

## **Working paper**

Research Unit Russia/CIS  
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and Security Affairs



*Roland Götz*

# **Russia and the Energy Supply of Europe**

## **The Russian Energy Strategy to 2020**

(updated version)

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## **Russia and the Energy Supply of Europe**

### **The Russian Energy Strategy to 2020**

**(updated version)**

In discussing the energy relations between Europe<sup>1</sup> and Russia, the forecasts of the EU as well as the Russian Energy Strategy may serve as starting points. The Russian Energy Strategy for the period until 2020, approved by the Russian government in 2003, replaces a similar document from 1995.<sup>2</sup> However, the new Energy Strategy is more than just a future projection of current trends. It is meant to set the course for Russia's energy policy and to serve as a guideline of the administration's energy policy in the predictable future, although it does not have a binding character.

The Strategy proceeds from certain assumptions concerning the economic development of the world economy and the Russian economic development until 2020. An "optimistic" scenario presumes that, due to far reaching reforms and a favourable external economic environment and in particular to a growth of the world economy of 3.5 percent per annum, the gross domestic product (GDP) of Russia will triple between 2020 and 2000. A moderate scenario presumes the world economy growing by 2.5 percent per annum and a doubling of the Russian GDP between 2020 and 2000. Concerning Russia, the optimistic scenario presumes an annual economic growth of 6.2 percent during the same time, which can be considered certainly too high.<sup>3</sup> At the same time, the presumptions concerning the prices of energy sources are more convincing in the optimistic scenario than in the moderate.

The following analysis is based on the optimistic scenario of the Russian Energy Strategy. It implies a relatively large amount of production of energy sources and correspondingly large exports and outlines the maximum contribution of the Russian energy sector to the long-term energy supply of Europe. As will be seen during the following discussion, Russia will remain the main energy supplier of Europe until 2020, but in the course of time more and more European energy imports must come from other supplier countries.

### **Oil Export**

According to the Russian Energy Strategy of 2003, the volume of oil export, which was 145 million tons in 2000, will increase to more than 300 million tons in 2020. However, exports to Europe are to increase in the period 2000-2020 only by little more than 30 million tons from

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<sup>1</sup> 'Europe' as defined for the purposes of this text, is entire Europe, i.e. the European Union extended to about 30 members, exclusive of CIS countries – notwithstanding the discussion of Russia's position in Europe.

<sup>2</sup> Energeticheskaya strategiya Rossii na period do 2020 goda (Energy Strategy of Russia until 2020), approved by the Russian government Aug. 28, 2003, <<http://www.mte.gov.ru/files/103/1354.strategy.pdf>>.

<sup>3</sup> The main reason for this scepticism is the low Russian investment rate, which turned out to be less than 20 percent in the first years of the millennium, i.e. only about half of what is necessary for a sustainable growth of 5-6 percent. The Russian Energy Strategy presupposes that the investment rate will not rise substantially until 2010 and will reach 25 percent of GDP only in the decade 2010-2020.

127.5 million to 160 million tons or 1.1 percent per annum. An increase of the same scope is expected for the exports to the CIS countries, whereas oil exports to other countries like the USA and China, which have been low so far, will rise to about 100 million tons in 2010. Thus, the increase of oil exports will clearly shift from West to East. Accordingly, the Energy Strategy expects the highest increase rates of oil exports in Eastern Siberia.

*Table 1*

***Export of fossil fuels 2000-2020 according to the Russian Energy Strategy 2003***

	2000	2020	Difference 2000-2020
<b>Oil (million tons)</b>			
Overall Export	145	303	158
Export to CIS-States	17	50	33
Export to Europe*	128	160	33
Export to China/South East Asia/USA	1	93	93
<b>Natural gas (billion m<sup>3</sup>)</b>			
Overall Export	194	281	87
Export to CIS-States	60	50	-10
Export to Europe*	134	165	31
Export to China/South East Asia/USA**	0	66	66

Deviations in summation are due to rounding.

\* Europe here means Western and Eastern Europe including Turkey, but excluding the CIS and Baltic states. \*\*Partially liquid gas.

Source: Energeticheskaya strategiya Rossii na period do 2020 goda [Russia's Energy Strategy for the Period Until 2020], approved 28.8.2003, <<http://www.mte.gov.ru/files/103/1354.strategy.pdf>>.

According to the forecasts of the US Energy Information Administration (EIA) and the European Commission, the European requirement for oil imports in the period 2000-2020 will increase by about 65-110 million tons under the premise of a moderate growth of the oil consumption; this is caused both by an increase in consumption and by a parallel oil production decrease in Europe.<sup>4</sup> According to current plans and forecasts, Russia will contribute to this increase of imports by about 30 percent. Consequently, about 70 percent of additional import requirements of Europe must be covered from other world regions. However, for Europe (EU-30) Russia will remain the most important individual oil supplier.

<sup>4</sup> The US Energy Information Administration (EIA), an independent statistical department within the US Department of Energy, regularly publishes data about energy consumption in world regions and individual states in its International Energy Outlook, the July 2005 issue of which is here referred to; see <<http://www.eia.doe.gov/oiaf/ieo/index.html>>. The following calculations which are referring to the EIA are based on the EIA high oil price scenario, which seems to be more realistic than the EIA's reference case and low price scenarios.

Table 2

**Russian Oil on the European Market\***

	2000	2020	Increase 2000-2020
Net imports of Europe (million t)	440	500-550	65-110
among this,			
imports from Russia (million t)	128	160	~30
Russian share (percent)	~30	~30	

\*Europe here means Western and Eastern Europe including Turkey, but excluding the CIS and Baltic states. Sources of the primary dates: Energy Information Administration (EIA), International Energy Outlook 2005, July 2005.

While 88 percent of the Russian oil exports went to Europe in 2000, this share will be reduced by 2020 to approximately 50 percent according to the forecast of the Energy Strategy. In contrast, the share of the USA and the Far East, which in 2000 amounted to no more than 3 percent, will be one third or even more by 2020.<sup>5</sup> Thus the Russian Energy Strategy expects a diversification of the Russian oil exports, which, from the Russian point of view, will contribute to reducing the dependence on a small number of importing countries.

**Gas Export**

The rapidly increasing demand of natural gas in Europe is on one hand due to the intention to substitute coal and oil by the "clean" natural gas for ecological reasons (emission of carbon dioxide) and on the other hand due to the progressing "gasification" of European areas. While European oil imports are likely to increase in the period between 2000 and 2020 by 15-25 percent, EU-30 gas imports will increase (medium economic growth scenario) by 140 percent – in the low growth scenario by 110 percent (EIA forecast). This is a result of both an increase of consumption by 40-50 percent and a stagnation of Europe's own gas production. This drastically widening gap between consumption and production of gas makes the European demand of gas imports leap up by 200-250 billion m<sup>3</sup> and thus to an extent that far exceeds Russia's intentions and potential.

What are the Russian plans for the gas supply of the European market? While the overall volume of Russian gas exports is to increase between 2000 and 2020 by 87 billion m<sup>3</sup> (= 45 percent), exports to the extended European Union will rise only by 30-65 billion m<sup>3</sup> (= 23 percent).<sup>6</sup> Thus, according to the Russian Energy Strategy, the intended increase of Russian gas production will predominantly be used for exports into regions outside Europe. This corresponds to the fact that the increase of gas production is expected not in Western Russia, but in Eastern Siberia and the Far East, from where gas can be transported either onshore or – in the form of LNG – by ship to South East Asia and the USA. An analogous shift to the East is also expected for the increase of oil production.

<sup>5</sup> The share of the CIS countries in Russian oil exports is likely to be approximately 10 percent in the period 2000-2020.

<sup>6</sup> It is planned to deliver in 2020 to the CIS countries about 10 billion m<sup>3</sup> less than in 2000. One should, however, be not too strict with these figures, because the Energy Strategy gives only an orientation.

Table 3

**Russian Natural Gas on the European Market\***

	2000	2020	Increase 2000-2020
Net imports of EU-30, total (billion m <sup>3</sup> )	180	380-430	200-250
among this, imports from Russia according to the Energy strategy (billion m <sup>3</sup> )	134	165 200**	30 65**
Russian share (percent)	74	40-50	

\*Europe here means Western and Eastern Europe including Turkey, but excluding the CIS and Baltic states.

\*\*According to Gazprom announcements.

Sources of the primary dates: *Energy Information Administration (EIA)*, International Energy Outlook 2005, July 2005; Table 1.

While in 2000 about three thirds of the European (EU-30) gas imports came from Russia, this share will be 40-50 percent in 2020. The remaining deficit 50-60 percent will then have to be covered by a multitude of supplier countries, whereby for the time after 2010 no exact forecasts are possible. Europe will find itself compelled to import gas increasingly – partly in the form of liquefied gas – from North Africa, the Middle East and Central Asia.

While the slight decrease of the share of Russian oil in European imports is not a cause for concern, the foreseeable marked decrease of the share of Russian natural gas in European imports raises some questions: How to satisfy in future Europe's additional demand of natural gas? Apart from deliveries of liquefied gas, pipeline suppliers can only be Northern Africa, the Middle East or the Caspian region, as pipeline deliveries are economically efficient below 4000-5000 km. Algeria, next to Russia the main external supplier of Europe, will probably be able to raise its deliveries until 2020 to 120 billion m<sup>3</sup> (provided that new fields like the Salah region in the Sahara are opened up and new export pipelines to Europe are built). Libya, too, will be able to raise its so far petty exports from one billion m<sup>3</sup> to a possible volume of 30-40 billion m<sup>3</sup> by using the new Green Stream pipeline. Future gas exports from Egypt to Europe will go via the Jordan pipeline to Turkey and in addition will be realised by liquefied natural gas (LNG) projects, thus reaching a possible volume of 30 billion m<sup>3</sup> in 2020. Nigerian gas deliveries to Europe will be realised only in the form of LNG, because transportation via Algeria is too expensive. Other supplies, which are by now still insignificant but will increase in the future, will come to Europe from Trinidad and Venezuela and from the Middle East (excluding Iran). Depending on demand, gas supplies of Europe from these regions will by 2020 have increased by approximately 200-250 billion m<sup>3</sup>, compared with 2000, which means that North Africa, the Middle East and the Caspian region all together will deliver at least the same amount of natural gas to Europe than Russia.

Iran will presumably become – next to Algeria – a main supplier of gas if its super giant field South Pars is connected to the European gas infrastructure, which, however, could be the case after 2015 only. Beginning in 2020, 60-100 billion m<sup>3</sup> can be delivered from Iran to Europe and from 2025 approximately 150 billion m<sup>3</sup>.

Table 4

**Gas Export Potential to Europe from North Africa, the Middle East and the Caspian Region 2000-2020 (billion m<sup>3</sup>)**

	2000	2020	Increase 2000-2020
Algeria	56	113	57
Libya	1	25	24
Qatar/UAE/Oman/Yemen	2	45	43
Iran	0	40	40
Nigeria	1	33	32
Egypt	0	28	28
Azerbaijan	0	16	16
Iraq	0	15	15
Trinidad	1	3	2
Turkmenistan	0	0	0
Together	61	318	257

Sources: *Observatoire Méditerranéen de l'Energie(OME*, Analysis of future supply sources and costs for Europe, May 2004, [www.ome.org/pdf/letters/newsletter24.pfd](http://www.ome.org/pdf/letters/newsletter24.pfd).

Turkey will presumably become an important transit country for natural gas from the Middle East, Iran and the Caspian region.<sup>7</sup> Apart from the pipelines which will have to be combined to a network, it will be necessary to build storage stations and gas liquefaction plants in various places of the extra-European gas compound network. If deliveries from North Africa and the Middle East including Iran will indeed increase as described above, a shortage of gas in Europe is not likely to emerge. But this presupposes political stability in the respective regions.

### **Transportation of Russian Oil and Gas**

Following the export forecast of the Russian Energy Strategy, transport capacities for crude oil will have to be doubled until 2020. While Russian oil transport capacities already presented considerable bottlenecks in the last couple of years, the gas pipelines on the whole have still some free capacities. However, for gas export in the eastern direction and for the export of liquefied gas there are no transport capacities so far.

### **Oil via Barents Sea and Baltic Sea to the World Market**

Primarily with regard to the development of Russian energy supply for the USA Russian oil companies proposed in late 2002 to build a pipeline from the West Siberian oil fields to Murmansk and let large tankers go from this ice-free and deep-sea harbour to the US East Coast.

<sup>7</sup> See Conference on Natural Gas Transit and Storage in Southeast Europe – An Opportunity to Diversity European Gas Supply?, Istanbul, 31.5. – 1.6.2002.

The costs were estimated, depending on the route, to be around 9-15 billion US-Dollar. The Murmansk pipeline project, favoured first of all by the oil company Yukos under its CEO Khodorkovsky, had faced considerable opposition by the state owned Russian pipeline company Transneft. Transneft not only denied the necessity and profitability of this export route, but also opposed its financing by the private sector. As an alternative to Murmansk, Transneft is favouring the extension of the port of Indiga (west of the mouth of the Pechora river) as an oil exporting port, which could be reached by a pipeline which is shorter than the one leading from the West and North Siberian oil fields to Murmansk. This would, however, require the construction of a completely new infrastructure in Indiga and during the winter the use of ice breakers. Whether Murmansk or Indiga, a large oil port on the shore of the Barents Sea would permit significant Russian oil exports to the USA and in the long run could make up to about 10 percent of US oil imports. In the meantime, Russian oil companies such as Lukoil and Rosneft are making efforts to build a transport system in the oil producing area Tima-Pechora, including the offshore oil field Prirazlomnoye, which would allow to transport oil from different ports of the Barents Sea to Murmansk. Moreover, it is planned to build a pipeline from the West Siberian oil field Vankor to the port of Dikson on the Kara Sea.<sup>8</sup>

In the Soviet era and still during the 1990's oil export by ship was realized through the Baltic ports of Ventspils (Latvia) and Butinge (Lithuania) and through Black Sea ports. When the Baltic states turned towards the European Union and NATO, the Russian state owned pipeline company Transneft started to search for new export routes, avoiding the Baltic ports. The option to extend the existing pipelines leading from Russia to Ventspils and Butinge was not realized, allegedly for commercial but in fact for political reasons. In late 2002 Transneft stopped the supply of Ventspils altogether. Since then the Latvian oil port has been supplied with Russian oil and refinery products by train only. The Lithuanian oil terminal Butinge in which the Russian company Yukos holds a majority share, avoided the fate of Ventspils, and Butinge is even said to extend its export capacity.<sup>9</sup>

Instead Transneft concentrated on the development of the "Baltic pipeline system" (BPS)<sup>10</sup> which connects the oil ports on the Gulf of Finland, Primorsk and Vysotsk, with the oil producing regions of West Siberia and Timan-Pechora. The BPS was started in 2001 and has reached a capacity of 42 million tons in March 2004; there are plans to extend the capacity to 62 million tons. In addition to Russian oil it has been suggested to transport also oil from Kazakhstan.<sup>11</sup> A shortcoming of Primorsk and Vysotsk is, however, their freezing in winter and the danger of accidents in the shipping lanes made by the ice breakers. Transneft justifies the development of the Baltic pipeline system with economic reasons, stating that this helps to save expenses for the transit through foreign countries. But it seems that there are good reasons to suppose that dropping the Baltic export terminals is seen in Russia as a geopolitical

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<sup>8</sup> Barents Observer, 14.4.2004, <<http://www.barentsobserver.com>>; Homepage of Rosneft, <[www.rosneft.ru/english/projects/vankorsk.html](http://www.rosneft.ru/english/projects/vankorsk.html)>.

<sup>9</sup> EIA Country Analysis Briefs, Baltic Sea Region, January 2004, <[www.eia.doe.gov/emeu/cabs/baltics.html](http://www.eia.doe.gov/emeu/cabs/baltics.html)>.

<sup>10</sup> The name „Baltic pipeline system“ refers to the Baltic Sea and not to the Baltic states.

<sup>11</sup> *Liutho*, The Russian oil Exports via the Baltic Sea, Turku 2003, (Turku School of Economics and Business. Administration Series B3/2003),p. 26.



benefit, irrespective of economic and ecological considerations.<sup>12</sup> In particular, ecological dangers are aggravated by the substantial increase of oil transports from the Baltic Sea ports. Passing the flat and narrow, but crowded Kadet channel south of the Danish island of Falster is dangerous for heavy tankers with great draught. Russia has, after all, obliged itself to stop the passage of tankers with only one wall through the Baltic Sea after April 2005.

### **The Druzhba oil pipeline: Russian oil to Europe**

Important for the supply of Western Europe with Russian oil is in the first place the pipeline transport. The main export pipeline for Russian oil in Western direction, the Druzhba ("Friendship") pipeline with an overall capacity of 85 million tons per year, starts from Samara and is divided at the border of Russian and Belarus into three branches. One branch of smaller dimension goes to Latvia, branching-off to the Lithuanian Baltic Sea ports and to the Lithuanian refinery Mažeikiai. The Northern main branch goes via Poland (refinery in Płock) to Germany (the refinery in Schwedt on the Oder). A Southern branch goes through Northern Ukraine to Hungary and Croatia with a branch to Slovakia and the Czech Republic. The full capacity is utilized only in the Northern branch leading to Germany. The lines going to Latvia and Lithuania are not used for the time being. The Southern Druzhba branch is not working to capacity, because the demand of Russian oil in Hungary, the Czech Republic and the Balkan countries has declined.

Inherited from the Soviet era is the Adriatic pipeline, which was designed for the transport of Middle East oil from the Croatian port of Omišalj on the Adriatic Sea to Hungary and Yugoslavia. It is connected with the Southern Druzhba pipeline. Now it is planned to reverse the floating direction of the Adriatic pipeline and thus to transport Russian oil to Omišalj and further to the world market. Such plans have been under discussion since the early 1990's, but the parties involved have not agreed so far on the details of a solution.<sup>13</sup>

### **Oil export via Black Sea and the Bosphorus**

Among the Russian oil shipping ports Novorossiysk on the Black Sea is at present the most important one. In 2004 it had a shipping capacity of 45 million tons per year, which is expected to be increased; Novorossiysk is ice-free all around the year, but due to heavy storms in the region the port cannot be used for about three months per year. Another shortcoming of the port is the fact that the oil tankers have to pass the Dardanelles and the Bosphorus, which raises the risk of great environmental damage. In 2003, these straits were passed by no less than 5500 oil tankers with about 150 million tons of oil. An increase of transports up to about 200 million tons of oil is expected until 2010, as exports of Russian as well as Caspian oil continue to rise.<sup>14</sup> But the straits have reached their limits already by now, and in addition there is a constant risk of tanker accidents near the multimillion city of Istanbul. This is why it is now being considered how to bypass the Bosphorus, which will end up in the construction of

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<sup>12</sup> See also Juhani *Laurila*, Determinants of Transit Transports between the European Union and Russia, Bofit online, 1/2002, <[www.bof.fi/bofit/fin/7online/abs/pdf/bon0102.pdf](http://www.bof.fi/bofit/fin/7online/abs/pdf/bon0102.pdf)>.

<sup>13</sup> *Energy Information Administration*, Country Analysis Briefs, Balkans Region, January 2004, <[www.eia.doe.gov/emeu/cabs/balkans.html](http://www.eia.doe.gov/emeu/cabs/balkans.html)>.

<sup>14</sup> Christopher *Slaney*, Turkish Concerns for Bosphorus Complicates oil Transport Scenarios, in: Washington Report on Middle East Affairs, Mai 2004, <[www.wrmea.com/archives/May\\_2004/0405034.html](http://www.wrmea.com/archives/May_2004/0405034.html)>.

pipelines between the Black Sea and the Mediterranean. One of the plans provides for the construction of a pipeline from the Romanian Black Sea port Constanța to Belgrade, which would create a connection with the Croatian Adriatic port Omišalj. As an alternative, pipelines could be built from Constanța or the Bulgarian port Burgas either through Macedonia to the Albanian port Vlore or, on a shorter route, to Alexandroupolis in Northern Greece. The shortest bypass of the Bosphorus would be a pipeline from the little Turkish town Kiyiköy to Ibrikbaba or Saros on the Turkish coast of the Aegean Sea.

Finished, but not put into operation yet is a pipeline from the Ukrainian Black Sea port Odessa to the Southern Druzhba pipeline with a junction near the West Ukrainian Brody. This "Odessa-Brody pipeline" had been built for the transport of oil from the Caspian region (Azerbaijan, Kazakhstan) to Europe, and there were additional plans to connect it with the Northern branch of the Druzhba pipeline and/or to extend it to the Baltic Sea port Gdańsk. But after the pipeline was finished in 2002, neither suppliers nor purchasers of oil from the Caspian region were interested in the route Odessa-Brody, therefore the Russian oil company TNK-BP suggested to pump Russian oil from the Druzhba pipeline in the opposite direction from Brody to Odessa and then transport it by tankers through the Bosphorus to the world market. This suggestion made the Ukrainian public, the EU and the USA, suspect that Russia wants to bar the way for Caspian oil to the West. After heated debates it seemed in early 2004 that those who were favouring the original direction Odessa-Brody had won. But in mid 2004 the Ukrainian oil company Ukrtransnafta came to the conclusion that it still may take several years until oil from the Caspian region would go this way, so they declared their readiness to accept the suggestion of "reverse utilization" of the pipeline.<sup>15</sup> After all following the Kiev "orange revolution" the original concept of oil transport from the south to the north is expected to be realized.

Kazakh oil has been pumped since 2001 through the pipeline of the Caspian Pipeline Consortium (CPC) which goes over 1500 km from the Kazakh oil field Tengiz to the Russian Black Sea ports Novorossiysk and Tuapse. In its first phase it has a capacity of 28 million tons per year, which is to be increased until 2008 to more than 67 million tons per year.<sup>16</sup> This does not only require an adequate extension of the shipping capacity of the ports Novorossiysk and Tuapse, but it also raises the above mentioned problems in connection with the further transport of oil through the Black Sea to the Mediterranean.

A prospect to become an alternative to CPC is seen for the oil pipeline Baku–Tibilisi–Ceyhan (BTC), which is designed for the transport of Caspian or Azerbaijanian oil to the world market with a capacity of 50 million tons per year.<sup>17</sup> Also Russia has declared its interest in the utilization of the BTC for oil transports to the Mediterranean, because the oil pipeline Baku–

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<sup>15</sup> Kiew weist Pipeline-Antrag Moscovs ab, in: Neue Zürcher Zeitung, 6.2.2004, p. 5; Arkadiusz *Sarna*, Odessa–Brody. The Governments European Choice, in: CES Comments, 12.2.2004, <[www.osw.waw.pl/en/epub/ekoment/2004/02/040212.htm](http://www.osw.waw.pl/en/epub/ekoment/2004/02/040212.htm)>; Margarita M. *Balmaceda*, Ukraine's Energy Policy and U.S. Strategic Interests in Eurasia, in: Woodrow Wilson International Center for Scholars, Occasional Paper 291, <<http://wwics.si.edu/topics/pubs/OP291.pdf>>.

<sup>16</sup> Interfax Petroleum Report 25/2004, pp. 28-29.

<sup>17</sup> See the official documentation of the BTC: <[www.caspiandevlopmentandexport.com/ASP/BTC.asp](http://www.caspiandevlopmentandexport.com/ASP/BTC.asp)>. See also Zurab *Tevzadze*, Eksportnye marshruty i problemy transportirovki Kaspiyskoy nefi [Export routes and problems with the transport of Caspian oil], in: Tsentralnaya Aziya i Kavkaz, (2004) 1, pp. 104–117.

Novorossiysk, which along with the pipeline Baku–Supsa is also transporting Azerbaijanian oil to the West, could be used to pump Russian oil in the opposite direction, from Novorossiysk to Baku.<sup>18</sup> However, Transneft is somewhat sceptical with this idea, and its president Semyon Vaynshtok would prefer to refrain from oil transport through foreign territory altogether.<sup>19</sup>

### **Oil from Russia's East for China and Japan**

There are no pipelines so far for the transport of Russian oil to South East Asia. Only China gets a certain amount of oil per year by train (5–6 million tons in 2004). Because of the high demand it is planned to increase oil transports to China by railway to 30 million tons in 2007.<sup>20</sup> The Russian company Yukos, which delivers the oil to China, had suggested to build an oil pipeline from Angarsk (Lake Baikal) to Daqing in China.<sup>21</sup> After the arrest of Khodorkovsky the plans of the Angarsk–Daqing pipeline have become obsolete. The Russian government and Transneft now prefer a pipeline route to Nakhodka, the Russian port on the Japanese Sea with a capacity of 50 million tons per year. Finally, a route with branches to both Daqing and Nakhodka is under discussion. But this "compromise variant" would not only be the most expensive one, but it presupposes that in Eastern Siberia there is an adequate amount of 80 million tons per year to be produced, which is, however, doubted by experts.

From the Russian point of view an oil pipeline to Nakhodka would have the advantage of avoiding dependency on one single buyer (China), while at the same time allowing oil exports to South East Asia and to the USA, thus strengthening Russia's influence in South East Asia. Moreover, the route to Nakhodka would create a channel of energy transport to East Siberia, which could stimulate its local economy.<sup>22</sup> Japan is very much interested in this variant and it is ready to grant credits at preferential conditions, which, apart from economic reasons, may also be due to political reasons – it would thwart a Russian-Chinese "strategic energy partnership".<sup>23</sup> On Sakhalin Island five projects of oil and gas production are realized each by a separate international consortium, but only two of them, Sakhalin-1 and Sakhalin-2, both at the Northern end of the island, will produce oil and gas in the near future. A consortium led by ExxonMobil (Sakhalin-1) is planning to build an offshore pipeline of 250 km to mainland Russia with an oil export terminal near De-Kastri. Another group led by Shell (Sakhalin-2) plans to build an onshore pipeline of 800 km to the ice-free port Prigorodnoye (South of Juzhno-Sakhalinsk).

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<sup>18</sup> Technically this would be absolutely possible, because this pipeline originally was built anyway for the supply of the refineries in Baku with oil from South Russia. The pipeline is designed for 15 million t, but it is under-utilized with only 3 million t, because Azerbaijan prefers the pipeline Baku–Supsa.

<sup>19</sup> Rossii ne nuzhen tranzit po innostrannoy territorii [Russia does not need transit through foreign territory], Interview with Semyon Vaynshtok in: Kommersant, 17.6.2004, see also <[www.transneft.ru/press/Default.asp?LANG=RU&ATYPE=9&ID=5684](http://www.transneft.ru/press/Default.asp?LANG=RU&ATYPE=9&ID=5684)>.

<sup>20</sup> Vvd Russland, 11.12.2003, p. 2.

<sup>21</sup> Near Daqing is the largest Chinese oil field; it has been exploited since the early 1960's and there are large refineries.

<sup>22</sup> Ivan *Tishinsky*, Neft primorskogo naliva [Oil of the Primorsk Sort], in: Profil, 11.8.2003.

<sup>23</sup> Ekaterina *Kravchenko*/Aleksy *Tikhonov*, Kljuchi ot neftyanogo raya [Keys to the Oil Paradise], in: Izvestiya, 30.9.2003; Edward C. *Chow*, Russian pipelines. Back to the Future?, in: Georgetown Journal of International Affairs, (Winter/Frühjahr 2004), pp. 27–33, <[www.ceip.org/files/pdf/chowarticle-jan04.pdf](http://www.ceip.org/files/pdf/chowarticle-jan04.pdf)>.

## Gas from Siberia to Germany



The system of the essential Russian natural gas pipelines to the West begins with two branches in the large West Siberian natural gas fields South East of the Yamal Peninsula. The central Southern branch ("Brotherhood") runs through Ukraine, Slovakia and the Czech Republic to Austria and ends in Germany. One branch goes through Ukraine and Moldova via Romania and Bulgaria to Turkey. The Northern branch ("Polar light") goes through Belarus and in Ukraine joins the Southern branch. A third branch ("Union") goes from the gas fields in the Volga-Ural region near Orenburg to Ukraine, where it joins the central branch, too.<sup>24</sup>

<sup>24</sup> The reason for laying the main export pipelines from the USSR to Germany through Ukraine and further on through Slovakia and the Czech Republic and for not realizing the shorter route through Belarus and Poland was the perception of Poland as politically insecure country; see Katharina Preuß Neudorf, *Die Erdgaswirtschaft in Russland*, Cologne 1996, p. 44.

The part of the Yamal–Europe pipeline which begins on Yamal Peninsula and ends in Central Russia (Torzhok) has not been realized yet. This route with a length of several thousand km would be needless, if in Yamal gas liquefaction plants were built which would permit to ship liquid natural gas worldwide. Because of unsettled problems of LNG transportation through ice-ridden waters, Gazprom has postponed the opening up of the gas fields on Yamal Peninsula for the time being.

The overall capacity of this Ukrainian gas transport system, as inherited from the Soviet era, is about 140 billion m<sup>3</sup>; approximately 130 billion m<sup>3</sup> is currently transported through the system. This is added by a new part of the long-distance pipeline "Yamal-Europe" from Torzhok (Tver region) via Belarus and Poland to Germany, the first branch of which will have a capacity of 33 billion m<sup>3</sup> after completion.<sup>25</sup> Another parallel pipeline with the same capacity is to be built as soon as a corresponding demand is seen. The new gas pipeline "Blue Stream", connecting Southern Russia through the Black Sea with Turkey, has a capacity of 16 billion m<sup>3</sup> per year –which is far from being used currently.<sup>26</sup> Thus, the overall capacity of the pipeline system for gas exports to all European countries (including Turkey) amounts to 190 billion m<sup>3</sup>. By reconstruction of the Ukrainian pipeline system and the construction of a second Yamal–Europe pipeline it could be increased by another 60 billion m<sup>3</sup>.<sup>27</sup>

An extension of the Ukrainian pipeline net would require relatively modest expenditures to supply Germany with additional gas from Russia. In this context the obvious thing to do is to increase the capacity of the gas pipeline Torzhok-Dolina (near Uzhgorod) by compressor stations to its nominal capacity of 28 billion m<sup>3</sup>. Even the forwarding of Russian gas via Germany to England would be possible. The reconstruction of the Ukrainian gas transit net, including the supply lines leading to Turkmenistan and Uzbekistan, would provide additional export capacity for Russian natural gas at relatively modest costs. But this would require settling the question whether and in which way the state owned Ukrainian gas net can be opened for private investors.<sup>28</sup>

A North European gas pipeline (NEGP), also known as North Transgas or Baltic Sea pipeline, has been under discussion since the 1990's. The project comprises 900 km of pipelines on

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<sup>25</sup> Isabel *Gorst*, Broadening Export Strategy, in: *Petroleum Economist*, (2004) 5, pp. 21–23; Aleksandr *Davydov*, Razvilka s politicheskim uklonom [Crossroads with a political bias], in: *Vremya novostey*, 21.6.2004; Alla *Sapun*, Pravo na gazovuyu zadvizhku [The right to the gas tap] in: *Neftegazovaya vertikal*, (2004), p. 7.

<sup>26</sup> Since the end of 2002 the offshore gas pipeline „Blue Stream“ is operating, which transports West Siberian natural gas through the Black Sea to the Turkish coast near Samsun, where it is pumped on to Ankara. But the operation of the pipeline, which after completion in 2010 will have a capacity of 16 billion m<sup>3</sup>, has undergone some disturbances in 2003, after Turkey did not fulfil its purchase commitments due to lack of demand or due to the excessive price, as the Turkish side thought.

<sup>27</sup> According to Ukrainian statements, the capacity of the export pipelines on Ukrainian territory can be increased at relatively low costs to 170 billion m<sup>3</sup>, see various contributions in: *National Security & Defence*, (2003) 3, and (2004) 1, <[www.uceps.org/eng/section/National\\_Security\\_and\\_Defence/](http://www.uceps.org/eng/section/National_Security_and_Defence/)>.

<sup>28</sup> There are good reasons to realize the privatization of the Ukrainian gas transport system after the model of other East European countries in a transparent procedure, for more details see various contributions in: *National Security & Defence*, (2004) 1, <[www.uceps.org/eng/section/National\\_Security\\_and\\_Defence/](http://www.uceps.org/eng/section/National_Security_and_Defence/)>.

<sup>30</sup> Kirsten *Westphal*, Russische Konzerne im postsowjetischen Raum. Transnationalisierungsprozesse zwischen (Re-)Integration and Expansion, in: Olga *Alexandrova*/Roland *Götz*/Uwe *Halbach* (Hg.), *Russland and der postsowjetische Raum*, Baden-Baden 2003, pp. 122–148 (130–133).

Russian territory to connect to the existing long-distance pipeline system and approximately 1200 km of sea-bed pipeline running from Wyborg to Greifswald. The gas will feed into the German grid, from where it can be transported to the UK. Several off-branches are planned, to Finland, Kaliningrad, and Sweden. Costs are estimated at \$2-\$6 billion, depending on the specific construction plans. A corresponding mainland pipeline would be significantly cheaper, while it costs transit fees during operation. The pipeline is planned to become operational in 2010 with a capacity of 27.5 billion m<sup>3</sup> —a possible parallel extension later on may double this amount. Approximately half of initial (and extended) capacity is dedicated to Germany. Perspectives: German natural gas imports in 2005 total 95 billion m<sup>3</sup>, of which around 40 billion m<sup>3</sup> originate from Russia. German gas imports are forecast to increase to 105 billion m<sup>3</sup> in 2010 and rise to 150 billion m<sup>3</sup> in 2030, half of which will probably come from Russia. Wintershall, as part of its NEP activity, is engaging in a joint venture with Gazprom for production at the Western Siberian gas field Jushno-Ruskoje. The produced gas will supply the pipeline with approximately 25 billion m<sup>3</sup> per year for 30 years. Gazprom holds a majority stake of 51% in the venture, the rest being shared among Wintershall and E.ON/Ruhrgas or further additional Western partners.

When constructed around 2010, 40% of German gas imports from Russia (which amounts to 20% of total German gas imports) will transit the North European Pipeline. However, that does not mean that the NEP will automatically increase energy security for Germany, because current continental pipelines from Russia to the West have proven secure and can easily be expanded. It can be argued that two other particulars of Russian gas supply are far more important for German and European energy security: rapidly increasing gas production costs and excessive Russian domestic consumption, both of which heavily constrain export capacities.

It is much cheaper (than the Baltic Sea pipeline) to build a second gas pipeline in parallel to the Western Yamal pipeline from Torzhok to Germany and/or to extend the Ukrainian pipeline system. Consequently, the reasons for the expensive offshore pipeline can mostly be found in the political field and in particular in the relationship between Russia and its Western CIS partners. In the 1990's, the transit countries Belarus and Ukraine caused a lot of trouble for Russia and Gazprom. Gas was drawn from the transit pipelines without permission and the national gas companies of Belarus and Ukraine were paying their gas with great delay, thus accumulating considerable amounts of debts. Gazprom reacted with the attempt to get control of the gas transport systems of the two neighbouring countries.<sup>30</sup> In Ukraine this ended up for the time being with the creation of a "Gas transport consortium" to manage the Ukrainian gas network with Russian and German participation. In Belarus Gazprom tried to take over the national gas company Beltransgas, however encountered the resistance of President Lukashenko.<sup>31</sup> So Gazprom would easily abstain from using the Beltransgas net for exports to Europe – the NEGP could serve at least as a partial substitution for the gas transit through Belarus. Given the relatively high costs of the offshore pipeline which can be cost-efficient

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<sup>31</sup> Gazprom was striving for a majority in the new joint venture, while the Belarusian side was only ready to concede a minority share. Moreover, no agreement could be reached on the value of Beltransgas assets: Gazprom estimated a value of 480 million US-Dollars, while Beltransgas estimated its market value at 5 billion US-Dollars.

only in a long-term perspective by saving transit fees, German national interests in the Baltic Sea pipeline are not really clear.<sup>32</sup>

### **Gas from the Barents Sea – to Europe or to the USA?**

One of the projects which have been under discussion for many years now is the gas condensate deposit Shtokmanovskoye 550 km off the coast of the Kola Peninsula in the Barents Sea. It is planned to be developed by building an offshore pipeline to the mainland at Murmansk, where the gas would be liquefied and then exported by ship. Overall costs of the project are estimated by the Russian side at several dozens of billions of US Dollars. Apart from the Russian companies Gazprom and Rosneft, also Conoco (USA), Total (France), Statoil and Norsk Hydro (Norway) and Fortum (Finland) have declared their interest in the project. The construction of a gas liquefaction plant would allow supplying gas mainly to the USA. However, these plans are dependent on an agreement between Gazprom and their foreign partners concerning the financial details of a possible production sharing agreement (PSA).<sup>34</sup> It seems as if Gazprom prefers the Shtokmanovskoye project to the opening up of gas deposits on Yamal Peninsula.<sup>35</sup>

### **Russian Gas for South East Asia**

A gas pipeline is to be built in a consortium led by ExxonMobil, from the gas field Okha in Northern Sakhalin to Japan (Sakhalin-1), crossing the island from North to South and then going offshore to Japan. A second project, run by Shell (Sakhalin-2), provides for the construction of a gas liquefying plant at the Southern end of Sakhalin, from where LNG can be shipped by tanker.

TNK-BP plans to invest 12 billion US Dollars in the construction of a pipeline of 4000 km from the natural gas field Kovykta (West of Lake Baikal) to North East China and then via North Korea or alternatively through the Yellow Sea to South Korea with an offshore branch to Japan.<sup>36</sup> This pipeline would be 600 km shorter and 2 billion US Dollars cheaper, if it went through Mongolia, however, this option is heavily opposed by China. Having large gas deposits of its own, China is not able to buy enough gas to make the pipeline profitable without extension to South Korea.

### **A Gas OPEC Instead of a Liberal Gas Market?**

Russia's Gazprom has taken measures to bar the Central Asian gas producing countries Turkmenistan, Uzbekistan and Kazakhstan from the direct export routes to the West and to act –

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<sup>32</sup> Roland Götz, The North European Pipeline: Increasing Energy Security or Political Pressure? SWP-Comments 42, September 2005, <<http://www.swp-berlin.org>>.

<sup>34</sup> Sergei Glazkov, Shtokman Speed-Up, in: Russian Petroleum Investor, (2003) 10, pp. 26–31; Andrey Nollinsky, Shtokman project Stymied. Gas Won't Reach Europe before 2010, in: RusEnergy, <<http://www.rusenergy.com/eng/projects/a30012002.htm>>.

<sup>35</sup> Interview with the deputy chairman of Gazprom Aleksandr Rjazanov, in: Neftgazovaya vertikal, (2004) 10.

<sup>36</sup> Selig P. Harrison, Gas and Geopolitics in Northeast Asia, in: World Policy Journal, (Winter 2002/03), pp. 23–36.

like in Soviet times – as the only mediator for Central Asian gas exports to Europe. Moreover, Gazprom is making efforts to extend the pipelines from the Turkmen gas fields to Russia (pipeline system "Central Asia – Center"). The next step in planning is the construction of a new pipeline connection from Alexandrov Gai at the Kazakh-Russian border via Novopskov at the Ukrainian-Russian border to Uzhgorod at the Ukrainian-Slovak border. This pipeline with a length of 1500 km, which will cost 2 billion US Dollars, is the main project of the Russian-Ukrainian-German gas transport consortium for the time being, which is to manage and develop the Ukrainian gas net.

Gazprom pursues a strategy of securing gas deliveries from Central Asia (primarily from Turkmenistan, Uzbekistan and Kazakhstan) for the supply of Russia and re-export to Europe. For this purpose Gazprom has managed to gain almost complete control of the gas economies of the Central Asian CIS states in 2003. By means of supply contracts it has not only reached a long-term commitment of Turkmenistan, but also of Uzbekistan, over the territory of which Turkmen gas goes to Russia. This brings benefits to Russia in many respects: Firstly, it allows supplying the Russian domestic market with relatively cheap gas from sources not too far away, using the existing pipeline net "Central Asia – Center" from Turkmenistan via Uzbekistan and Kazakhstan to Russia, although it badly needs renovation and extension.<sup>37</sup> Secondly, Central Asian gas can help Gazprom to fulfil its export commitments towards the purchasers in the CIS countries and Western Europe. Thirdly, it prevents countries like Turkmenistan and Kazakhstan from entering Western gas markets as competitors of Russia. Another effect of this strategy which would be very convenient for Gazprom would be that it allows the natural gas delivered to Russia from Central Asia to bridge the gaps resulting from foreseeable delays in the opening up of the fields Yamal and Shtokmanovskoe at least until 2015.<sup>38</sup>

The strategy of Gazprom corresponds to the idea of a "gas OPEC" or a "Eurasian alliance of gas producers", suggested by Putin in January 2002. This cartel consisting of Russia, Kazakhstan, Turkmenistan and Uzbekistan is meant in the Russian view not only to stabilize the gas price on a sufficiently high level, but also to neutralize the effects of the forthcoming liberalization of the European gas market and to create a stable regulatory framework for gas transport,<sup>39</sup> thus counteracting the intentions of the EU to extend the liberalized gas market also to the CIS. It fits into this picture that negotiations between Russia and the EU on the ratification of the Energy Charter and in particular the corresponding transit protocols by Russia have come to a standstill in end 2003.

For the European gas consumers, however, it would be beneficial, if supply routes and prices were not determined by political constraint, but by competition. And there are some chances for that, notwithstanding Russian opposite efforts: A competitor for Russia may arise in the form of gas pipelines going from Central Asia directly to Turkey: For one part, there are plans

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<sup>37</sup> In August 2003 Gazprom chairman Miller had concluded with the Turkmen government an agreement on the extension of the gas pipeline between Turkmenistan and Russia to 70–80 billion m<sup>3</sup>. It supplements the treaty on gas deliveries, concluded in April between Turkmenistan and Russia with a term of 25 years and an overall volume of 2000 billion m<sup>3</sup>.

<sup>38</sup> Vladimir *Socor*, In Case You Missed This Mega-deal, 27.4.2003, <[www.freerepublic.com/focus/news/915335/posts](http://www.freerepublic.com/focus/news/915335/posts)>.

<sup>39</sup> Putin's statement during Niyazov's visit in Moscow in January 2002.



to build a gas pipeline from Baku to Erzerum, Turkey, which goes in parallel with the oil pipeline Baku–Tiflis–Ceyhan. For the other part, there are talks about a gas pipeline from Iran to Turkey and farther on to Europe. There are already concrete plans by the Austrian "Nabucco Company" to build a gas pipeline from the Eastern border of Turkey via Bulgaria, Romania and Hungary to Austria and with possible continuation to the Netherlands. It would be 3400 km long and cost some 4.4 billion €, the time of construction would last from 2006 to 2009, and it would have a capacity of 20 billion m<sup>3</sup> natural gas per year.<sup>40</sup> Gas suppliers may be Iran and possibly the Central Asian CIS republics, provided that the latter are not completely linked to Russia. A third project provides for the construction of a gas pipeline from Iran to Armenia with a possible continuation via Georgia and Ukraine to Europe. To bypass Russia it would be necessary to build an offshore pipeline of 550 km from Supsa, Georgia, to Feodosia on the Crimea.<sup>41</sup> Also in this case Turkmenistan could be a gas supplier. It will, however, not be easy to realize such projects, which would inhibit both Russia's policy of a Eurasian gas alliance and the containment policy of the USA regarding Iran.

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<sup>40</sup> For the Nabucco project see <[www.iea.org/dbtw-wpd/textbase/work/2004/investment/ses2.10.pdf](http://www.iea.org/dbtw-wpd/textbase/work/2004/investment/ses2.10.pdf)>. The project is driven forward by the Austrian OMV Erdgas GmbH in cooperation with the National Iranian Gas Export Company (NIGEC).

<sup>41</sup> The pipeline would transport 50 billion m<sup>3</sup> gas to Europe and 10 billion m<sup>3</sup> to Ukraine, thus being a strong competitor for the Russian gas export, see Sergei *Blagov*, Russia and Armenia: United by Geopolitics, Divided by Energy Resources, in: Eurasianet, 17.5.2004, <<http://www.eurasianet.org/departments/business/articles/eav051704.shtml>>.