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**Research Report**

Russian energy policies revisited: Assessing the impact of the crisis in Ukraine on Russian energy policies and specifying the implications for German and EU energy policies

SWP Research Paper, No. RP 8/2015

**Provided in Cooperation with:**

Stiftung Wissenschaft und Politik (SWP), German Institute for International and Security Affairs, Berlin

*Suggested Citation:* Gusev, Alexander; Westphal, Kirsten (2015) : Russian energy policies revisited: Assessing the impact of the crisis in Ukraine on Russian energy policies and specifying the implications for German and EU energy policies, SWP Research Paper, No. RP 8/2015, Stiftung Wissenschaft und Politik (SWP), Berlin

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# SWP Research Paper

Stiftung Wissenschaft und Politik  
German Institute for International  
and Security Affairs

*Alexander Gusev and Kirsten Westphal*

## Russian Energy Policies Revisited

Assessing the Impact of the Crisis in Ukraine  
on Russian Energy Policies and Specifying the  
Implications for German and EU Energy Policies

RP 8  
December 2015  
Berlin

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ISSN 1863-1053

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**Russian Energy Policies Revisited**  
**Assessing the Impact of the Crisis in Ukraine**  
**on Russian Energy Policies and Specifying the**  
**Implications for German and EU Energy Policies**

The structural changes made in the Russian energy sector have been significant and have an impact on European Union (EU) energy markets. Russia is – and will remain – the EU’s major supplier for oil, natural gas and coal at least for the next decade. An analysis of Russian energy policies after the annexation of Crimea and the destabilisation in eastern Ukraine offers important insights with respect to the economic and geopolitical repercussions.

Russian domestic changes are manifold: Gazprom has a surplus of natural gas production capacity and is looking at new markets. Competition is getting fierce between Gazprom, Rosneft and Novatek. Gazprom will maintain its key role as a supplier to the EU because of existing long-term contracts that extend beyond 2025 and its ability to supply gas at low cost. Oil production and exports in Russia are at historically high levels, but the old fields are being depleted. Western sanctions pre-empt Russia from quickly opening new frontiers in offshore Arctic, tight and shale formations. Modernisation in the refinery sector is slowing. Reforms and restructuring in the electricity sector have lost speed or have even been reversed. Then-President Dmitri Medvedev’s reform slogans of “modernisation” have disappeared from the Russian political agenda. The Russian energy system is also under stress because it has to adapt to a rapidly changing energy landscape. These new dynamics arise from the growing demand beyond Western industrialised countries, in particular in Asia, as well as from the shale oil and shale gas revolution in the United States. Oil price developments and relatively low energy prices have an impact on future production and export projects. Growing competition among exporters over market shares is putting pressure on Russian oil and gas rents. With respect to exports, Russia has been slowly diversifying to the Pacific for oil and natural gas. Yet, structural changes have moved beyond mere reactions to shale developments in North America and shifting trade flows to the Pacific – they have been reinforced by the (geo)politics that have unfolded following the crisis in Ukraine and the subsequent deterioration in EU-Russian relations.

The “*povorot na vostok*” (pivot to the east) has gained momentum through these geopolitics, but it has also been narrowed to export and pipeline deals with China. Recent gas and oil contracts with China will gradually allow Russia to diversify its energy portfolio and decrease its dependency on the European market. The sanctions will most likely reinforce this trend and exert an influence at the commercial level as well. The fact that Russia is increasingly selling stakes in producing fields and infrastructure, equity shares in companies as well as agreeing on future hydrocarbon supplies for credits will gradually strengthen the ties with Asia. This will limit and harm business opportunities of Western companies in the future. Moreover, these developing alliances between state companies across the whole value chain pave the road of state-dominated “mercantilist” approaches to energy trade. A common trend for all three sectors (natural gas, oil, electricity) is the growing role of Asian companies, in particular Chinese companies – something that became visible starting in mid-2015. The real impacts on the EU will be felt after five years, or perhaps even a decade, because of the long lead-times of energy projects. With regards to geo-economics, Russia’s pivot to Asia will persist because it coincides, for example, with the gasification of the East, the shifting new frontiers in production and the targeting of Asian markets, which promise growth for demand.

Yet, since mid-2015 economic rationality has been returning to EU-Russian energy relations. Even though sanctions will be kept in place till January 31, 2016, and their prolongation depends on the implementation of the Minsk II process, revitalising commercial ties is indispensable with regards to energy. Against the background of the security crisis in Eastern Europe, it is not a given that this energy relationship will contribute (as compared to the past) to confidence and peace-building. The rapid deterioration of the political relationship over energy between the EU and Russia should serve as a warning before future steps are taken. A deterioration here will certainly have negative spillover effects on foreign and security relations. The two partners are gradually moving towards other suppliers and markets. This “divorce” comes during an ongoing transformation of the global, EU and Russian markets as well as the transition towards a more sustainable energy mix in Germany and the EU. This creates a sensitive combination of mistrust, misperceptions and misunderstandings, which carry the risk of creating disputes in energy relations that might be carried into other political areas. A failure of commer-

cial ventures can send shocks far beyond the respective business case. Thus, the EU-Russian energy relationship requires attention, but it must be viewed through something other than a geopolitical lens.

The immediate advice is to reinforce dialogue on the working and technical levels. This is recommendable in order to hedge against risks and to oversee a smooth continuation of energy trade and business transactions. Then, five recommendations can be made: 1) be aware of negative spillover effects if energy relations deteriorate; 2) normalise energy relations with Russia and ground them on sound commercial projects; 3) aim at a de-securitisation of energy relations in the political framing and detach the EU’s energy policy narratives and imperatives from the fixation on Russia; 4) envision a common energy future and a common energy space; and finally 5) re-engage in energy diplomacy in the wider region. The EU and Russia do not have to start from scratch: The Roadmap for EU-Russian Energy Cooperation until 2050 – endorsed by the EU and Russia in 2013 – is a good starting point to re-envision a common energy future and to rebuild a sustainable and future-orientated energy partnership.

Certainly, balancing diverse perceptions in the EU remains a challenge for Germany. The energy relationship with Russia touches upon two major cleavages in the EU and among member states where no consensus on the way forward exists: Russia and energy policies. Yet, moving away from Russia as a supplier will be costly, and thus impact on relative energy price differences with North America and China to the disadvantage of the EU. These trade-offs have to be taken explicitly into consideration. Subsequently, it is important to reframe energy relations with Russia. The Energy Union should not be defined in opposition to Russia but rather be more inclusive and realistic in approach. The Energy Union is decisive for strengthening internal market integration and transitioning towards a sustainable energy mix. More energy diplomacy will be needed to support any diversification and also manage persisting interdependence with Russia.

# Setting the Scene – Russian Energy Policies and the Relationship with the EU

## Russian Energy Relations with Germany and the EU under Revision

The EU-Russian bilateral energy relationship has been influenced by the geopolitical crisis in and around Ukraine since 2014.<sup>1</sup> The annexation of Crimea by Russia in March 2014 and the military destabilisation in eastern Ukraine have resulted in a securitisation of energy relations. Energy relations have become an issue of high politics. The official energy dialogue between the EU and Russia has been suspended, with the exception of the trilateral talks between Russia, the EU and Ukraine to secure natural gas supplies to Ukraine. EU sanctions also target specific Russian oil companies, Russian Arctic offshore oil exploration and shale oil production.

Yet, EU and Russian energy policies have been drifting apart and have become more complicated, even prior to the crisis in and around Ukraine. The Internal Energy Market Packages of the EU<sup>2</sup> signalled a rupture of long-standing, traditional (contractual) relationships because they ended bundled business models

and initiated the revision of long-term contracts.<sup>3</sup> In particular, the implementation of the Third Internal Energy Market Package (hereafter: Third Energy Package) since 2009 has resulted in disenchantment between the EU and Russia. The EU has (unilaterally) changed the market and business environment. As a consequence, the energy markets of the EU and Russia have developed in different directions: Russia remained a state-dominated “market”, and companies even experienced a reinforcement of ties to the political elite; the EU moved towards a neoliberal competitive and integrated internal market. As a consequence, the common space has become more fragmented. The transitory character of German and EU energy policies towards a more sustainable energy system – for example with the German “*Energiewende*” – adds to growing uncertainties, because the demand for fossil fuels is very difficult to predict.

The political clash over Ukraine is impeding the EU and Russia from finding solutions for contentious issues. These contentious issues have had an impact on the energy relationship, even prior to crisis in Ukraine, for example: the Commission’s Antitrust Case against Gazprom (see the chapter on natural gas); the arbitration procedure by the former foreign shareholders of Yukos and the verdict against Russia<sup>4</sup>; as well as conflicts over bundled infrastructure projects such as the OPAL (Ostsee-Pipeline-Anbindungsleitung) pipeline and the planned South Stream pipeline (see gas chapter). Containing these conflicts is becoming more difficult because of the deterioration in political relations regarding energy. There is a potential for further escalations in energy trade relations, which would have negative consequences on the overall relationship.

1 The authors would like to thank Tatiana Mitrova, Maria Belova, Susan Stewart and Alexander Libman for their highly valued and extremely useful comments on draft versions of the text. We also thank Benjamin Gaiser and Maria Pastukhova for their assistance in editing the research paper.

2 The Internal Energy Market Reforms – the Directive 1998 (Directive 98/30/EC), the Internal Energy Market Package 2003 (Directive 2003/55/EC) and 2009 (2009/73/EC) – are intended to create a new order and establish a liberalised, competitive, well-functioning and integrated EU gas market. With the Third Package, regulation has been reinforced by ownership-unbundling as the preferred model; antitrust enforcement; the abolishment of destination clauses in long-term contracts; access tariffs and network codes; and favours short-term dealings (see in more detail: Kim Talus, “United States Natural Gas Markets, Contracts and Risks: What Lessons for the European Union and Asia Pacific Natural Gas Markets?”, *Energy Policy* 74 [2014], 28–34). With the Lisbon Treaty of 2009 (Art. 194), energy security (and in particular security of supply) became a field of shared competencies, requiring coordination among the Union and its member states. The shift from state-regulation and monopoly power to markets and contracts is profound (ibid.) and changes the underlying organisational structures in the gas market industry.

3 See in more detail: Kirsten Westphal, “Institutional Change in European Natural Gas Markets and Implications for Energy Security: Lessons from the German Case”, *Energy Policy* 74 (2014), 35–43.

4 The foreign shareholders of YUKOS filed several arbitration cases against the Russian state for the compensation expropriation under the Energy Charter Treaty. The Court in The Hague ruled against Russia to award US\$50 billion to the shareholders. Neil Buckley and Kathrin Hille, Retrieved Yukos shareholders face battle to claim \$50bn. *Financial Times*, 28 July 2014, <http://www.ft.com/cms/s/0/b01cfb72-1669-11e4-8210-00144feabdc0.html#ixzz3AwOzaRYE> (accessed 10 November 2015).



This is all taking place against the backdrop of a rapidly changing energy landscape. The shale gas revolution and the light tight oil revolution in the United States is putting pressure on traditional suppliers and affecting the strategies, the position and the role of Russian companies. Global energy markets have changed tremendously with demand centres shifting to the Pacific. Between July 2014 and July 2015, oil prices have almost halved due to less rapid growth in China, Eurozone financial crises and increased fossil fuel (over)supply world-wide. Traditional suppliers have to adapt to this downward swing in the cycle. With the nuclear deal concluded, Iran might come back and cut into Russia's European market shares in the mid- to long term for natural gas, and maybe much sooner for crude oil. Russia (as well as other) producers face dwindling resource rents and decreasing earnings for the state budget. This is all adding to the uncertainty and instability within the bilateral energy relationship.

To summarise, the EU and Russia are – for their part – revisiting the energy relationship, not only with respect to the future, but increasingly with respect to present trade relations and vulnerabilities. The most visible sign is the EU's Energy Union, which is one priority of the Juncker Commission and directed to ensure energy security, trust and solidarity among the member states. Yet, Russia has reviewed its engagement (and exposure to risks) in Europe, too.

This paper explores Russian energy policies between 2009 and 2015 to not only understand the factors and strategies driving them but also to gain a better understanding of Russian energy politics and economics. It is presumed that Russia will remain an important energy supplier for the EU and that the energy relationship can serve as a future link to restore trust and confidence – depending on the course of the conflict in Ukraine. Moreover, whatever options the future offers, a reformulation of policies vis-à-vis Russia will be necessary, but a better understanding of Russian energy policies is a necessary precondition. Russia's approach also has a wider geographical impact because integration efforts within the Eurasian Economic Union, consisting of Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia, exist in all energy sectors.

## Qualifying the EU-Russian Energy Relationship and Quantifying Energy Trade

Against the background of the annexation of Crimea and the situation in the Eastern parts of Ukraine, Germany and other EU member states face a dilemma between political principles and economic interests. On the one hand, the pure commercial, geographic and geological facts still persist, resulting in interdependence: the proximity of Russian energy sources, existing and planned infrastructure as well as the complementarity of Russia's resource abundance and the EU's import dependence on fossil fuels. On the other hand, these functional logics of complementarity and interdependence are undermined by Russia's course in Ukraine.

Thus, it is increasingly difficult to make an assessment of Russian energy policies through the prism of German and EU interests. This is all the more true because there is a wide gap between the perceptions of commercial players on the one hand and the political elites on the other hand with respect to Russia's reliability as an energy supplier. Whereas the former refer to complementary interests and functioning trade, the latter judge the relationship through a geopolitical lens. To base our analysis on solid ground, we decided to take the 2013 Roadmap for EU-Russia Energy Cooperation until 2050<sup>5</sup> as a reference point. Russia and the EU had confirmed this Roadmap on the basis of their energy strategies and with regard to existing energy ties and future relations some months prior to the outbreak of the crisis in Ukraine.

In the Roadmap for EU-Russia Energy Cooperation until 2050, both outline the political significance and the economic relevance of energy relations, which have always been perceived as having the “most potential to lead the European subcontinent into deeper, mutually beneficial integration”.<sup>6</sup> The document contains chapters on electricity, gas, oil, renewables and energy efficiency plus cooperation regarding energy scenarios and forecasts. Therefore, both partners emphasise the long-term dimension of an albeit transforming partnership, as energy markets have become more globalised, the EU is aiming towards a low-carbon energy system and the Russian Federation is “on path of an innovative and efficient energy sector

5 European Commission (EC), *Roadmap: EU-Russia Energy Cooperation until 2050*, March 2013, [https://ec.europa.eu/energy/sites/ener/files/documents/2013\\_03\\_eu\\_russia\\_roadmap\\_2050\\_signed.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/2013_03_eu_russia_roadmap_2050_signed.pdf) (accessed 28 November 2014).

6 Ibid., 3.

development”.<sup>7</sup> Cross-sectoral issues of common interest and activities are energy-demand developments, price volatility, climate challenge, and the Roadmap vision to deepen and intensify energy cooperation, with steps to be taken by 2020, 2030 and 2050. The strategic target identified in the paper is a Pan-European Energy Space. This underlines Russia’s outsized role for the continent’s energy supply.

Quantifying Russia’s position in the energy landscape is straightforward: Russia is – and will remain – among the biggest energy exporters in the world. It produces 12.7 per cent of the world’s oil, 16.7 per cent of its gas and 4.3 per cent of its coal.<sup>8</sup> Accordingly, Russia is the most important energy supplier to the EU, with 35 per cent of its oil, 30 per cent of its gas and 26 per cent of its coal imports originating from Russia.<sup>9</sup> Last but not least, Russia’s share of EU uranium supplies accounted for 18 per cent<sup>10</sup> and uranium enrichment services for 25 per cent.<sup>11</sup> This is of strategic relevance given the fact that the replacement of specific fuel rods cannot easily be realised. The EU is also the major destination for Russian energy exports: Russia exports two-thirds of its oil, more than 50 per cent of its gas and almost 50 per cent of its coal to the EU.<sup>12</sup>

Even though the close energy relationship between Germany/the EU and Russia stretches beyond natural gas to oil, hard coal, the nuclear fuel cycle and the power sector, EU-Russian gas relations receive most of the political and public attention. EU’s gas supply is more than 80 per cent pipeline-bound, thereby creating much closer and more rigid (inter-) dependencies. In contrast, crude oil and hard coal are traded globally. Electricity cooperation overall is a special area, decisive for the modernisation of the network and generation capacities – as related to renewables and

energy efficiency – but has received much less public attention. Linked to that, nuclear energy is a specific and highly sensitive topic.

This research paper focusses on natural gas because of its historical relevance as part of the rapprochement and détente during the Cold War and the geopolitical attention attached to it. The paper also looks at oil because it is still the primary source of energy in the EU. Moreover, Russia, as stated in the common Roadmap, is a stable supplier compared to the Middle East and North Africa.<sup>13</sup> Another section of the paper is devoted to electricity, which is a very particular field of cooperation. Taking the power sector into the picture seems appropriate because average electricity demand is growing more than demand for other energy sources,<sup>14</sup> and the sector plays a key role for sector innovation and decarbonisation.

<sup>7</sup> Ibid.

<sup>8</sup> BP, *Statistical Review of World Energy 2015* (London: BP), 10, 24 and 32.

<sup>9</sup> *European Union (EU) Statistical Pocketbook*, 2013, 24.

<sup>10</sup> “Purchase of Natural Uranium by EU Utilities by Origin in 1992–2014”, European Commission, Nuclear Observatory, [http://ec.europa.eu/euratom/observatory\\_data.html](http://ec.europa.eu/euratom/observatory_data.html) (accessed 16 September 2015).

<sup>11</sup> “Providers of Enrichment Services Delivered to EU Utilities in 1993–2014”, European Commission, Nuclear Observatory, [http://ec.europa.eu/euratom/observatory\\_data.html](http://ec.europa.eu/euratom/observatory_data.html) (accessed 16 September 2015).

<sup>12</sup> Alexander Novak and Guenther Oettinger, “E’nergodialog Rossiya-ES 13j obobshhayushhij doklad” [“13th EU-Russian Joint Energy Report”], January 2014, <http://minenergo.gov.ru/upload/iblock/ece/ecef70b71b1fe04742545dcd647ca0fa.pdf> (accessed 19 December 2014).

<sup>13</sup> Ibid., 17.

<sup>14</sup> Ibid., 6.

# Mapping the Russian Energy Sector and Energy Politics

## Systemic Relevance of the Sector

The energy sector is of systemic relevance for the Russian economy and Russian politics.<sup>15</sup> The energy trade is one of the major income sources for the Russian budget, with shares of 50 per cent in 2013<sup>16</sup> and 2014.<sup>17</sup> The revenues from taxation and export duties are also feeding the two Russian state funds: the Reserve Fund, consisting of US\$72.93 billion (an equivalent of 5.9 per cent of gross domestic product [GDP]),<sup>18</sup> and the National Wealth Fund (US\$74.56 billion – 6 per cent of GDP,<sup>19</sup> as of August 1, 2015). The share of energy products in exports was almost 88 per cent in 2014.<sup>20</sup> The Russian state budget, which has seen ever-higher

15 See in more detail: Tatiana Mitrova, “The Political and Economic Importance of Gas in Russia”, in *The Russian Gas Matrix: How Markets Are Driving Change*, ed. James Henderson and Simon Pirani (Oxford: Oxford University Press, 2014), 6–38.

16 “Predvaritel’naya ocenka ispolnitel’nogo federal’nogo byudzheta za yanvar’-dekabr’ 2013 goda” [“Preliminary Assessment of the Federal Budget Execution in January–December 2013”], Ministry of Finance of the Russian Federation, [http://www.minfin.ru/ru/document/index.php?id\\_4=20821](http://www.minfin.ru/ru/document/index.php?id_4=20821) (accessed 21 August 2015).

17 “Predvaritel’naya ocenka ispolnitel’nogo federal’nogo byudzheta za yanvar’-dekabr’ 2014 goda” [“Preliminary Assessment of the Federal Budget Execution in January–December 2014”], Ministry of Finance of the Russian Federation, [http://www.minfin.ru/ru/press-center/?id\\_4=33050](http://www.minfin.ru/ru/press-center/?id_4=33050) (accessed 21 August 2015).

18 Reserve Fund of Russia is mostly used to cover budget deficit. On 1 August 2015 the Reserve Fund accounted for US\$72.93 billion, according to the Ministry of Finance of the Russian Federation, [http://old.minfin.ru/en/reservefund/statistics/amount/index.php?id\\_4=5817](http://old.minfin.ru/en/reservefund/statistics/amount/index.php?id_4=5817) (accessed 20 August 2015).

19 The main function of the National Wealth Fund is to support the Russian pension system. On 1 August 2015 the National Wealth Fund accounted for US\$74.56 billion according to the Ministry of Finance of the Russian Federation, [http://old.minfin.ru/en/nationalwealthfund/statistics/amount/index.php?id\\_4=5830](http://old.minfin.ru/en/nationalwealthfund/statistics/amount/index.php?id_4=5830) (accessed 20 August 2015).

20 Total export of goods in 2014 accounted for US\$496.944 billion. Energy products accounted for US\$435.286 billion. Energy products comprise coal, coke, crude oil, oil products, gasoline, diesel, liquid fuels, LNG, natural gas and, electricity. “Eksport Rossii vazhnejshix tovarov v yanvare-dekambre 2014” [“Export of the Most Important Goods from Russia in January–December 2014”], Federal Customs Service, [http://www.customs.ru/index2.php?option=com\\_content&view=article&id=20493:2014&catid=52:2011-01-24-16-28-57&Itemid=1976](http://www.customs.ru/index2.php?option=com_content&view=article&id=20493:2014&catid=52:2011-01-24-16-28-57&Itemid=1976) (accessed 21 August 2015).

break-even oil prices, has been hit by the oil price slump that began in summer 2014. The fiscal break-even point for the Russian budget in 2015 was reported to be around US\$100 per barrel in the winter of 2014/2015. Yet, the fiscal break-even point changes with the devaluation of the Russian currency, as spending is calculated in roubles.

President Vladimir Putin has also used the energy sector as an instrument for his preservation of power. The “old system of oligarchs”, which had dominated the oil industry in the 1990s under then-President Boris Yeltsin, has been substituted by a web of “loyalists” to President Putin. The present “network state capitalism”<sup>21</sup> is controlled closely by the Kremlin and builds upon the personal ties of President Putin. The big companies are managed by Putin “loyalists” and have served as a funding source to subsidise other economic activities of this circle that is close to the leadership. On the one hand, this network of loyalists has been of strategic relevance for Putin’s politics and Russian economics. On the other hand, major companies have branched out beyond their traditional sectors, for example the electricity sector. Thus, the interplay and competition between companies has become an important factor and has to be taken into consideration to understand commercial, economic and also political rationales behind Russian energy policies.

## Gazprom, Rosneft & Co. and Russia’s network state capitalism

The major players that are active across different sectors of the Russian energy industry are Gazprom and Rosneft. Gazprom has long been seen as a state within a state. Its management board has been closely intertwined with the Kremlin. It served as a means for guaranteeing low energy prices for private households and was a major source of spending in remote areas, in marginalised regions and for supplying industry. Till

21 Jonas Grätz, “Russia’s Multinationals: Network State Capitalism Goes Global”, in *Multinational Corporations from Emerging Markets: State Capitalism 3.0*, ed. Andreas Nölke (Basingstoke: Palgrave Macmillan, 2014), 90–108.

the early 2000s, domestic gas prices were below marginal production costs, subsidised by export revenues. This traditional scheme of cross-subsidisation of domestic gas sales by Russian long-term gas exports (which included the obligation to hold certain amounts of gas available for export) came to an end in the first decade of this millennium. Since then, Gazprom's extraordinary position has been changing profoundly: 2009 was a turning point as Gazprom reported breaking even in its domestic business for the first time and being in the black. This was logically accompanied by the state's aim to attain more information about Gazprom's production costs and pricing. Parallel to domestic price, taxes increased, too. The company was increasingly viewed as a source of additional income for the state.<sup>22</sup> Gazprom has been burdened with the gasification project of eastern Siberia and the Russian Far East, and tasked with connecting new fields to the Russian gas pipeline network, the United Gas Supply System (UGSS). Gazprom is increasingly being subjected to Russian policies. Gazprom's CEO, Alexei Miller, is a former staff member of Vladimir Putin who became Vice-Mayor of St. Petersburg. Miller took over from the old management of Rem Vyachirev in 2001 and consolidated Gazprom's assets in the gas industry. Gazprom has come under pressure from competitors. The Russian state has strategic holdings of more than 50 per cent in Gazprom shares.<sup>23</sup>

Gazprom is in fierce competition with Rosneft regarding holding the leading position in Russian oil and gas industries, exports, and (in)direct support from the state. Rosneft is much more an "Asian" company with a strong production base in eastern Siberia and the Far East as well as close ties to Chinese and Indian companies, whereas Gazprom is traditionally linked to Europe. This race has strong implications for the future of Russian foreign (energy) trade and policies. The state's share of 69.5 per cent of Rosneft is held through Rosneftegas, which is 100 per cent state-owned. The British company BP owns another 19.75 per cent.<sup>24</sup> There are discussions about selling another 19.75 per cent share, to be offered to e.g. Chinese companies in light of the difficult financial situation. Igor

Sechin, the president of Rosneft since 2012 and the chairman of the board of directors from 2004 until 2011, had been deputy head of the executive office under Russian presidents Putin and Medvedev from 2000 until 2008. Like President Putin and Gazprom's Miller, Sechin also comes from St. Petersburg.<sup>25</sup> Sechin is also head of the Presidential Commission for Strategic Development of the Fuel and Energy Sector. Gazprom and Rosneft have a tremendous impact on the energy sector (beyond their traditional business in natural gas and oil) as well as other industrial and manufacturing sectors. They rank in the top 100 of global companies with market values of US\$62.5 billion and US\$51.1 billion,<sup>26</sup> respectively. The big energy companies provide improved living standards in remote regions and have a multiplicative effect for producing regions.<sup>27</sup> Last but not least, the companies (first and foremost Gazprom) served as a "treasury" for the Russian state to finance projects of "state interest", for example the 2014 Winter Olympic Games in Sochi.<sup>28</sup>

A mapping of the Russian gas industry has to include Novatek, a smaller gas producer. Novatek's Leonid Mikhelson teamed up with Gennadiy Timchenko, an acquaintance of President Putin, in 2011/2012.<sup>29</sup> Since then, Novatek has become active in the German and European markets.<sup>30</sup> Timchenko also founded Gunvor, one of the world's largest commodity trading companies. In the oil sector, Lukoil is Russia's second-largest oil company and the largest private player. It is said that its top managers, Vagit Alekperov and Leonid Fedun, have more than 30 per cent control of the company.<sup>31</sup> The third-largest Russian oil company is Surgutneftegaz, followed by Gazprom Neft, the oil unit of Gazprom. The former has a very opaque ownership structure, raising suspicion that there exist close ties to President Putin himself. The Russian oil transport

22 Mitrova, "The Political and Economic Importance of Gas" (see note 15), 20–22.

23 Gazprom, *GAO Gazprom Annual Report 2014. The Power of Growth*, 128, <http://www.gazprom.com/f/posts/55/477129/gazprom-annual-report-2014-en.pdf> (accessed 22 October 2015).

24 Rosneft, *Victory, Effectiveness, Responsibility. Annual Report 2014*, 54, [http://www.rosneft.com/attach/0/58/80/a\\_report\\_2014\\_eng.pdf](http://www.rosneft.com/attach/0/58/80/a_report_2014_eng.pdf) (accessed 20 July 2015).

25 "Igor Sechin", Rosneft website, <http://www.rosneft.com/about/management/igor-sechin/> (accessed 20 July 2015).

26 "The World's Biggest Public Companies", *Forbes*, 2015, <http://www.forbes.com/global2000/list/#tab:overall> (accessed 20 July 2015).

27 Mitrova, "The Political and Economic Importance of Gas" (see note 15), 20/21.

28 Ibid., 21.

29 Jonas Grätz, *What Kind of Competition?*, unpublished paper (March 2014).

30 Details of the deals were not published but most likely took place on the basis of natural gas swap arrangements with E.ON and/or Gazprom.

31 "Lukoil, Good Promise, Tangible Progress", Gazprombank, 14 February 2013, 1, [http://www.gazprombank.ru/upload/iblock/b3d/gpb\\_lukoil\\_feb13.pdf](http://www.gazprombank.ru/upload/iblock/b3d/gpb_lukoil_feb13.pdf) (accessed 21 July 2015).

company Transneft transports about 90 per cent of the oil extracted in Russia and also handles the majority of Russian oil exports; 100 per cent of the voting shares are state-owned.<sup>32</sup> Inter RAO UES is the major electricity producer in Russia, in which the state-owned Rosneftegaz Group holds 27.6 per cent of the shares. Sechin is head of the board of directors.

In general, foreign access to the Russian hydrocarbon sector has been strictly limited by law. Western partners of Rosneft are ExxonMobil (United States), ENI (Italy), Statoil (Norway), INPEX (Japan), China National Petroleum Corporation (CNPC) and Sinopec (China), and also ONGC (India). BP holds a 19.75 per cent share in Rosneft. Gazprom's partners are BASF Wintershall, E.ON, Shell and ENI. Novatek's partners encompass Total and China National Petroleum Corporation.<sup>33</sup> Three production-sharing agreements exist: Sakhalin-1 (Exxon, ONGC) and -2 (Shell) and Kharyaga (Total and Statoil).

As a consequence of this strong interwoven web of energy companies and the political elite, Russian energy politics are opaque and driven by particular interests. Without doubt, the Kremlin has the final say in the strategic sector. The Presidential Commission, headed by Sechin, is viewed as an influential body. The government of Dmitry Medvedev and the Minister of Energy, Alexander Novak, seemed to have lost ground. The recently merged Antimonopoly Service and the Federal Service on Tariffs are involved, too. That said, the reforms of natural monopolies remains a highly contested issue.

## Western Sanctions and the Russian Energy Sector

This topography of Russian energy elites and their ties to the Kremlin are reflected by Western sanctions, which have been tailored to companies and key members of the elite. The EU imposed sanctions in September 2014 that are targeted at Russian shale oil and

deep-water Arctic offshore oil development.<sup>34</sup> Specific equipment may no longer be exported. Sanctions on the financial sector target Rosneft, Transneft and Gazprom Neft, which are prevented from raising long-term funds from European capital markets. As major Russian banks are also on the list, refinancing is getting more complicated for the whole energy sector. The EU sanctions were extended in June 2015 till January 31, 2016. The United States is listing Rosneft, Lukoil, Gazprom and Surgutneftegaz. Timchenko, co-owner of Novatek, and Igor Sechin, head of Rosneft, are on the US list.<sup>35</sup>

Russia reacted to Western sanctions with counter-sanctions, which reinforced the isolationist economic and autocratic political course by cutting imports. Moreover, the rouble's devaluation made Russian goods more competitive.<sup>36</sup> Russia still has a relatively low state debt of 12 per cent of GDP, a fiscal buffer of US\$150 billion and large foreign exchange reserves of US\$350 billion to cushion the effects from the sanctions and low oil prices, but these reserves as well as the reserve fund will dwindle.<sup>37</sup> There are good reasons to believe that the financial sanctions have strengthened the political leverage of the Kremlin vis-à-vis the companies, because the Russian government announced that sovereign wealth funds will be used to bail out (energy) companies hard-hit by sanctions. Refinancing and debt payments are becoming critical for many companies – first and foremost for Rosneft.

Russia has two funds to cushion itself from sanctions and low oil prices – the Reserve Fund and the National Wealth Fund – but these reserves are shrinking very quickly. After being subjected to Western sanctions, Rosneft, GazpromNeft and Novatek asked for financial support from the National Wealth Fund. Yet, a fourth of this fund is held in illiquid assets, and another part is allocated for infrastructure. Most importantly, though, it is technically part of the pension system. Rosneft originally requested US\$50 billion from the National Wealth Fund, then scaled it back to

<sup>32</sup> Transneft, <http://www.en.transneft.ru/about/> (accessed 22 July 2015).

<sup>33</sup> Galina Starinskaya, "Inostrancy' ostanutsya. Inostranny'e neftegazovy'e kompanii poka ne sobirayutsya otkazyvat'sya ot raboty' v Rossii nesmotrya na risk vvedeniya protivstrany' mezh-dunarodny'x sankcij" ["Foreigners Will Stay. Foreign Oil and Gas Companies Are Not Yet Going to Stop Working in Russia Despite the Risk of International Sanctions"], *Vedomosti.ru*, 6 March 2014, <http://www.vedomosti.ru/companies/news/23661921/inostrancy-ostanutsya> (accessed 15 December 2014).

<sup>34</sup> See in more detail: Peter Rutland, "The Impact of Sanctions on Russia", *Russian Analytical Digest*, no. 175 (17 December 2014), 2–7.

<sup>35</sup> "Ukraine Crisis: Russia and Sanctions", BBC, 19 December 2014, <http://www.bbc.com/news/world-europe-26672800> (accessed 11 August 2015).

<sup>36</sup> Rutland, "The Impact of Sanctions" (see note 34), 5.

<sup>37</sup> Daria Orlova, "Russland: Inlandsnachfrage in Krisenstim-mung", in DekaBank, *Makro Research, Emerging Market Trends* (10 April 2015): 4; and Daria Orlova, "Russland: Zentralbank in der Zwickmühle", in DekaBank, *Makro Research, Emerging Market Trends* (15 September 2015): 4.



US\$21.3 billion. In August 2015 President Putin decided not to give any money to Rosneft unless a feasible payoff plan in light of oil prices of US\$40–\$45 per barrel could be presented.<sup>38</sup> The rouble's devaluation has led to a revaluation of Rosneft's debt and resulted in financial losses: Net profits decreased by 35 per cent and debts increased by 35 per cent in 2014 compared to 2013.<sup>39</sup> Gazprom, the leading gas company, has applied for US\$3.2 billion for its oil subsidiary, Gazprom Neft.<sup>40</sup> Novatek got an approval for US\$3 billion from the National Wealth Fund.<sup>41</sup>

Last but not least, the situation of sanctions and counter-sanctions increases insecurity for joint ventures by Russian and foreign companies – in Russia, but also in the West. Two laws are currently in the Russian Duma: The “Rotenberg law”, which promises compensation to Russian citizens whose assets are frozen by foreign governments, eventually through seizing foreign assets;<sup>42</sup> and the law abolishing the jurisdictional immunity of foreign governments.<sup>43</sup>

Against this background, Russian natural gas, oil and electricity policies are analysed in the following chapters in order to identify the political and economic motivations, interests and dynamics behind them and whether and how they respond to global market changes, demand uncertainty and/or geopolitics.

38 “Vladimir Putin ne dast deneg “Rosnefti” [“Vladimir Putin Will Not Give Money to Rosneft”], *Vedomosti.ru*, 5 August 2015, <http://www.vedomosti.ru/business/articles/2015/08/06/603694-rosnefti> (accessed 20 August 2015).

39 “Konsolidirovannaya finansovaya otchetnost’ OAO ‘NK Rosneft’ 31 dekabrya 2014 [“Consolidated Financial Statement of ‘Rosneft’ for 2014”], [http://www.rosneft.ru/attach/0/12/99/Rosneft\\_FS\\_2014\\_RUS.pdf](http://www.rosneft.ru/attach/0/12/99/Rosneft_FS_2014_RUS.pdf) (accessed 20 August 2015).

40 Andrew E. Kramer, “Russia’s Well for Corporate Bailouts Appears to Be Running Dry”, *New York Times*, 10 March 2015, <http://www.nytimes.com/2015/03/10/business/dealbook/in-russia-the-well-for-corporate-bailouts-might-run-dry.html> (accessed 22 October 2015).

41 “ME’R odobril vy’dachu 150 mlrd rublej NOVATE’Ku iz FNB” [“Ministry for Economic Development Approved 150 Billion Roubles from the National Wealth Fund for Novatek”], *Kommersant.ru*, 10 December 2014, <http://www.kommersant.ru/doc/2630006> (accessed 21 August 2015).

42 “V Gosdumevnov’ otlozhili vtoroe chtenie ‘zakona Rotenberga’” [“Duma Has Again Postponed the Second Reading of the ‘Rotenberg’ Law”], *forbes.ru*, 11 February 2015, <http://www.forbes.ru/news/280067-v-gosdume-vnov-otlozhili-vtoroe-chenie-zakona-rotenberga> (accessed 30 September 2015).

43 “Gosduma obsudit yurisdikcionnij immunitet Rossii” [“Duma Will Discuss Jurisdictional Immunity in Russia”], *Regnum*, 24 September 2015, <http://www.regnum.ru/news/polit/1977735.html> (accessed 30 September 2015).

# At the Core: Natural Gas

## German/EU-Russian Gas Relations – Figures and Facts

Germany and the EU face a persisting oligopoly of pipeline-based natural gas suppliers. Russia is the major supplier to the EU. The absolute import volumes have levelled-off during the past decade (see Figure 1). The share of imports from Russia has been fluctuating also due to alternative LNG supplies, though (see Figure 2). The three major suppliers – Norway, Russia and Algeria – are increasingly facing (potential) competition due to liquefied natural gas (LNG) volumes. This has already helped EU customers negotiate better conditions in their contracts, even though diversification is taking place at the margins. This is particularly true for Germany.

The implementation of the internal market has increased competition, for example inside Germany, but the oligopoly of suppliers basically has persisted due to the German pipeline-based import structure: Germany's top supplier remains Russia (Gazprom) (see Figures 3 and 4), followed by Norway (mostly Statoil), the Netherlands (mostly Gasserra), domestic producers and other countries. The EU's supplies are also 86 per cent pipeline-bound and 14 per cent in LNG (figures for 2013).<sup>44</sup>

Beyond the quantity of trade flows, the quality of the close commercial ties between Russian and (Western) European companies has been remarkable. The German-Russian relationship certainly has been the most far-reaching one for Western Europe: In the 1990s and 2000s, bilateral German-Russian institutions were dominated by the paradigm of “interdependence”, which translated into a business model of ever-closer cooperation along the entire transnational natural gas value-chain through asset swaps and quid-pro-quo deals. The most prominent package deal included the building of the Nord Stream pipeline through the Baltic Sea. In parallel, Germany's BASF Wintershall and E.ON Ruhrgas became involved in gas and gas-condensate production in western Siberia, whereas

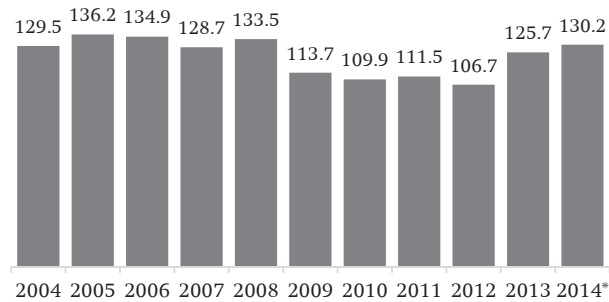
Gazprom expanded its transport, trading and distribution activities in Germany. For a while, Ruhrgas was Gazprom's largest foreign shareholder, with 6.5 per cent. However, Ruhrgas – and later E.ON Ruhrgas – refused to sell strategic parts of the business to Russia, despite several attempts by Russia. BASF Wintershall entered into a close alliance with Gazprom. For Germany as well as other Western companies, this strategy created an inroad into the Russian upstream sector.

## EU-Russian Gas Relations in Transition

Bilateral gas relations have seen the most dramatic change, even before the crisis in Ukraine broke out. Prior to the Internal Market Packages in the EU, the institutional setting “bridged” and connected two markets with a differing internal market structure. It was designed for the long-term and based on a bilateral political and commercial consensus. The cooperation between the Soviet Union/Russia and Western Europe built on: 1) complementary economic structures, as well as interests; 2) matching market structures and 3) corresponding business models.<sup>45</sup> Complementarity was created through the fact that the Soviet Union aimed to further develop its hydrocarbon sector and energy infrastructure. Western European energy consumers such as Germany aimed for diversification against the backdrop of the oil crisis in the 1970s. The market structures matched perfectly: an importing company received gas at the border from a producing company. Subsequently, the business model was based on long-term, oil-indexed delivery contracts, with terms of 20, 25 or 30 years, including a minimum take-or-pay obligation to purchase at least 75 to 85 per cent of the named quantity. These obligations represented a counterweight to the supplier's duty to maintain the necessary level of production. In that sense, the business model allowed the two parties to balance the price and quantity risks: The producer bore the price risk, whereas the importer bore the risk of failing to sell the full quantity. The contracts

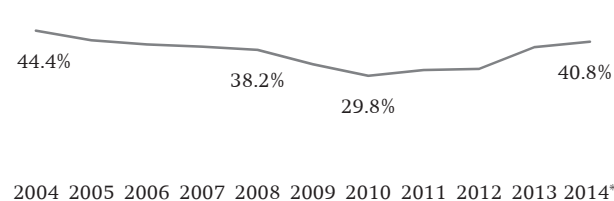
<sup>44</sup> Eurogas, *Statistical Report 2014* (Brussels: 2014), 7, [http://www.eurogas.org/uploads/media/Eurogas\\_Statistical\\_Report\\_2014.pdf](http://www.eurogas.org/uploads/media/Eurogas_Statistical_Report_2014.pdf) (accessed 22 October 2015).

<sup>45</sup> See in more detail: Westphal, “Institutional Change in European Natural Gas Markets” (see note 3).

**Figure 1****EU-28: Natural gas imports from Russia (in bcm)**

Source: Eurostat.

\* European Commission, *Quarterly Report on European Gas Markets. Market Observatory for Energy*, DG Energy, vol. 8 (issue 1, first quarter of 2015), Brussels 2015, S. 9, [https://ec.europa.eu/energy/sites/ener/files/documents/quarterly\\_report\\_on\\_european\\_gas\\_markets\\_q1\\_2015.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/quarterly_report_on_european_gas_markets_q1_2015.pdf).

**Figure 2****EU-28: Share of total natural gas imports from Russia (in % of extra EU-28 imports)**

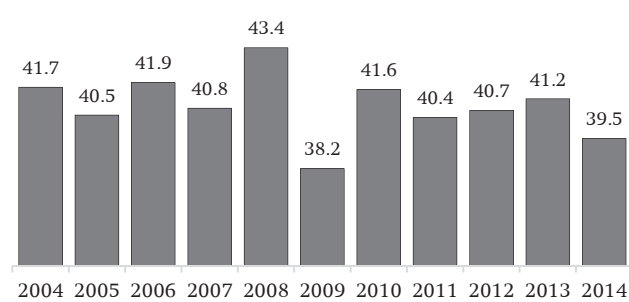
Source: Eurostat.

\* European Commission, *Quarterly Report on European Gas Markets. Market Observatory for Energy*, DG Energy, vol. 8 (issue 1, first quarter of 2015), Brussels 2015, S. 9, [https://ec.europa.eu/energy/sites/ener/files/documents/quarterly\\_report\\_on\\_european\\_gas\\_markets\\_q1\\_2015.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/quarterly_report_on_european_gas_markets_q1_2015.pdf).

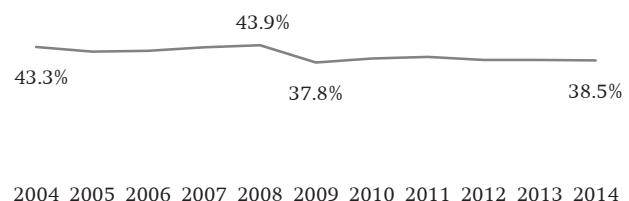
included provisions for adapting prices to changing market conditions at regular intervals. “Demarcation” at the border was clear; gas was delivered to the “flange”<sup>46</sup> at the border. The market and contract structures, as well as the business model, were designed to serve both ends of the pipeline and provided the basis for long-term, stable relations.

In the 1990s bilateral German-Russian institutions were dominated by the paradigm of “interdependence”, which translated into a business model of ever-closer alliances along the entire transnational natural gas value-chain. Demarcation at the border was blurred as a result of asset swaps and quid-pro-quo deals. These

<sup>46</sup> The flange is a technical installation connecting two pipes; it implies the delivery point right at the border.

**Figure 3****Germany: Natural gas imports from Russia (in bcm)**

Source: Bundesamt für Wirtschaft und Ausfuhrkontrolle.

**Figure 4****Germany: Share of total natural gas imports from Russia (in %)**

Source: Bundesamt für Wirtschaft und Ausfuhrkontrolle.

deals contradicted the EU’s objective of liberalised and competitive gas markets.

Since 1998, the EU has been going through a sensitive transition that has affected policies, market structures, companies and commercial transactions as part of the Internal Market Packages. When the EU Commission started to revise long-term delivery contracts and to bring an end to “bundled” business models with the Internal Market Packages of 2003 and 2009, the market structures and business models changed fundamentally. In particular the Third Energy Package to implement a really competitive, functioning and integrated EU market for electricity and natural gas has changed consecutive bilateral energy relations on many levels.



Russia has always been very clear about its historical preference for the traditional organisation of the gas market, fitting with its market order. Moreover, the business cases and economics, for example for Gazprom's infrastructure projects Nord Stream and South Stream, changed under the Third Energy Package. Russia raised concerns that with the full operation of network codes (2015–2016) under the third package, a contractual mismatch of transmission and long-term contracts, a potential loss of capacity, and the problem of booking additional capacity may hamper its gas trade.<sup>47</sup> Gazprom has also profited from the changes, though. Gazprom still supplies European companies under (revised) long-term contracts, which lock-in 110–160 billion cubic metres per year (bcm/y) of EU demand,<sup>48</sup> but it has also started to trade on a spot-market basis, in particular through its subsidiary in London, Gazprom Marketing and Trading. Moreover, it has expanded downstream in the former intermediary segment, in storage, and downstream marketing and trading in EU markets. Gazprom's cumulative investment till 2014 was US\$6.51 billion, 39 per cent of which was invested in Germany (US\$2.53 billion).<sup>49</sup>

### Contentious Issues in the Bilateral Relationship

The EU-Russian gas relationship is beset by contentious issues that had accrued by 2013/2014, which began even before the crisis in and around Ukraine. These issues centre on pipelines and the future of Ukrainian gas transit; EU regulation under the Third Energy Package; as well as Gazprom's dominance in Eastern European markets, culminating in the Anti-trust Case of the EU Commission against Gazprom.

<sup>47</sup> Katja Yafimava, *The EU Third Package for Gas and the Gas Target Model: Major Contentious Issues Inside and Outside the EU*, OIES Paper: NG 75 (Oxford: Oxford Institute for Energy Studies [OIES], April 2013), and Jonathan Stern, *The Role of Russia in European Gas Supply*, Presentation at E-World Conference (Essen, 12 February 2014).

<sup>48</sup> "Gazovyj ry'nok Evropy: utrachenny'e illyuzii i robkie nadezhdy" ["European Gas Market: Lost Illusions and Diffident Hopes"], ed. V. A. Kulagin and T. A. Mitrova, NRU HSE and ERI RAS (Moscow: National Research University, Higher School of Economics and Energy Research Institute of Russian Academy of Sciences, 2015), 71.

<sup>49</sup> Eurasian Development Bank (Evrazijskij Bank Razvitija), "Monitoring pryamy'kh investitsij Rossii, Belarusi, Kazakhstana i Ukrainy v stranax Evrazii" ["Monitoring of Foreign Direct Investment of Russia, Belarus, Kazakhstan and Ukraine to the Countries of Eurasia"] Doklad 28 (St. Petersburg: 2014), 28, <http://bit.ly/1HCg4B7>.

**Table 1**

#### Export pipelines from Russia to Germany and the North-West European gas market

| Transmission system               | Output capacity to European countries | Actual imports of EU and Turkey (2014) |
|-----------------------------------|---------------------------------------|--|
| Ukrainian gas Transmission system | approx. 120                           | 57.2                                   |
| Yamal-Europe                      | 34                                    | 36.6                                   |
| Nord Stream                       | 55                                    | 33.9                                   |

Source: Miguel Martinez, Martin Paletar, and Harald Hecking, *The 2014 Ukrainian Crisis: Europe's Increased Security Position. Natural Gas Network Assessment and Scenario Simulations* (Cologne: Institute of Energy Economics at the University of Cologne, 2015), 20, and Andreas Heinrich, "Introduction: Export Pipelines in Eurasia", in *Export Pipelines from the CIS Region: Geopolitics, Securitization and Political Decision-Making*, ed. Andreas Heinrich and Heiko Pleines (Stuttgart: ibidem-Verlag, 2014): 1–73, and *Russland-Analysen* no. 303 (23 October 2015): 9.

As Table 1 shows, Russia exports natural gas to Europe via four existing pipelines: 1) the Ukrainian Gas Transmission System; 2) the Yamal Pipeline through Belarus and Poland; 3) the Nord Stream pipeline through the Baltic Sea directly into Germany; and 4) the Blue Stream pipeline via Turkey with a capacity of 16 bcm/y. Pipeline connections can supply Finland and the Baltics with 5 bcm/y.

A major contentious political issue centres on the future of Ukrainian gas transit. The Kremlin and Gazprom have had a clear preference for reducing the transit volume levels through Ukraine and building direct links into the EU market. This objective has become more pronounced following the Russian-Ukrainian gas disputes in 2006 and 2009. In 2014 Russia vowed to end transit of Russian gas in 2019. The EU member states' positions were split over the transit issue, but supplies to Ukraine became a solidarity issue after the crisis with Russia unfolded. The EU Commission wants to maintain transit through the country. Through that lens, proposed pipeline projects are being judged by the EU Commission. Moreover, EU regulation has impacts on pipelines in the EU market, in the coastal and exclusive economic zones of EU waters, and in the Energy Community of western Balkan States, Ukraine, Moldova and Georgia.

Nord Stream's full capacity is unused because of the restriction on the OPAL pipeline, the pipeline link jointly owned by Gazprom and Wintershall that connects Greifswald (where Nord Stream lands onshore) to the Czech border. The pipeline has a capacity of 36 bcm/y,

but only half of the capacity can be used solely by Gazprom for 22 years, based on a partial exemption of 2009. The Commission's decision of 2009<sup>50</sup> stipulated that the pipeline improves the security of supply but not competition, so if Gazprom wanted to use more than half the Czech border capacity, it would have to carry out a gas-release programme of 3 bcm/y. Gazprom did not implement this. In October 2013 the German regulatory authority, the Bundesnetzagentur, OPAL Gastransport and Gazprom achieved a compromise in which Gazprom would offer the other 50 per cent of capacity on the gas-capacity auction platform PRISMA. Gazprom would also have the right to bid.<sup>51</sup> Other supplies imported via Nord Stream are transported further by the Norddeutsche Erdgasleitung with a capacity of 20 bcm/y. This pipeline is fully regulated.

The other contentious issue was the building of a new pipeline from the Russian port Anapa through the Black Sea to Austria/Italy. With the experience of OPAL in mind, Gazprom did not apply for an exemption but instead concluded a series of Intergovernmental Agreements with EU member states. This was perceived by the Commission as breaking EU law, and it exerted pressure on the respective member states. In summer 2014 Bulgaria stopped construction. Moreover, on April 30, 2014, Russia requested consultations with the European Union and its member states regarding measures relating to the energy sector through the "Third Energy Package" Directives, Regulations, implementing legislation and decisions at the World Trade Organization.<sup>52</sup> The process is underway with the establishment of a panel. The application of the existing regulation to South Stream is somewhat inconsistent, as the Third Energy Package does not contain any provisions for new infrastructure. The Commission argued only in the spirit of the law.<sup>53</sup>

<sup>50</sup> Kommission der Europäischen Gemeinschaften, *Betreff: Ausnahmegenehmigung der Bundesnetzagentur für die OPAL-Gasleitung gemäß Art. 22 der Richtlinie 2003/55, K(2009) 4694*, 12 June 2009, 9 and 22.

<sup>51</sup> "German OPAL Gas Capacity to Be Sold on PRISMA if EC Agrees: BNetzA", *Platts*, 4 February 2014, <http://www.platts.com/latest-news/natural-gas/brussels/german-opal-gas-capacity-to-be-sold-onprisma-26680357> (accessed 23 July 2015).

<sup>52</sup> World Trade Organization (WTO), *Dispute Settlement: Dispute DS476. European Union and Its Member States – Certain Measures Relating to the Energy Sector*, 30 April 2014, [http://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds476\\_e.htm](http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds476_e.htm) (accessed 18 December 2014).

<sup>53</sup> Jonathan Stern, Simon Pirani and Katja Yafimava, *Does the Cancellation of South Stream Signal a Fundamental Reorientation of Russian Gas Export Policy?*, Oxford Energy Comment (Oxford: Oxford Institute for Energy Studies, January 2015), 3/4, <http://www.oxfordenergy.org/2015/01/cancellation-south-stream-signal-fundamental-reorientation-russian-gas-export-policy/> (accessed 22 October 2015).

The Antitrust Case of Directorate General Competition, launched on September 4, 2012, has three major allegations: 1) destination clauses, 2) denial or limits on Third Party Access and 3) allegation of unfair pricing.<sup>54</sup> The probe was launched a year after a number of offices of Gazprom and other energy companies had been searched.

What adds to the complicated picture is that future EU gas demand is highly uncertain and has recently levelled-off in the EU-28. A rebound is very uncertain, as it depends on the overall energy mix, the share of renewable energy and even more importantly, coal and the price difference between coal and gas. Moreover, the image of natural gas is being affected negatively by the crisis in and around Ukraine. Nevertheless, natural gas trade-relations remain at the core of bilateral energy relations. From a German and EU perspective, the following issues and questions are of particular interest:

- 1) How is Russian gas production developing – on the federal and the regional scale? How is Gazprom's role and position in the Russian gas market developing vis-à-vis "independent" gas producers? How is Gazprom's room for manoeuvre transforming vis-à-vis the Kremlin?
- 2) For a long time, the transport and export monopoly of Gazprom has been (perceived as) a major obstacle to market convergence with the EU. Even if harmonisation seems a far cry from realisation in 2015, liberalisation of the Russian gas market could disburden future gas relations. Will we see further structural reforms on the domestic gas market? Will there be liberalisation of and competition for non-Gazprom companies, which could be perceived as a major step forward to theoretically facilitate EU-Russian gas trade, transport and investment?
- 3) Given the fact that Russia is the largest gas supplier to the EU, any change in Russian export strategies will greatly affect secure, stable and affordable gas supply to Europe. How are foreign energy policies developing? How does this affect future export pipeline projects as well as existing transit corridors from Russia?

<sup>54</sup> Alan Riley, *Commission v. Gazprom: The Antitrust Clash of the Decade?*, CEPS Policy Brief, no. 285 (Brussels: Centre for European Policy Studies, 31 October 2012), 8–10. <http://www.ceps.eu/publications/commission-v-gazprom-antitrust-clash-decade> (accessed 22 October 2015).

**Table 2**  
**Gas production in Russia by company (bcm/y)(selected)**

|         | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  |
|---------|-------|-------|-------|-------|-------|-------|
| Gazprom | 461.5 | 508.6 | 513.2 | 487.0 | 487.4 | 443.9 |
| Novatek | 32.8  | 37.3  | 52.9  | 56.5  | 61.2  | 62.1  |
| Rosneft | 12.6  | 12.3  | 12.8  | 16.4  | 38.2  | 56.7  |
| Lukoil  | 14.8  | 18.5  | 18.6  | 19.9  | 20.4  | 20.0  |

Source: Annual reports of Novatek, Rosneft, Gazprom.

These issues have to be considered against the crisis in Ukraine. The question is whether the current deterioration will have a short-term effect or whether this determines long-term developments in trade, transport and investment relations.

## Natural Gas Production in Russia

Three trends can be identified that impact on the Russian gas matrix in the short- to midterm. First, Gazprom is still the major gas-producing company in Russia, but other non-Gazprom producers are catching up. While the Russian gas behemoth experiences a decline in production, the so-called independents (read: non-Gazprom producers) are increasing their output (see Table 2). Second, production is also expanding in eastern Siberia and the Far East. In parallel to Gazprom's gasification programme of Russia's east, LNG and pipeline export projects reinforce this shift to the east. Third, Gazprom has surplus production capacity of about 100 bcm/y (more than e.g. annual demand in Germany) in western Siberia and the Yamal Peninsula, which is connected to the pipelines to Europe.

Presently, the bulk of production still stems from the western Siberian gas fields owned by Gazprom. These supergiant gas fields display depletion rates of 76–79 per cent in the case of Medvejye and Yamburgskoye, and 54 per cent in the case of Urengoy field.<sup>55</sup> Thus, the Russian gas sector is entering a new stage. Yet, Russia has plenty of reserves, and a new phase of exploration and exploitation has already started. With regard to the future, production costs are rising as the maturing supergiant gas fields have to be replaced gradually by new fields under more difficult geographic,

climatic or geological conditions. Smaller newer fields have to be put on-stream, and infrastructure has to be built. There are geological, geographical and technical choices ahead for Russia: Which kinds of fields? And where to tap into? The decisions will be influenced by domestic developments, the tax regime, the low-cost development of brown and green fields, and export strategies. Many of the new fields are in the hands of non-Gazprom oil and gas producers that have received tax breaks, though they do not have automatic access to the UGSS, operated by Gazprom.

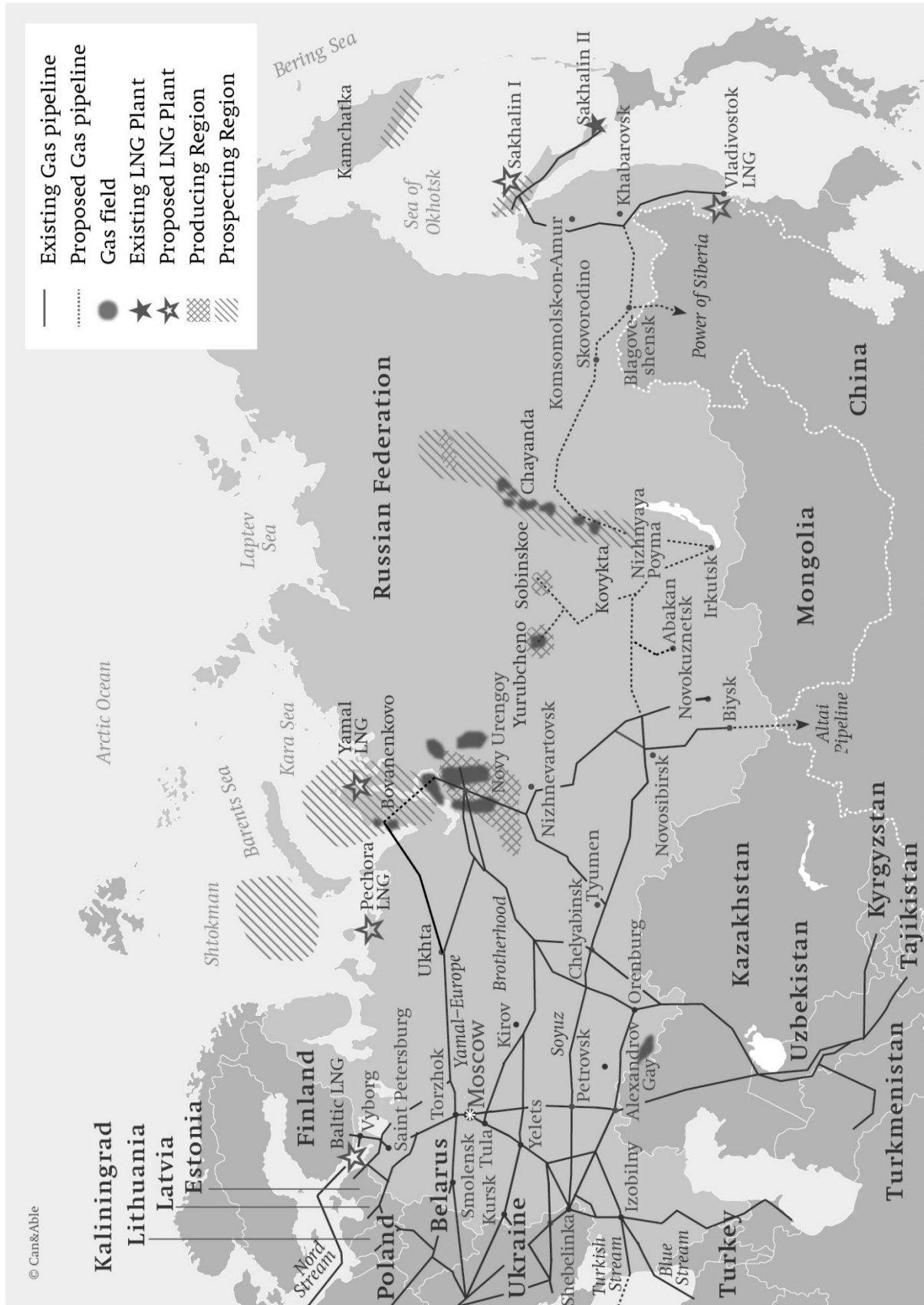
The Kremlin has increasingly pushed for competition to increase production but also to put pressure on Gazprom to increase effectiveness and flexibility. This also helps to reduce informational asymmetry, as Gazprom has long been seen as a state within a state. The mineral extraction tax for independent gas producers is lower than for Gazprom: US\$8 against US\$10.9 for 1,000 cubic metres in 2015.<sup>56</sup> As a result, it has proved difficult for Gazprom to compete for example with Novatek, which can offer significantly lower prices and additional incentives in terms of payments and supplies.

Table 2 illustrates that Gazprom's production has decreased, whereas non-Gazprom producers have increased their volumes. Thus, due to the rising number of independent gas producers, Gazprom's relative share of the domestic market has continues to decline and is now below 70 per cent, with overall Russian gas production measuring 639.2 bcm in 2014. Gazprom's investments peaked in 2011–2012. It is evident, that its actual production corresponds to demand, and demand has been decreasing in all of Gazprom's major markets: the domestic market, the EU and Ukraine.

<sup>55</sup> "Prognoz razvitiya e'nergetiki mira i Rossii do 2040 goda" ["Projections of International and Russian Energy Development up to 2040"], ed. Institut Energeticheskikh Issledovaniy Rossiskoj Akademii Nauk (ERIRAS) (Moscow, 2014), 135, [http://www.eriras.ru/files/forecast\\_2040.pdf](http://www.eriras.ru/files/forecast_2040.pdf) (accessed 15 December 2014).

<sup>56</sup> "Nalog na doby'chu polezny'kh iskopaemy'kh (NDPI)" ["Mineral Extraction Tax"] (Federal Tax Service of Russia, 2015), <http://www.nalog.ru/rn77/taxation/taxes/ndpi/> (accessed 7 September 2015).

Map 1: Operating and planned gas pipelines and LNG projects in Russia



**Table 3**  
**Natural gas sales on the domestic market by company (bcm/y)**

|         | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  |
|---------|-------|-------|-------|-------|-------|-------|
| Gazprom | 262.6 | 262.1 | 265.3 | 249.7 | 228.1 | 217.2 |
| Novatek | 32.9  | 37.1  | 53.7  | 58.9  | 64.2  | 67.2  |
| Rosneft | n/a   | 9.8   | 9.7   | 11.1  | 39.1  | 56.5  |

Source: Annual reports of Novatek, Rosneft, Gazprom.

Growth in demand is only happening in Turkey. Gazprom is still less profitable on the domestic market, and it is depending on export sales to boost its revenues and cash flows.

For Gazprom, the development of the new gas reserve base on the Yamal peninsula has led to a surplus capacity of 100 bcm/y, which adds to the complicated business environment of the Russian natural gas behemoth. As stated above, Gazprom has the capacities to increase production because it has put the Bovanenkovskoye gas field (Yamal) into operation: In 2013, it produced 46.3 bcm, but total annual capacity is projected at 115 bcm. Gazprom is long in western Siberian gas due to declining domestic demand, rising supply levels by non-Gazprom producers and its capacity to increase gas production. Gazprom's entire Russian production could be increased up to 550–600 bcm due to putting the Bovanenkovskoye and Kirinskoye gas fields into operation. The latter gas field is part of the Far Eastern Sakhalin III project and has a planned annual capacity of 5.5 bcm. This project also includes the Yuzhno-Kirinskoye and Mynginskoye fields. The former was subjected to US sanctions in August 2015 because this offshore field contains oil, too.<sup>57</sup> Due to overcapacity, Gazprom decreased investment levels in exploration and exploitation by 41 per cent in the first quarter of 2015 and increased investments in infrastructure.

### Domestic change: Increasing competition and declining demand

The domestic market is becoming increasingly difficult for Gazprom because of rising competition with other producers and declining demand. The share

of independents supplying the Russian market has increased from 6 per cent in 1996 to 32.4 per cent in 2014 (see Table 3). Thus, in 2014 Gazprom's gas supplies to the internal market decreased considerably (see Table 3). At the same time, the current situation on the Russian domestic gas market is characterised by falling gas consumption: In 2014 it accounted for 441.6 bcm, which is 3.3 per cent less than in 2013.<sup>58</sup>

The decline in domestic gas consumption is explained by the drop in production in the industrial sector (e.g. the steel industry) and reduced power generation by thermal power plants. A significant portion of natural gas is consumed in the residential and municipal sector (50–60 bcm/y) compared to 65–70 bcm/y in the industrial sector and 260 bcm/y in the power and district heating sector.<sup>59</sup>

The domestic gas market in Russia is a dual market: In general, all prices for private households are regulated. All industrial consumers – and most of all electricity producers – have access to the wholesale market. As the quasi monopolist, Gazprom has to sell gas at regulated prices to these customers, while all other producers can offer price discounts. This is the reason why the so-called independent gas producers have successfully increased their market shares.

Since the 1990s, it has been a frequent plea by the West (voiced by the World Bank, the IMF and the EU among others) to raise Russian domestic gas prices to a net-back level.<sup>60</sup> And indeed, prices rose 15–25 per cent per annum until 2012.<sup>61</sup> When the Russian economy

<sup>57</sup> *Federal Register* 80, no. 152 (Friday, 7 August 2015), *Rules and Regulations*, pp. 47402–47405; from the Federal Register Online via the Government Publishing Office, <http://www.gpo.gov>, FR doc no. 2015–19274, <http://www.gpo.gov/fdsys/pkg/FR-2015-08-07/pdf/2015-19274.pdf> (accessed 24 September 2015).

<sup>58</sup> “Neftegazovaya i neftepererabatyvayushhaya promyshlennost: tendentsi i prognozy” [“Oil and Gas Recovery and Refinery: Trends and Prospects”], ed. RIA (Moscow, 2015), 41.

<sup>59</sup> Simon Pirani, *Consumers As Players in the Russian Gas Sector*, OIES Working Papers (Oxford: OIES, January 2013), 13.

<sup>60</sup> Net-back level means export revenues generated at a market-place minus all costs to get the gas to the (export) market.

<sup>61</sup> “Russian Gas: Domestic Market Blues”, *Natural Gas Europe*, 14 July 2014, <http://www.naturalgaseurope.com/russian-gas-market-tatiana-mitrova> (accessed 23 July 2015). See also: Catherine Locatelli, *The Russian Gas Industry: Challenges to the “Gazprom Model”*,



formally stagnated – and in the face of social protests in 2011 and 2012 after the (re)elections of the Duma and President Putin – the initial goal to achieve parity with the European net-back price was abandoned. The range for domestic gas prices in 2014<sup>62</sup> was approximately US\$2.77 per million British thermal units (mbtu) for companies and US\$2.22 for individuals.<sup>63</sup>

Novatek and Rosneft managed to sell more gas to large industrial customers because 40 per cent of Gazprom's contracts expired in 2012–2013 and the two stepped in as alternate suppliers. If the sales trend continues,<sup>64</sup> then Novatek's and Rosneft's plans to increase their own annual gas production to 112 bcm and to 100 bcm by 2020 will have been achieved.

Thus, Rosneft and Novatek – both of which have strong ties to the Kremlin – are putting Gazprom under increasing levels of pressure. At the heart of the fierce competition are access to the UGSS<sup>65</sup> and the right to export natural gas. Gazprom (still) holds the monopoly on gas transport, underground storage and pipeline exports. The analysis shows that Gazprom is under pressure on both the internal and external markets.

Cahier de recherche EDDEN no. 7/2013 (Grenoble: Economie du développement durable et de l'énergie, June 2013), 8.

<sup>62</sup> Average gas price for companies and individuals in roubles increased in 2014 compared to 2013, but decreased in US\$ due to rouble devaluation.

<sup>63</sup> In 2014, gas prices for companies in Russia accounted for US\$98 for a thousand cubic metres and US\$78.4 for individuals. In the United States for the same period, gas prices accounted for US\$194 and US\$466.6, respectively. "Sila v razvitii: Gazprom v tsy'frakh 2010–2014" ["Power in Development: Gazprom in numbers 2010–2014"], Gazprom, 84, <http://www.gazprom.ru/f/posts/00/302817/gazprom-in-figures-2010-2014-ru.pdf> (accessed 27 November 2015).

<sup>64</sup> Thus, for example, E.ON Russia and Fortum concluded a 15-year contract with NOVATEK, which will supply companies with 180 bcm. Novatek also became an exclusive gas supplier for Ural-kaliy, a producer of fertilisers, and signed a contract with Mos-energo to supply 27 bcm of gas in 2013–2015. "NOVATEK postavit 'E.ON Rossiya' gazna 702 mlrd rub. do 2027 g." ["Novatek Will Supply E.ON Russia with Gas on 702 Billion Rouble up to 2027"], *Oilcapital.ru*, 28 February 2012, <http://www.oilcapital.ru/company/173858.html> (accessed 15 December 2014).

<sup>65</sup> Gazprom has the exclusive right to manage the UGSS, but third-party access has been established since 1997. Yet, Gazprom instrumentalised all the information about congestion and capacity rates to largely refuse it. The UGSS served as the major tool for Gazprom to concentrate strategic resources (information about the sector and finances) in the headquarters of Gazprom. In 2009, then-Prime Minister Putin gave better "third-party access": Gazprom has to provide other gas producers with gas transmission services if there is spare capacity on a non-discriminatory basis. Third parties can appeal to the Federal Antimonopoly Service or court.

The fact that the domestic Russian gas market is undergoing structural changes has significant impacts on Gazprom's entire sales strategy. Gazprom is now under pressure because of higher taxes, stagnant domestic prices as well as decreasing export revenues and long-term oil-indexed contracts being scrutinized. A breakdown of Gazprom revenues in 2013 shows that power generation accounted for 7 per cent, domestic gas sales for 15 per cent, the sale of liquids for 30 per cent, European gas sales for 32 per cent and gas sales to the former Soviet Union for 10 per cent of total company revenues (plus 6 per cent miscellaneous).<sup>66</sup> This affects Gazprom's strategy to balance and trade-off between the domestic and European markets as well as the market for the Commonwealth of Independent States.

One strategy is to increase its activities in the electricity sector; another is a fuel switch from gasoline to natural gas in (public) transport. Gazprom is the main lobby for that change, and the decision on promoting the use of natural gas in vehicles throughout the country was made for (the sake of) Gazprom.<sup>67</sup> A number of political steps have been taken to support natural gas as a fuel in transport.<sup>68</sup>

## Shifting Export Strategies and LNG Export Liberalisation in 2013

It should come as no surprise that the Russian government has given priority to LNG exports and liberalised them at the end of 2013. This move was a logical re-

<sup>66</sup> Ralf Dickel et al., *Reducing European Dependence on Russian Gas*, OIES Paper 92 (Oxford: OIES, October 2014), 57, <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/10/NG-92.pdf> (accessed 15 December 2014).

<sup>67</sup> For Gazprom this is an opportunity to increase the number of domestic gas consumers and increase its revenues. If established goals to shift 50 per cent of public transport to gas are achieved, the share of gas-engine business will account for 5.3 per cent of Gazprom gas sales by 2020 and 18 per cent by 2030. "Inert Gas", *Exploration and Production Journal* (ed.) 5, no. 44 (2014), 43–48.

<sup>68</sup> In May 2013, Prime Minister Medvedev signed a decree recommending regions to decrease transport tax for vehicles using gas. In June 2015 the State Duma approved new legislation incentivising construction and use of compressed natural gas stations. A month before, the government approved additional subsidies for regions using gas as fuel in public transport. The share of gas transport by 2020 should account for 50 per cent in cities with more than one million inhabitants, 30 per cent with 300,000 inhabitants and 10 per cent in towns with 100,000 inhabitants.

action to: the stagnation of gas demand in Europe and future uncertainties; subsequent changes in the gas-pricing regime; rapid scaling-up of LNG markets and growth in demand in the Asia-Pacific region; and last but not least the “shale revolution” and increasing self-sufficiency in North America. In this environment of rapid change, high-risk conditions and increasing competition, Russia was looking for diversification in its exports – and in particular export opportunities – that are not tied to a particular market. Russia has also been following the dynamics in the Pacific and Asian markets.<sup>69</sup> The most important motive has been to secure Russia’s global market share and to potentially even increase the absolute volumes of exports.

Russia responded to these fundamental market shifts. LNG exports became a priority for the Russian government in the 2013–2014 period. The law on LNG liberalisation came into legal force on December 1, 2013. It liberalised LNG exports to the Pacific, thereby breaking up Gazprom’s long export monopoly, but only in a small market segment. This strategic move was decisive, but in fact long overdue. Russia missed out on the rise of LNG in the past decade, concentrating instead on the pipeline-based European markets.<sup>70</sup> LNG has a number of advantages: there is no dependency on transit countries, it opens new markets and it provides far more flexibility. Furthermore, it is a means towards developing related technologies and industries. Last but not least, this economic shift has foreign policy and geopolitical implications because it enhances the strategic importance of the northern sea route and strengthens Russia’s geo-economic presence in the Asia-Pacific region. This was the Russian rationale in 2013.

Yet, the liberalisation was done in a very selective manner: It favoured the state-owned oil champion Rosneft and the private company Novatek, co-owned by Mikhelson and Timchenko, with close ties to the Kremlin. Novatek primarily initiated the liberalisation of LNG exports. Its “Yamal LNG” project has been at an advanced stage of implementation because it received all environmental and state approvals for project documentation necessary for: the construction of infrastructure, production and liquefaction of gas at the South-Tambeyskoye field, and finally LNG shipping from the port of Sabetta in October 2013. This selec-

tive liberalisation was not the only limitation. Most importantly, a special mechanism of LNG export co-ordination was envisaged. Gas exporters are obliged to provide the Ministry for Energy with information about prices.<sup>71</sup> The clear goal is to keep export prices stable and to avoid dumping among Russian exporters.

LNG exports have not really taken off in Russia: Sakhalin-2 is the only working LNG terminal in Russia, with exports of almost 11 million tons annually.<sup>72</sup> It is presently being operated by Gazprom, Royal Dutch Shell, and the Japanese companies Mitsui and Mitsubishi. The project came on-stream in 2009, and the majority of the gas is designated for Japan and South Korea. However, it is not really being viewed as “authentically Russian”, as it evolved from a Production Sharing Agreement and was originally pushed by Shell.

In addition, a number of Russian LNG projects have been envisaged to be put into operation between 2016 and 2020: Yamal LNG (by Novatek), Sakhalin-1 (by Rosneft), Vladivostok LNG and Baltic LNG (both Gazprom). In particular, Gazprom has been pressured to enhance its own liquefied gas exports: the expansion of the Sakhalin-2 project, the Vladivostok project and the new Baltic LNG project.

The Yamal LNG plant of Novatek – originally scheduled for the end of 2016 with an initial annual capacity of 5.5 million tons – looked to be the most promising one. In fact, the entire project is designed to be comprised of three trains, each with a capacity of 5 to 5.5 million tons per year (translating into 10 million tons/y by 2018 and a total capacity of 15–16.5 million tons/y).<sup>73</sup> In July 2013, Daewoo Shipbuilding & Marine Engineering won the tender for the construction of 16 LNG tankers (ice-class ARC7).<sup>74</sup> The first tanker was scheduled to leave the port in December 2016. Ninety per cent of Novatek’s LNG from Yamal has already been contracted. However, because of economic sanctions, Yamal LNG has faced technological and financial problems and therefore might be delayed for two to three years.<sup>75</sup>

<sup>71</sup> Ibid., 3.

<sup>72</sup> Ibid., 11.

<sup>73</sup> “Yuzhno-tambejskoe mestorozhdenie (Projekt ‘Yamal SPG’)” [“Yuzhno-tambejskoe Field (‘Yamal LNG’ Project)”], Novatek, <http://www.novatek.ru/ru/business/yamal/southtambey/> (accessed 11 December 2014).

<sup>74</sup> “Tankery’ dlya ‘Yamala SPG’ postroit yuzhnokorejskaya DSME” [“South-Korean DSME Will Build Tankers for ‘Yamal LNG’”], Oilcapital.ru, 4 July 2013, <http://www.oilcapital.ru/transport/213196.html> (accessed 11 December 2014).

<sup>75</sup> Mikhail Serov and Elena Hodyakova, “Yamalskij gaz mozhet zaderzhatsya” [“Yamal-LNG’ Might Be Delayed”], *Vedomosti.ru*,

<sup>69</sup> Tatiana Mitrova, *Russian LNG: The Long Road to Export*, IFRI Russia.Nei. Reports no. 16 (Paris: Institut français des relations internationales, December 2013), 3 and 19.

<sup>70</sup> Ibid.

Gazprom's Vladivostok LNG (10 million tons) and the Sakhalin-1 (5 million tons) – a joint project by Rosneft, ExxonMobil, Sodeco and ONGC – were both scheduled to start in 2018.<sup>76</sup>

Gazprom's Baltic LNG project is planned for 2020, and the investment decision was taken in April 2015.<sup>77</sup> The port will be Ust'Luga. It is foreseen to export 10 million tons of LNG, plus 5 million tons of compressed natural gas yearly. However, recent economic sanctions against Gazprom complicate the feasibility, as Gazprom depends entirely on liquefaction equipment from American Air Products & Chemicals and the German Linde Group.<sup>78</sup>

There is one more private (potentially Floating) LNG project – Pechora LNG by the Alltech Group of Dmitry Bosov, with a capacity of 2.6 million tons per year in the Nenets Autonomous District. In May 2014, Rosneft and the Alltech Group signed a cooperation agreement that was updated in June 2015.

Russia has had the strategic objective of gaining a 20 per cent share in global LNG markets by 2030. In the new draft strategy for 2035, this goal has not yet been quantified. Given the long lead-times for LNG projects, it is very unlikely that Russia will boost its LNG export capacity rapidly. Russian projects have been delayed, first by the sanctions, which complicate technology exports from the West, and second by difficulties in financing the projects. Low oil and gas spot market prices in Asia and Europe have significantly diminished the appetite to invest in expensive LNG infrastructure. Yet, the window for good opportunities to gain larger LNG market shares in the Pacific closes around 2018, as a number of globally planned LNG

projects will be realised by then.<sup>79</sup> Competition will increase because projects in the United States, Canada, Australia, Indonesia, Myanmar and Papua New Guinea are coming on-stream. Therefore, most likely, some of the projects will be postponed or cancelled.

Last but not least, Rosneft and Gazprom are stuck in fierce competition over LNG exports from Sakhalin. A major issue again for Rosneft was third-party access to Sakhalin-2's pipeline to reduce costs for Sakhalin-1. However, Gazprom claimed that it plans to expand its own LNG plant within the Sakhalin-2 project.<sup>80</sup> There were several appeals in courts. The final decision, taken in September 2015, granted Rosneft with access to Sakhalin-2 pipeline and export capacity of 8 billion cubic metres per year.<sup>81</sup> Moreover, Gazprom's Yuzhno-Kirinskoye gas field was put on the US sanctions list. Because of that, Gazprom will have either to postpone or cancel the extension of Sakhalin-2, look for Chinese equipment or cooperate with Rosneft. The major issue with Rosneft then is the selling price for gas.<sup>82</sup>

Moreover, in addition to gas competition on the domestic market, Rosneft and Gazprom will start to compete on export market as LNG traders at the end of 2015. Both have signed contracts with the Egyptian Natural Gas Holding Company (EGAS).<sup>83</sup> For Rosneft, it will be their first experience in LNG trade; Gazprom already has a trading portfolio of more than 3 bcm/y. Both will source LNG from other producers.

From an EU perspective, Russia's LNG expansion will have an (in)direct, positive impact because it con-

19 May 2014, <http://www.vedomosti.ru/newspaper/article/680951/yamalskij-gaz-mozhet-zaderzhatsya> (accessed 11 December 2014).

<sup>76</sup> Grigory Vygon and Maria Belova, "Razvitie mirovogo ry'nka SPG: vy'zovy' i vozmozhnosti dlya Rossii" ["The Development of a Global LNG Market: Challenges and Opportunities for Russia"], Moscow: Moscow School of Management, Skolkovo Energy Center, June 2013, 6. [http://www.pro-gas.ru/images/data/gallery/0\\_206\\_SEneC\\_Global\\_LNG.pdf](http://www.pro-gas.ru/images/data/gallery/0_206_SEneC_Global_LNG.pdf) (accessed 23 October 2015).

<sup>77</sup> Mikhail Serov, "Gazprom prinyal investitsionnoye resheniye po proektu 'Baltiyskij SPG'" ["Gazprom Has Taken an Investment Decision on the Baltic LNG"], *Vedomosti.ru*, 17 April 2015, <http://www.vedomosti.ru/business/articles/2015/04/17/gazprom-prinyal-investitsionnoe-resheniye-po-proektu-baltiiskii-spg> (accessed 24 August 2015).

<sup>78</sup> Mikhail Serov, "Gazprom" ishhhet zamenu importu" ["Gazprom Seeks Import Substitution"], *Vedomosti.ru*, 17 February 2015, <http://www.vedomosti.ru/newspaper/articles/2015/02/17/gazprom-protiv-importa> (accessed 24 August 2015).

<sup>79</sup> *Natural Gas Facts and Figures: LNG*, ed. International Gas Union, September 2014, [http://www.igu.org/sites/default/files/node-page-field\\_file/FactsFiguresSept2014\\_LNG.pdf](http://www.igu.org/sites/default/files/node-page-field_file/FactsFiguresSept2014_LNG.pdf) (accessed 11 December 2014).

<sup>80</sup> "Russian Court Rejects Rosneft Access to Sakhalin II Gas Pipeline", *Enerdata*, 20 February 2015, [http://www.enerdata.net/enerdatauk/press-and-publication/energy-news-001/russian-court-rejects-rosneft-access-sakhalin-ii-gas-pipeline\\_31682.html](http://www.enerdata.net/enerdatauk/press-and-publication/energy-news-001/russian-court-rejects-rosneft-access-sakhalin-ii-gas-pipeline_31682.html) (accessed 20 February 2015).

<sup>81</sup> Galina Starinskaya, "Rosneft' dobilas' dostupa k gazovoi trube" ["Rosneft' Gained Access to Gas Pipeline"], *Vedomosti.ru*, 10 September 2015, <http://www.vedomosti.ru/business/articles/2015/09/10/608221-rosneft-dobilas-dostupa-k-gazovoi-trube> (accessed 11 September 2015).

<sup>82</sup> Mikhail Serov and Margarita Papchenkova, "Sanktsii SSHA mogut pojti na pol'zu 'Rosnefti' i Exxon" ["US Sanctions Might Be Beneficial for 'Rosneft' and Exxon"], *Vedomosti.ru*, 20 August 2015, <http://www.vedomosti.ru/business/articles/2015/08/20/605528-sanktsii-ssha-polzu-rosnefti-exxon> (accessed 24 August 2015).

<sup>83</sup> "Rosneft and EGAS Agreed on the Term Sheet of LNG Supplies", *Rosneft.com*, 7 July 2015, <http://www.rosneft.com/news/pressrelease/07072015.html> (accessed 24 August 2015).



tributes to an increase in flexible LNG supply world-wide – a development that benefits the EU's import strategies. Moreover, Novatek's Yamal LNG could bring "alternative Russian gas" to EU markets. Ninety per cent of Novatek's LNG from Yamal has already been contracted.<sup>84</sup> LNG volumes could find their way into the EU, in particular in winter.

### The Geopolitical Shifts of 2014: From LNG Back to Pipelines? From West to East?

It seemed like 2014 was a watershed year for Russian natural gas export policies. The deterioration of the relationship with the West after the crisis in Ukraine resulted in a pronounced "*povorot na vostok*" (pivot to the East). This pivot comprises three dimensions: enhancing export options, replacing Western technical equipment and generating financial resources. With regard to technical equipment, Novatek's Yamal LNG project can serve as an illustrating case again: Initially the plan was to buy LNG technology from American Air Products & Chemicals. During the course of 2014, Novatek signed two contracts with the China National Offshore Oil Corporation (CNOOC)<sup>85</sup> and with the Philippine company AG&P.<sup>86</sup> Asian companies are newcomers on the market of LNG technologies. Yamal LNG is situated in the Arctic with tough climatic conditions, and any technological accidents will lead to huge financial losses and severe ecological consequences. In terms of financing, US\$3.6 billion

in support was approved from the Russian National Wealth Fund for the project,<sup>87</sup> but a large portion of the money is expected to come from the Chinese Investment Fund, which intends to buy 9.9 per cent of Yamal LNG.<sup>88</sup>

The most visible moves have been the (announced) Sino-Russian pipeline projects, though. Due to the impact of the Ukraine crisis and growing tensions with the West, it was no surprise that decade-long negotiations came to a successful end when Russia and China concluded the deal on the "Power of Siberia". Export projects to the east are an additional component to Gazprom's gasification of the East, as these supplies will not only be used for domestic consumption but also for exports. Whether this becomes a burden or a benefit depends on the respective price (or whether the gas is at least sold as cost plus) levels achieved. In any case, Russia's economically sound strategy to diversify and send its (liquefied) natural gas exports to Asia led to the establishment of a Russian-Chinese energy relationship in 2014. The LNG strategy was very much driven by economic considerations and a "shale reaction". In light of the deteriorating relationship with the West, geopolitical considerations have reinforced geo-economic rationales in Russian energy policies with a stronger orientation towards Asian markets. Western sanctions and the impacts of the slump in oil prices made long-distance pipelines a first choice. The construction of the pipeline(s) to China might seriously undermine the financial stability of Gazprom and will increase Russia's dependence on China. It will significantly affect Russian energy priorities in terms of investment flows into production sites and infrastructure, too.

In May 2014, Russia and China concluded the "Power of Siberia" deal. The details of the deal are obscure, but it is foreseen that, under the framework of the US\$400 billion deal, Russia will export 38 bcm/y to its large neighbour over 30 years.<sup>89</sup> Estimated prices

<sup>84</sup> Spanish Gas Natural Fenosa (2.5 m tons or 7 bcm), Total (4 m tons or 11.3 bcm), Novatek Gas & Power (2.86 m tons or 8 bcm), China National Petroleum Corporation (3 m tons or 8.5 bcm) and Gazprom Marketing&Trading (3 m tons or 8.5 bcm). Interestingly, the contract between Novatek and Gazprom is based on oil-indexation with free on-board conditions in Zeebrugge (see: Yuriy Barsukov, "NOVATE'K otdal SPG 'Gazpromu'" ["Novatek Gave LNG to Gazprom"], *Kommersant.ru*, 26 May 2014, <http://www.kommersant.ru/doc/2479486> (accessed 15 December 2014). In addition, Novatek has reserved 5 per cent of its volumes (820,000 tons or 2.3 bcm) for sale on the spot market to avoid possible fines on long-term contracts in case the project is delayed because of sanctions (Yuriy Barsukov, "U NOVATE'KA zakonchilsya SPG", ["Novatek Ran Out of LNG"], *Kommersant.ru*, 30 September 2014, <http://www.kommersant.ru/doc/2578496> (accessed 15 December 2014).

<sup>85</sup> "CNOOC Gets USD 1.6 Bln Yamal LNG Deal", *Lngworldnews.com*, 10 July 2014, <http://www.lngworldnews.com/cnooc-nets-usd-1-6-bln-yamal-lng-deal/> (accessed 11 December 2014).

<sup>86</sup> "Yamgaz Awards Yamal LNG Contract to AG&P", *Lngworldnews.com*, 8 October 2014, <http://www.lngworldnews.com/yamgaz-awards-yamal-lng-contract-to-agp/> (accessed 11 December 2014).

<sup>87</sup> "'Yamal SPG' proinvestiroval pervyj tranš iz FNB I gotovitsya k polucheniyu vtorogo" ["Yamal LNG Has Invested the First Tranche from the National Wealth Fund and Prepares to Receive the Second One"], *Kommersant.ru*, 10 July 2015, <http://www.kommersant.ru/doc/2766510> (accessed 24 August 2015).

<sup>88</sup> "Novatek Sells Yamal LNG Stake to China's Silk Road Fund", *LNG World News*, 3 September 2015, <https://www.lngworldnews.com/novatek-sells-yamal-lng-stake-to-chinas-silk-road-fund/> (accessed 4 September 2015).

<sup>89</sup> Sara Lain, "The Significance of the China-Russia Gas Deal. Russia's Efforts to Get the Deal Signed Suggest That Events in Ukraine Have Had an Impact", *The Diplomat*, 24 May 2014, <http://>

are calculated to be somewhere around US\$350 per thousand cubic metres, compared to the average European price for Russian natural gas of US\$380.50 per thousand cubic metres (in 2013 prices).<sup>90</sup> In other words, both sides seem to have agreed on a price of US\$10 per mbtu.<sup>91</sup> China has long insisted that it will not pay more than the US\$9 per mbtu it pays for Turkmen gas, but it seems that the price has been deducted from the benchmark price for LNG in Asia – then at 16–17 mbtu, excluding liquefaction, transport and re-gasification. Yet, there are major questions involving the whole package of building the pipeline and the distribution of costs. If this is taken into consideration, the deal will cost more than US\$100 billion and might be less favourable for Gazprom, as amortisation of Russian investments will not be granted over the next decades.<sup>92</sup> The final investment decision has been taken and the pipeline is under construction.

The second project still in the phase of fast-track negotiations is the “Altai pipeline” or “Power of Siberia-2 Pipeline”. Gazprom and China signed the framework agreement in November 2014. This “Western route” is projected to have an initial capacity of 30 bcm/y, with a potential increase of up to 100 bcm/y. There is no agreement about the gas price so far, and in the current environment it will be difficult to achieve a consensus.

From Gazprom’s point of view, the project makes a lot of sense. On the one hand, the Altai pipeline would mean really diversifying the energy portfolio and including both western and eastern markets. It offers the possibility of arbitrage between one market and

another, depending on prices.<sup>93</sup> Partial infrastructure is already in place, and gas could be delivered from western Siberian gas fields,<sup>94</sup> where Gazprom has spare production capacity. Thus, this project is of much greater strategic importance for Europe than the Power of Siberia deal because this pipeline would link the western Siberian gas fields – which are also supplying the EU – to China [see Map 1, p. 19]. On the other hand, the economic viability of the project remains very questionable. Total investments for the Power of Siberia are estimated at US\$70 billion; the Altai pipeline would cost much less (an estimated US\$20 billion). From a Chinese perspective, the pipeline would increase security of supply and create more competition with central Asian gas.<sup>95</sup> But, at the same time, the pipeline enters the Chinese market in a region far from the consumption centres. Yet, the “known unknown” for the Altai pipeline is China and the attractiveness it attaches to the project, which determines the concessions and support offered to Russia.

The deals with China shed light on changing production and export equations. Gazprom has called for annual increases in domestic gas prices that are above the inflation rate because it needs money to finance the construction of the Power of Siberia gas pipeline.<sup>96</sup> Yet, the Russian government will certainly be cautious about presenting its citizens with rising prices.

To summarise, the signing of the gas agreement with China will have an ambiguous effect on the global gas market: Gas prices in the Asia-Pacific region have demonstrated a downward trend since the beginning of this year, and the gap between gas prices in Europe and Asia has also narrowed. The Russian-Chinese gas contract is an additional factor providing downward pressure on prices in Asia. On the one hand, Russian

thediplomat.com/2014/05/the-significance-of-the-china-russia-gas-deal/ (accessed 15 December 2014).

<sup>90</sup> Alec Luhn and Terry Macallister, “Russia Signs 30-Year Deal Worth \$400bn to Deliver Gas to China”, *theguardian.com*, 21 May 2014, <http://www.theguardian.com/world/2014/may/21/russia-30-year-400bn-gas-deal-china> (accessed 15 December 2014).

<sup>91</sup> James Paton and Rebecca Penty, “Russia-China Gas Accord to Pressure LNG in Canada, Australia”, *Bloomberg.com*, 11 November 2014, <http://www.bloomberg.com/news/2014-11-11/russia-china-natural-gas-ties-seen-leading-to-lng-project-delays.html> (accessed 15 December 2014).

<sup>92</sup> Mikhail Krutikhin, “Kak Kitai pereigry’vaet ‘Rosneft’ i ‘Gazprom’” [“How China Plays Rosneft and Gazprom”], *Vedomosti.ru*, 18 September 2014, <http://www.vedomosti.ru/opinion/news/33554431/poddavki-skitaem> (accessed 15 December 2014). For a detailed analysis, see: Morena Skalamera, *The Sino-Russian Gas Partnership: Explaining the 2014 Breakthrough*, Paper, Belfer Center for Science and International Affairs (Cambridge, Massachusetts: Harvard University, November 2014).

<sup>93</sup> Dickel and others, *Reducing European Dependence on Russian Gas* (see note 66), 58.

<sup>94</sup> Mikhail Serov, “Gazprom mozhet sdelat’ stavku na truboprovod ‘Altaj’” [“Gazprom Might Stake on the ‘Altai’ Pipeline”], *Vedomosti.ru*, 19 November 2014, <http://www.vedomosti.ru/companies/news/36170951/altaj-bystree-sily-sibiri> (accessed 19 December 2014).

<sup>95</sup> James Henderson, *The Commercial and Political Logic for the Altai Pipeline* (Oxford: OIES, December 2014), <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/12/The-Commercial-and-Political-Logic-for-the-Altai-Pipeline-GPC-4.pdf> (accessed 19 December 2014).

<sup>96</sup> Such a step could result in an annual increase in domestic gas prices of 8–10 per cent. “Gazprom proshit razmorozit’ czeni na gaz na vnutrennem ry’нке iz-za ‘Sily’ Sibiri” [“Gazprom Asks to Unfreeze Gas Prices on the Internal Market because of the ‘Power of Siberia’”], *rbc.ru*, 26 June 2014, <http://quote.rbc.ru/person/2014/06/26/34175928.html> (accessed 15 December 2014).

pipeline gas might force out certain LNG volumes that were initially destined for the Chinese market. These additional LNG volumes on the global market might then find their way into Europe. On the other hand, decreasing gas prices in Asia bring into question the profitability of many LNG projects, especially Canadian and Australian but also US LNG projects.

Gazprom seems to be taking an opportunistic and tactical position to keep as many options on the table as possible. Therefore, numerous smaller and bigger export projects have been presented in the past months.<sup>97</sup>

### More Rationality in 2015?

Developments in the Russian domestic gas market have a great impact on Gazprom's export strategies as well as the Kremlin's foreign gas policy. The two no longer work in conjunction with one another. The moves made concerning exports have to be seen in light of Gazprom's difficult situation on the domestic markets and its significant loss of political leverage.

In any case, the Power of Siberia gas deal puts additional pressure on Gazprom. Most likely, Gazprom will not be able to put its own fields of Kovykta (located in the Irkutsk Oblast) and Chayanda (located in Sakha Yakutia) into operation in due time. Both deposits contain liquids and oil. Gas processing equipment has to be installed in order to export dry natural gas. Thus, Gazprom might need gas from gas fields owned by Rosneft (Sredneobobinskoye) and Surgutneftegaz (Talakanskoye). Rosneft has plans to produce 40 bcm/y in east Siberia, but the actual volumes are still very limited.<sup>98</sup> The Power of Siberia gas pipeline could be scaled-up to deliver up to 61 bcm/y.

Thus, Rosneft is fiercely lobbying to break Gazprom's export monopoly. Four options have been under discussion since 2014: 1) to maintain the

regulatory status quo; 2) to have Gazprom buy gas from independent producers based on export net-back<sup>99</sup> conditions; 3) to establish a consortium or special-purpose-vehicle company<sup>100</sup> that will finance pipeline construction; and 4) to have Gazprom build the pipeline itself, but to open access to independent gas producers on the basis of an investment tariff.<sup>101</sup> At the end of July 2015, Rosneft put forward an encompassing proposal to reform the natural gas market in Russia. The plan foresees several phases.<sup>102</sup> The first phase in 2016 should open the possibility for independent producers to export gas and LNG by quota (also from deposits on shore, e.g. Pechora LNG); by 2019 the independents should receive a share of export revenues (by establishing an independent gas-export operator); and by 2025 exports should be fully liberalised. By then Gazprom should have been split and an independent transmission operator created. Given the circumstances, it is very likely that the two initial phases will be implemented one way or another. At the meeting of the Presidential Commission on October 27, surprisingly, the issue was not even discussed. A liberalisation of pipeline exports to the East seems to be postponed at least till the Power of Siberia starts its deliveries; for the West it is unlikely to happen prior to that.

Moreover, in October 2014 the gas-trading exchange in St. Petersburg resumed its work after a six-year break. It was expected that the pricing on the exchange would become an important market indicator, and that about 35 bcm/y would be traded there (around 8 per cent of domestic gas consumption). However, the price at the exchange is very close to that of domestic long-term contracts. Only 6.8 bcm have been sold (as of October 23, 2015).<sup>103</sup> Such scanty volumes can be explained by Gazprom's unwillingness to take part, and by a lack of delivery guarantees because Gazprom has a monopoly

<sup>97</sup> Total costs of the big pipeline projects announced over the course of 2014/2015 amount to US\$150 to US\$200 billion. If Gazprom prioritises these pipelines, especially under the circumstance of sanctions and decreasing oil prices, it will have to postpone its "export dreams", such as particular LNG plants and pipeline projects in the east to Japan or to the Korean Peninsula. See: Edward C. Chow and Zacharias D. Cuyler, *New Russian Gas Export Projects: From Pipe Dreams to Pipelines*, CSIS Commentary (Washington, D.C.: Center for Strategic and International Studies, 22 July 2015), <http://csis.org/publication/new-russian-gas-export-projects-pipe-dreams-pipelines>.

<sup>98</sup> "Russian Court Rejects Rosneft Access to Sakhalin II Gas Pipeline" (see note 80).

<sup>99</sup> Export price minus export duty and transport costs.

<sup>100</sup> A special purpose vehicle is a company created to fulfil specific objectives.

<sup>101</sup> Mikhail Serov, Margarita Papchenkova and Olga Churakova, "Mine'nergo ne nashlo dostupa v 'Silu Sibiri'" ["Ministry for Energy Didn't Find Access to the 'Power of Siberia'"], *Vedomosti.ru*, 11 September 2014, <http://www.vedomosti.ru/companies/news/33280291/minenergo-ne-nashlo-dostupa-v-silu-sibiri> (accessed 6 January 2015).

<sup>102</sup> Yuriy Barsukov, "'Rosneft' atakuet po vsem frontam" ["Rosneft Attacks on All Fronts"], *Kommersant*, 23 July 2015, <http://www.kommersant.ru/doc/2773785> (15 September 2015).

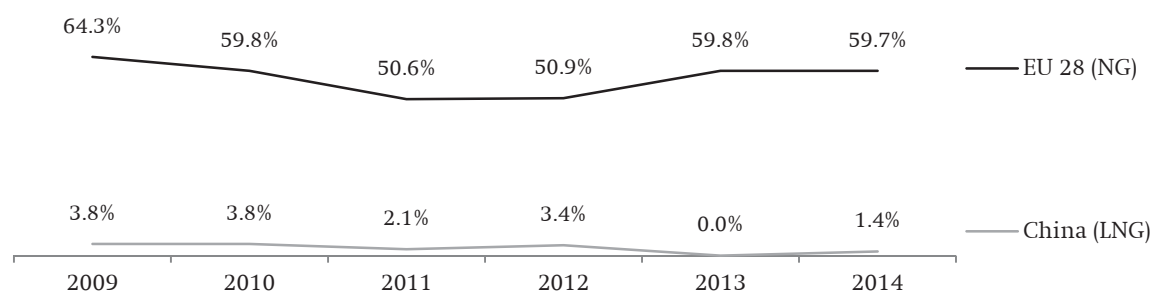
<sup>103</sup> See <http://spimex.com/markets/gas/results/> (accessed 18 November 2015).

**Table 4**  
**Russian Federation, NG/LNG Exports (in bcm)**

|                               | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  |
|-------------------------------|-------|-------|-------|-------|-------|-------|
| EU 28 (Natural Gas)           | 113.4 | 111.5 | 104.7 | 94.7  | 126.2 | 112.0 |
| China (Liquefied Natural Gas) | 0.3   | 0.5   | 0.3   | 0.5   | –     | 0.2   |
| World (Natural Gas)           | 176.5 | 186.5 | 207.0 | 185.9 | 211.3 | 187.4 |
| World (Liquefied Natural Gas) | 6.6   | 13.4  | 14.4  | 14.8  | 14.2  | 14.5  |

Source: BP, *Statistical Review of World Energy*, 2010–2015.

**Figure 5**  
**Russian Federation, share of EU 28 (NG) and China (LNG) in total NG/LNG Exports (in %)**



Natural Gas (NG); Liquefied Natural Gas (LNG).

Source: BP, *Statistical Review of World Energy*, 2010–2015.

over the UGSS. The failure of the gas-trading exchange could potentially strengthen further de-monopolisation of the UGSS and/or allow sales of Russian gas to European consumers at the exchange.

Russia's move to diversify its energy portfolio to include Asia is taking place, but at a much slower pace than political rhetoric would suggest. Yet, the EU market will remain by far the major buyer of Russian gas at least for the next decade (see Table 4 and Figure 5).

Major implications for EU gas markets are foreseeable, but only in the medium- to long term. At present, the income from gas sales to Europe (and from domestic sales) are critical to finance Gazprom's new projects. In other words, Europe will still remain the major gas market for Russia, as the first gas supplies to China are planned for 2019–2020, and full export capacity will only be achieved five years later – 10 years from now.<sup>104</sup>

<sup>104</sup> “‘Gazprom’: pervy'e postavki rossijskogo gaza v Kitai nachnuty v 2019 godu” [“Gazprom: First Supplies of Russian Gas to China Will Be Carried in 2019”], *itar-tass.com*, 23 March 2014, <http://itar-tass.com/ekonomika/1211184> (accessed 15 December 2014).

In 2014, the crisis in Ukraine and geopolitical tensions with the West were the drivers to get President Putin to act and to push through Gazprom's deals with China.<sup>105</sup> In 2015, economic rationality seems to have struck back. Gazprom is manoeuvring to identify short-term solutions for its current problems and long-term strategies for its future. At the time of writing, there are good reasons to argue that Gazprom is concentrating on muddling through in the short term and on keeping open multiple options to strengthen its bargaining position rather than embarking on a coherent long-term strategy.<sup>106</sup>

There have been very volatile and contradictory corporate policy shifts by Gazprom in 2014 and 2015: On October 7, 2014, Miller announced that “Gazprom is analysing and examining its own strategies which guided the company lately. The company is re-evaluating whether it is worth being everywhere on the value

<sup>105</sup> See also: James Henderson and Tatiana Mitrova, *The Political and Commercial Dynamics of Russia's Gas Export Strategy*, OIES Paper: NG 102 (Oxford: OIES, September 2015), 76, <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2015/09/NG-102.pdf> (20 November 2015).

<sup>106</sup> *Ibid.*, 76, 77.

chain in Europe e.g. from production to retail. [...] Gazprom may be more selective in pursuing projects it already planned because reaching end users in Europe doesn't necessarily work."<sup>107</sup> In December 2014, Gazprom withdrew from a compromise<sup>108</sup> achieved between the Bundesnetzagentur and the Gazprom joint venture OPAL Gastransport (see the earlier section on "Contentious issues in the bilateral relationship"). The compromise had not received the necessary approval from the EU Commission in 2014 (despite the Commission representatives being present at the negotiations). Then, the 100 per cent takeover of WINGAS<sup>109</sup> by Gazprom – already in process – was cancelled. Last but not least, Gazprom's supplies to EU countries were reduced over the winter period of 2014/2015 without explanation. Commercial reasons for this move, for example to maintain a certain price level, are less plausible than strategic considerations related to the reverse flows from the EU into Ukraine. As Gazprom had complained about these deliveries, this might have been an attempt to complicate these deliveries. With respect to the Ukraine conflict, Gazprom and the Kremlin repeatedly announced they would not extend the gas transit contract with Ukraine after 2019.<sup>110</sup>

A move on the bigger scene of the pipeline game was Gazprom's announcement to abandon South Stream in favour of Turkish Stream at the beginning of December 2014.<sup>111</sup> The capacity of the offshore gas

pipeline initially consisted of four strings altogether from Russia to Turkey with a capacity of 63 billion cubic metres per year; this has been halved to two strings. The volumes of the first string of 15.75 bcm/y are exclusively intended for Turkish consumers in the area of Istanbul, where gas demand is increasing. The tentative date for the completion of this first line is December 2016. Gazprom's move is economically driven, as the routing of a large part of Turkish Stream will follow the old South Stream route but link into the European part of Turkey. From there, it can easily connect to the TransBalkan line, supply Turkey and via reverse flow south-eastern Europe.<sup>112</sup> This would theoretically allow for matching the goal to bypass Ukraine with ever-larger volumes. Moreover, the mere announcement of Turkish Stream heavily complicates any solution around Ukraine's role as a transit country or gas hub. But, at the beginning of July 2015, Gazprom cancelled the contract with Saipem to lay the lines under the Black Sea, so Turkish Stream's future is uncertain.<sup>113</sup> As of November 2015, the project is beset by an ever-more complicated Russian-Turkish relationship and Gazprom is sewed to arbitration.

Thus, rational moves to "rebalance" back to Europe happened between June and September 2015: A shareholder agreement on Nord Stream Phase 2 (lines 3 and 4) was signed in September, shortly after the respective non-binding memorandum in June. This agreement was signed by Gazprom, E.ON, Shell, OMV, Wintershall and Engie. The construction of two more pipelines would double Nord Stream's capacity by another 55 bcm/y. The project gives Gazprom access to major EU markets, and European companies are expanding their activities in Russia. Yet, the project has to be accommodated under the Third Energy Package, be it a gas-release programme at Greifswald and/or a renegotiation of delivery points.

Last but not least, BASF Wintershall and Gazprom declared they would conclude the WINGAS asset swap at the beginning of September 2015. This was a move back to a downstream re-engagement.

<sup>107</sup> Aleksey Miller, "Vy'stuplenie Alekseya Millera o prognozach i problemakh mirovoj gazovoy otrasli na IV Peterburgskom mezhdunarodnom gazovom forumе" ["Statement of Alexey Miller on Perspectives and Problems of the Global Gas Industry at the 4th St. Petersburg International Gas Forum"], 7 October 2014, <http://www.gazprom.ru/press/miller-journal/706409/> (accessed 10 February 2015).

<sup>108</sup> "Gazprom verzichtet auf volle OPAL Nutzung", *Energate Messenger*, 15 December 2014, <http://www.energate-messenger.de/news/150258> (accessed 19 December 2014).

<sup>109</sup> In December 2014, BASF and Gazprom decided to scrap an asset swap, which would have given Gazprom full control of a jointly operated European gas trading and storage business, including the biggest underground gas facility in Western Europe. Chris Bryant and Jack Farchy, "BASF and Gazprom Scrap Energy Asset Swap", *Financial Times*, 18 December 2014, <http://www.ft.com/intl/cms/s/0/6ed4660a-86f3-11e4-982e-00144feabdc0.html> (accessed 19 December 2014).

<sup>110</sup> "Miller: Rol' Ukrainy v kachestve transitera svedetsya k nulyu" ["Miller: Role of Ukraine As a Transit-country Will Be Diminished to Zero"], *Vzglyad*, 6 December 2014, <http://vz.ru/news/2014/12/6/719045.html> (accessed 19 December 2014).

<sup>111</sup> See in detail: Grigoriy Vygon, Vitalij Ermakov, Maria Belova and Ekaterina Kolbikova, "Turetskiy Potok" *Stsenarii obkhoda ukrainy i bar'eroev evropejskoy komissii* ["Turkish Stream": Scenarios to Bypass Ukraine and Barriers of the European Commission] (Mos-

cow, June 2015), [http://vygon.consulting/upload/iblock/313/vygon\\_consulting\\_turkish\\_stream.pdf](http://vygon.consulting/upload/iblock/313/vygon_consulting_turkish_stream.pdf) (accessed 20 August 2015).

<sup>112</sup> "Turk Stream: The Realm of if, if, if...", *Natural Gas Europe*, 12 February 2015, <http://www.naturalgaseurope.com/european-gas-conference-2015-turkish-stream-8855> (accessed 24 July 2015).

<sup>113</sup> Elena Mazneva and Marco Bertrachhe, "Saipem Loses \$2.2 Billion Gazprom Deal for Black Sea Link", *Bloomberg Business*, 8 July 2015, <http://www.bloomberg.com/news/articles/2015-0708/saipem-lost-gazprom-contract-on-black-sea-link-over-disputes> (accessed 24 July 2015).



## Conclusions from a German and EU Perspective

From a German and EU perspective, four observations on Russian gas-market developments have to be emphasised.

First, Gazprom has a surplus of natural gas in western Siberia, where it invested heavily, also because the then Prodi Commission in 2000 had announced it would double gas imports from Russia. The company is now being hit hard by flat and uncertain demand in the EU, declining demand in Russia and also in the Commonwealth of Independent States. Due to over-capacity, Gazprom has decreased investments in exploration and exploitation by 41 per cent in the first quarter of 2015 and increased investments in infrastructure.

Second, Gazprom is under pressure to maintain its market share in the EU and to open new markets for its natural gas. It has thus turned to LNG projects as well. Gazprom is also committed to building Power of Siberia-1 and needs income from European markets.

Third, competition in the Russian domestic gas market and over export liberalisation is increasing. Rosneft is much more strongly orientated towards Asia than Gazprom is. In that sense, Gazprom can be perceived as an advocate for strong ties with Europe based on commercial rationalities. The competition between Gazprom, Rosneft and Novatek will remain orchestrated by the Kremlin; possibly to gain even more political control.

Fourth, at the time of writing in November 2015, there are clear signs that economic and commercial rationales will win out over geopolitics again. Gazprom is seeking common ground with EU companies and a balancing of commercial interests. Yet, this is still a very fragile rapprochement not backed by a political solution.

What are the consequences for Germany and the EU then? With regard to major contentious issues of gas pricing, captive market shares, pipelines and regulatory issues, the following conclusions can be drawn. Yet, they offer just a snapshot and are influenced by the development of EU-Russian political relations and the crisis in Ukraine. Gazprom is in a market position that allows it room for manoeuvre because of existing infrastructure ties and low short-run marginal costs, which are around US\$4 per mbtu.<sup>114</sup> Gazprom's pro-

duction costs account for less than US\$0.65 cent per mbtu per 1,000 cubic metres.<sup>115</sup> Gazprom's competitive edge stems from the fact that it can offer the lowest-cost gas and that it can price-out other competitors (e.g. US LNG, based on a Henry Hub price of US\$3 per mbtu plus liquefaction, shipping and regasification adding roughly US\$6 per mbtu<sup>116</sup>) if it wants to do so. The full-cost break-even price for expensive Yamal gas and transport to the European border can be calculated at US\$7–10 per mbtu.<sup>117</sup> In the past, Gazprom has aimed at maintaining a high price-level and stuck to oil-indexed contracts. Since 2009 it has adjusted its formula to hub developments and granted retroactive rebates, which resulted in a hybrid pricing mechanism,<sup>118</sup> even though it formally stuck to oil-indexation. Moreover, Gazprom has large long-term contract portfolios with EU companies that lock in significant market shares. Given that comfortable situation, there are clear signs that Gazprom is still seeking to maximise the price it can obtain now and in the future. This analysis is backed by the results of Gazprom's first-ever auction for European customers – 3.24 bcm for delivery in the winter of 2015/2016 – that took place in the Gazprom Export's office in St. Petersburg. Out of these volumes, Gazprom has only sold slightly more than 1 bcm to 15 traders at prices that were above its own long-term contracts and OTC prices at the virtual trading point Gaspool for delivery in wintertime.<sup>119</sup>

**115** "Finansovo-E'konomicheskaya politika OAO 'Gazprom': Press-Konferenciya" ["Press Conference: Economic-Financial Policy of Gazprom"], *Gazprom*, 25 June 2015, 11, <http://www.gazprom.ru/f/posts/55/584542/presentation-press-conference-2015-06-25-ru.pdf> (accessed 11 September 2015). Own calculation: US\$22.05 per 1,000 m<sup>3</sup>, in mbtu divided by 35.3 = 62 cents per mbtu.

**116** "US LNG Will Not Cause European Gas Price Drop: IEA Economist", *Platts*, 10 April 2014, <http://www.platts.com/latest-news/shipping/washington/us-lng-will-not-cause-european-gas-price-drop-21459435> (20 September 2014).

**117** Ralf Dickel, Elham Hassanzadeh, James Henderson, Anouk Honoré, Laura El-Katiri, Simon Pirani, Howard Rogers, Jonathan Stern & Katja Yafimava, *Reducing European Dependence on Russian Gas*, OIES Paper 92 (Oxford: Oxford Institute for Energy Studies, OIES, October 2014), 33 and in more detail 61–63, <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/10/NG-92.pdf> (accessed 15 December 2014).

**118** Timofey Dzyadko, "Gazprom' spisal \$5 mlrd dolgov" ["Gazprom Wrote Off \$5 Billion Debts"], *RBC Daily*, 14 August 2014, <http://rbcdaily.ru/industry/562949992137749> (accessed 6 January 2015).

**119** Elena Mazneva and Anna Shiryaevskaya, "Gazprom Prefers Price over Volume in First EU Gas Auctions", *Bloomberg.com*, 10 September 2015, <http://www.bloomberg.com/news/articles/2015->

**114** Henderson and Mitrova, *The Political and Commercial Dynamics of Russia's Gas Export Strategy* (see note 105), 77.

Bilateral gas relations are at a very sensitive stage. As conflicting issues loom in gas trade and as the geopolitical situation in Eastern Europe is persistently difficult, there is the imminent danger of negative spillover effects. From a pure energy standpoint, all this – together with the rising uncertainties and complexities in international energy relations – requires more (not less) political dialogue and more attention towards balancing interests. Gas relations should be perceived (again) as important channels for cooperation. This does not mean a back to a business as usual scenario but rather a mutual adaptation to a new gas world.

Diversifying EU imports will be easier as long as Gazprom aims at maintaining a certain price level. Gazprom theoretically has significant room for manoeuvre to defend its market share. However, the expected increase in Russian gas exports, as fixed in the draft energy strategy until 2035, is modest (1 to 10 per cent, compared to an eight- to ninefold increase to Asia).<sup>120</sup> Because of these uncertainties, the EU gas market might experience more gas-price volatility in the future. The EU will have to rely on gas imports from Russia, but vulnerabilities due to dependencies will decrease considerably, as both are diversifying away from each other. Pipeline projects under discussion will have to be thoroughly revised in terms of EU gas-market reforms.

The European Commission is moving forward in the Antitrust Case to force Gazprom to adapt its commercial strategies to the EU's Third Energy Package regulation. Russia seems to be more and more willing to play according to EU rules and is adapting its gas export strategy. This presents the EU with a new situation. Large volumes of Russian gas will be delivered beyond 2020 under long-term contracts. Yet, Gazprom will increasingly start to act on spot markets. This will happen at a time when own EU reserves are dwindling, when Norwegian volumes will decrease (if new investments are rapidly undertaken) and LNG markets might well again be in a downward cycle of supplies and high prices. Thus, the EU will have to pursue a dual strategy of managing gas interdependence with Russia plus pursuing an active diversification from

today onward. Yet, diversifying its energy portfolio with supplies from the Caspian region beyond the 10 bcm being transported through the Transadriatic Pipeline (TAP) will remain a big challenge in times of uncertain demand. Furthermore, the relevance of Turkey in energy (transit) should be taken into the picture.

Moreover, the EU will have to deal with the security of gas supply to its south-eastern member states and the Energy Community. In particular, gas transport will have to be realised and financed by sources other than those that are Russian-based after the cancellation of South Stream. The new situation is a logical consequence of the EU's regulatory approach. Yet, the question is: To what extent is the EU ready to deal with the consequences? There are few new big infrastructure projects that have been realised, and Gazprom is among the few companies that have invested in new pipelines and storage facilities. The questions now coming up are at the heart of the EU's approach and will become a real testing ground of its viability: They are about financing infrastructure and interconnectivity, beyond the regulated projects under the EU's Ten-Year Network Development Plan procedure. These are long-term infrastructure issues; so far the EU has been preoccupied with short-term and quite limited projects. Finally, there are fundamental questions touching upon the issue of more state activity in the sector. Most likely, the sheer magnitude of infrastructure challenges relating to the creation of an internal market will involve public spending, as it will not exclusively be realised by using private money.

The two most sensitive and trickiest issues are Nord Stream 2 and the transit through Ukraine. However, more pragmatism and economically sound considerations should facilitate a settlement of the contentious issues in the bilateral relationship. As Nord Stream 2 is on the table and has received significant support from the involved companies and the German Ministry for Economic Affairs and Energy, political and economic costs in case of a failure are high. Nord Stream 2 does not automatically transport new gas to the EU market, nor does it bring a diversification of sources. It affects the future of Ukrainian gas transit. The sensitivity of the issue and the political sensitivities in Brussels and eastern EU member states make it very difficult to achieve an internal EU consensus. Arithmetically, just one additional line of Nord Stream 2 and one of Turkish Stream might be enough to bypass Ukraine. On the one hand, the EU's efforts of supporting Ukraine will be difficult without cooperation from

09-10/gazprom-prefers-price-over-volume-in-first-eu-gas-auctions (accessed 14 September 2015).

<sup>120</sup> "E'nergeticheskaya strategiya Rossii na period do 2035 goda" ["Energy Strategy of Russia for the Period up to 2035"], Ministry of Energy of Russia, 13 November 2009, <http://www.minenergo.gov.ru/aboutminen/energostrategy/> (accessed 29 September 2015).

Russia. On the other hand, Russia might have to rely longer on Ukrainian transit, as alternative projects require time. A (face-saving) solution should be found for both sides, also with respect to Ukraine. Nord Stream 2 requires political will on both sides to accommodate the project with the Commission's priority of an Energy Union in solidarity.



# Not on the Sidelines: Crude Oil and Refining in Russia

The oil sector is the almost forgotten sector in the bilateral relations between the EU/Germany and Russia. Yet, this does not reflect reality: Firstly, Russia is among the top three oil producers in the world, greatly influencing the global supply and demand balance as well as price developments. Russia produced 10.84 million barrels per day (mb/d) in 2014, which represents 12.7 per cent of global oil production.<sup>121</sup> Of that total, Russia consumed 3.19 mb/d in 2014.<sup>122</sup> Secondly, Russian oil and oil product exports through ports and pipelines into the Atlantic and Pacific basins have a global reach. Shifts in its output, refining capacities and exports are thus of importance for the world, and in particular for EU oil markets, even during the US fracking revolution. Thirdly, oil markets are considered to be more flexible because of their global structure and price mechanism. Yet, Russian and European oil (products) markets are closely knitted together. This is so because the physical trade flows are less fungible – pipelines still play a strategic role, and refineries need specific grades of oil or else require expensive renovations.

Despite oil consumption levels decreasing in the EU, oil is still the primary source of energy, comprising 34 per cent of the energy mix. In Germany, oil and oil products account for 33 per cent of the overall mix.<sup>123</sup> This is the backdrop against which Russian oil supplies have to be analysed. Oil trade has been the frontrunner of bilateral energy relations. Oil supplies to the then Council for Mutual Economic Assistance (Comecon) countries started in 1945 to Western Europe in 1957.<sup>124</sup> Today, Russia is the major oil supplier to the EU, accounting for around 30 per cent of total crude imports and more than 50 per cent of oil product imports from outside the EU in 2014 (see Figures 6

and 7). In Germany, Russia accounted for 31 per cent of crude imports and 26 per cent of oil product imports in 2014 (see Figures 8 and 9). Trade in oil is more important than any other commodity in term of the total value of all Russian goods exported to the EU.<sup>125</sup>

Europe is still the major export destination for Russian oil. In 2014 Russia exported 4.4 mb/d of crude oil to global markets,<sup>126</sup> and 68 per cent of that went to EU countries.<sup>127</sup> The main destinations for its crude oil and oil products are Germany (with 725,000 barrels per day [b/d]), the Netherlands (706,000 b/d) and Poland (470,000 b/d).<sup>128</sup> Europe is also the most important destination for Russia's product exports, for example 80 per cent of its diesel production is exported to Europe.

The 2013 Roadmap for EU-Russia Energy Cooperation until 2050 underlines the key role of oil infrastructure for a stable and secure supply: The Druzhba trunk oil pipeline is the most important "oil artery" between east and west and the world's longest oil pipeline.<sup>129</sup> Its total capacity is 2 mb/d; actual loadings are about 1.2 mb/d. It supplies oil directly into Germany. Yet, the major portion of about 2 mb/d is shipped via tanker from port terminals such as Primorsk (Baltic Pipeline System-1, capacity: 1.5 mb/d) and Ust Luga (Baltic Pipeline System-2, capacity: 1 mb/d) as well as from Novorossiysk on the Black Sea coast.<sup>130</sup>

121 BP, *Statistical Review 2015* (see note 8), 8.

122 Ibid., 9.

123 *Energieverbrauch in Deutschland im Jahr 2013* (Berlin: AG Energiebilanzen e.V., 2014), [http://www.ag-energiebilanzen.de/index.php?article\\_id=20&archiv=13&year=2014](http://www.ag-energiebilanzen.de/index.php?article_id=20&archiv=13&year=2014) (accessed 13 November 2014).

124 Nadya Kampaner, "Evropejskaya E'nergobezopasnost' i uroki istorii" ["European Energy Security and Lessons of History"], *Global Affairs* (Russia), 16 December 2007, [http://www.globalaffairs.ru/number/n\\_9962](http://www.globalaffairs.ru/number/n_9962) (accessed 6 March 2015).

125 EC, *Roadmap: EU-Russia Energy Cooperation until 2050* (see note 5), 17.

126 *Oil and Gas Recovery and Refinery: Trends and Prospects*, ed. RIA (Moscow, 2014), 17.

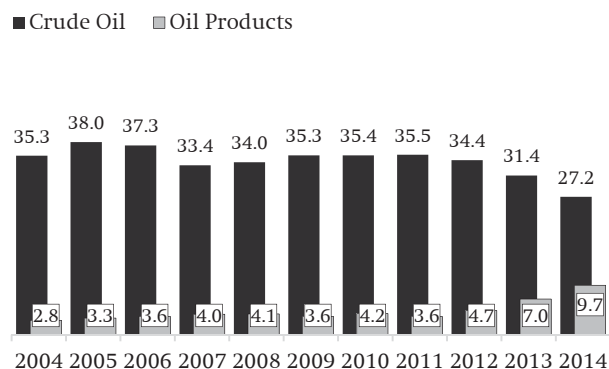
127 "Russia: International Energy Data and Analysis", EIA, <http://www.eia.gov/beta/international/analysis.cfm?iso=RUS> (accessed 24 August 2015).

128 *Oil Information: IEA Statistics*, 2015, 236–237, 397–398, 442–443, [http://www.iea.org/bookshop/664-Oil\\_Information\\_2015](http://www.iea.org/bookshop/664-Oil_Information_2015) (20 November 2015).

129 See EC, *Roadmap: EU-Russia Energy Cooperation until 2050* (see note 5).

130 Sammy Six, *Russia's Oil Export Strategy: Two Markets, Two Faces*, CIEP Paper 01/2015 (The Hague: Clingendael International Energy Programme, 2015), 25, [http://www.clingendaelenergy.com/inc/upload/files/CIEP\\_Paper\\_2015-01\\_Russia\\_web.pdf](http://www.clingendaelenergy.com/inc/upload/files/CIEP_Paper_2015-01_Russia_web.pdf), and Clingendael International Energy Programme, *Fact Sheet, Russia-Europe: The Liquid Relationship Often Overlooked*, <http://www.clingendaelenergy.com/files.cfm?event=files.download&ui=9C1E06F0-5254-00CF-FD03A39927F34043> (accessed 3 March 2015).

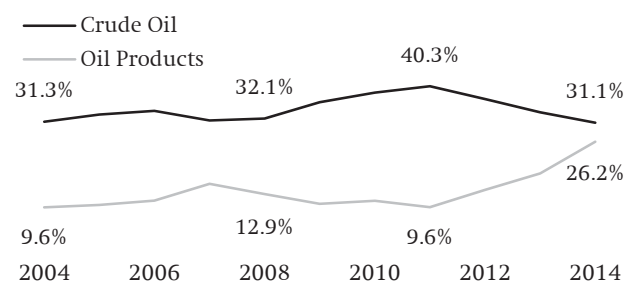
**Figure 6**  
Germany: Crude oil and oil product imports from Russia (million tons)



HS Code 2709, 2710.

Source: Eurostat.

**Figure 7**  
Germany: Share of crude oil and oil product imports from Russia (in %)



HS Code 2709, 2710.

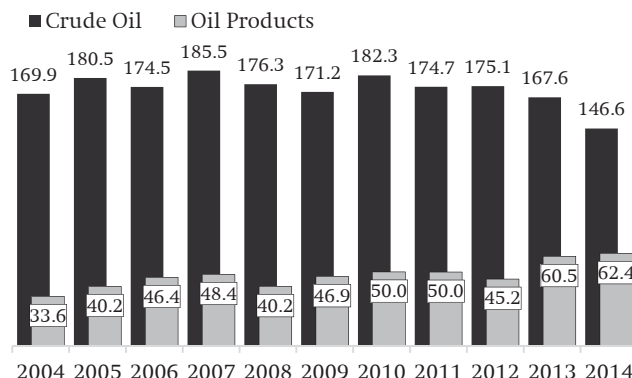
Source: Eurostat.

The southern leg of the Druzhba pipeline traverses Ukraine and splits into two routes: one connects via Hungary to the Adriatic oil pipeline, the other one links to Slovakia and the Czech Republic, with further connections to Germany (refineries Ingolstadt and Karlsruhe); the northern leg of Druzhba crosses from Belarus and Poland into Germany, with connections to refineries in Schwedt and Leuna. The refinery in Schwedt supplies 11 per cent of distilled products in Germany.<sup>131</sup> The Russian Urals blend is a major input for keeping European refineries and the petrochemicals sector economically viable.

Moreover, Russian oil companies have been major investors in the German refinery sector. Rosneft has

<sup>131</sup> Mineralölwirtschaftsverband e.V. (MWV), *Jahresbericht 2013* (Berlin: MWV, July 2014), 28.

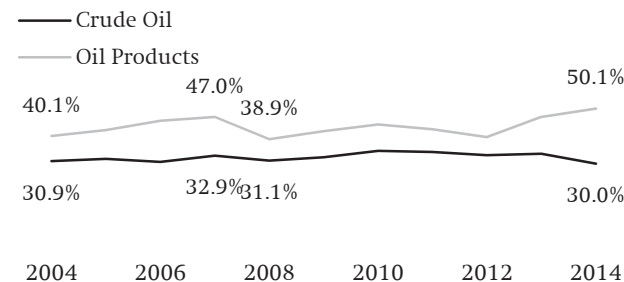
**Figure 8**  
EU-28: Crude oil and oil product imports from Russia (million tons)



HS Code 2709, 2710.

Source: Eurostat.

**Figure 9**  
EU-28: Share of Russian crude oil and oil product imports (in % of extra EU-28 imports)



HS Code 2709, 2710.

Source: Eurostat.

invested US\$2.25 billion in the EU, of which 63 per cent was directed to Germany, that is, US\$1.41 billion.<sup>132</sup> These investments are important because European refineries have found themselves under pressure from US refineries that have access to cheaper (domestic and foreign) crude supply, but also from new refinery complexes in Asia.

Relations concerning Russian oil have been much less contentious than relations over gas. Yet, a critical process is under way, as the former majority owners of Yukos Oil Co. won a US\$50 billion ruling at the Permanent Court of Arbitration in The Hague. The plaintiffs are going after Russian state assets around the world

<sup>132</sup> Evrazijskij Bank Razvitija, "Monitoring pryamy'kh investicij Rossii" ["Monitoring of FDI of Russia"] (see note 49).

**Table 5**  
**Oil production by selected company, million tons**

|                | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  |
|----------------|-------|-------|-------|-------|-------|-------|
| Rosneft        | 108.9 | 115.8 | 122.6 | 125.8 | 203.0 | 204.9 |
| Lukoil         | 97.6  | 95.9  | 96.0  | 84.2  | 85.5  | 86.3  |
| Surgutneftegaz | 59.6  | 59.5  | 60.8  | 61.4  | 61.5  | 61.4  |
| GazpromNeft    | 29.9  | 29.8  | 35.3  | 31.6  | 49.3  | 50.9  |
| Tatneft        | 26.1  | 26.1  | 26.1  | 26.3  | 26.4  | 26.2  |
| Slavneft       | 18.9  | 18.4  | 18.1  | 17.9  | 16.8  | 16.2  |
| Bashneft       | 12.2  | 14.1  | 15.1  | 15.4  | 16.1  | 17.8  |
| Russneft       | 12.7  | 13.0  | 13.6  | 13.8  | 15.5  | 17.0  |

Source: Companies' annual reports.

to reclaim their compensation.<sup>133</sup> So far, the process has been low key and a quiet settlement seems probable.

Over the short- and long terms, these are the major issues of German/EU interest:

- 1) How will Russian production volumes develop?  
What is the impact of sanctions? How will non-conventional production develop (in the Arctic offshore and on-shore; shale and tight oil)?
- 2) How does the oil market organisation develop in Russia? What is the role for Rosneft and other oil companies?
- 3) How will the strategies of oil companies develop (also under the impact of sanctions) against the background of competition over market shares? How will the refinery sector develop facing a surplus in refinery capacities in Europe and growing capacities in the United States, Asia and the Middle East?

## Consolidation and Centralisation in Russian Oil Production

Since the Khodorkovsky affair and Yukos' asset-stripping starting in 2003, the Russian oil industry has seen a centralisation and consolidation under the roof of Rosneft.

Prior to that, in the beginning of the 2000s, all key assets were concentrated in the hands of private companies, and state-owned Rosneft accounted only for 5

per cent of total production in the country. However, for the last 14 years, the share of state-owned oil output (Rosneft, GazpromNeft and Slavneft) increased up to 50 per cent (13 times in absolute volumes).<sup>134</sup> As the biggest oil producer in Russia, Rosneft provided 40 per cent of total oil production output in Russia in 2013 (see Table 5).

There is a special licensing regime for the strategic gas and oil sectors and for subsoil projects of federal importance. In 2013 the subsoil law restricted access of private investors to oil and gas resources of the Arctic shelf. The largest share of prospective fields and licences have already been divided up between Gazprom and Rosneft without any competition. Thus, as of October 2014, Rosneft and Gazprom together own 116 licences.<sup>135</sup> Gazprom put the offshore Prirazlomnoye oilfield in the Pechora Sea into operation in December 2013, where it plans to produce 300 thousand tons annually in the early stage and reach the level of 5–6 million tons in four to five years.

A centralisation of the oil sector through a network of "Putin loyalists" is evident. Lukoil remains the major independent player. Rosneft crucially strengthened its asset base during the Yukos affair when it took over Yuganskneftegaz. Moreover, the return of Bashneft shares to the state, a criminal case against Irkutsk Oil Company<sup>136</sup> as well as the common belief

<sup>133</sup> Irina Reznik and Henry Meyer, "Yukos Owners Win \$50 Billion in 10-Year-Fight with Russia", *Bloomberg Business*, 28 July 2014, <http://www.bloomberg.com/news/articles/2014-07-28/yukos-owners-win-50-billion-damage-award-vs-russia-gml-says> (accessed 9 March 2015).

<sup>134</sup> *Projections of International and Russian Energy Development up to 2040*, ed. ERIRAS (see note 55), 135.

<sup>135</sup> "Rosneft' i 'Gazprom' poluchili tri licenzii na shel'fovy'e uchastki" ["Rosneft and Gazprom Obtained Three Licenses for Shelf"], *Gazeta.ru*, 20 October 2014, [http://www.gazeta.ru/business/news/2014/10/20/n\\_6577829.shtml](http://www.gazeta.ru/business/news/2014/10/20/n_6577829.shtml) (accessed 16 December 2014).

<sup>136</sup> Timofey Dzyadko, "Irkutskaya neftyanaya kompaniya poprosila zashity' ot kreditorov iz Chechni" ["Irkutsk Oil Com-

that Surgutneftegaz is closely linked to the Kremlin<sup>137</sup> suggest further control by – and a consolidation of – state network capitalism. Whereas in the 1990s and the early 2000 the Russian (tax) regime in the oil sector favoured small companies – which actively participated in tenders and auctions for licences, and thereby increased Russian oil production – today small-scale projects have almost no prospects. Russian tax incentives are usually targeted and made in the interest of vertically integrated companies. Thus, small independent oil companies may almost completely disappear in Russia in the future.<sup>138</sup> Accordingly, whereas in the early 2000s oil production by independent companies accounted for 10 per cent of total oil production, now it is about 4 per cent.

## Challenges for the Russian Upstream Oil Industry

Russian oil production from conventional fields is stagnating, and it will be difficult for Russia to maintain its production level under current circumstances. Old giant fields have to be replaced, and “new frontiers” have to be opened. The sanctions as well as the oil price slump are an impediment to that.

In 2014 Russia produced 10.75 mb/d oil and condensate.<sup>139</sup> 2015 has seen new record levels of 10.77 mb/d.<sup>140</sup> The growth in oil production in 2015 was stimulated by an increase in exports, which, in turn,

became more attractive for companies in order to increase hard currency earnings. It is also a result of the tax manoeuvre to reduce export duties on oil. Thus, oil production in Russia in 2015 will most likely not fall, and might even increase in the short term due to the launch of the pipeline Sapolarye-Purpe as well as the development of several major oilfields (Suzun, Yurubcheno-Tahomskoye, Kuyumbinskoye).

The picture gets more vague with respect to the medium term because of a number of factors at play (the Russian “tax manoeuvre” of January 2015; rouble devaluation; investment plans for upstream development and/or refinery modernisation; delay of Arctic and tight oil developments; and the development of enhanced oil recovery in brownfields or new greenfields).<sup>141</sup> The growth potential in the medium term is limited due to lack of funding necessary for the development of new oilfields. Taking into consideration the economic sanctions, oil production is expected to decrease: by 3–5 per cent per a year instead of 1.5 per cent, according to the Bank of America Merrill Lynch.<sup>142</sup>

Future prospects will determine the companies’ investment decisions, as the reservoirs in Yamal, the Barents Sea, eastern Siberia and the Far East encounter much higher production costs and require not only a certain level of return, but also long-term demand. Russia is facing the same problems as other conventional producers because conventional production is reaching its plateau. Oil production from existing giant fields is stagnating in Russia – 90 per cent of oil production in Russia is extracted from old oilfields that were discovered before 1988, and only 10 per cent is from fields that were discovered in the 1990s and 2000s.<sup>143</sup> The rates of decline have increased considerably, reaching an annual level of 11 per cent.<sup>144</sup>

In other words, Russia faces the huge challenge of overcoming production decline and replacing depleting fields with new ones. Besides enhanced oil recovery

pany Asked for Protection against Creditors from Chechnya”], RBC, 6 November 2014, <http://top.rbc.ru/business/06/11/2014/545a12b0cbb20fb4868bfad7> (accessed 19 December 2014).

<sup>137</sup> James Henderson, *Key Determinants for the Future of Russian Oil Production and Exports*, OIES WPM 58 (Oxford: OIES, 2015), 5, <http://www.oxfordenergy.org/wpcms/wp-content/uploads/2015/04/WPM-58.pdf> (accessed 23 October 2015).

<sup>138</sup> Grygoriy Vygon, Anton Rubtsov and Elena Savchik, “Est’ li budushhee u sektora rossijskikh nezavisimykh neftnykh kompanij?” [“Do Independent Oil Companies in Russia Have a Future?”], Moscow: Moscow School of Management Skolkovo Energy Center, February 2014, <http://www.assoneft.ru/activities/developments/459/#573271330446> (accessed 23 October 2015).

<sup>139</sup> Dina Khrennikova and Stephen Bierman, “Russia Gas Fields Key to crude output after sanctions hit arctic”, 5 May 2015, <http://www.bloomberg.com/news/articles/2015-05-04/russia-gas-fields-key-to-crude-output-after-sanctions-hit-arctic> (accessed 27 November 2015).

<sup>140</sup> Stephen Biermann and Julian Lee, “Russia oil production poised for record as industry defies slump”, 29 October 2015, <http://www.bloomberg.com/news/articles/2015-10-29/russia-oil-production-poised-for-record-as-industry-defies-slump> (accessed 27 November 2015).

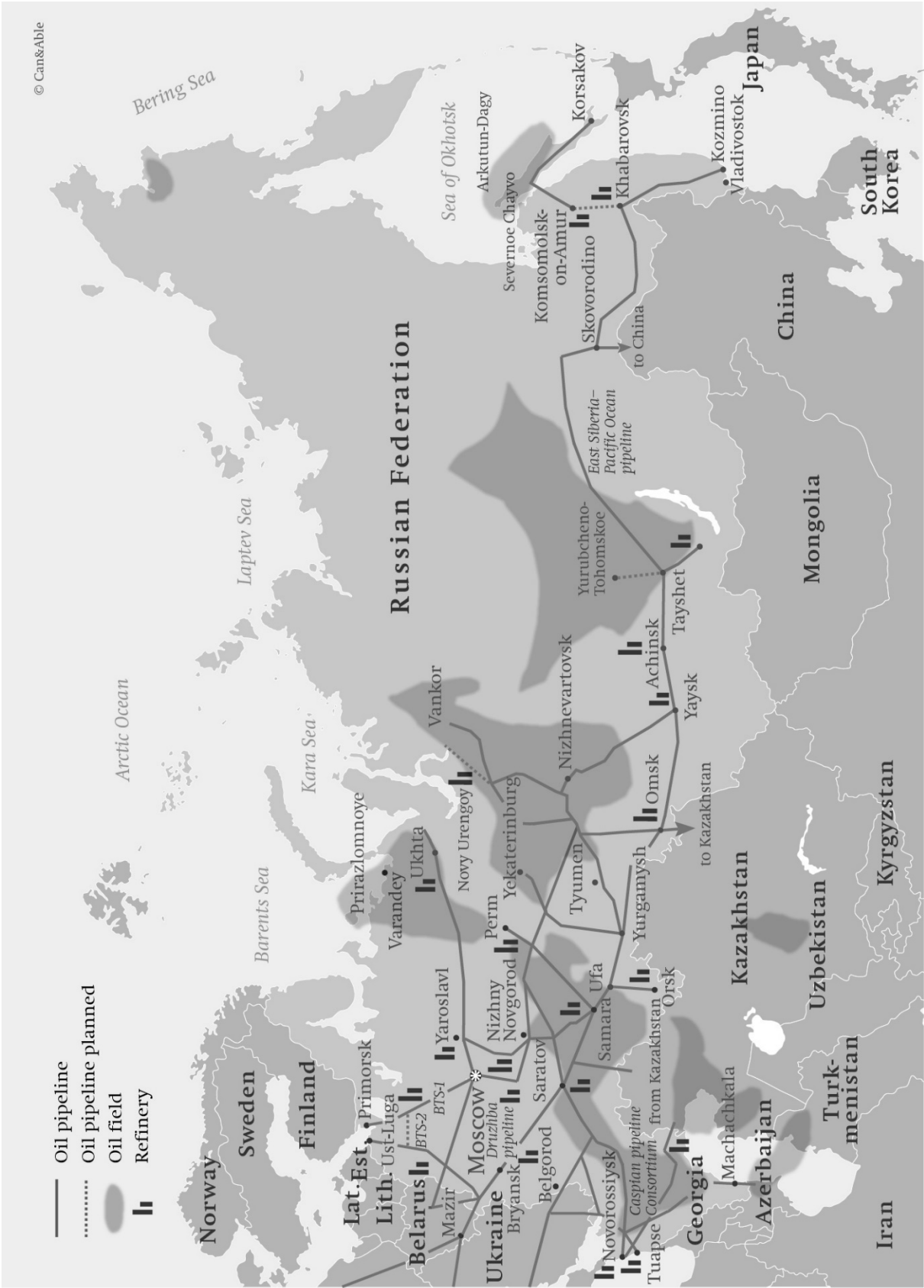
<sup>141</sup> Henderson, *Key Determinants for the Future of Russian Oil Production and Exports* (see note 137), 1–2.

<sup>142</sup> Ekaterina Kravchenko, “Sankcii SHA i ES mogut privesti k zakatu rossijskoj neftnoj otrasli” [“US and EU Sanctions May Lead to the Collapse of Russian Oil Industry”], *Vedomosti.ru*, 14 August 2014, <http://www.vedomosti.ru/companies/news/32110451/neftnoj-udar-po-byudzhetu> (accessed 6 January 2015).

<sup>143</sup> Deborah Gordon and Yevgen Sautin, *Opportunities and Challenges Confronting Russian Oil* (Washington, D.C.: Carnegie Endowment for International Peace, 28 May 2013), <http://carnegieendowment.org/2013/05/28/opportunities-and-challenges-confronting-russian-oil> (accessed 23 October 2015).

<sup>144</sup> *Global Trends 2013*, ed. Lukoil, 45 and 46.

Map 2: Operating and planned oil pipelines and refineries in Russia



ery in brownfields and smaller satellite greenfields, new deposits have to be opened in more remote, geologically and/or geographically difficult areas such as the Arctic shelf, non-conventional oil and bitumen oil. This implies geographical and geological as well as technological shifts, as oil production and refining will require modern equipment and technologies. This is seen as decisive in order to modernise and update the hydrocarbon industry in Russia. Yet, under the current low price environment and the sanctions regime, it is not very likely that this will happen on a large scale.

The development path will have repercussions for the environment and on the emission of greenhouse gases. Looked at from that angle, it makes a difference whether Russia taps into the Arctic, with its very sensitive environment, or into its bitumen, kerogen or oil shale resources. In the past, Russian oil policies have incentivised exploration and production from difficult-to-extract and sometimes heavy, dirty oils.<sup>145</sup> Eighty-three per cent of the current oil balance is light sweet crude, 15 per cent heavy oil and 2 per cent extra-heavy bitumen. But by 2020 heavy oil could double to 30 per cent and bitumen might increase to 20 per cent, resulting in a balance between equal shares of light and heavy oils.<sup>146</sup> Heavy oils have fundamentally different physical and chemical compositions, which affect the refining process. As a consequence, these carbon-intensive oil reserves are much more difficult to handle and have more damaging and detrimental effects on the climate and the environment.

Yet, Russia has larger tight oil reservoirs than the United States.<sup>147</sup> Russia is more conventional in its “make-up” but non-conventional in production. According to a preliminary assessment, the Bazhenov formation in western Siberia<sup>148</sup> has a potential between 35 billion tons and 403 billion tons. It is estimated that the formation can produce high-quality light and sweet oil, but it also contains large amounts of kerogen oil.<sup>149</sup> There are numerous obstacles that

will not allow for any significant oil production from this field in the medium term. Above all, the geological conditions are different from those in the United States and are more complex<sup>150</sup> because of its “lasagne structure”. In order to make oil production economically viable, multistage hydraulic fracturing technology should be adapted to new conditions. A first pilot well drilled by GazpromNeft resulted in 80 cubic metres/day.<sup>151</sup>

The record of shale oil development is patchy. The role of horizontal drilling and hydraulic fracturing is rapidly increasing in Russia: in 2013, 42 per cent of new wells were drilled by GazpromNeft using horizontal drilling, whereas in 2011 it only accounted for 4 per cent. Although considerable progress in terms of shale oil development has been observed in Tatarstan, Western sanctions on these technologies will delay the projects by a minimum of 5–10 years.<sup>152</sup>

Thus, neither the legal framework nor the tax system is favourable for attracting innovation and foreign technologies or enhancing oil recovery rates. It is tailored to direct investments into particular sites of strategic interest, either in geological or geographical terms in the Far East or Far North. With the creation of the Eurasian Customs Union, Russia has slightly adapted its tax regime by harmonising export duties. Thereby, the export duties for naphta, diesel, gasoline, bitumen and mazout decrease substantially, whereas the tax burden for production increases. Subsidies for refineries have decreased. In sum, the law is beneficial for oil exporters (Rosneft, Lukoil, Tatneft) and is disadvantageous for producers, refineries and petrochemical manufactures. Moreover, the domestic price of crude and oil products will increase.

Thus, the Russian oil industry is at a decisive point. As James Henderson<sup>153</sup> analyses, the relation between

<sup>145</sup> Gordon and Sautin, *Opportunities and Challenges Confronting Russian Oil* (see note 143).

<sup>146</sup> *Ibid.*, 2.

<sup>147</sup> Bakken is the largest shale oil formation in the United States.

<sup>148</sup> “Russia’s Bakken”, *Petroleum Economist*, 4 February 2014, 42–43, <http://www.petroleum-economist.com/Article/3305251/Russias-Bakken.html> (accessed 23 October 2015).

<sup>149</sup> Kerogen or oil shale is immature oil contained in the source rock. Kerogen can be converted into marketable crude oil by heating the oil shale.

<sup>150</sup> Bazhenov geological conditions are considered to be quite difficult because of the heterogeneity of the cross sections, the sizeable deposit depths and the high temperatures as well as abnormal pressure zones. In addition, in-situ oil extraction in the United States occurs at the depth of 600 metres, whereas in the case of Bazhenov it should be 3,000 metres.

<sup>151</sup> “‘Gazprom Neft’ poluchila fontaniruyushhij pritok slanczevoj nefti na novoj skvazhine” [“GazpromNeft Got a Gushing Shale Oil Inflow from the New Well”], *GazpromNeft*, 29 April 2014, <http://www.gazprom-neft.ru/press-center/news/1102042/> (accessed 6 January 2015).

<sup>152</sup> “Slanczevoye Zavtra Tatarstana” [“Shale Future of Tatarstan”], *Tatcenter*, 28 March 2014, <http://info.tatcenter.ru/article/134739/> (accessed 16 December 2014).

<sup>153</sup> Henderson, *Key Determinants for the Future of Russian Oil Production and Exports* (see note 137), 2–3.



hard currency earnings and hard currency versus rouble costs as well as the extent of government support for the industry will determine the investment decisions of Russian companies in a scenario of relatively low oil prices. US and EU sanctions in the oil sector will delay projects in the Arctic as well as for deep-water and tight oil extraction, which would have been economically challenging anyway. In this environment, the major issues are brownfield developments and the opening of new greenfields. This is where sanctions have an impact on the ability to raise funding on the international capital markets (see the section below on “2014 and the impact of sanctions”). Enhanced oil recovery is a major way forward, as recovery rates in Russia are very low compared to other oil-producing areas.

### Old and New Export Destinations and the Competition over Market Shares

For the global oil market, Russian crude and oil products, its transport routes and pipelines are important pillars of the global energy system. Any strategic shifts would imply new geostrategic challenges: shifting trade flows from the Middle East, more sea traffic through the sensitive Baltic Sea and increasing the importance of the northern sea route, especially for China. Besides, Russia will remain a main transit country for Caspian oil from Kazakhstan.

Russia's oil industry has been very export-orientated because oil comprises only 21.8 per cent of the primary domestic energy supply (compared to 51.8 per cent for natural gas).<sup>154</sup> About three-quarters of Russian oil is earmarked for international markets (both as crude and refined products).<sup>155</sup> In the midst of the current geopolitical crises and the sanctions, Russia faces increasing competition over market shares because of a surplus in global oil production. Russian exports have to be stepped up in Asia, which is the region with growth in demand. Demand for oil in the EU is stagnating. Moreover, with the current surplus of supplies on global oil markets, Russia has to compete with other suppliers such as the United States and Saudi Arabia. A major challenge will be whether Iranian supplies return to the market and

in what quantities after the recent nuclear deal. The grade of Iranian crude is very similar to Russia's Urals blend. Russian companies are trying to rapidly re-direct its energy flows to Asia. In 2014, 30 per cent of Russian oil went to Asia and reached a record high: more than 1.2 mb/d (see Figures 10 and 11 for crude and products in million tons). At the same time, exports to Europe decreased from 3.72 mb/d in May 2012 to 2.96 mb/d in July 2014 (see Figures 12 and 13).<sup>156</sup> Although a rebalancing eastwards has been expected with the takeover of TNK-BP by Rosneft and supply deals between Rosneft and China National Petroleum Corporation (CNPC), nevertheless it is moving at an accelerated pace.

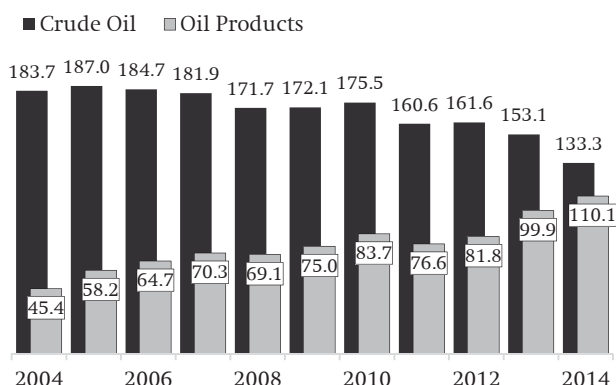
As Figures 11 and 13 illustrate, the EU's share in Russian crude oil exports is diminishing, whereas the share of exports directed to China is growing. Vice versa, the EU's share in oil products is increasing, whereas the Chinese share is decreasing, given that new complexes are being built in Asia (see Figures 11 and 13). Russia exports its Urals blend to Europe; it is a blend of Siberian light oil from western Siberia with heavy oils from the Urals-Volga region. As western Siberian oilfields are in decline, eastern Siberian oilfields – in particular Vankor – are becoming more important for future production growth. Medium-light oil from eastern Siberia is being sent in increasing volumes to China via the Eastern Siberia-Pacific Ocean (ESPO) pipeline. Chinese long-term investments have been directed into Russia over the past five years to connect the fields of eastern Siberia with the Chinese market. Although in 2002 Khodorkovsky's plans for Yukos to build a pipeline to China had generated resistance from the Russian elite and Transneft, which is the state transport monopoly – jointly with Rosneft – concluded an agreement with China in 2008 to co-finance the ESPO pipeline. The pipeline is the longest pipeline in the world and has a capacity of 1–1.2 mb/d; one leg branches off in Skovorodino to China and a second to the Russian port of Kozmino.<sup>157</sup> The deal included long-term deliveries over 20 years of 15 million tons annually. First deliveries started in 2011. Between 2008 and 2014, Russian crude exports to China more

<sup>154</sup> International Energy Agency, *Russia 2014. Energy Policies beyond IEA Countries* (Paris: Organisation for Economic Co-operation and Development/International Energy Agency, 2014), 17.

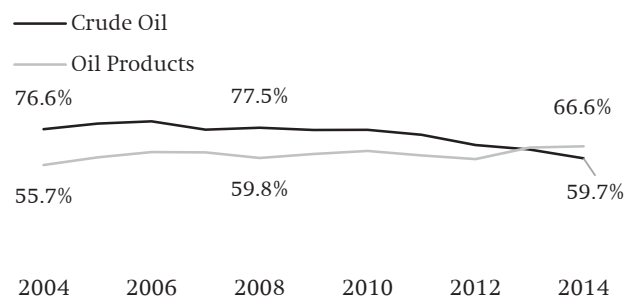
<sup>155</sup> Six, *Russia's Oil Export Strategy* (see note 130), 15.

<sup>156</sup> Eric Yep, “More Russian Oil Flows East as Relations with West Sour”, *wsj.com*, 14 August 2014, <http://online.wsj.com/articles/russian-oil-flows-east-as-relations-with-west-sour-1408020141> (accessed 16 December 2014).

<sup>157</sup> *Russia: International Energy Data and Analysis*, EIA, <http://www.eia.gov/beta/international/analysis.cfm?iso=RUS> (accessed 24 August 2015).

**Figure 10****Russian Federation: Crude oil and oil product exports to EU-28 (volume, mln. tons)**

HS Code 2709, 2710.

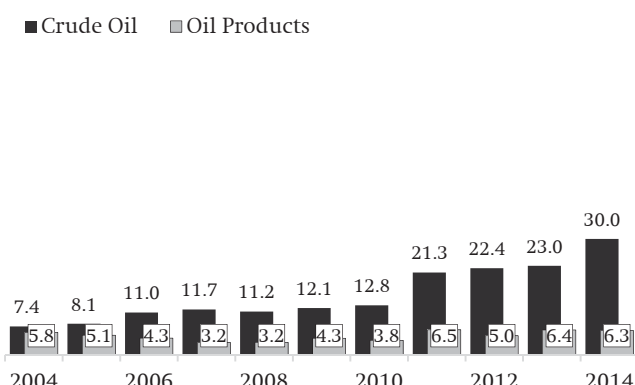
Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.**Figure 11****Russian Federation: Share of crude oil and oil product exports to EU-28 (in %)**

HS Code 2709, 2710.

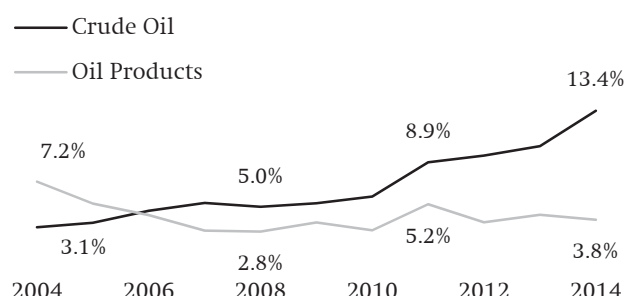
Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.

than doubled. In the first eight months of 2015, Russia had increased its oil exports to China by 28 per cent.

Expected growth of future demand for oil in China and India contrasts strongly with declining demand for oil in Europe. Thus, Russia intends to again double its Asian oil exports, which currently account for 28 per cent of total exports.<sup>158</sup> China has taken a very strategic approach to secure Russian supplies to its heartland because it aims to reduce its dependence on the Middle East. Russia, in turn, intends to become strongly dependent on a single market by pushing

<sup>158</sup> Ibid.**Figure 12****Russian Federation: Crude oil and oil product exports to China (volume, mln. tons)**

HS Code 2709, 2710.

Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.**Figure 13****Russian Federation: Share of total crude oil and oil product exports to China (in %)**

HS Code 2709, 2710.

Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.

forward additional supply contracts with China.<sup>159</sup> China has secured the volumes through pre-payment or pre-credits, as they have been linked to “loan for oil” or “oil for export” schemes. Thus, Russia has committed itself to supply around 600,000 b/d to China for the next 25 years.<sup>160</sup>

A major consequence for Europe of the Russian pivot to Asia could be the deterioration of the quality of oil delivered to Europe, as Russia has promised to supply light sweet crude from western Siberia to China. The quality of the Urals blend crude oil for the Euro-

<sup>159</sup> Six, *Russia's Oil Export Strategy* (see note 130), 19–22.<sup>160</sup> Ibid., 22.



**Table 6****Oil refinery Output by selected company (without international projects), million tons**

|                | 2009 | 2010 | 2011  | 2012 | 2013 | 2014 |
|----------------|------|------|-------|------|------|------|
| Rosneft        | 49.8 | 50.5 | 50.65 | 50.9 | 81.3 | 86.6 |
| Lukoil         | 44.4 | 45.2 | 45.2  | 44.4 | 45.2 | 45.3 |
| GazpromNeft    | 31.0 | 35.0 | 38.0  | 39.2 | 38.8 | 39.6 |
| Bashneft       | 20.7 | 21.2 | 21.1  | 20.8 | 21.4 | 21.7 |
| Surgutneftegaz | 19.5 | 20.3 | 20.1  | 19.6 | 18.9 | 19.3 |
| Slavneft       | 13.6 | 14.3 | 14.8  | 15.3 | 15.1 | 15.3 |
| Tatneft        | n/a  | 2.2  | 7.2   | 7.4  | 7.6  | 8.5  |
| Russneft       | 5.0  | 5.1  | 5.2   | 5.8  | 5.8  | 8.0  |

Source: Companies' annual reports.

pean consumer will deteriorate, as crude from the Baltic and the Black Sea contains more sulphur.<sup>161</sup> Increased levels of export commitments to China have already led to the redirection of some crude from western Siberia initially destined for Europe into the ESPO pipeline system. Moreover, to fulfil its commitments, Russia has asked Kazakhstan to supply additional volumes to the ESPO pipeline, which might also redirect certain volumes away from Europe.<sup>162</sup> Furthermore, in February 2015 the Ministry for Energy entrusted Transneft to work out a project on allocation of sour crude oil through a separate export destination via Ust-Uluga. As a result, a new blend of sour crude oil can be created in Russia similar to Iraq's Kirkuk and Basrah blends, 23 million tons of which could be exported per year. Indeed, the share of sour crude oil of Transneft's total exports increased from 77.5 million tons in 2013 to 81.1 million tons in 2014.<sup>163</sup> According to the European Commission, sour crude oil imports amounted to 14 per cent of total EU oil imports in 2013. At the same time, according to the International Energy Agency (IEA), oil consumption in the EU will decline and sour crude will sink at the fastest rate. Therefore, for the share of sour oil on the European market, Russia will have to compete with Saudi Arabia, Iraq and possibly Iran. In addition, when buying sour oil, companies demand substantial discounts that average US\$52.7 per ton.

The main winner will be China, which will be able to diversify its supplies and reduce its dependence on

the Middle East. Europe will remain the key market for Russia, according to the IEA. However, the share of oil exports to Europe will drop from 65 per cent in 2013 to 54 per cent in 2019.<sup>164</sup>

### At Stake: Modernisation in the Russian Refinery Sector

The Russian refinery sector has the third-largest capacity in the world. Yet, Russia has simple, medium and complex refineries, with simple refineries having a negative free cash flow and the medium ones struggling, too.<sup>165</sup> An upgrading of refineries in Russia had already slowly begun before the crisis. This has to be done against the background of a rapidly changing global refinery landscape. Due to the light tight oil revolution in the United States, North American refineries have become very competitive again, and new refinery complexes are being built in Asia and the Middle East. The current situation is putting pressure on an already struggling sector in Europe, but also on Russian refineries. Over the past 18 months, margins in Europe have recovered from the oil price slump, but this might just be a pause. Fierce competition over market shares is taking place. Against this background, Russian refineries have had to adapt, and a number of refineries have been put into operation. Production of diesel has been increasing in Russia in recent years, and in 2014 it achieved record output levels due to devaluation of the rouble and reductions on export

<sup>161</sup> Ibid.<sup>162</sup> Ibid.<sup>163</sup> "Transneft: v RF mozhnet poyavit'sya novy'j sort nefti" ["Transneft: A New Oil Blend Might Appear in Russia"], *tass.ru*, 18 February 2015, <http://tass.ru/ekonomika/1776168> (accessed 10 September 2015).<sup>164</sup> *Medium-Term Oil Market Report 2014*, ed. IEA (Paris, 2014), 119–120.<sup>165</sup> Henderson, *Key Determinants for the Future of Russian Oil Production and Exports* (see note 137), 44–48.

duties. An increasing number of Russian refineries are able to produce ultra-low sulphur diesel, putting European refineries under pressure.<sup>166</sup>

Rosneft owns most of the refining capacity (see Table 5, p. 34); also among those are a majority of the simple, unprofitable refineries that are under threat from the tax manoeuvre. The costs for upgrading these assets is estimated at US\$20 billion.<sup>167</sup> With regard to low oil prices and the stretched financial situation, the company would have to spend less on upstream developments. Thus, the company is at a strategic point, as an upgrading of refineries would threaten Rosneft's output. A closure of these refineries might even result in more crude exports from Russia.<sup>168</sup>

A dual strategy by Russian oil companies is visible. On the one hand, Russian companies are aiming to modernise their more profitable assets in the domestic market to further increase refined product exports to Europe. On the other hand, Russian oil companies have been investing in European (and Chinese) refineries in recent years. This is a prudent strategy to lock-in market shares and to deepen the value-chain. Rosneft, Lukoil and also Gunvor own refinery assets in Europe with a total refining capacity of 1 mb/d. Through its share in Ruhr Oel, Rosneft owns stakes in four refineries in Germany (Gelsenkirchen, Bayernoil, MiRO and Schwedt) and has the net share of the 11.6 million tons per year (233,000 b/d), which represents about 20 per cent of total refining capacity in Germany.<sup>169</sup> In June 2015, BP and Rosneft agreed on a reorganisation of its joint venture, Ruhr Oel, and on an asset swap that would – as soon as the deal is approved by regulatory authorities – double Rosneft's stakes in Bayernoil, MiRO and Schwedt. BP would have full ownership of Gelsenkirchen. Rosneft also has a stake in Italian Saras. Lukoil owns refineries in Romania (Ploiesti), Bulgaria (Burgas), Italy (ISAB) and it also has a stake in the Total refinery in the Netherlands (Vlissingen). The total refining capacity accounts for 31.8 million tons per year (638,600 b/d).<sup>170</sup> Finally, Gunvor owns two refineries in Germany (Ingolstadt), with a

capacity of 100,000 b/d, and the Independent Belgian Refinery, with a capacity of 107,500 b/d.<sup>171</sup>

Russian oil companies have been interested in investing in the European refinery sector for different reasons. Firstly, due to a recent relative decrease in export duties for oil, the supply from refineries with the Urals blend from the Druzhba pipeline has become even more profitable. Secondly, European refineries have higher levels of efficiency in comparison to Russian ones, and investments to upgrade European refineries could be more profitable with quicker payoffs. Finally, such a strategy has given downstream access in Europe to Russian companies and locks-in market shares for Russian crude exports.

The message for Europe is mixed: Due to increasing environmental standards and the demand structure (primarily in the EU), lighter, less carbon-intensive and cleaner petroleum products pose a challenge to the Russian refinery sector. This is particularly true for the EU's Euro 5 and Euro 6 standards for cars and light commercial vehicles.<sup>172</sup> Plummeting oil prices have different impacts on Russian and European refineries: With low oil prices, margins decrease for Russian refineries and increase for European ones.<sup>173</sup>

## 2014 and the Impact of Sanctions

The crisis in and around Ukraine has implications in the oil sector. First, Arctic and non-conventional oil production are affected by sanctions and being postponed and even cancelled. But these projects are unprofitable in the current oil price environment anyway. Against the background of rouble depreciation and the revaluation of debt in foreign currencies, Rosneft's net profits decreased from US\$5.7 billion in 2013 to US\$5.13 billion in 2014.<sup>174</sup> Whereas 2014 proved to be a very profitable year for Rosneft, mostly

<sup>166</sup> Six, *Russia's Oil Export Strategy* (see note 130), 35.

<sup>167</sup> See in more detail: Henderson, *Key Determinants for the Future of Russian Oil Production and Exports* (see note 137), 46.

<sup>168</sup> Ibid.

<sup>169</sup> Rosneft: *Acquisition of a Stake in Ruhr Oel GmbH*, [http://www.rosneft.com/Downstream/refining/Ruhr\\_Oel\\_GmbH/](http://www.rosneft.com/Downstream/refining/Ruhr_Oel_GmbH/) (accessed 9 September 2015).

<sup>170</sup> Lukoil: *Refineries*, [http://www.lukoil.ru/static\\_6\\_5id\\_257\\_.html](http://www.lukoil.ru/static_6_5id_257_.html) (accessed 9 September 2015).

<sup>171</sup> Gunvor: *Refineries*, Gunvor, <http://gunvorgroup.com/our-assets/refineries/> (accessed 9 September 2015).

<sup>172</sup> See Regulation (EC) n° 692/2008 implementing and amending Regulation (EC) n° 715/2007 on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.

<sup>173</sup> "Institutional Investors: Main Indicators", *Total*, 2015, <http://www.total.com/en/investors/institutional-investors/main-indicators> (accessed 20 November 2015).

<sup>174</sup> Sergey Smirnov and Galina Starinskaya, "Chisty'j dolg 'Rosnefti' vy'ros na tret'" ["Net Debt of 'Rosneft' Has Increased by One-third"], *Vedomosti.ru*, 4 March 2015, <http://www.vedomosti.ru/business/articles/2015/03/04/rosneft-sokratila-pribil-v-2014-godu> (accessed 11 September 2015).

due to rouble devaluation and decrease in export duties, the financial situation in 2015 is becoming much more strained, in particular for Rosneft (but also for Gazprom).

Russian companies need to generate financial resources, also due to low oil prices. Rosneft has the largest debts among Russian oil companies. The total net debt of Rosneft is US\$43.8 billion.<sup>175</sup> Rosneft paid the final tranche to BP for the acquisition of TNK-BP in February 2015. Rosneft is under significant pressure and aiming at generating more cash flow. Rosneft has looked into a number of methods to generate cash: 1) prepayment for oil supplies, 2) money from the National Wealth Fund, 3) selling of shares in upstream projects and 4) selling of own equity.

Thus, it signed a contract with China worth US\$270 billion – with US\$70 billion in prepayment – to supply 365 million tons of oil over 25 years.<sup>176</sup> It has also sold to trading companies such as foremost Trafigura, but also Glencore, Vitol and Shell, which buy oil from Rosneft based on prepayment conditions. Despite these moves, the key problem of long-term investments for new projects remains unsolved.

Therefore, Rosneft requested US\$50 billion from the National Wealth Fund<sup>177</sup> for refineries in the Far East and for the Arctic projects, then scaled it down to US\$21.3 billion. In August 2015 President Putin decided not to give any money to Rosneft unless a feasible payoff plan could be presented that took oil prices of US\$40–\$45 per barrel into consideration.

Rosneft is looking for additional money from the sale of a 15 per cent share of the stock of the Vankor oilfield to the Indian state company ONGC Videsh.<sup>178</sup> Vankor is Rosneft's crown jewel, as it provides 11 per cent of Rosneft's production and 4 per cent of overall

oil production in Russia. The next investor could be China National Petroleum Corporation (CNPC). Finally, ChemChina will get a majority stake in the Far-East Petrochemical Company (FEPCCO).<sup>179</sup> These are clear signs of pressure on the company, with the effect that Russian dependence on Asia is significantly increasing. In December 2014, Medvedev approved the further privatisation of 19.75 per cent of Rosneft (equivalent to the share of BP in Rosneft).<sup>180</sup> Potential buyers could be China or India.

Last but not least, due to the sanctions, Western technology has to be replaced with domestic or Asian technologies. Russian companies are negotiating increasingly with Chinese providers, for example. Despite the pessimistic views expressed by Lukoil,<sup>181</sup> Asian equipment is increasingly being ordered in Russia: In 2014, 30 per cent of orders received by the Chinese Honghua group – a key provider of drilling technologies for Russia – came from Russian companies (up from 12 per cent before the Ukraine crisis). Rosneft is less exposed to technological risks than, for example, GazpromNeft because it developed its own services department.

As an impact of the Russian-Ukrainian crisis, the government proposed to facilitate access by foreign companies to Russian mineral, oil and gas fields, increasing the share of foreign companies in projects from 25 per cent to 49 per cent, as of July 2014.<sup>182</sup> And in September 2014, Rosneft and Gazprom lobbied for liberalisation of legislation, which would give foreign companies better access to a number of deposits.<sup>183</sup>

<sup>175</sup> "OAO NK 'Rosneft': Rezultaty' po MSFO za 12mes. 2014 g." ["Rosneft: Results according to the IFRS for 12 Months of 2014"], *Rosneft*, 4 March 2015, 13, [http://www.rosneft.ru/attach/0/12/99/Rosneft\\_Q4\\_2014\\_IFRS\\_RUS.pdf](http://www.rosneft.ru/attach/0/12/99/Rosneft_Q4_2014_IFRS_RUS.pdf) (accessed 11 September 2015).

<sup>176</sup> Denis Pinchuk, "Rosneft to Double Oil Flows to China in \$270 Billion Deal", *Reuters.com*, 21 June 2013, <http://www.reuters.com/article/2013/06/21/us-rosneft-china-idUSBRE95K08820130621> (accessed 11 September 2015).

<sup>177</sup> The main function of the National Wealth Fund is to support the Russian pension system. On 1 August 2015 the National Wealth Fund accounted for \$74.56 billion, according to the Ministry of Finance of the Russian Federation, [http://old.minfin.ru/en/nationalwealthfund/statistics/amount/index.php?id\\_4=5830](http://old.minfin.ru/en/nationalwealthfund/statistics/amount/index.php?id_4=5830) (accessed 20 August 2015).

<sup>178</sup> "Rosneft Agreed on Sale of 15 Percent in Vankorneft to ONGC Videsh", *Rosneft press releases*, 4 September 2015, <http://www.rosneft.com/news/pressrelease/04092015.html> (accessed 15 December 2014).

<sup>179</sup> "Rosneft and ChemChina Develop Cooperation", *Rosneft press releases*, 3 September 2015, <http://www.rosneft.com/news/pressrelease/030920152.html> (accessed 11 September 2015).

<sup>180</sup> Artem Filipenok, "Medvedev podpisal dokument o chastichnoj privatizacii 'Rosnefti'" ["Medvedev Signed a Decree on Partial Privatization of Rosneft"], *RBC*, 1 December 2014, <http://top.rbc.ru/economics/01/12/2014/547beba3cbb20fc8c084d76e> (accessed 11 September 2015).

<sup>181</sup> "Lukoil: oborudovanie dlya razrabotki trudnoj nefti nelzya zamenit' kitajskimi" ["Lukoil: Extraction Technologies for Non-conventional Oil Can Not Be Substituted with Chinese Ones"], *Vedomosti.ru*, 14 November 2014, <http://www.vedomosti.ru/companies/news/35987441/lukoil-oborudovanie-dlya-razrabotki-trudnoj-nefti-nelzya> (accessed 19 December 2014).

<sup>182</sup> Yuriy Barsukov, Kyrill Melnikov and Anatoliy Dzhumaylo, "Ot gosudarstva k gosudarstvu" ["From State to State"], *Kommersant.ru*, 17 July 2014, <http://www.kommersant.ru/doc/2526785> (accessed 15 December 2014).

<sup>183</sup> Galina Starinskaya and Mikhail Serov, "Rosneft i Gazprom podelyatsya shel'fom" ["Rosneft and Gazprom Will Share Their Shelf"], *Vedomosti.ru*, 25 September 2014, <http://www.vedomosti.ru>

Yet, this liberalisation targets predominantly companies from China, India and the Middle East.

## Conclusions from a German and EU Perspective

Europe should be cautious regarding the oil market. Russia is among the top two exporters in the world, and any developments in Russia regarding production and export will have very tangible effects on the world oil markets. Moreover, for Russian budget revenues, the oil sector is still a key income source. In the short term, crude oil exports from Russia will remain high because of the urgent need for foreign currency.

Russia is a key country in terms of the current supply of crude and refined products. It is a key investor in the German and European refinery sector, whose profitability is closely linked to the supply of the Urals blend in many cases. It is foreseeable on a global scale that the surplus in refinery capacity will result in growing competition over the Asian and European markets. Russian oil companies aim to preserve their market share in Europe but are also expanding to Asia. One day in the future, Rosneft might decide on the closure of its European outlets in favour of Russian locations, but this seems to be far off. Russia is aiming to modernise and deepen the value-added chain inside the country. Under current circumstances, Rosneft's investment in German refineries might benefit both sides.

Moreover, Russia is a major upstream partner for Western international oil companies. Thus, it should not be surprising that Western companies continue their business activities in Russia, where they are not affected by sanctions. These "multis" have been increasingly under pressure, firstly, because 85–90 per cent of conventional fossil fuel reserves are controlled by national oil companies. Secondly, they had to shift their investments into more difficult geological, climatic or geographic areas in order to maintain their reserves. These activities are less economically efficient in times of a relatively low oil price. Therefore, the access to conventional and relatively cost-efficient reserves is essential for their capitalisation. In that respect, ever-closer cooperation between state companies (e.g. Russian and Chinese) along the whole value-chain is a source of concern because it might

reinforce "mercantilist approaches" to energy trade, with possible negative repercussions for free trade flows in times of narrow markets, but certainly with lost opportunities for the Western multinationals. Thirdly, the longer the crisis over Ukraine and the sanctions lasts, the more of an impact on investments in Russian upstream developments. This might reinforce the cyclical swings in oil markets, as the International Energy Agency has already warned in its World Energy Outlook 2015 that investments are decreasing. Too little investment might easily result in high price spikes again. Equally, the longer the crisis lasts, the more that the mutual exposure to risks grows, both for European investors and also for Russian investors in the EU.

To conclude, there are good reasons to build upon commercial ties to create mutual benefits. There is more interdependence in the oil sector than the superficial view of a fungible and flexible global oil market suggests at first sight. Thus, any considerations of an oil import embargo as part of new sanctions<sup>184</sup> should be seen as an "ultima ratio" in the field of economic sanctions, and not as a powerful instrument to achieve a policy shift in Russia. The effect on EU-Russian relations would be detrimental, as this would result in counter-sanctions and also destroy "last resorts" of cooperation niches deliberately exempted from the current sanctions in place.

ru/companies/news/33849021/rosneft-i-gazprom-podelyatsya-shelfom (accessed 15 December 2014).

<sup>184</sup> Roland Götz, "Zwischen Angst und Größenwahn. Gas und Öl als politische Druckmittel", *Osteuropa* 64, no. 5–6 (2014): 277–92.

# The Backbone of Domestic Energy Supply: The Electricity Sector

## Electricity, Renewables and Energy Efficiency – “Last Resorts” for Enhanced Energy Cooperation between Russia and the EU?

After the dissolution of Comecon and the Soviet Union, the interconnection of the electricity grids of the (post-) Soviet region and Europe’s Union for the Coordination of Transmission of Electricity (UCTE) became an intriguing vision. The “Baltic Ring” was one of the early visions looking to bring together German companies such as the defunct PreussenElektra, Russia’s RAO EES Rossii and local generation companies in, for example, St. Petersburg and Kaliningrad. The broad vision was for common integrated electricity cooperation and electricity market development from the Atlantic to the Urals and beyond.<sup>185</sup>

In the first decade of the 2000s, the optimism prevailed because Russia had embarked on structural reforms in the electricity sector. It was hoped that the two markets would continue to converge as liberalisation and competition were introduced in Russia. Later on, the electricity sector and renewable energy generation plus efficiency were seen as offering opportunities for a modernisation partnership to decarbonise the energy system. The modernisation partnership was formulated by Germany in 2009 and the EU in 2010 with Russia. The 2013 Roadmap for EU-Russia Energy Cooperation until 2050 indeed foresaw interconnected power systems and market couplings.<sup>186</sup>

Russia exports electricity to Latvia, Lithuania, Finland and Poland. With decreasing spot prices in the integrated Scandinavian Nord Pool Market, Russian electricity exports to Finland have been decreasing – a process that will most likely continue with Latvia and

Lithuania as soon as they are directly connected to “Nord Pool” (see Figures 14 and 15, p. 45).

One major field of cooperation should not be forgotten: One of the four thematic groups in the framework of the Russia-EU energy dialogue<sup>187</sup> has focussed on nuclear energy; at the last meeting in 2013, stress tests for nuclear power plants in Russia and the EU were discussed.<sup>188</sup> In addition, cooperation in the sphere of nuclear energy has been discussed regularly within the Inter-Parliamentary Assembly between the State Duma and the European Parliament.<sup>189</sup> The EU indeed depends considerably on Russia in the sphere of nuclear energy.

Firstly, the EU has 18 nuclear reactors originating from Russia: Bulgaria (2), Czech Republic (6), Finland (2), Hungary (4) and Slovakia (4, with two more being built).<sup>190</sup> These reactors provide 50 per cent of all electricity in Slovakia<sup>191</sup> and more than one-third<sup>192</sup> in Hungary. Typically, fuel rods are produced specifically for a certain model of reactor, as nuclear reactors are designed to run on very specific kinds of fuel rods, which cannot be replaced easily and without significant risks. Re-engineering either the reactors or fuel

<sup>185</sup> *Anforderungen für ein integriertes Europa: Die deutsch-russische Kooperation im Elektrizitätssektor*, SWP-Studie 424, ed. Andrei Kuxenko (Ebenhausen: Stiftung Wissenschaft und Politik, May 1998), and Rudolf Botzian, Andrei Kuxenko, Friedemann Müller and Klaus Schröder, *Transformation und Globalisierungsdruck in Europa, Die Bedeutung der deutsch-russischen Kooperation im Elektrizitätsbereich*, SWP-AP 3065 (Ebenhausen: Stiftung Wissenschaft und Politik, April 1998).

<sup>186</sup> See EC, *Roadmap: EU-Russia Energy Cooperation until 2050* (see note 5), 9.

<sup>187</sup> “Sotrudnichestvo s ES” [“Cooperation with the EU”], Ministry of Energy of the Russian Federation, [http://www.minenergo.gov.ru/activity/co-operation/russia\\_eu/](http://www.minenergo.gov.ru/activity/co-operation/russia_eu/) (accessed 16 September 2015).

<sup>188</sup> “Sostoyalos’ zasedanie tematicheskoy gruppy’ po atomnoy e’nergetike Rossiya-ES (Sankt Peterburg)” [“Meeting of the Thematic Group on Nuclear Energy Has Taken Place in St. Petersburg”], Presidential Council on Economy Modernization and Innovative Development, 23 June 2013, <http://www.i-russia.ru/nuclear/news/19242/> (accessed 16 September 2015).

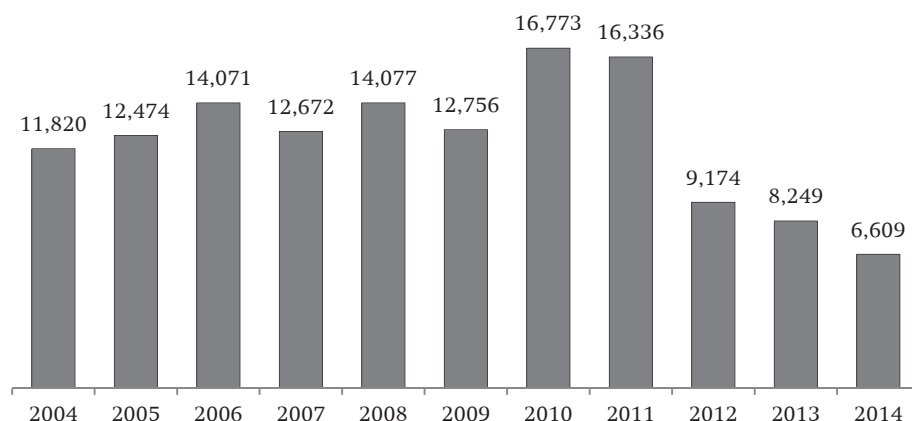
<sup>189</sup> “Itogovy’j dokument pyatogo zasedaniya mezhparlamentskoj gruppy’ Rossija-ES po e’nergetike” [“Fifth Meeting of the Inter-Parliamentary EU-Russia Group on Energy: Final Document”], 22–23 April 2014, <http://www.ruscable.ru/other/Скан%20Итогового%20документа.pdf> (accessed 16 September 2015).

<sup>190</sup> “Nuclear Power in the EU”, *World Nuclear Association*, 24 July 2015, <http://www.world-nuclear.org/info/Country-Profiles/Other/European-Union/> (accessed 16 September 2015).

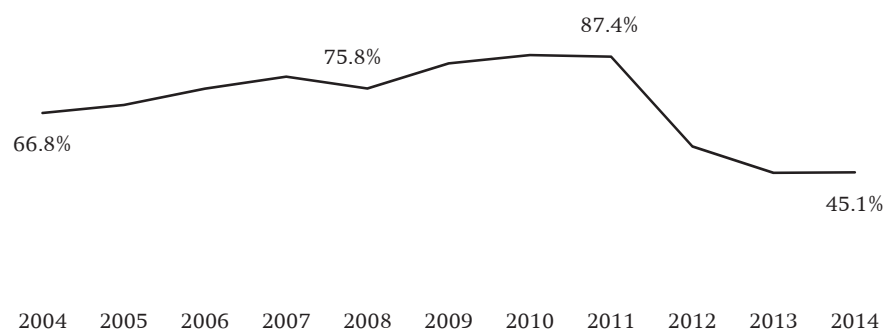
<sup>191</sup> “Nuclear Power in Slovakia”, *World Nuclear Association*, August 2015, <http://www.world-nuclear.org/info/Country-Profiles/Countries-O-S/Slovakia/> (accessed 16 August 2015).

<sup>192</sup> “Nuclear Power in Hungary”, *World Nuclear Association*, April 2015, <http://www.world-nuclear.org/info/Country-Profiles/Countries-G-N/Hungary/> (accessed 16 September 2015).



**Figure 14****Russian Federation: Electrical Energy exports to EU-28 (millions of kilowatt hours)**

HS Code 2716.

Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.**Figure 15****Russian Federation: Share of total electrical energy exports to EU-28 (in %)**

HS Code 2716.

Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.

rods is possible but requires significant investments. Thus, Russian companies TVEL and Tenex – owned by 100 per cent state-owned company Atomenergoprom – produce fuel for Russian reactors. In 2014, the share of the EU’s uranium supplies from Russia was 18 per cent<sup>193</sup> and uranium enrichment services 25 per cent.<sup>194</sup>

<sup>193</sup> “Purchases of Natural Uranium by EU Utilities by Origin, 1992–2014 (tU)”, *European Commission*, [http://ec.europa.eu/euratom/observatory\\_data.html](http://ec.europa.eu/euratom/observatory_data.html) (accessed 16 September 2015).

<sup>194</sup> “Providers of Enrichment Services Delivered to EU Utilities, 1993–2014 (tSWU)”, *European Commission*, [http://ec.europa.eu/euratom/observatory\\_data.html](http://ec.europa.eu/euratom/observatory_data.html) (accessed 16 September 2015).

Regarding the electricity sector, major questions arise:

- 1) Are reforms in the electricity sector continuing? Is competition increasing in generation, but also on the wholesale and retail levels?
- 2) How has the legal and regulatory framework developed with respect to “modernisation”, and what are the strategic priorities for the Russian power sector?



Table 7

## Electricity production by company, from thermal power stations (billion kW/h)

|                               | Main stakeholder            | 2009   | 2010   | 2011    | 2012    | 2013    | 2014    |
|-------------------------------|-----------------------------|--------|--------|---------|---------|---------|---------|
| Inter RAO                     | Rosneftgas/<br>FSK/RusHydro | n/a    | 85.200 | 116.900 | 113.955 | 132.152 | 146.045 |
| OGK-2                         | Gazprom                     | 76.119 | 82.472 | 79.796  | 75.202  | 70.658  | 68.693  |
| E.ON Russia                   | E.ON                        | 53.948 | 55.791 | 62.467  | 64.202  | 62.995  | 59.238  |
| Mosenergo                     | Gazprom                     | 61.747 | 64.969 | 64.648  | 61.334  | 58.642  | 56.667  |
| KES-Holding                   | Renova                      | 63.270 | 64.969 | 61.400  | 58.423  | 56.540  | 58.400  |
| Enel OGK-5                    | Enel                        | 41.365 | 45.118 | 44.490  | 46.768  | 44.121  | 44.658  |
| RAO Energy<br>Systems of East | RusHydro                    | 26.900 | 27.563 | 30.368  | 31.563  | 30.002  | 31.155  |
| Fortum                        | Fortum                      | 16.000 | 16.100 | 17.400  | 19.300  | 20.000  | 25.278  |
| TGK-1                         | Gazprom                     | 12.801 | 14.200 | 16.309  | 16.890  | 17.313  | 14.960  |
| Eurosibenergo                 | Rusal                       | 13.8   | 15.056 | 12.800  | 18.414  | 15.100  | 12.500  |
| Kvadra                        | Oneximgroup                 | 10.674 | 11.146 | 11.207  | 11.214  | 11.457  | 10.470  |

Note: Electricity mix 2013: thermal power – 66.4 per cent; hydro – 17.1 per cent; nuclear – 16.5 per cent. Electricity produced in 2013 – 1050.7 billion kW/h.

Source: Annual reports, RIA rankings.

## Structural Reforms and Priorities

The signs for developing an ambitious reform of the electricity sector were promising and encompassed structural reforms.<sup>195</sup> As a result of the Inter RAO UES reform from 2003 to 2008, the assets of the state's vertically integrated electricity company were split between 21 independent companies. Nuclear power plants and grid monopolies remained under state control, whereas generating, sales and repair companies were to be privatised and to compete with each other, and purportedly reduce costs. The privatisation in 2008 brought some new entrants and greater diversity to generation ownership.

Yet, the reform has not led to the expected results. Firstly, efficiency and reliability of the sector have not increased. The “Moscow blackout” of 2005 and an accident at the Sayano-Shushenskaya hydroelectric power station in 2009 took place under this new scenario. Secondly, the creation of a wholesale electricity market and the deregulation of prices for industrial consumers have not created the expected competition in the sector but have led to a sharp rise in electricity tariffs in the country. Within the last five years, prices

have more than doubled. Thirdly, getting connected to the grid in Russia requires one of the longest – and most expensive – waiting periods in comparison with other countries. Finally, newcomers to the sector tried to maximise profits with minimal investments. As a result, the investment programme proposed by the government failed.<sup>196</sup> A looming structural problem is evident: The delayed renovations of the infrastructure require huge investments that cannot be easily financed or amortised through higher tariffs.

Two conflicting approaches in the government became evident: The first one is the so-called liberal approach, proposed by Prime Minister Medvedev, which was assumed to bring initially planned reforms to an end and establish a free-market by eliminating local monopolies and cross-subsidies. In contrast, Sechin, Head of Presidential Commission (and Rosneft), lobbied for strengthening the state's influence in the electricity sector. Supporters of that approach assumed that this will increase the controllability of the electricity sector. As a consequence, state-owned companies such as RusHydro, Gazpromenergoholding, Rosatom and Inter RAO UES have leading positions in the electricity sector (about 55 per cent of total generation). The government has continued to consolidate its

<sup>195</sup> See in more detail: Douglas Coke, *Russian Electricity Reform 2013 Update, Laying an Efficient and Competitive Foundation for Innovation and Modernisation*, IEA Insights Series 2013 (Paris: Organisation for Economic Co-operation and Development/International Energy Agency, 2013).

<sup>196</sup> Yuriy Borovsky, “Privatization of Russian Energy Assets in the International Context”, in: *Vestnik MGIMO* (Moscow: MGIMO University, 2013), 242–250.

assets through state-controlled companies such as Rosneftgas and Gazprom.<sup>197</sup> Thus, presently Gazprom is the largest owner of electricity assets in Russia (controlling stakes in Mosenergo, TGK-1 and OGK-2) and is among the top 10 world producers of electricity.<sup>198</sup> Moreover, key grid assets are reconsolidated within one state-owned company controlling approximately 70 per cent of distribution and 90 per cent of transmission grids in Russia.<sup>199</sup> Again, the major figures of the energy and political elite are engaged in the electricity sector as well: most prominently Igor Sechin and Alexei Miller. RusHydro has seen changes in management because of a corruption crisis that unfolded in 2013.

Rosatom is a state-owned non-profit company headed by Sergei Kirienko, a known pro-Western reformer and prime minister under President Yeltsin. Rosatom is also fulfilling international obligations in the field of the peaceful use of atomic energy. Rosatom is the number one global player with regard to construction of nuclear power plants and the global nuclear fuel market; number two regarding installed capacity and uranium reserves; and number three in uranium extraction. Most importantly though, in strategic terms, is the fact that it is the only company that can provide the entire cycle of nuclear services.<sup>200</sup>

The electricity sector has been a major field for investments of European companies such as German E.ON and Finish Fortum. This has been closely related to the high hopes of a close partnership. Under the new circumstances, though, increasing cooperation with Chinese companies can be observed: In Novem-

ber 2014 RusHydro signed two framework agreements with Chinese companies to build power stations and export electricity to China. The first deal was with Sanxia (Three Gorges Corporation) to construct a hydro power plant in the Amur and Khabarovsk regions. Chinese partners promised to find themselves potential clients in China who would buy electricity. PowerChina has a project in the Leningrad region. A subsidiary of RusHydro – Energy Systems of the East – signed an agreement with Dongfang Electric International to build a hydro power station in Vladivostok and has proposed more joint ventures with Chinese companies.<sup>201</sup> These are long-term developments; however, electricity exports to China have increased already in absolute volumes and relative terms (see Figures 16 and 17, p. 48).

Finally, against the background of economic sanctions, the goal of having the electricity sector integrate into the world energy system<sup>202</sup> has been abandoned in favour of further integration within the Eurasian Economic Union. A shift has also become visible in terms of the Russian electricity market's interconnectivity (and integration) with other systems when the Energy Strategy 2030 is compared with the new one for 2035: "gradual liberalization of domestic energy markets"<sup>203</sup> is listed in the Energy Strategy as one of the measures of the state energy policy to achieve strategic goals on the domestic energy market. This is replaced in the new strategy with "integration of internal energy markets in the framework of the Eurasian Economic Union",<sup>204</sup> which is perceived as a main driver for flexibility of supply and an increase in competition among producers. So far, the design of the electricity market's integration into the Eurasian Economic Union is still under discussion. However,

**197** For example, Inter RAO sold 40 per cent of IrkutskEnergo to Rosneftgas at the beginning of 2013. In August 2013 Gazprom Energy bought 89.97 per cent of the Moscow United Energy Company (MOEK), which until now has been the only major company left in the hands of the state since the reorganisation of RAO UES; "Gazprom Bought Moscow United Energy Company", *Oil-capital.ru*, 13 August 2013, <http://www.oilcapital.ru/company/216474.html> (accessed 16 December 2014). MOEK is the exclusive provider of heat to the population and companies in Moscow.

**198** See Gazprom, "Strategiya v oblasti e'nergetiki" ["Strategy in the Electricity Sector"], <http://www.gazprom.ru/about/strategy/energetics/> (accessed 16 December 2014).

**199** "Otchet o sotsial'noj otvetstvennosti i korporativnom ustojchivom razviti" ["Report on Social Responsibility and Corporate Sustainable Development"], *Rosseti* 2013, 7, [http://www.rosseti.ru/investors/info/sotsialnyy\\_otchet/doc/rosseti\\_sr\\_2013\\_rus\\_01-07-2014-2.pdf](http://www.rosseti.ru/investors/info/sotsialnyy_otchet/doc/rosseti_sr_2013_rus_01-07-2014-2.pdf) (accessed 16 December 2014).

**200** Reiner Gatermann, "Rosatom's Strategy: No Politics – More Openness", *European Energy Review*, 8 July 2015, <http://www.europeanenergyreview.eu/rosatoms-strategy-no-politics-more-openness/> (accessed 8 July 2015).

**201** "With Minus", *Exploration and Production Journal* 6, no. 45 (2014): 40–45.

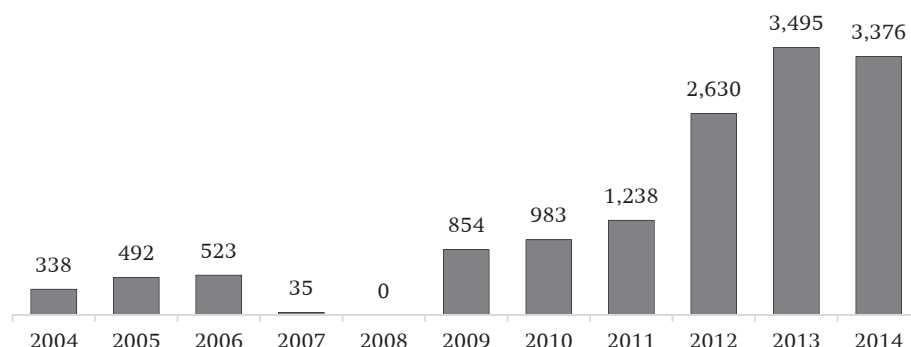
**202** "Development of Domestic Energy Markets", in *Energy Strategy of Russia for the Period up to 2030*, approved by Decree No 1715-r of the Government of the Russian Federation dated 13 November 2009 (Moscow, 2010), 38, [http://www.energystategy.ru/projects/docs/ES-2030\\_\(Eng\).pdf](http://www.energystategy.ru/projects/docs/ES-2030_(Eng).pdf) (accessed 14 September 2015).

**203** "Current Results of the Energy Strategy of Russia for the Period up to 2020 Implementation, Objectives and Goals of the Strategy", in *Energy Strategy of Russia for the Period up to 2030*, *ibid.*, 12.

**204** "Projekt: E'nergeticheskaya strategiya Rossii na period do 2035" ["Draft Proposal of the Energy Strategy of Russia for the Period up to 2035: Implementation Mechanisms"], 24 August 2015, <http://minenergo.gov.ru/upload/iblock/43e/proekt-energeticheskoy-strategii-rossii-na-period-do-2035.pdf> (accessed 15 October 2015).

**Figure 16**

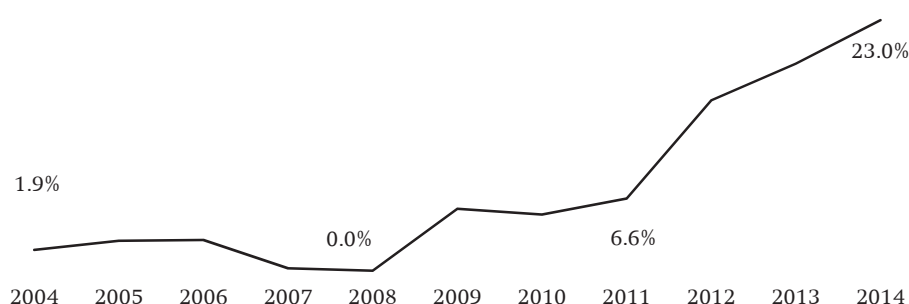
**Russian Federation: Electrical energy exports to China (millions of kilowatt hours)**



Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.

**Figure 17**

**Russian Federation: Share of total electrical energy exports to China (in %)**



HS Code 2716.

Source: Federal Customs Service, *Customs Statistics of Foreign Trade*, <http://stat.customs.ru/apex/f?p=201:7:2921546647167524::NO>.

the discussions indicate that there will be a single tariff on the high-voltage distribution grids and a state monopoly on the electricity grid will persist.<sup>205</sup> Moreover, the Minister of Energy of the Eurasian Economic Union, Tair Mansurov, refers to the example of Central and Western Europe electricity markets as prototypes for the future energy market of the Eurasian Economic Union.<sup>206</sup> Yet, creating such a market would imply

<sup>205</sup> “Konceptciya formirovaniya obshhego e’lektroe’nergeticheskogo ry’nka Evrazijskogo e’konomicheskogo soyuza” [“Concept for Forming a Common Electric Power Market of the Union”], approved by Decree N16 of the Eurasian Economic Commission Council dated 8 May 2015, Moscow, 2015: 15–16, <http://bit.ly/1OBAqKt> (accessed 12 October 2015).

<sup>206</sup> T. Mansurov, “Sozdanie obshix ry’nkov e’nergoresursov pozvolyt EAE’S utverditsya na novoj mirovoj karte e’nergory’nkov v

that Russia must eliminate cross-subsidies. The electricity market in Russia is a dual market, with regulated tariffs for private households and non-regulated tariffs in the wholesale segment (with some exceptions). The wholesale market is divided into price zones: competitive areas (Europe, Urals and Siberia), non-competitive areas (Far East, Komi, Arkhangelsk, Kaliningrad) and isolated areas (Sakhalin, Kamchatka).

From this perspective, the intention to postpone the elimination of cross-subsidies in the energy sector – mentioned in the new energy strategy – indirectly

kachestve odnogo iz oshovny’h igrokov” [“Creation of the Common Energy Markets Will Enable the European Energy Union to Strengthen Its Position as a Major Player on the Global Map of Energy Markets”], *Energorinok*, 2015: 7–8, <http://bit.ly/1ThAsbr>.

confirms that liberalisation in the electricity sector will not be on the agenda, at least in the short- to medium term. It is important to emphasise that the current model of the wholesale and retail electricity markets is still in transition and is not able to fully ensure competition on the market and attract investors to the electricity sector. Setting the issue of future electricity market reforms aside in the new Russian Energy Strategy till 2035 only temporarily removes the issue from the agenda.

## Russian Policies on Renewable Energy and Energy Efficiency

The backlash to structural reforms has implications for the integration of renewable energy and energy-efficiency measures. The new package of measures to support renewable energy in Russia was adopted in May 2013. It faced strong opposition from the Union of Electricity Consumers and the Council of Electricity Producers, but was pushed by state companies: The renewable energy lobby is officially represented by Composit Holding, which is a partner of Rosatom, Rosnano and Rostechologies.

The new law establishes several important mechanisms, such as capacity delivery agreements, which make renewable energy projects profitable and guarantee payoffs. Total capacity-input based on renewables should be 5,871 megawatts (MW) by 2020, which is equivalent to 2.5 per cent of the total Russian energy mix,<sup>207</sup> well below the target of 4.5 per cent by 2020 once set by then-President Medvedev. A positive trend is not evident. Firstly, the government decided to support only solar, wind and hydro energy projects. All other sources that have considerable potential for development (most evidently biogas) are excluded from the government programme. Secondly, any project that intends to acquire the government's support for the construction of generating capacities based on renewables should meet the criteria of so-called "local content" regulation.<sup>208</sup> The provision of local content

requires that any project should use a certain amount of equipment produced in Russia. Thus, for example, in order to obtain government support for the projects based on wind energy, the share of Russian-produced equipment and components should be 35 per cent in 2014 and 65 per cent from 2016 to 2020. For solar equipment and components, it is 50 per cent in the 2014–2015 period and 70 per cent from 2016 to 2020.<sup>209</sup> At present, the biggest and only producer of solar panels in Russia is Hevel Solar, established by Renova (51 per cent) of Viktor Vekselberg, and Rosnano (49 per cent) of Anatoliy Chubais. Production capacities of Hevel are estimated at 100 MW in 2013<sup>210</sup> and 130 MW in 2014, whereas all other Russian producers have capacities only for 10 MW total.

This illustrates a very protectionist approach, de facto resulting in a monopolisation of the renewable energy sector for solar and wind. The Russian business community will buy the solar equipment produced by Hevel because it guarantees profits and low levels of risk. Composit Holding will be the key producer of wind components.

In early 2015, Prime Minister Medvedev signed a decree<sup>211</sup> of the Government of the Russian Federation that provides support for electricity generation from renewable energy sources on the retail electricity markets, including those in isolated and remote areas, where the use of renewable energy is more cost-effective than expensive diesel generation. Thus, for the first time, the retail electricity market has been divided into a central market and isolated and remote markets. For example, isolated and remote power systems have been exempted from the requirements of local content regulation. Moreover, the decree provides support for all kinds of renewable energy, including biogas, biomass and landfill gas. This is a

da, Ontario, contradicts the agreement on trade-related investment measures. For more information see: Anatole Boute, "Zelenaya' e'nergetika v Rossii" ["Green Energy in Russia"], Russian International Affairs Council, 18 March 2014, [http://russiancouncil.ru/inner/?id\\_4=3327#top](http://russiancouncil.ru/inner/?id_4=3327#top) (accessed 6 January 2014).

**209** Kasarin, "Measures to Support Renewable Energy in Russia" (see note 207).

**210** See Hevel official website, <http://www.hevelsolar.com/production/modul/index.php> (accessed 16 December 2014).

**211** "O stimulirovanii ispol'zovaniya vozobnovlyaemy'x istochnikov e'nergii na roznicny'x ry'nkax e'lektroenergii" ["On Incentives to Use Renewable Energy Sources on the Retail Electricity Markets"], approved by Decree N 47 of the Russian Federation dated 23 January 2015, <http://government.ru/docs/16633/> (accessed 16 September 2015).

**207** Damir Kasarin, "Mery' podderzhki VIE' v ramkax EE'S Rossii" ["Measures to Support Renewable Energy in Russia, UNDP in Russia"], <http://solex-un.ru/energo/klyuchevye-temy/vozobnovlyaemye-istochniki-energii/mery-podderzhki-vie> (accessed 16 December 2014).

**208** The Russian government might be forced to reconsider the local content requirement, as it does not correspond to WTO norms. In May 2013 the Appellate Body of the WTO decided that current local content requirement for renewable energy in Cana-

potential hook for the cooperation of European companies with Russian regions, provinces and oblasts.

Another promising area of cooperation has been energy efficiency. The enactment of the federal law on energy efficiency in 2009 under Medvedev's presidency gave considerable impetus to the development of the legislative framework on energy efficiency in Russia. Following passage of the law, a state programme on energy savings was adopted. Positive results between 2008 and 2011 were achieved only in sectors such as state-funded organisations and residential buildings, lighting, appliances and equipment. In industry and transport, government measures were very limited and did not bring tangible results. Then, the adoption in April 2014 of a new state programme, "Energy Efficiency and Energy Development",<sup>212</sup> abolished the previous programme and all established indicators to be achieved. The new programme only established indicative targets, such as a decrease in energy intensity of Russian GDP by 13.5 per cent compared to the 2007 level, and an increase in oil refining efficiency up to 85 per cent.<sup>213</sup> The new programme is less detailed and specific in terms of objectives, tools and the results. This might be a reaction to the inefficient policy on energy savings over the past four to five years as well as to a bad economic situation. However, the draft of the new Energy Strategy up to 2035 clearly indicates that energy efficiency will be among the priorities in the energy sector. The new strategy offers more effective tools for stimulating policies on energy saving, more precisely: state guarantees for loans on the implementation of energy-efficiency projects; tax incentives for the purchase of new energy-efficient technologies; development of market mechanisms and target contracts; development of standards and labelling of buildings; equipment and vehicles; contract system of state purchases.<sup>214</sup>

Yet, another positive step forward is the abolition of taxes on the import of electric cars from February 2014 till the end of 2015.<sup>215</sup> Furthermore, in August 2015,

**212** "Ob utverzhdenii gosudarstvennoj programmy Rossijskoj Federacii 'E'nergoe'ffektivnost' i razvitie e'nergetiki" ["State Program of the Russian Federation: Energy Efficiency and Energy Development"], approved by Decree N 321 of the Government of the Russian Federation dated 15 April 2014, *RG.ru*, <http://www.rg.ru/2014/04/24/energetika-site-dok.html> (accessed 16 September 2015).

**213** *Ibid.*, 3.

**214** "Energy Savings and Energy Efficiency", in "Draft Proposal of the Energy Strategy of Russia for the Period up to 2035" (see note 204).

**215** Alina Raspopova, "Avtomobilistam obnulili schet za e'lektrichestvo. V Rossii na dva goda otmeneny' vvoznyye poshliny' na

Medvedev signed a decree allowing for the equipping of fuel stations with chargers for electric vehicles.<sup>216</sup>

## Conclusions from a German and EU Perspective

In sum, the electricity sector, which has always been perceived as the "frontrunner" of liberalisation in Russia, is experiencing significant backlash. Still, the electricity sector remains a major prospective field for joint projects. With that, it should not be forgotten that Germany and the EU on the one hand and Russia on the other hand use very different framing. Whereas Germany in particular promotes decarbonisation, for Russia innovation and technological developments are the key motivations.

The analysis identifies some anchors for cooperation, for example in the field of decentralised renewable energies. Beyond that, however, the support schemes limit market access for foreign technologies.

The nuclear sector is strategic for Russia to maintain its status as an "energy superpower". Rosatom is among the three leading global players. Moreover, the threats stemming from nuclear technologies should be an incentive to continue cooperation with Russia in that realm (e.g. with the stress tests). In that respect, it is a quite sensitive move that the EU is funding the diversification of reactor fuel-supply for 28 Russian-type units in the EU, which could impede future cooperation and trust-building in that area.<sup>217</sup>

e'lektromobili" ["Motorists' Electricity Check Set at Zero. Import Taxes for Electric Cars in Russia Have Been Abolished for Two Years"], *gazeta.ru*, 23 December 2013, [http://www.gazeta.ru/auto/2013/12/23\\_a\\_5816565.shtml](http://www.gazeta.ru/auto/2013/12/23_a_5816565.shtml) (accessed 16 December 2014).

**216** "Ob oborudovanii avtozapravochny'x stancij zaryadny'mi kolonkami dlya transportny'x sredstv s e'lektroprivodnymi" ["On Equipment of Filling Stations with Chargers for Vehicles with Electric Engines"], approved by Decree Nr. 890 of the Government of the Russian Federation dated 27 August 2015, <http://government.ru/docs/19447/> (accessed 16 September 2015).

**217** "EU Funds Diversification of Russian Reactor Fuel Supply", *world nuclear news* (wnn), 29 June 2015, <http://www.world-nuclear-news.org/UF-EU-funds-diversification-of-Russian-reactor-fuel-supply-29061501.html> (accessed 29 June 2015).



# Conclusions and Implications for German and EU Policies

## Dynamics in the EU-Russian Energy Relationship after Ukraine

The analysis shows that all three sectors are closely interrelated between the EU and Russia and that the future carries risks and opportunities (for specific results and recommendations, see the respective conclusions). The impact of the annexation of Crimea and the hybrid warfare in Ukraine on bilateral energy relations between the EU and Russia has been severe. Geopolitics prevailed over economics between 2014 and the spring of 2015. The security crisis in Eastern Europe has reinforced each side's active diversification away from one another, the shift of Russian energy interests to the Pacific and the disputes over infrastructure regulation in the EU. A political instrumentalisation of gas relations has obviously occurred on both sides (albeit not openly discussed by both sides): The EU Commission has not approved the compromise on OPAL; it is reasonable to assume that Russia tried to complicate reverse flow from the EU into Ukraine over the course of the 2014/2015 winter period. Last but not least, EU sanctions tackled parts of the oil industry that might have been uneconomic anyway in times of relatively low oil prices. Yet, the latter – together with the financial sanctions – is having an influence on investment and refinancing strategies. The credit/prepayment deals lock in Russian export flows and create new alliances, in particular with Asian state companies. Russia is drifting more into the orbit of China's "One belt, one road" initiative. The EU-Russian bilateral relationship is at a difficult point. The fact that this relatively short period has profoundly affected long-term relations is a warning sign and reveals many underlying problems that have accumulated in the last decade. Russian energy diplomacy has shifted away from multilateral processes and engaged in becoming a balancing power while preserving most of its energy power.

This is matched in the EU, where the deterioration of the political relationship in 2014 has resulted in a paradigm shift in energy relations. The crisis in and around Ukraine has prompted EU member states to rethink their (inter-) dependencies with Russia. Even in Germany, interdependence is viewed as a problem

limiting the room for political manoeuvre and is no longer perceived as a foregone solution for an ever-closer partnership with Russia. Yet, the securitisation of energy policy on both sides runs counter to economic realities and commercial rationalities.

This is taking place at a time when mere energy relations would require more dialogue, a balance of interests and an adaptation of demand-and-supply strategies. Business relations and commercial transactions have become more complicated and potentially conflict-laden with bundled business across the whole value-chain being separated into its parts. Moreover, long-term orientation is being substituted by spot-market and short-term logics in the EU internal market. This adds an additional element of instability. An unprecedented level of uncertainty has become a dominant feature of the global energy system, but it has a special quality in the EU because of internal market development and energy-transition projects such as the German "Energiewende".

Within the political framing, bilateral energy relations have been reduced to import and export dependencies, yet they reach far beyond that along the whole value chain. The activities of German and European companies in Russia are a fundamental asset, a base for their market position and capitalisation.<sup>218</sup> Russian companies do have a strong foothold in, for example, German downstream gas markets, the refinery sector and (soon) upstream business in the North Sea. Russian companies have invested in segments of the energy sector where other commercial players have withdrawn: refineries, gas transport and gas storage. These strategic Russian investments in sensitive areas carry specific geopolitical risks, in particular if the spirit of

<sup>218</sup> E.ON is one of the biggest buyers of Russian natural gas, but it is also the biggest investor in the Russian energy market, with cumulative investments of more than 10 billion euros. E.ON took over Russian power generation at OGK-4 in 2007 and has a generation capacity in Russia of more than 10 gigawatts. For BASF Wintershall, Russia accounts for more than 50 per cent of their hydrocarbon production and provide more than two-thirds of the company's reserve base. Almost half of operating income is generated in Russia (Rainer Seele, *BASF Oil & Gas* [Roadshow Frankfurt, 19 September 2014], Power Point Presentation, Slides 11 and 12).



cooperation is also lost in economic transactions. Yet, they also have their value for the system and create long-standing connections and communication channels.

Surprisingly, markets and prices have not reflected the geopolitical crisis. The final observation is that market reality does not match political “reality” and perceptions. A major reason is, of course, the comfortable gas supply and the surplus on oil markets. Exporters such as Russia are trying to – successfully – defend their market share in the EU. Yet, it is also a sign of a still valid, fundamental commercial logic of complementary consumer-producer relations, regional proximity and existing infrastructure. Recent moves indicate that economic rationality and commercial interests are coming to the forefront again, which in fact means a rebalancing of economic interests versus political priorities.

The St. Petersburg summit at the end of June 2015 is a case in point: Firstly, this was the wished-for outcome for President Putin, namely to signal Russia’s enduring attraction to foreign investors. Secondly, it reflected business interests. Thirdly, moving away from Russia as the low-cost source of gas is a demanding commercial and political task. To summarise, there are sound reasons for maintaining close bilateral energy relations while at the same time diversifying towards new buyers (in the case of Russia) and suppliers (in the case of the EU).

## Recommendations for German and EU Policies

The factual arguments for a balanced, reformed and sustainable energy partnership between Germany/the EU and Russia are strong, as suggested by the analysis of all three major energy sectors. Five recommendations can be put forward.

1) Be aware of negative spillovers. If energy trade and relations become more complicated, negative spillovers are very likely to occur in other policy areas. Non-dialogue and non-cooperation carry significant risks. Bilateral energy relations will not automatically continue so smoothly. Moreover, the impact of a deterioration in relations will only be visible 5 to 15 years from now. The false sense of ongoing business-as-usual should not lead astray. At the same time, smooth and expanded energy relations do not automatically guarantee positive effects for other policy areas in the current geopolitical situation.

2) Manage interdependence and re-value commercial activities. They are a value per se that strengthens the globalisation of energy trade and paves ways for balancing interests and enhancing economic cooperation. The EU should pursue a more pragmatic approach that is grounded on projects. By creating successful projects, the two address the divergence over the key term of “interdependence”. The fact that Russia and the EU view interdependence differently has had profound repercussions. Russia perceives it as creating joint ventures, infrastructure and asset swaps; the EU and Germany increasingly view it through the normative and regulatory lens and aim at a convergence of legal spaces (that would match with the liberal market paradigm of the EU). This has not happened and is unlikely to be implemented anytime soon by Russia or other neighbouring regions.

3) Normalise the relationship and set a de-securitisation of the energy relationship in motion. Both sides are diversifying their portfolios anyway. This allows for facing the energy relationship in a more relaxed manner. Yet, it is indispensable to restart political dialogue on the working and technical levels (which implies “compartmentalising” Ukraine), and step-by-step also on the political level. Germany and the EU have to address the qualitatively new situation with Russia and Russian companies. To that end, political channels such as the EU-Russian energy dialogue and the Gas Advisory Council should be revitalised as soon as possible. The focus should be on managing interdependencies and diversification. There are more energy-security challenges ahead than Russia, e.g. in the Middle East, and Russian supplies are fundamental to global oil and gas markets. A normalisation will most likely dilute the “idealistic analogy” of Germany’s Ostpolitik and the gas-pipeline deals. Under the impact of the Ukraine crisis, the gap between political perceptions and market realities has been tremendous. Bridging this gap of perceptions on Russia’s future role as an energy supplier to German and the EU is a real political challenge that demands a new framing of the energy relationship with Russia. This friction has to be bridged by defining technical, business-orientated steps forward.

4) Envision an energy future in the EU and then with Russia. Within the EU, the best way forward is an integrated and functioning internal market and a more sustainable energy system: If the EU wants to reduce its dependence on its major and “natural” fossil fuel supplier, the most logical step is to reduce dependence on fossil fuels themselves. This is sound in terms of

security of supply, but also with regard to environmental and climate policies. Otherwise, the EU is accumulating the necessary resources for an energy transformation in measure to merely diversify, and thus simply shifting geopolitical risks. The Communication of the Energy Union<sup>219</sup> is driven by the public goods of energy security and sustainability. The market will not fully deliver to these ends; clear political goals and a stable regulatory environment are necessary. Building infrastructure is key in order to achieve the level of security of supply, market integration and the transformation of the energy system that is politically desired. Diminishing uncertainty of demand by increasing the predictability of energy and climate policy is an important precondition to engage in a sustainable and solid relationship with external supplies and to hedge against the risk of stranded assets in and for Russia.

A minimal consensus on the way forward with energy policy in the EU would allow for identifying common projects with Russia in many areas. A political commitment to use natural gas as a bridge to a low-carbon economy could be used to further engage in the “Blue Corridor” project to use compressed natural gas in transport and to use “power to gas” as a path into hydrogen and fuel cells. Methane leakage is another issue on which to work together. Last but not least, the emphasis on natural gas could help in finding a long-term arrangement for gas supplies from Russia (through Ukraine). The oil sector should remain a backbone of energy cooperation as long as oil remains the major energy source in the mix, e.g. by addressing environmental standards and upgrading in refineries, and by discussing depletion paths to avoid a “carbon bubble”. The electricity sector and clean technologies certainly offer manifold opportunities, in particular with infrastructure modernisation, renewable energy and energy efficiency. Of strategic relevance for the future could be cooperation in nuclear safety and security, but also protection of critical cross-border infrastructure and cyber-security for vital energy interconnections. Technological cooperation, innovation and know-how transfer can serve to provide a long-term blueprint for a common future.

5) Re-engage in energy diplomacy and shape external energy relations. The EU and Russia face a mismatch in their regulatory and legal gas-market ap-

proaches. This results from operational and technical processes related to the unbundling and market design, network codes and tariffs. Structural changes in the relationship have resulted in growing misperceptions, misunderstandings and increasing levels of mistrust. Change carries far-reaching risks, in particular in times of geopolitical tensions. Since 2009, the EU has relied increasingly on the Energy Community, which is important for the Balkan states, Ukraine, Moldova and Georgia. Yet, it exports the EU energy-related *Acquis Communautaire* to the neighbourhood and concentrates on regulatory and legal issues. This is not a substitute for an external energy diplomacy. Other integration projects such as the Silk Road initiative (“One belt, one road”) and the Eurasian Economic Union will challenge the EU closer to its own neighbourhood with their paradigm of spaces shaped through interconnections and infrastructure, grounded on close state (company) cooperation. Therefore, the external dimension of the Energy Union has to be defined in a more inclusive and collective manner beyond the EU and towards Russia and other actors in the neighbourhood. The EU’s energy diplomacy has to adapt to this new situation, most likely by combining existing forums with loose, ad hoc consultation mechanisms. It is important to find a way to discuss and develop principles, as in the Energy Charter Modernization Process 2 and the “International Energy Charter”. Even though Russia is abstaining from it at the moment, such an inclusive approach is in particular essential with respect to the in-between neighbourhood, Central Asia and, last but not least, for energy relations in Eurasia. The Organization for Security and Cooperation in Europe (OSCE)’s second dimension of economic cooperation might also be revived for the purpose. A “code of conduct” of energy relations with rules for energy trade, transit, investment and dispute settlement in Europe and Asia is desirable.

<sup>219</sup> European Commission, *Energy Union Package. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*, COM (2015)80final, Brussels, 25 February 2015.

## Abbreviations

|         |  |
|---------|--|
| AGEB    | AG Energiebilanzen e.V.                  |
| bcm     | billion cubic metres                     |
| bcm/y   | billion cubic metres per year            |
| b/d     | barrels per day                          |
| bn      | billion                                  |
| Comecon | Council for Mutual Economic Assistance   |
| EC      | European Commission                      |
| ESPO    | Eastern Siberia-Pacific Ocean (pipeline) |
| EU      | European Union                           |
| GDP     | Gross Domestic Product                   |
| IEA     | International Energy Agency              |
| kW/h    | kilowatt hour                            |
| LNG     | Liquefied Natural Gas                    |
| mb/d    | million barrels per day                  |
| mbtu    | million British thermal units            |
| MOEK    | Moscow United Energy Company             |
| MW      | megawatt                                 |
| NG      | Natural Gas                              |
| OIES    | Oxford Institute for Energy Studies      |
| OPAL    | Ostsee-Pipeline-Anbindungsleitung        |
| UGSS    | United Gas Supply System                 |
| US\$    | US Dollar                                |
| WTO     | World Trade Organization                 |