian Federation.

longer necessary since Gazprom expanded its own infrastructure, enabling it to supply cheaper gas from its own fields (according to the *Kommersant* newspaper, in 2015 the price of gas imported to Russia from Turkmenistan was US\$ 200 USD per 1000 m<sup>3</sup>, i.e. four times as much as the price of gas produced by Gazprom). Moreover, using the Turkmen gas to deliver on Gazprom's export obligations also ceased to be profitable, mainly because of the dwindling demand and falling prices in Russia's traditional export markets (and especially the drastic decline in gas supplies to Ukraine, which used to be one of the main buyers of the Central Asian gas re-exported by Gazprom).<sup>55</sup>

The decline of gas imports from Central Asia, the fact that the Central Asian states no longer depend on Russia for transit (in particular, thanks to the gas pipeline network enabling gas exports to China, built in the years 2006–2015) and the dramatic decline in gas exports to Ukraine all mean that Russia has lost an important instrument of political pressure in its relations with some post-Soviet states. The loss of the Ukrainian market has also been one of the principal external causes of the decline in Gazprom's output.

### **3. Existing and planned export pipelines**

Russia invariably remains the world leader in gas exports via pipelines (with a 27.4% share in total pipeline gas supplies).<sup>56</sup> Despite its ambitious plans and pledges, Gazprom has not managed to genuinely diversify its gas export markets during the years 2000–2016. Europe is still the primary market of strategic importance, as the LNG supplies to Asian states continue to account for a small proportion of total exports. However, Russia has managed to diversify its export routes to the European market and reduce the share of gas from third countries (Central Asia) in its total gas exports.

#### **3.1. Diversification of export routes to Europe**

**In recent years, Gazprom successfully diversified its gas export routes to the strategic markets in European states and Turkey.**

<sup>55</sup> Sz. Kardaś, Rosja rezygnuje z turkmeńskiego gazu [Russia stops buying gas from Turkmenistan], *Analizy OSW*, 29.07.2015, <http://www.osw.waw.pl/pl/publikacje/analizy/2015-07-29/rosja-rezygnuje-z-turkmenskigo-gazu>

<sup>56</sup> Figures of the BP Statistical Review of World Energy, June 2016, <http://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2016/bp-statistical-review-of-world-energy-2016-full-report.pdf>

While the **Ukrainian gas pipeline system is still the main export route, its importance has declined considerably over the last sixteen years.** Back in 2005, Russia sent more than 136.4 billion m<sup>3</sup> of gas via Ukrainian territory to European markets and Turkey; by the end of 2014 that volume had decreased to 62.2 billion m<sup>3</sup>. While it has increased again in 2016 to around 82.2 billion m<sup>3</sup>, it is still much lower than it was a decade ago.

**Table 8.** Volume of Russian gas transit via Ukraine in 2005–2016 (w billion m<sup>3</sup>)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
136.4	128.5	115.2	119.6	95.8	98.6	104.2	84.3	86.1	62.2	67.1	82.2

Author's own compilation based on figures published by Gazprom.

Gazprom managed to decrease its transit dependence on Ukraine by launching three pipelines: Yamal-Europe, Blue Stream and Nord Stream.

The construction of the **Yamal-Europe** pipeline started in 1994 and the pipeline was launched in 1999, though it did not reach its full transmission capacity (33 billion m<sup>3</sup> of gas a year) until 2006. Since that time, the pipeline has been operating at almost maximum capacity.

**Blue Stream**, via which Russia exports gas across the Black Sea directly to Turkey, was put into operation in 2002. Russia uses around 80% to 90% of the pipeline's total capacity of 16 billion m<sup>3</sup>. The construction cost of Blue Stream was US\$ 2.4 billion.

Finally, **Nord Stream** is the third main gas pipeline built to diversify Russia's export routes to Europe. In September 2005, Gazprom and the German companies BASF and E.ON signed a preliminary agreement to build a gas pipeline from Russia to Germany. In the same year they created the North European Gas Pipeline Company joint venture, renamed in late 2006 as Nord Stream AG. The final shareholders' agreement was signed in July 2007 (with Gazprom taking 51% of shares, Wintershall and E.ON 15,5% each, Gasunie and GDF Suez (currently Engie) 9% each). The construction of the pipeline started on 9 April 2010; the first branch came into operation on 8 November 2011 and the second in October 2012. The official total construction cost of the Nord Stream's first two branches was EUR 7.4 billion. Their total capacity is 55 billion m<sup>3</sup>.<sup>57</sup> In 2015 71.1%

<sup>57</sup> <http://www.gazprom.ru/press/news/2010/april/article97229/>; <http://www.gazprom.ru/press/news/2011/november/article122594/>; <http://www.gazprom.ru/press/news/2012/october/article145481/>

of the pipeline's total capacity was used (39 billion m<sup>3</sup>),<sup>58</sup> and in 2016 – nearly 80% (43.8 billion m<sup>3</sup>).<sup>59</sup>

### 3.2. Plans for new export gas pipelines to Europe and their prospects

**Gazprom has revealed plans to build many new large gas pipelines, yet the projected pipelines to Europe seem to be the ones most likely to materialise in the coming years. At this stage, the plans to build new branches of the northern pipeline (Nord Stream 2) and one branch of the Turkish Stream pipeline seem to stand the best chances of being implemented.**

As regards the **Nord Stream 2** project, a shareholders' agreement concerning the construction of two new branches of the pipeline was signed on 4 September 2015 in Vladivostok. The deal was concluded between Gazprom and five large European companies, including Germany's BASF, Austria's OMV, Germany's E.ON, the Dutch-British Shell and France's Engie (formerly GDF Suez). The initial project envisages the construction of a gas pipeline from Russia to Germany with a total capacity of 55 billion m<sup>3</sup> for a total cost of EUR 9.9 billion. The pipeline branches are due to enter operation by the end of 2019. The structure of financing has not yet been finalised: while Gazprom representatives have claimed that it would be completed by the end of January 2016, no details about the financing were known at the end of February 2017. The project is to be implemented by the Nord Stream 2 AG company (registered in Zug, Switzerland), in which Gazprom initially planned to take 51% of shares, with BASF/Wintershall, OMV, E.ON and Shell taking 10% each and Engie taking the remaining 9%.<sup>60</sup> However, after the Polish competition authority raised reservations about the Western European companies acquiring shares in the company, they withdrew from the deal with Gazprom. This does not mean that the project is now shelved, but Gazprom will have to develop new financing and implementation arrangements for it. Nevertheless, the Russian company has officially applied for pipeline construction

<sup>58</sup> "Газпром" в 2015 году увеличил поставки газа по "Северному потоку", <http://ria.ru/economy/20160121/1362938594.html>

<sup>59</sup> Среднегодовая загрузка «Северного потока» в 2016 году составила 80% – в ЕС поставлено 43,8 млрд куб. м газа, <http://www.nord-stream.com/ru/informatsiya-dlya-pressy/press-relizy/srednegodovaya-zagruzka-severnogo-potoka-v-2016-godu-sostavila-80-v-es-postavleno-438-mlrd-kub-m-gaza-490/>

<sup>60</sup> On 12 November 2016 an agreement was signed in Tsarskoye Selo near St. Petersburg between Gazprom and Engie, which increased the French company's stake in the Nord Stream 2 consortium from 9% to 10%. Thus, Gazprom's stake decreased from 51 to 50%, <http://www.gazprom.ru/press/news/2015/september/article245799/>; <http://www.gazprom.ru/press/news/2015/november/article250782/>

permits to the relevant authorities in Finland, Sweden, Denmark and Germany. Moreover, on 22 February 2017 Nord Stream 2 AG (currently owned 100% by Gazprom) announced that it had concluded an agreement with Allseas Group for the construction of the offshore section of the Nord Stream 2 pipeline. Construction work is expected to be carried out in the years 2018-2019.<sup>61</sup>

Russia also still intends to build a new **gas pipeline across the Black Sea**, but because of frequent modifications to the project, which have largely been politically-motivated, the final shape and timeframe for the project will remain uncertain in the coming years. After scrapping the plans for South Stream in December 2014<sup>62</sup>, president Putin announced a new plan to build a large gas pipeline under the working name of Turkish Stream. The plan is to build a pipeline across the Black Sea to Turkey to supply gas to southern Europe via a hub to be built on the Turkish-Greek border.

Co-operation on the project was suspended in November 2015 because of the heightened political tensions between Moscow and Ankara after Turkey shot down a Russian aircraft. The project was reactivated after a new political rapprochement in Russian-Turkish relations, symbolically expressed in the declaration on resuming work on the Turkish Stream, made by the presidents of the two states on 9 August 2016. On 10 October 2016, during president Putin's visit to Istanbul, an intergovernmental agreement was signed on the construction

<sup>61</sup> <https://www.nord-stream2.com/media-info/news-events/nord-stream-2-awards-pipeline-contract-to-allseas-38/>

<sup>62</sup> South Stream was one of Gazprom's largest and most expensive infrastructural projects. It envisaged the construction of a pipeline with a total length of 2430 km (925 km offshore; 1505 km on land in Europe) and a capacity of 63 billion m<sup>3</sup> a year, running from Russia via the Black Sea to Southern and South-Eastern Europe. In the years 2008–2010 Russia signed intergovernmental agreements with all the transit countries for the pipeline variants projected at that time. Joint ventures were established to build the pipeline sections in the individual transit states, and an international consortium South Stream Transport AG was created to build the offshore part of the pipeline. The routing of the pipeline was changed several times: the initial plan was to build two branches: the north branch (Bulgaria, Serbia, Hungary, Slovenia, Austria) and the south branch (Bulgaria, Greece, Italy). Later versions of the project only included a shorter version of the north branch. In the first stage of the project the four-branch offshore section was expected to be built (each branch with a capacity of 15.75 billion m<sup>3</sup> a year) connecting the Russkaya compressor station near Anapa (Krasnodar Krai) with the Bulgarian coast near Varna via the exclusive economic zone of Turkey. The pipeline was to transmit Russian gas via Bulgaria, Serbia, Hungary, Slovenia and Italy (Tarvisio). Source: Sz. Kardaś, E. Paszyc, At any price: Russia is embarking on the construction of South Stream, *OSW Commentary*, December 2012, <https://www.osw.waw.pl/en/publikacje/osw-commentary/2012-12-07/any-price-russia-embarking-construction-south-stream>

of the Turkish Stream (ratified by Turkey and Russia in December 2016 and February 2017, respectively). In December 2016 and in February 2017 contracts were signed between the Gazprom-controlled South Stream Transport B.V. company and Allseas Group AG for the construction of two offshore sections of the pipeline.<sup>63</sup>

The revived project envisages the construction of two pipeline branches (with a capacity of 15.75 billion m<sup>3</sup> each), one of which would supply gas to the Turkish market while the other would carry Russian gas via Turkey to European markets. The project's current scope is less ambitious than the original plans: in 2014, the objective was to build a pipeline with four branches and a total capacity of 63 billion m<sup>3</sup> of gas a year (however, it only took until October 2015 for Gazprom to announce that the total capacity would be reduced to 32 billion m<sup>3</sup>). The cost of building the two branches was initially estimated at around EUR 7 billion.<sup>64</sup> However, statements made so far indicate that there is still no clarity about the project's final shape, the number of branches, capacity and route. The agreement signed is very generic, and the provision that it applies to the construction of two pipeline branches represents a success for Russia only on a superficial level. The Turkish side had previously advocated signing separate agreements, one for the pipeline that would supply gas to Turkey, and subsequently, a separate agreement for the transit pipeline. Gazprom, on the other hand, wanted to sign one agreement for all the planned branches. The inter-governmental agreement stipulates that the construction of the transit branch will require an additional protocol to be signed. It also specifies that the offshore section of the pipeline will be built by Gazprom, and the onshore part by Turkish companies and a Russian-Turkish joint venture (the transit branch). The agreement leaves many technical and financial details of the project unspecified (including the routing and implementation costs). The parties have also agreed on a mechanism to calculate a discount for gas supplies to Turkey via the Turkish Stream (details are to be agreed in further negotiations). That mechanism, however, falls short of resolving the current Russian-Turkish price dispute whereby Ankara has been demanding a discount on its current gas supplies for two years. On 11 October 2016, the Gazprom CEO announced that a discount could come

<sup>63</sup> Подписан контракт на строительство первой нитки морского участка газопровода «Турецкий поток», <http://www.gazprom.ru/press/news/2016/december/article295321/>; Подписан контракт на строительство второй нитки морского участка «Турецкого потока», <http://www.gazprom.ru/press/news/2017/february/article304014/>

<sup>64</sup> Две нитки «Турецкого потока» оценены в 7 млрд евро, <http://www.vedomosti.ru/business/articles/2016/12/21/670529-turetskogo-potoka-otseneni>

with an increase in the volume of Russian gas supplies to Turkey (by around 2 billion m<sup>3</sup>). The negotiations are thus set to continue in the coming months, which may delay the talks about the Turkish Stream implementation details.<sup>65</sup>

Irrespective of those difficulties, it seems that the construction of at least one branch of the pipeline, the one supplying gas to Turkey (with a capacity of 15.5 billion m<sup>3</sup> a year) may realistically happen by 2020. Firstly, Gazprom could use the pipes that have already been manufactured for the offshore section of the South Stream to build at least one branch of the Turkish Stream. Secondly, the Russian side has expanded its internal gas infrastructure in southern Russia to an extent that enables gas exports via a new pipeline across the Black Sea.<sup>66</sup>

Russia traditionally views building new gas pipelines as one of the ways to maintain, and in the longer term even strengthen, its position in the European market. The underlying objective is to increase the volume of Russian gas supplies to the European market. The official justification points to a projected increase in gas demand in Europe – according to Gazprom, demand for gas will increase by around 80 billion m<sup>3</sup> to 2020 and by a total of around 200 billion m<sup>3</sup> to 2030, compared to 2014 levels.

An analysis of the current contracts for gas supply and the currently available transmission capacity and its utilisation suggests that Russia's policy lacks any economic justification (in 2014 Russian exports to European states including Turkey were around 150 billion m<sup>3</sup> while the available transmission capacity is more than 300 billion m<sup>3</sup> a year<sup>67</sup>). Hence, political motivations seem to be key at this stage (limiting and ultimately eliminating Ukraine's role as a transit country, strengthening political influence in selected EU countries and undermining solidarity among the EU members).

In the long term, Russia may obtain some important legal benefits owing to its infrastructure development efforts (increasing transmission capacity may be

<sup>65</sup> M. Chudziak, Sz. Kardaś, W. Rodkiewicz, Turkey-Russia: partnership of convenience, *OSW Analyses*, 12.10.2016, <https://www.osw.waw.pl/en/publikacje/analyses/2016-10-12/turkey-russia-partnership-convenience>

<sup>66</sup> Россия и Турция вернулись к обсуждению проекта „Турецкий поток”, <http://www.vedomosti.ru/business/articles/2016/07/27/650683-rossiya-turtsiya>

<sup>67</sup> The total capacity of the first two branches of Nord Stream is 55 billion m<sup>3</sup>, of the Yamal-Europe pipeline – around 33 billion m<sup>3</sup>, of the Ukrainian route – 179 billion m<sup>3</sup> officially (in reality the figure is close to 142 billion m<sup>3</sup>), and of the Blue Stream pipeline (which supplies some of the gas exported to Turkey) around 16 billion m<sup>3</sup>.

an effective way to partly resolve the legal problems in Russian-EU gas relations). It may also benefit economically as the pipelines will enable it to influence gas prices in European spot markets.

Nevertheless, Moscow's gas pipeline projects implemented jointly with selected EU states currently serve as an instrument in the pursuit of Russia's **political aims in its relations with Ukraine and the European Union**.

The agreement on the construction of the 3<sup>rd</sup> and 4<sup>th</sup> branch of the Nord Stream and the plans concerning the Turkish Stream demonstrate that Russia is consistently working to achieve its strategic objective, which is to build infrastructure that will **enable it to stop transiting gas via the territory of Ukraine**. If demand for gas transit via Ukraine were to remain constant at the 2016 level (around 82.2 billion m<sup>3</sup>), the two new branches of the Nord Stream would enable Russia to reduce transit via Ukraine to around 50 billion m<sup>3</sup> a year, even if they were utilised at half of their capacity because of the restrictions imposed by the Third Energy Package. After building one branch of the Turkish Stream, Gazprom could stop using the Ukrainian system completely for gas supplies to Turkey (currently it sends around 14.5–15 billion m<sup>3</sup> of gas to Turkey via Ukraine); and if two branches were built, Gazprom would be able to use the Nord Stream 2 pipeline, and increased utilisation of Nord Stream 1<sup>68</sup>, to almost completely exclude the Ukrainian transit from the supplies of Russian gas to customers in the EU.

Ukraine will be adversely affected even if those plans are implemented only partly, because its proceeds from transit will shrink, making maintenance of the Ukrainian gas pipeline network unprofitable (it is estimated that in order to break even, Ukraine needs to transmit at least 35–37 billion m<sup>3</sup> of gas a year via

<sup>68</sup> Russia will be able to increase the utilisation of the Nord Stream 1 pipeline once Gazprom is authorised to use more capacity of the German OPAL gas pipeline (the land extension of Nord Stream 1). The European Commission issued a decision on the matter on 28 October 2016, which was nonetheless appealed by one of the German daughter companies of Poland's PGNiG, as a result it is unclear when the decision will enter into force. Under the Commission's decision Gazprom will be able to use 50% of the OPAL pipeline's capacity without any restrictions and reserve another 40% through auctions. Thus, it will be able to increase the current utilisation of the Nord Stream 1 from the current 39 billion m<sup>3</sup> to nearly 50 billion m<sup>3</sup>. For more information about the decision, see: A. Łoskot-Strachota, in co-operation with T. Dąbowski, Sz. Kardaś, The European Commission enables increased use of the OPAL pipeline by Gazprom, *OSW Commentary*, 9.11.2016, <https://www.osw.waw.pl/en/publikacje/osw-commentary/2016-11-09/european-commission-enables-increased-use-opal-pipeline-gazprom>

its transit pipeline system). If the new branches of the Nord Stream and even one branch of the Turkish Stream were in place, that would also strengthen Moscow's bargaining position in its talks with Kyiv about the necessary new short-term transit contract and other questions of economic as well as political importance.<sup>69</sup>

The expansion of Nord Stream and the construction of Turkish Stream are also **an important political tool in Russia's relations with the European Union**. On the one hand, the projects are a way to consolidate political influence in the EU states concerned (in the case of Nord Stream that means Germany, but also France and the Netherlands; and in the case of Turkish Stream – countries in southern Europe including Italy and Greece). On the other hand, the pipelines are an important instrument for stirring up disunity among the EU member states. The conclusion of the agreement establishing the Nord Stream 2 consortium triggered harsh political reactions in Central European countries<sup>70</sup>, which openly criticised the project itself as well as the EU states whose companies were involved in its implementation.

The willingness of some states to get involved in Russian projects makes it easier for Moscow to pursue a policy of undermining unity within the EU. One direct consequence of that policy, which plays into Russia's hands, is that Brussels is unable to pursue a fully coherent policy towards Moscow. The difficulties in reaching agreement within the EU about sanctions that would really hurt in response to Russia's aggression against Ukraine may serve as an example.

Russia's pipeline policy may also prove useful in **countering some of the consequences of the implementation of the Third Energy Package**. By increasing the utilisation of the existing Nord Stream branches or by expanding the pipeline, Gazprom could avoid problems related to the need to reserve transmission capacity in transit states (in particular, this refers to gas transported via Ukraine).

<sup>69</sup> Sz. Kardaś, K. Popławski, A. Łoskot-Strachota, Gas business as usual? The new agreements between Gazprom and EU energy companies, *OSW Analyses*, 9.09.2015, <https://www.osw.waw.pl/en/publikacje/analyses/2015-09-09/gas-business-usual-new-agreements-between-gazprom-and-eu-energy>

<sup>70</sup> For more information, see. T. Dąborowski, J. Groszkowski, A. Sadecki, A. Łoskot-Strachota, Europa Środkowa i Południowo-Wschodnia wobec projektu Nord Stream 2 [Central and South-Eastern Europe on the Nord Stream 2 project], *OSW Analyses*, 14.10.2015, <http://www.osw.waw.pl/pl/publikacje/analizy/2015-10-14/europa-srodkowa-i-poludniowo-wschodnia-wobec-projektu-nord-stream-2>

Finally, Russia's efforts to expand the pipeline network also serve some **economic objectives**. The new infrastructure will offer it more flexibility in changing the routes of gas supplies to Europe if needed, and ultimately give Russia a means of influencing prices in the European gas market (with so many available options to deliver gas to Europe, Gazprom will be able to increase or decrease gas supply in the spot markets as needed, thus moving prices). Moreover, the Russian plan to increase the capacity of the Nord Stream may be interpreted as a reaction to the EU's stepped up efforts to expand LNG terminals (especially in the Baltic Sea region); the cheaper Russian gas supplied through the new infrastructure may have a significant competitive advantage over the more expensive liquefied gas delivered from the Middle East or potentially from the United States, and thus undermine the profitability of the LNG infrastructure on the Baltic Sea (and especially the Polish LNG terminal in Świnoujście).

### 3.3. Plans to build gas pipelines to China

After many years of negotiations, on 21 May 2014 in Shanghai the CEOs of Gazprom and China's energy company CNPC, acting in the presence of the presidents of Russia and China, signed a contract for the supply of Russian gas to China. The deal, concluded for thirty years, specifies that Russia will export gas to China from its Eastern Siberia fields (Chayanda and Kovykta) via the **Power of Siberia** pipeline (Power of Siberia 1), to be built by 2019. The target volume of supplies is 38 billion m<sup>3</sup> of gas a year.

Russia is also sticking to the plans to implement the so-called **Altai** project (or **Power of Siberia 2** according to Gazprom's new nomenclature). On 9 November 2014, during president Vladimir Putin's visit to Beijing (on the eve of the APEC summit), a framework agreement was signed which defines the basic terms and conditions of a deal to supply 30 billion m<sup>3</sup> of gas a year from Russia to China via the so-called western route (from Western Siberia to North-Western China).

Finally, the third planned project concerns gas supplies to China via the **Sakhalin - Khabarovsk - Vladivostok pipeline**. The memorandum between Russia's Gazprom and China's CNPC on pipeline gas supplies from Russia's Far East to China was signed in Vladivostok in September 2015.

**Despite the difficulties and inevitable delays, the Power of Siberia 1 pipeline will be completed because both sides are genuinely interested in making the project a reality.** Russia treats the expansion of its gas infrastructure as an important element in the development of gas networks in

Eastern Siberia and the Far East. China, on the other hand, is mainly interested in the project because of the needs of the regional gas market in north-eastern China. The construction of the new pipeline has been progressing systematically. In late February 2017 Gazprom announced that more than 500 km of pipes had been laid.<sup>71</sup>

**There is still no visible progress in the negotiations concerning the Power of Siberia 2 (formerly Altai) project** to build a pipeline connecting Russia's fields in Western Siberia and the north-western provinces of China. Gazprom has been pushing for this project since 2006. If implemented, it would allow Russia to strengthen its bargaining position *vis-à-vis* European consumers, as the pipeline's resource base spans the same fields from which gas is supplied to Europe (according to Gazprom, mostly the Zapolyarnoye field, with 3.3 trillion m<sup>3</sup> of gas, and the Yuzhno-Russkoye field, with 1.03 trillion m<sup>3</sup> of gas). So far, only a series of framework agreements concerning the project have been signed. While representatives of the Russian leadership and of Gazprom have repeatedly stated that the contract could be signed soon, its conclusion in the near future looks increasingly unlikely.

Thus, Russia has still not managed to diversify its gas export markets. It was only in recent years (2014–2016) that binding legal bases were established and work really started on the development of infrastructure to enable the export of Russian gas to China. However, the Chinese project, which will not be implemented before the early 2020s, will be limited in scope and will certainly not offer an alternative to the strategically important European market in the next two decades. Besides, the Power of Siberia pipeline now under construction will use a different resource base (the Eastern Siberian fields) than the one currently used to carry out gas supplies to the European market (the Western Siberian fields).

#### **4. LNG projects**

While representatives of Gazprom and the Russian leadership have repeatedly announced plans for expansion in the LNG sector, the results so far have been unimpressive. According to the projections in the General Scheme of Gas Industry Development until 2030, Russia was expected to produce between 15 and 20 million tonnes of LNG in 2015, between 50 and 60 million tonnes in 2020 and

<sup>71</sup> «Газпром» отчитался о строительстве «Силы Сибири», <http://izvestia.ru/news/667535>

60 to 82 million tonnes beyond 2025.<sup>72</sup> However, the Russian LNG sector lags behind the LNG industries in other states and regions, and the volumes mentioned here will be difficult to achieve.

#### 4.1. Projects in operation and in implementation

Russia presently has only one gas liquefying plant, launched in 2009 as part of the **Sakhalin 2** project. Its shareholders include Gazprom (50% plus 1 share), the Dutch-British Royal Dutch Shell (27.5% minus 1 share), and the Japanese companies Mitsui and Mitsubishi (12.5% and 10% of shares respectively). Its current production capacity is 10.9 million tonnes a year; the target capacity is expected to be 15 million tonnes. Gazprom plans to further expand the terminal. A third production line as part of the Sakhalin 2 project is to be put into operation in 2022<sup>73</sup> (and reach its full capacity of 5 million tonnes a year in 2023), although the final investment decision has not been taken yet (the estimated investment cost is US\$ 7.4 billion).

The most advanced project is **Yamal-LNG**. Its shareholders include Novatek, Russia's second largest gas producer after Gazprom (50.1% of shares), France's Total (20% of shares), China's CNPC (20% of shares) and China's Silk Road Fund (9.9% of shares). The first production line (with a capacity of 5.5 million tonnes) was initially expected to be put into operation in 2016 but will ultimately be launched in 2017 at the earliest, followed by the second production line in the years 2017–2018, and a third one in 2018–2019. The plant is expected to have a total capacity of 16.5 million tonnes. The total cost of the project is anticipated to be US\$ 27 billion.

#### 4.2. Projects in the planning phase

The other LNG projects put forward by Russian companies are in the planning phase. Given the current situation in the LNG market, i.e. the falling prices and the prospect of new strong players entering the market in the coming years (Australia, USA, Canada), the new Russian LNG projects are unlikely to be implemented within the next 10 years.

<sup>72</sup> Генеральная схема развития газовой отрасли на период до 2030 года, <http://www.energyland.info/files/library/112008/7579b56758481da282dd7e0a4de05fd1.pdf>

<sup>73</sup> The initial plan was to launch a third installation to be initiated in 2018–2019.

**Gazprom** has announced plans to build two gas liquefaction plants: in Russia's Far East as part of the Vladivostok LNG project, and on the Baltic Sea as part of the Baltic LNG project. The **Vladivostok LNG** project, currently owned solely by Gazprom, was planned to be launched in 2018 (the first installation with a production capacity of 5 million tonnes) and expanded by 2020 (another installation with a capacity of 5 million tonnes). While the so-called final investment decision on this expensive undertaking (whose cost was estimated in 2015 at around US\$ 12 billion) was taken back in February 2013, so far the Russian gas giant has not undertaken any concrete actions. Moreover, in 2015 Gazprom signalled that it might shelve the project. Currently, Vladivostok LNG is suspended, as confirmed by the Gazprom CEO Alexei Miller, who said after the company's general assembly of shareholders in June 2016 that the project's implementation would depend on the development of the price situation in Asian markets.

Gazprom is also planning to build an LNG plant near the Russian port of Ust-Luga (**Baltic LNG**). The terminal, with a total production capacity of 10 million tonnes, was initially expected to be put into operation in 2018 (the estimated cost of the project is around US\$ 10 billion), but in 2016 Gazprom announced that it would be launched in the years 2021–2022 (the first installation is to be operational in 2021, and the plant is to reach full capacity of 10 million tonnes in 2022). The first memorandum concerning the project was signed with the authorities of the Leningrad Oblast in June 2013. In June 2016 Gazprom signed a special memorandum concerning the LNG plant with the Dutch-British Shell company, which could potentially become one of the project shareholders. Moreover, in July 2016 it was suggested that Japanese energy companies could take the project.

**Rosneft** has also announced plans to build its own LNG plant. The project's working name is **Far East LNG** and it is expected to be implemented jointly with the company's partners working together with Rosneft on the Sakhalin 1 consortium. Apart from Rosneft (with 20% of shares), the consortium includes the US firm, Exxon Mobil (30%), India's ONGC (20%) and Japan's SODECO (30%). The plants will have a capacity of 5 million tonnes and its cost has been initially estimated at around US\$ 19 billion. According to initial plans, the plant is expected to be built near the De-Kastri port in Russia's Far East (Khabarovsk Krai).

Another LNG project has been planned by **Novatek**. In December 2013, the company's representatives stated that a new LNG plant in the Yamal Peninsula (named **Arctic LNG**), with a target total capacity of 15–16.5 million tonnes, could be built in the years 2018–2025, with the first installation expected to be

operational in 2018–2022, the second – in 2019–2024 and the third in 2020–2025. The resource base would consist of gas from the Utrenneye and Geofizicheskoye fields in the Gydan Peninsula. In October 2014, the project was granted an LNG export licence.<sup>74</sup> Its cost is currently estimated at US\$ 13.5 billion.<sup>75</sup> In connection with the project, Novatek has expressed interest in buying four fields in the Yamal Peninsula from Gazprom (Severo-Tambeyskoye, Zapadno-Tambeyskoye, Malygin, Tasiyskoye).<sup>76</sup>

### 4.3. The reasons for delays in Russia's LNG projects implementation

The first LNG export licences were granted to Russian companies in 2014<sup>77</sup> but, contrary to an earlier ambitious declaration, the LNG sector has been stagnating for over a year. **The progress of the LNG projects has been so underwhelming primarily because of the absence of a clear gas strategy** and the inconsistent moves by the Russian state leadership and Russian energy companies.

Firstly, when it comes to the development of energy infrastructure, the construction of new gas pipelines has been the priority. Secondly, both the government and Gazprom had played down important developments in external gas markets. The shale gas revolution in the US has been crucial in this context as it turned the United States from a potential LNG importer (also from Russia) to a country with good chances of becoming one of Russia's main competitors in the gas export markets within the next 3 to 5 years. Thirdly, the Russian government has been unable to establish a hierarchy of the planned projects (except for the Yamal LNG which is already being implemented). The competition between the Far Eastern LNG projects of Gazprom and of Rosneft, both of which expected support from the state, was also one of the reasons why the

<sup>74</sup> НОВАТЭК получил 3 лицензии на Гыдане на экспорт СПГ, <http://neftegaz.ru/news/view/135086-NOVATEK-poluchil-3-litsenzii-na-Gydane-na-eksport-SPG>

<sup>75</sup> Новый проект «Новатэка» по производству СПГ обойдется не менее чем в \$10 млрд, <http://www.vedomosti.ru/business/articles/2016/11/22/666382-proekt-novateka>

<sup>76</sup> Novatek eyes Gazprom fields, FSU Energy, Argus, 1.12.2016, p. 8.

<sup>77</sup> Yamal LNG received the Ministry of Energy's gas export licence on 5 September 2014. In October of the same year it was granted export licences for its new LNG projects: Arctic LNG 1, Arctic LNG 2 and Arctic LNG 3 (from the Utrenneye and Geofizicheskoye fields in the Yamal Peninsula). In December 2013 Novatek announced that its projects (each with a projected capacity of 5 to 5.5 million tonnes a year) would be successively launched in the periods 2018–2022, 2019–2024 and 2020–2025. LUKOIL has not yet been authorised to export LNG despite efforts made, which is not surprising given the fact that the company has no fields where LNG could be produced. Novatek secures LNG export rights, Argus FSUE, 16.10.2014, p. 7.

Government postponed its decision. This decision was expected to be taken in the summer of 2015 but nothing has been decided as of yet. The legal disputes between Rosneft and Gazprom suggest that the rivalry is gaining momentum: Rosneft has been demanding access to the Gazprom-owned gas infrastructure in Sakhalin, thanks to which it could transmit around 8–10 billion m<sup>3</sup> of gas a year to its future projected LNG plant. The company argues that the operation is technically feasible and only requires new compressor stations to be built, for which it is ready to pay.<sup>78</sup> Gazprom has refused to grant such access for years and has lobbied the government to force the Sakhalin 1 consortium to sell the gas it produces to Sakhalin 2, but Rosneft has consistently rejected the terms offered by Sakhalin Energy.

**Another important factor concerns the Western financial sanctions against Russia imposed in the aftermath of the Russian aggression against Ukraine.** They have adversely affected the condition of the Russian energy companies and thus delayed the implementation prospects of the costly LNG projects.

**Even the shareholders of the most advanced LNG project, i.e. Yamal LNG, have stumbled on serious problems** in finding financing for the project. Because Novatek (the main shareholder of Yamal LNG) and Gazprombank (one of the main Russian lenders to the project) were subject to the US sanctions that limited Novatek's ability to raise external financing, the completion of talks with banks was delayed by nearly two years. It was only in 2016 that agreements were concluded with Russian banks (Sberbank and Gazprombank will lend EUR 3.6 billion to the project) and Chinese banks (EUR 9.3 billion and CNY 9.8 billion.)<sup>79</sup> Because of the difficulties, Novatek considered selling a further 9% of its shares in the Yamal LNG project to external investors (another Chinese or Indian company).

**Gazprom has been struggling with even greater problems to finance its LNG projects.** Gazprombank is the only potential external investor to finance

<sup>78</sup> Rosneft filed the lawsuit at the arbitration court in Sakhalin. The verdict, the announcement of which was postponed repeatedly (at the request of Sakhalin Energy after Rosneft found itself in the list of entities under US sanctions) was ultimately given in February 2015 and rejected Rosneft's demands. A separate procedure was launched in August 2014 by the Federal Anti-Monopoly Service.

<sup>79</sup> НОВАТЭК все еще ждет китайских денег, <http://www.kommersant.ru/doc/2944696>; «Ямал СПГ» получит от банков Китая кредиты на €9,3 млрд и 9,8 млрд юаней, <http://tass.ru/ekonomika/3249817>

Gazprom's projects (solely in the case of Vladivostok LNG and jointly with WEB in the case of Baltic LNG), but since it has been subject to the US sanctions, its ability to obtain external financing has been considerably limited. In the case of Gazprom, another factor concerns the US sanctions imposed on the Yuzhno-Kirinskoye field in Sakhalin, which was the potential resource base for a planned third LNG production line as part of the Sakhalin 2 project.<sup>80</sup>

**Rosneft**, which is also subject to the US sanctions, has likewise been facing problems with obtaining external financing.

While the sanctions do not directly affect the Russian LNG projects in terms of access to **technology**, the gas companies are concerned that a possible extension of the sanctions could apply to that aspect as well. All the companies in question depend on Western technology and equipment to implement their projects, which makes them susceptible to US and European sanctions. For example, gas production in Gazprom's Yuzhno-Kirinskoye field depends entirely on technology and equipment imported from Europe. US companies such as General Electric (one of the main suppliers of compressors for LNG plants) are not allowed to work with projects in which companies subject to sanctions hold controlling stakes. The Russian deputy minister for energy Kirill Molodtsov confirmed this when he said that access to liquefaction technology was not the main problem, as Russia did have some domestic know-how in the field, gained in smaller-scale projects. The main problem, in his view, was the lack of certain kinds of equipment, i.e. mainly compressors. Russia would need years if not decades to develop domestic capacity in this area.<sup>81</sup>

Nevertheless, Russian energy companies claim that the projects will be implemented according to schedule. Gazprom is sticking to its ambitious plans in the LNG sector. In February 2015 the company's representative announced that Gazprom planned to export 25 million tonnes of LNG a year by 2025.<sup>82</sup>

Given the unimpressive progress so far, the mounting financial challenges and the unfavourable price situation in the LNG markets (especially in Asia), the

<sup>80</sup> США ввели санкции против крупнейшего месторождения «Газпрома» на шельфе, <http://www.vedomosti.ru/business/articles/2015/08/07/604010-ssha-vveli-sanktsii-protiv-krupneishego-gazproma>

<sup>81</sup> Competitive disadvantage, Argus FSUE, 9.10.2014, p. 2.

<sup>82</sup> "Газпром" планирует довести долю своего СПГ в торговом портфеле до 80%, <https://ria.ru/economy/20150203/1045609333.html>

ambitious plans in the LNG sector seem unlikely to materialise in the coming years. Apart from financial issues, the projects would also face problems concerning the resource base. If Gazprom wanted to simultaneously launch all its planned 'eastern' projects (Power of Siberia, Vladivostok LNG, the third LNG installation of Sakhalin 2), it would need around 54–55 billion m<sup>3</sup> of gas a year from the Eastern Siberian and Far Eastern fields in the years 2020–2021, which is completely unrealistic. Thus, it seems increasingly likely that Gazprom and Rosneft will ultimately shelve their Far East LNG projects.

#### 4.4. Share of Russian companies in global LNG trade

##### **Russian companies account for a small share of the global LNG trade.**

**Gazprom** entered this market segment in 2005 and in the first four years its total turnover reached 1.2 million tonnes (around 1.7 billion m<sup>3</sup>). In August 2008 a separate LNG company, Gazprom Global LNG Limited, was created. Over successive years its market share increased, mainly thanks to the launch of an LNG plant as part of the Sakhalin 2 project. In 2010 Gazprom's total LNG sales reached 1.82 million tonnes (2.47 billion m<sup>3</sup>), of which gas from Sakhalin 2 accounted for as much as 1.6 million tonnes (2.18 billion m<sup>3</sup>). In 2011, the results were much lower: even though total sales were 2.3 million tonnes (3.06 billion m<sup>3</sup>), Gazprom exported a mere 0.96 million tonnes (1.28 billion m<sup>3</sup>) from Sakhalin 2. In 2014, its exports amounted to 2 million tonnes (4.5 billion m<sup>3</sup>), of which around half came from the Sakhalin 2 project, and the remainder was bought in the gas market by its daughter company, Gazprom Marketing & Trading Limited (GM&T). In the years 2015–2016, Gazprom reported the fastest increase in LNG sales: by 4.7 and 4.9 billion m<sup>3</sup> of gas a year, respectively (for full figures, see Appendix 1).

Gazprom has recently concluded several new contracts for the supply of LNG. In 2012, its daughter company GM&T company signed a twenty-year deal with Gail India, under which it is going to supply 2.5 million tons of LNG a year as of 2018–2019.<sup>83</sup> Moreover, on 27 October 2015 Gazprom Marketing & Trading Singapore (a daughter company of GM&T) signed a ten-year agreement with Pavilion Gas (daughter company of Singapore's Pavilion Energy) for the supply

<sup>83</sup> In view of the changing market situation (falling prices in regional gas markets, including the LNG market) Gail India entered into talks with Gazprom in 2016 to modify the terms and conditions of the twenty-year contract. Индийская GAIL хочет изменить контракт с «Газпромом» на поставку СПГ, <http://www.vedomosti.ru/business/articles/2016/07/26/650526-indiiskaya-gail-gazpromom>

of LNG to Asian markets. The agreement does not specify when the supplies are to commence or what their volume will be in particular years.<sup>84</sup>

Gazprom plans to meet the above obligations using self-produced gas (around 1 million tonnes from the Sakhalin 2 project), gas purchased from the Yamal LNG consortium (around 2.9 million tonnes destined mainly for Gail India) and gas purchased in spot markets (around 1 million tonnes a year).

The company expanded the capacity of its LNG fleet to 800,000 m<sup>3</sup> by buying two LNG tankers (the Velikiy Novgorod in January 2014 and Pskov in August 2014). In total, Gazprom Marketing & Trading Limited has five tankers to ship LNG via the northern route. By 2020 the company plans to expand its fleet by another ten vessels.<sup>85</sup>

**Table 9.** Russian production and export in 2009–2015 (millions of tonnes)

Year	Output	Export						
		Japan	South Korea	Taiwan	China	Thailand	Kuwait	India
2009	5	2.84	1.02	0.12	0.19	-	0.31	0.51
2010	10.44	6.29	3.39	0.51	0.38	-	0.07	-
2011	10.49	7.18	2.82	0.18	0.24	0.06	-	-
2012	10.92	8.31	2.17	0.06	0.38	-	-	-
2013	10.76	8.73	1.96	0.06	-	-	-	-
2014	10.57	8.32	2	0.06	0.13	0.06	-	-
2015	10.92	7.78	2.69	0.26	0.19	-	-	-

Author's own compilation based on figures published by the World LNG Report in 2010–2016.

Apart from Gazprom, the other Russian company involved in LNG trade is **Novatek**. However, it launched commercial operations in the LNG segment only in July 2016, by making a first delivery of LNG from Trinidad and Tobago to Chile. The volume of the company's sale so far is rather small at 155,000 m<sup>3</sup>.

<sup>84</sup> «Газпром» подписал соглашение о поставке СПГ в Сингапур, <http://www.vedomosti.ru/business/news/2015/10/27/614489-gazprom-singapur>

<sup>85</sup> Gazprom to boost LNG tanker fleet, Argus FSUE, 28.08.2014, s. 9.

According to the company's representatives, the current objective is primarily to gain experience in LNG trading ahead of the expected launch of supplies from the Yamal LNG project in 2017.<sup>86</sup>

## 5. The export outlook

In view of the current trends in external markets, including falling gas consumption in Europe and the declining medium and long-term projections for gas demand not only in Europe but also in Asian markets, it does not seem realistic for Russia to considerably increase its exports.

Given the dynamics in external markets, the projections of increasing gas exports, as laid down in Russia's strategic documents, seem completely unrealistic, both in the medium term and in the long term. According to the General Scheme of Gas Industry Development until 2030, Russia's gas exports are expected to increase to 397–432 billion m<sup>3</sup> by 2020 and to 415–440 billion m<sup>3</sup> in the years 2025–2030. The assumptions of the Energy Strategy to 2030 have turned out to be slightly more realistic since the document predicted that Russia would export 282 billion m<sup>3</sup> of gas in 2015, including 163 billion m<sup>3</sup> to the EU and Turkey, 30 billion m<sup>3</sup> to Asia and as much as 89 billion m<sup>3</sup> to the CIS countries. The Strategy predicted that gas exports would increase to 336 billion m<sup>3</sup> a year in the years 2016–2022 and to 363 billion m<sup>3</sup> a year in the 2022–2030 period.

The projections concerning rising gas consumption in the post-Soviet space have turned out to be the most inaccurate (for more information, see Part II, Chapter 2).

As far as the **EU market** is concerned, there are many indications that Russia will be able to maintain its current market share and in some periods slightly increase the volume of supplies, as it did in 2016. On the one hand, this is a consequence of the fact that Russia has signed many long-term contracts (some of which do not expire until the 2030s) and that Russian gas prices still offer it a significant competitive advantage in the EU market. On the other hand, the efforts made by the EU member states to genuinely diversify their sources of gas supplies have not yet resulted in any meaningful qualitative change. While the infrastructure for LNG imports has been expanded, only around 20% of its capacity is being utilised. In 2015, the volume of LNG imported to Europe was 50% of the volume received by European LNG terminals in 2011. The efforts to

<sup>86</sup> НОВАТЭК перепродал первый СПГ, <http://www.kommersant.ru/doc/3032304>; NOVATEK ships first LNG cargo, [http://www.novatek.ru/en/press/releases/index.php?id\\_4=1255](http://www.novatek.ru/en/press/releases/index.php?id_4=1255)

build new gas pipelines to diversify gas supplies to Europe have been even less effective. The only projects which are materialising are the TANAP and TAP gas pipelines being built jointly by Azerbaijan and Turkey, which are expected to supply around 10 billion m<sup>3</sup> of gas a year to the EU market. The other projects, such as Galsi, EastMed or Baltic Pipe, are still in the phase of planning or initial arrangements.

Tatiana Mitrova notes that in the short term, Russia's export strategy will face major adaptation challenges related to the situation in the European market. The geopolitical tensions between Russia and the West will be another factor. Mitrova observes that the strategy has so far been improvised, as evidenced by the constantly changing plans for the construction of new gas pipeline infrastructure connecting Europe with Russia: South Stream, Turkish Stream, the option to revive the South Stream pipeline in a modified form, Nord Stream 2; the plans to completely discontinue supplies via Ukraine or the option to keep some of the transit capacity.

LNG imports from the United States, Australia or Papua New Guinea may theoretically pose a challenge to Russia in the European markets in the medium and long term. On the one hand, the low prices of gas and the high cost of liquefying, transport and re-gasification could make the offer of the LNG producers less attractive than the price of gas offered by Russia, which can still compete thanks to the low costs of gas extraction in Western Siberia (US\$ 3.5–4 per mmbtu). On the other hand, as the Western Siberian fields become depleted, the situation may change: gas production in the Yamal fields is much more expensive (US\$ 7–10 per mmbtu), and the cost of extracting gas in the Arctic shelf will be even higher (an estimated US\$ 12–13 per mmbtu)<sup>87</sup>.

Because it is expected that considerable volumes of gas, mainly in the form of LNG, will be brought to the global market in the years 2018–2023,<sup>88</sup> the competition among exporters will become tougher, making it harder for Russia to defend its share in the strategically important European market. It is not entirely clear if Russia is going to opt for a price war to hold on to its European market share

<sup>87</sup> T. Mitrova, *Shifting Political Economy of Russian Oil and Gas*, CSIS, March 2016, p. 46–47; cf. Agata Łoskot-Strachota, *Great expectations: LNG on the European gas market*, *OSW Commentary*, 13.04.2016, <http://www.osw.waw.pl/pl/publikacje/komentarze-osw/2016-04-13/wielkie-nadzieje-lng-na-europejskim-rynku-gazu>

<sup>88</sup> *Figures of the World LNG Report*, <http://www.igu.org/publications/2016-world-lng-report>

(Tatiana Mitrova notes that there are no signs of such a strategy so far<sup>89</sup>), but it cannot be ruled out in the future. The auctions which Gazprom has been organising since 2015 may be a signal of a possible strategic adjustment of the trade policy towards its European customers.<sup>90</sup> The auction mechanisms will probably continue to play an auxiliary role in relation to the execution of Gazprom's export obligations under long-term contracts for some time (Gazprom sold only small volumes of gas in the auctions held so far: 1.2 billion m<sup>3</sup> in the first one, 0.42 billion m<sup>3</sup> in the second one and 2 billion m<sup>3</sup> in the third one). However, as the existing contracts gradually expire and in view of the expected lack of interest in renewing them, the share of Russian gas sales carried out through auctions may increase considerably.<sup>91</sup>

Expansion in the **Chinese market** may also prove to be problematic, especially in the short term. On the one hand, it is not a priority for Gazprom, which will be focused in the coming years mainly on European projects, especially the construction of new branches of the Nord Stream pipeline. On the other, Gazprom's difficult financial situation, the problems with the development of East Siberian fields and the changing projections concerning future growth of gas consumption in China will continue to delay the implementation of joint Russian-Chinese projects.

Because of Gazprom's financial difficulties, the company's inability to increase its investment budget from its own resources and the fiasco of the talks concerning a loan to finance the gas pipeline to China, the company has reduced the budget of the Power of Siberia project: in 2015 it invested only around RUB 30 billion, and the figure for 2016 was a mere RUB 72.2 billion compared to the originally planned RUB 200 billion.<sup>92</sup> Consequently, it is now estimated that the pipeline will not be launched in 2018 as originally planned, but most

<sup>89</sup> *Ibidem*, p. 38.

<sup>90</sup> Gazprom, acting through its daughter company Gazprom Export, has so far organised 3 gas auctions: the first one took place on 7-10 September 2015, the second one on 15-17 March 2016, and the third one - between 29 August and 2 September 2016. The first auction concerned supplies via the Nord Stream pipeline exclusively, the second one was for the Baltic States of Lithuania, Latvia and Estonia, and the final one was again for supplies via the Nord Stream, but this time two additional delivery points of Baumgarten and Arnoldstein were added to the original ones (Greifswald, Gaspool and Olbernhau).

<sup>91</sup> Sz. Kardaś, Aukcje gazowe: nowy instrument w polityce Gazpromu [Gas auctions: Gazprom's new policy instrument], *Analizy OSW*, 7.09.2016, <http://www.osw.waw.pl/pl/publikacje/analizy/2016-09-07/aukcje-gazowe-nowy-instrument-w-polityce-gazpromu>

<sup>92</sup> «Газпром» в 2 раза снизил оценку инвестиций в «Силу Сибири» на 2016 год, <http://www.vedomosti.ru/business/news/2016/01/25/625388-gazprom-silu-sibiri>

likely in 2020–2021, and the Khabarovsk gas processing plant (necessary to transform raw gas into an industrially usable form) will be operational no sooner than 2025.

The slow progress of development works on the East Siberian fields has also contributed to the delays of the Russian-Chinese projects. The Kovykta and Chayanda fields will not reach their full capacity by the mid-2020s, which may mean that the upper ceiling of supplies provided for in the contract concluded between Gazprom and CNPC in May 2014 will be reached no sooner than the 2030s.

Moreover, the fluctuating projections concerning the real demand for gas imports, especially those formulated in China, have been increasingly affecting the shape and implementation speed of the joint Russian-Chinese projects. The preliminary announcements made so far suggest that China may not need to import any gas from Russia beyond the volume ordered under the contract concluded in May 2014. That would make a fiasco of Russia's plans concerning the construction of the Power of Siberia 2 gas pipeline, exports of gas via the Sakhalin – Khabarovsk – Vladivostok route, and the possible LNG supplies to China from the Vladivostok LNG, which Gazprom is still considering.

The prospects of exports to Asia may turn out to be less promising than initially expected. While the role of gas in China's energy mix is set to increase, at the same time its demand for energy will decline due to the economic slowdown and energy efficiency improvements. In any case, China maintains a very diversified portfolio of suppliers. **China's motivations to import gas from Russia are not as strong as in the case of oil.** On the one hand, the Chinese economy is less dependent on gas imports (in 2014, imports accounted for 31% of the country's total natural gas consumption, i.e. 58 billion m<sup>3</sup> out of 183 billion m<sup>3</sup>). On the other hand, the capacity of the currently existing gas pipelines from Central Asia and Myanmar is 70 billion m<sup>3</sup> and is set to increase to 90 billion m<sup>3</sup> by the end of the decade. In 2014 China used only half of that capacity, importing a mere 31 billion m<sup>3</sup> via pipelines. In 2015, the consumption and import of gas remained at roughly the same level of 191 billion m<sup>3</sup> and 62 billion m<sup>3</sup> respectively. Moreover, the capacity of China's LNG terminals, via which the country receives less than half of its gas imports, has also been growing. Even if the planned Power of Siberia pipeline were to be used at full capacity, supplies from Russia would still correspond to only half of the volume that China imports from Central Asia and would have to compete with LNG imports. China has been dynamically implementing its LNG terminals development programme, which is set to

considerably increase Beijing's bargaining position in talks about gas imports from Russia. In the years 2013–2015, as many as eleven LNG terminals were put into operation, with a total re-gasification capacity of 32.4 million tonnes. Thus, as of early 2016 China had a total of seventeen terminals with a total capacity of 54.6 million tonnes, i.e. around 75.3 billion m<sup>3</sup> a year.<sup>93</sup>

<sup>93</sup> M. Kaczmarek, Sz. Kardaś, 'The oil friendship': the state of and prospects for Russian-Chinese energy cooperation, *OSW Commentary*, February 2016, <https://www.osw.waw.pl/en/publikacje/osw-commentary/2016-02-17/oil-friendship-state-and-prospects-russian-chinese-energy>

### III. GAS MARKET REFORM: PLANS AND PROSPECTS

The plans for a comprehensive, structural reform of the Russian gas sector have been widely debated in Russia since the early 2000s. The first serious proposals in this context were put forward in July 2000 by the then minister for trade and economic development, Herman Gref, in a document entitled *The Social & Economic Policy Programme 2000–2010 (the Gref Plan)*. The strategy nonetheless contained only very general proposals to divide Gazprom, grant access to gas pipelines to independent producers, include transport and extraction costs in gas prices and resolve the problem of gas debt between Gazprom and internal customers.<sup>94</sup> The need to gradually implement changes in the gas sector was also signalled in the successive versions the Russia's Energy Strategy and in the General Scheme of Gas Industry Development until 2030.

The sections below discuss the sector's most important problems which, on the one hand, have been constantly evolving and, on the other hand, have been the subject of debates between the advocates and the opponents of reform.

#### 1. Advocates and opponents of reform

The so called **independent gas producers in Russia**, and especially Novatek and Rosneft, **are the initiators and the main advocates of reform**. However, it should be noted that while calling for reform and the liberalisation of the gas market, they do not analyse the potential consequences from the point of view of sector as a whole, but are guided strictly by their own particular interests.

The **Federal Anti-Monopoly Service** also advocates systemic change. Its chief, Igor Artemev, has repeatedly called for a division of Gazprom and made the case for price liberalisation. Some of these proposals also have the support of the **Ministry for Economic Development**.<sup>95</sup>

<sup>94</sup> K. Pełczyńska-Nałęcz, Russian gas industry – current condition and prospects, *OSW Studies*, April 2001, p. 9, [http://www.osw.waw.pl/sites/default/files/prace\\_1\\_5.pdf](http://www.osw.waw.pl/sites/default/files/prace_1_5.pdf)

<sup>95</sup> Руководитель ФАС заявил о неизбежности разделения «Газпрома», <http://www.vedomosti.ru/business/news/2015/10/30/615031-fas-zayavil-neizbezhnosti-razdeleniya-gazproma>; Вопрос о разделении "Газпрома" может быть рассмотрен до конца года, <http://www.newsru.com/finance/16oct2015/gzprm2split.html>.

**Gazprom**, for obvious reasons, **is against reform**, and the Russian Ministry of Energy backs many of its arguments.<sup>96</sup>

## **2. Liberalisation of prices and the problem of transmission tariffs**

The prices of gas in the internal market are one of the most serious problems affecting the Russian gas sector.

Gradual price liberalisation was previously envisaged in the draft gas sector reform presented in the Russian government's meeting on 7 December 2000. Prices were to be initially increased to US\$ 50 per 1000 m<sup>3</sup>, with the aim of minimising any role of the state in regulating internal gas prices.

In 2002, the government repealed the 'frozen prices' rule and started to gradually increase prices (by 20-25% a year) to stimulate investment and energy efficiency. The changes were also necessary in the context of the negotiations concerning Russia's accession to the WTO. In 2006, another important decision was taken to accelerate the rate at which domestic prices were being aligned with export prices. However, the economic slowdown in 2013 forced the government to stop the process. In 2007, the government introduced maximum and minimum prices: the minimum price is set by the Federal Tariffs Service, and the maximum price – by the government (and the difference between the two must not exceed 10%). The parameters of wholesale gas prices are defined by the government, and the Federal Tariffs Service approves the specific prices. Retail gas prices, on the other hand, are set by the governments of the regions of the Russian Federation. The so-called independent gas producers have the right to offer discounts of 10-15% compared to Gazprom's prices.

The so-called independent gas producers have been increasing their share in the internal gas supply markets thanks to their ability to offer much more attractive conditions than Gazprom can. Those companies offer contracts with prices between 3 and 10% lower than the regulated prices and the prices set by the Federal Tariffs Service. Novatek provides nearly 100% of gas in the Chelyabinsk region, and Rosneft – nearly all gas in the Sverdlovsk region.<sup>97</sup> In 2012 the so-called independents provided nearly 100% of gas in the Sverdlovsk and Chelyabinsk Oblasts, as well as 73% in the Khanty-Mansi Autonomous Okrug – Yugra, 72%

<sup>96</sup> Минэнерго отвергло идею ФАС о разделении «Газпрома», [https://lenta.ru/news/2015/10/15/gazprom\\_razdel/](https://lenta.ru/news/2015/10/15/gazprom_razdel/)

<sup>97</sup> T. Mitrova, *Shifting Political Economy of Russian Oil and Gas*, CSIS, March 2016, p. 21-22.

in the Perm Krai, 55% in the Novosibirsk Oblast, 52% in the Kemerovo Oblast and 46% in the Tomsk Oblast.

In 2013, the government of the Russian Federation decided to freeze gas prices, which would henceforth only be adjusted for inflation. In September 2014, the Federal Tariffs Service submitted a draft regulation to the government, under which Gazprom would be given the right to offer discounts of up to 15%. Around 30% of Gazprom's gas is delivered to the municipal and public sectors, which generate the greatest arrears in gas payments.<sup>98</sup> As an alternative, the Federal Anti-Monopoly Service proposed moving away from regulated prices to spot prices pegged to the prices in the St. Petersburg exchange.<sup>99</sup> However, the trading mechanism has not been particularly effective so far. In 2015, 5 billion m<sup>3</sup> of gas was traded in the exchange, i.e. seven times less than the maximum allowed ceiling (35 billion m<sup>3</sup> of gas a year).

It is very likely that, due to the price freeze, in 2016 Gazprom will report, for the first time since 2008, a loss on its gas sales on the internal market. As a long-term consequence, that will erode interest in supplies to the domestic market and make the so-called independent gas producers even more interested in gaining access to the export channel.<sup>100</sup>

**Another important problem concerns the tariff policy.** Transmission tariffs for the so-called independents are still higher than those paid by Gazprom's daughter companies (for whom Gazprom itself sets the tariffs). Nevertheless, those differences have been systematically narrowing down. Back in 2010, the difference was 28%, compared to a mere 8% in 2015.<sup>101</sup>

<sup>98</sup> Как поделить рынок газа?, *Нефтегазовая Вертикаль*, Issue 13–14, 2015, p. 76.

<sup>99</sup> T. Mitrova, *Shifting Political Economy of Russian Oil and Gas*, *op. cit.*, p. 23–24.

<sup>100</sup> *Ibidem*, p. 4–5.

<sup>101</sup> Как поделить рынок газа?, *Нефтегазовая Вертикаль*, Issue 13–14, 2015, p. 79.

**Table 10.** Gas transmission tariffs for Gazprom and the so-called independent gas producers (Roubles per 1000 m<sup>3</sup> per 100 km)

	2010	2011	2012	2013	2014	2015
Gazprom	40.2	43	48.7	53.2	57.4	60.2
So-called independent gas producers <sup>102</sup>	51.4	56.2	58.1	61.7	63.9	65.2

Author's own compilation based on figures published by Interfax.

The price and tariff issues have given rise to a conflict between Gazprom and the so-called independent producers. The former demands the right to offer discounts under contracts concluded with industrial consumers and extended possibilities for selling gas in Russia via the St. Petersburg International Mercantile Exchange (SPIMEX). The so-called independent gas producers, on the other hand, are not interested in Gazprom gaining the right to offer discounts to industrial consumers because they would lose their competitive advantage, thanks to which they have been able to substantially expand their share in Russia's domestic gas market. Rosneft has been the most vocal opponent of the idea of allowing Gazprom to offer discounts to industrial customers. Representatives of the company have pointed out that they would be willing to change their position only if Gazprom agreed to buy gas from the so-called independent producers at prices similar to its export rates (export rate minus transport costs). Statements by Gazprom representatives suggest that the company would only be willing to accept prices at the level of 70% of its export rates (to be reached gradually by 2025); as for the question of aligning internal and export prices, Gazprom argues that it should be postponed until after 2025.

A compromise has also been difficult to reach on the issue of tariff setting. Rosneft argues that the tariffs on its gas should be decreased by 25–40% and suggests that the prices of gas storage (presently set by Gazprom) should be set by a state authority. Gazprom is not prepared to reduce tariffs for the so-called independent producers, claiming that it bears very high costs in connection with the so-called guaranteed gas supplies to regions located very far from gas production centres and that those costs should be compensated for by those market players who face no such burdens.

<sup>102</sup> Средний уровень тарифов на услуги ОАО «Газпром» для независимых организаций по транспортировке газа по магистральным газопроводам, [http://zhkh.fas.gov.ru/tariffs/analit\\_info/gas/17](http://zhkh.fas.gov.ru/tariffs/analit_info/gas/17)

### 3. Fiscal changes

**Over the last 15 years, the tax regulations applicable to the gas sector have changed only partly.**

The fiscal mechanisms operating in the gas sector include export duties and the gas extraction tax (NDPI). The rate of export duty stands at 30% of the contractual price. Because the prices of Russian gas under export contracts during the years 2006–2010 increased by a factor of 1.4 and doubled in the domestic market, the NDPI rate was raised several times, beginning from 2011. Moreover, as a result of the so-called independent producers' lobbying efforts, since 2012 different NDPI rates apply to Gazprom and the other gas producers (see Table 11 for details). In 2014, an NDPI differentiation scheme was introduced, under which the rate depends on the location of the gas field and current internal and export prices of gas.<sup>103</sup>

**Table 11.** NDPI rates for Gazprom and the other gas producers (roubles per 1000 m<sup>3</sup>)

	2005	2006-2010	2011	2012	2013 (I-VI)	2013 (VII-XII)	2014	2015	2016
Gazprom	135	147	237	509	582	622	700	788	888 <sup>104</sup>
Others	135	147	237	251	265	402	471	552	552

**Source:** *Нефтегазовая Вертикаль*

Fiscal changes in the gas sector are motivated primarily by the state's current financial needs. In November 2015, at the government's request, a bill was adopted which increased the NDPI rate for companies possessing the right to export gas (in practice, the increased rate applied only to Gazprom).<sup>105</sup>

<sup>103</sup> Налоги и отрасль: от косметики к ремонту, *Нефтегазовая Вертикаль*, Issue 23–24, 2014, p. 22.

<sup>104</sup> Ultimately Gazprom's NDPI rate was RUB 1078 per 1000 m<sup>3</sup> following the amendment of the tax regulations adopted in the autumn of 2016.

<sup>105</sup> The Russian State Duma adopted the bill in November 2015.

## 4. Plans for a transformation of Gazprom and de-monopolisation of exports

**Calls for a restructuring of Gazprom** first surfaced in public debate in Russia in the early 2000s. The so-called Gref Plan proposed a general blueprint for breaking up Gazprom and creating separate gas production companies and transmission system operators.<sup>106</sup> The draft reform plan for the gas sector specified that the so-called independent gas producers would get access to the gas pipeline system in the first phase of the reform.<sup>107</sup>

Since then, the idea that Gazprom should be split up has been regularly recurring in industry debates in Russia, and has been discussed particularly intensively during the last four years due to the insistence of Rosneft and Novatek.

In the summer of 2015 Rosneft and its CEO, Igor Sechin, presented the most comprehensive gas sector reform plan to date in a special letter to the Ministry of Energy of the Russian Federation. The planned reform would consist of three stages. The first one, in the years 2015–2018, would include setting separate tariffs for the transmission of gas within the Russian Federation and for the export of gas. Rosneft also called for increasing the volume of gas sold via gas exchange and proposed allowing the so-called independent gas producers to launch gas supplies to foreign customers on a test basis, under agency agreements with Gazprom. The second stage of the reform in the years 2019–2022 would consist of creating an independent company from Gazprom's assets to buy gas from the so-called independent producers to resell it in the European market, or, alternatively, introducing a system of quotas for the supply of gas to Europe. At the same time, prices in the internal market would be completely deregulated. The third stage, in the years 2023–2026, would consist of a full liberalisation of the gas market, including the creation of separate companies spun off from Gazprom for the transport and storage of gas in Russia. According to Rosneft's calculations, the changes could lead to an increase in gas production of 50 billion m<sup>3</sup> a year and increase the state budget's revenues (from the NDPI, export duties and real estate taxes) by around RUB 350 billion a year<sup>108</sup>.

<sup>106</sup> A solution modelled on the oil sector where Transneft, a state-owned company completely independent and separate from companies producing and supplying oil to domestic and foreign markets, owns and operates the transmission infrastructure.

<sup>107</sup> K. Pełczyńska-Nałęcz, *op. cit.*, p. 9-11.

<sup>108</sup> Либерализация газового рынка: ломать не строить, *Нефтегазовая Вертикаль*, Issue 1-2, 2016, p. 18.

**The proposals to break up Gazprom are closely related to the proposals to limit its monopoly on gas exports.** A gradual de-monopolisation of Russia's gas exports was formerly envisaged in the draft reform plan for the gas sector, presented in the Russian government's meeting on 7 December 2000. The three-stage reform plan stipulated that in the second stage the so-called independent producers would be allowed to export gas to CIS countries, while capping their maximum share at 25% of Russia's total gas exports, and that in the third stage they would also be allowed to export gas to Europe. In 2006, however, Gazprom's position was further consolidated by an amendment to the law on gas exports which granted the company a statutory monopoly on gas exports.

Novatek and Rosneft, Gazprom's largest rivals joined recently by LUKOIL, have also been systematically lobbying for a de-monopolisation of gas exports.<sup>109</sup> The first step in that direction was taken in the autumn of 2013, when an amendment to the law on gas exports enabled selected companies (in practice, only Novatek and Rosneft) to export liquefied gas.<sup>110</sup> In 2014 lobbying efforts were stepped up to gain the right for the so-called independent producers to export gas via the pipeline system. The demand was presented openly in June 2014 by Igor Sechin during a meeting of the Presidential Commission for the fuel and energy sector. He proposed a pilot project to export gas to China via the Power of Siberia pipeline. In August 2014 Gennady Timchenko, one of the owners of Novatek, suggested that in return for the ability to export gas via the gas pipeline system, the so-called independent gas producers should participate in the costs of new transmission infrastructure development.<sup>111</sup> The Rosneft CEO again raised the topic of de-monopolising pipeline exports in December 2016 in a special letter to president Vladimir Putin.<sup>112</sup>

Those proposals were opposed not only by Gazprom, but also the Russian Ministry of Energy, which stands by the position that Gazprom should keep its

<sup>109</sup> «Лукойл» просит задуматься о либерализации рынка газа, <http://www.vedomosti.ru/business/articles/2017/02/08/676598-lukoil-liberalizatsii-gaza>

<sup>110</sup> For more information on the new regulations and their impact, see: Sz. Kardaś, A feigned liberalisation: Russia is restricting Gazprom's monopoly on exports, *OSW Commentary*, <https://www.osw.waw.pl/en/publikacje/osw-commentary/2013-11-28/a-feigned-liberalisation-russia-restricting-gazproms-monopoly>

<sup>111</sup> Тимченко: Независимые производители должны финансировать "Силу Сибири" в случае допуска к экспорту газа, <http://prime.ru/INDUSTRY/20140803/789423525.html>

<sup>112</sup> Сечин обещал 500 млрд руб. налогов за отмену монополии «Газпрома», <http://www.rbc.ru/business/24/01/2017/588731199a7947c2b1ee434>

monopoly on pipeline exports (both to Europe and, in future, to China) at least until 2025.<sup>113</sup>

Over the last 15 years, the various plans to structurally transform Gazprom have failed to materialise. On top of this, the state has systematically tightened its control of the company and this process is unlikely to abate in the coming years. The state still holds a controlling stake in Gazprom and president Vladimir Putin directly participates in the gas monopoly's foreign activities and personally decides on all issue of strategic importance for the company and the entire sector.

**While the so-called independent producers have been stepping up their lobbying efforts to further restrain Gazprom's position,<sup>114</sup> any serious systemic change is unlikely to happen in the next 4 to 5 years due to several factors.**

First of all, the Russian leadership is likely to postpone political decisions on the matter because of Russia's worsening economic problems, related partly to the unfavourable situation in external energy markets. Due to the sharp decline in oil prices, as a result of which Russia's budget revenue has shrunk considerably, as well as the growing competition that Russian energy companies are facing from other exporters, the Russian government's priority is focused on efforts to maintain Russia's position in strategic markets. The Russian leadership believes that any serious systemic reform (such as a division of Gazprom) would not be guaranteed to increase the chances of success of those efforts. Moreover, the main lobbying forces are slightly less powerful now. Rosneft is struggling with its own serious financial problems, as a result of which Igor Sechin has been unable to persuade Vladimir Putin to back systemic change in the gas sector, despite his traditionally close ties with the Russian president. While president Putin did order the government to draft proposals for a reform of the tariff system and mechanisms to ensure equal access to infrastructure during a meeting of the Presidential Commission on the fuel and energy sector in October 2015, no such proposals have been presented to date, despite strict deadlines.<sup>115</sup>

<sup>113</sup> Газовый рынок в тумане. В отрасли не могут согласовать концепцию развития, <http://kommersant.ru/doc/3030949>

<sup>114</sup> For instance, in the meetings of the Presidential Commission for the fuels and energy sector in June 2014 and October 2015, during which questions over the gas sector's reform were raised, including the so-called independent producers' access to pipeline exports, harmonisation of transmission tariffs in the internal market or equal access to internal infrastructure.

<sup>115</sup> Putin had issued similar orders when he was prime minister in 2009.

Secondly, no fundamental change has occurred in the approach of the key decision-making groups; the Russian leadership is still more interested in extracting financial gains from the sector, as it was in the early 2000s, than it is in the sector's genuine modernisation and restructuring.<sup>116</sup> In any case, even though Gazprom is now much less effective as a foreign policy tool than it was in recent years, it nevertheless still plays an important role in the state's internal policy. It serves to subsidise unprofitable companies and deficit regions, and to support infrastructure projects of strategic importance for the Kremlin.

Finally, any systemic change would require the so-called independent gas producers to assume, in return for the curbing of Gazprom's privileges, various social obligations, the burden of which currently rests on Russia's biggest gas company. For instance, they would have to take over some of the less profitable or completely unprofitable supply markets currently served by Gazprom or participate in the financing of the extension and modernisation of transmission infrastructure.

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The Russian gas sector has found itself in a difficult situation. The mounting challenges and problems are primarily the consequence of the sector's politicisation and the absence of reforms, which have been repeatedly postponed. Because Gazprom serves as an internal and foreign policy instrument and a source of revenues for the Russian elite, economic calculations or the interests of the sector as a whole have often been ignored. This has led to problems in the gas production sector and challenges in external markets.

An analysis of the history of state strategic documents for the gas sector in hindsight reveals much wishful thinking and a deep inadequacy of the assessment of risks in the dynamically changing global energy markets. Because of these shortcomings, the successive strategic documents have not played any significant role. The limited de-monopolisation that has been progressing in Russia's internal market is not part of a long-awaited and postulated genuine liberalisation process. That is because the actors involved are companies which have very close ties with the ruling elite (Rosneft, Novatek) and are guided not so much by the interests of the sector as the desire to gain as much as they can from the redistribution of proceeds generated by the gas sector, in which

<sup>116</sup> K. Pełczyńska-Nałęcz, *op. cit.*, p. 9–11.

the state still plays a dominant role via Gazprom. Genuine liberalisation would be a positive thing but given the current unfavourable price situation and the problems faced by the entire Russian economy, one should not expect radical systemic change to take place in the sector in the coming years.

**SZYMON KARDAŚ**

*The text was completed on 28 March 2017.*

**APPENDIX I. Russian gas supplies by destination and volume (excluding LNG)  
in 2002–2016 (billions m<sup>3</sup> a year)**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>117</sup>
Germany	31.5	29.6	36.1	36	34.4	34.5	38	33.5	35.3	34.1	34	41	40.3	47.4	49.8
Italy	19.3	19.7	21.6	22	22.1	22	22.4	19.1	13.1	17.1	15.1	25.3	21.7	24.4	24.7
UK	0	0	0	3.8	8.7	15.2	20.9	11.9	10.7	12.9	11.7	16.6	15.5	22.5	17.9
Poland	7.2	7.4	6.3	7	7.7	7	7.9	9	11.8	10.3	13.1	12.9	9.1	8.9	11.1
France	11.4	11.2	13.3	13.2	10	10.1	10.9	8.3	8.9	8.5	8.2	8.6	7.6	10.5	11.4
Czech Rep.	7.4	7.4	6.8	7.4	7.4	7.2	8	7	9	8.2	8.3	7.9	4.8	4.9	4.5
Hungary	9.1	10.4	9.3	9	8.8	7.5	6.9	7.6	6.9	6.3	5.3	6	5.4	6	5.5
Slovakia	7.7	7.3	5.8	7.5	7	6.2	6.2	5.4	5.8	5.9	4.3	5.5	4.4	3.8	3.7
Austria	5.2	6	6	6.8	6.6	5.4	5.8	5.4	5.6	5.4	5.4	5.2	4.2	5	6.1
Finland	4.6	5.1	5	4.5	4.9	4.7	4.8	4.4	4.8	4.2	3.7	3.5	3.1	2.8	2.5
Belgium	0	0	0.2	2	3.2	4.3	4.9	0.5	0.5	0	0	0	0	1.5	n/d
Bulgaria	2.8	2.9	3	2.6	2.7	2.8	2.9	2.2	2.3	2.5	2.5	2.9	2.8	3.1	3.2
Lithuania	2.4	3	2.93	2.8	2.8	3.4	2.8	2.5	2.8	3.2	3.1	2.7	2.5	2.2	0.9
Greece	1.6	1.9	2.2	2.4	2.7	3.1	2.8	2.1	2.1	2.9	2.5	2.6	1.7	2	2.7
Netherlands	1.4	2.3	2.7	4.1	4.7	5.5	6.7	4.3	4.3	4.5	2.9	2.9	4.7	8.4	4.2
Romania	3.5	5.1	4.1	5	5.5	4.5	4.2	2.5	2.6	3.2	2.5	1.4	0.5	0.3	1.5
Latvia	1.1	1	1.5	1.4	1.4	1	0.7	1.1	0.7	1.2	1.1	1.1	1	1.3	1.3
Estonia	0.6	0.7	0.92	1.3	0.7	0.9	0.6	0.8	0.4	0.7	0.6	0.7	0.4	0.5	0.4
Slovenia	0.6	0.7	0.2	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5
Ireland	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0.2	0.2	n/d

<sup>117</sup> Statistical data published by the Interfax agency in the *Исследование 9–15 февраля 2017* on the basis of Gazprom's quarterly reports for 2016; n/d – no data.

<sup>118</sup> Starting from 2002, the EU statistics also include the countries which formally joined the EU in 2004 and 2007.

<sup>119</sup> Gas supplies to the areas occupied by the pro-Russian separatists from the so-called Donetsk and Luhansk People's Republics.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>17</sup>
Croatia	1.2	0.6	0.4	1.2	1.1	1.1	1.2	1.1	1.1	0	0	0.2	0.6	0.6	n/d
Denmark	0	0	0	0	0	0	0	0	0	0	0.3	0.3	0.4	0.7	1.7
<b>Total EU<sup>118</sup></b>	<b>118.6</b>	<b>122.3</b>	<b>128.35</b>	<b>140.7</b>	<b>143</b>	<b>147</b>	<b>159.2</b>	<b>129.2</b>	<b>129.2</b>	<b>131.6</b>	<b>125.4</b>	<b>148.3</b>	<b>131.3</b>	<b>157.5</b>	<b>153.6</b>
Turkey	11.8	12.9	14.5	18	19.9	23.4	23.8	20	18	26	27	26.7	27.3	27	24.7
Switzerland	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3
Serbia	1.7	1.9	2.3	2	2.1	2.1	2.2	1.7	2.1	2.1	1.9	2	1.5	1.9	1.7
Bosnia Herzegovina	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2
Macedonia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.1	0.1	0.1
<b>Non-EU</b>	<b>14.1</b>	<b>15.4</b>	<b>17.5</b>	<b>20.9</b>	<b>22.9</b>	<b>26.3</b>	<b>26.7</b>	<b>22.3</b>	<b>20.7</b>	<b>28.8</b>	<b>29.6</b>	<b>29.34</b>	<b>28.83</b>	<b>29.5</b>	<b>27</b>
Ukraine	25.9	26	34.34	37.6	59	59.2	56.2	37.8	36.5	44.8	32.9	25.8	14.5	7.8	2.4 <sup>19</sup>
Belarus	10.2	10	10.21	19.8	20.5	20.6	21.1	17.6	21.6	23.3	19.7	19.8	19.6	18.4	18.6
Armenia	0	0	0	1.7	1.7	1.9	2.1	1.7	1.4	1.6	1.7	1.7	1.8	1.8	1.8
Kyrgyzstan	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.3	n/d
Georgia	0	0	0	1.4	1.9	1.2	0.7	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.1
Moldova	2.1	2	1.75	2.8	2.5	2.7	2.7	3	3.2	3.1	3.1	2.4	2.8	2.9	2.9
Kazakhstan	0	0	0.82	4	6.5	10	9.6	3.1	3.4	3.3	3.7	4.7	5.1	4.7	2.8
Azerbaijan	0	0	0	3.8	4								0	0.1	n/d
Uzbekistan	0	0	0	0	0	0	0	0	0	0.3	0	0.3	0	0	0
<b>Total (except UE)</b>	<b>38.2</b>	<b>38</b>	<b>47.12</b>	<b>71.1</b>	<b>96.1</b>	<b>95.6</b>	<b>92.4</b>	<b>63.3</b>	<b>66.3</b>	<b>76.6</b>	<b>61.3</b>	<b>54.9</b>	<b>44.2</b>	<b>36.3</b>	<b>26.2</b>
<b>LNG</b>	-	-	-	<b>0.2</b>	<b>0.4</b>	<b>0.4</b>	<b>0.6</b>	<b>1.9</b>	<b>2.5</b>	<b>3.1</b>	<b>1.9</b>	<b>2</b>	<b>4.5</b>	<b>4.7</b>	<b>4.9</b>
<b>Total</b>	<b>170.9</b>	<b>175.7</b>	<b>192.97</b>	<b>232.9</b>	<b>263.4</b>	<b>269.4</b>	<b>278.9</b>	<b>216.7</b>	<b>218.7</b>	<b>240.1</b>	<b>219</b>	<b>235.7</b>	<b>215.4</b>	<b>233.4</b>	<b>214.1</b>

Author's own compilation based on figures published by Gazprom in 2002–2017.

## APPENDIX II. Russian gas exports via pipelines (billions m<sup>3</sup>)

	Central Bank figures			Gazprom figures <sup>120</sup>		
	So-called distant abroad <sup>121</sup>	Post-Soviet states	Total	Europe	Post-Soviet states (including the Baltic states)	Total
2000	134	59.9	193.9	129	43.4	172.4
2001	131.9	48.9	180.98	126.9	39.6	166.5
2002	134.2	51.3	185.5	128.6	42.3	170.9
2003	142	47.3	189.4	132.9	42.6	175.5
2004	145.3	55.1	200.4	140.5 <sup>122</sup>	52.5 <sup>123</sup>	193
2005	161.7	47.5	209.2	156.1	76.6	232.7
2006	161.8	41	202.8	161.5	101	262.5
2007	154.4	37.5	191.9	168.5	100.9	269.4
2008	158.4	37	195.4	184.4 <sup>124</sup>	96.5	280.9
2009	120.5	47.9	168.4	152.8 <sup>125</sup>	67.7	220.5
2010	107.4	70.4	177.8	148.1	70.2	218.3
2011	117.2	72.5	189.7	156.6	81.7	238.3
2012	112.7	66	178.7	151	66.1	217.1
2013	138	58.4	196.4	174.3	59.4	233.7
2014	126.2	48	174.3	159.4	48.1	207.5
2015	144.7	40.7	185.5	184.4	40.3	224.7
2016	164.7	34	198.7	179.3	31.5	210.8

Author's own compilation based on figures published by the Central Bank of the Russian Federation, Gazprom and the Ministry of Energy of the Russian Federation.

<sup>120</sup> Figures based on annual reports published by Gazprom in 2000–2016. Gazprom's data includes gas produced in Russia as well as gas purchased by the Russian company from Central Asian states and Azerbaijan and the re-exported to foreign consumers.

<sup>121</sup> In Russia, this notion refers to all European customers (both EU members and non-EU countries) except for the Baltic States, as well as Turkey.

<sup>122</sup> The 2005 Report stated that in 2004 Gazprom supplied 153.2 billion m<sup>3</sup> of gas to European states.

<sup>123</sup> The 2005 Report stated that in 2004 Gazprom supplied 65.7 billion m<sup>3</sup> of gas to the CIS states.

<sup>124</sup> The 2009 Report stated that in 2008 Gazprom supplied 167.6 billion m<sup>3</sup> of gas to European states.

<sup>125</sup> The 2010 Report stated that in 2009 Gazprom supplied 148.3 billion m<sup>3</sup> of gas to European states.