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SHIPMENTS OF RUSSIAN OIL VIA THE BALTIC SEA:
A source of integration or disintegration in Europe?

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Contents

In the book “Growing Russian oil shipments in the Baltic Sea: Strategic decision or environmental risk?” Ed. by Kari Liuhto, Lappeenranta University of Technology, Lappeenranta, 2003.

1. Russia's oil reserves in an international comparison

The EU has only a per cent of the world's oil reservoirs. Despite its non-existent oil reserves, the Union uses nearly a fifth of the globe's oil. The 2004-enlargement will not increase the Union's oil reserves but rather its consumption i.e. our oil import dependence will grow. The contemporary EU's dependence on the imported oil is already at the moment over 70% (Table 1).

Table 1. Energy import dependence of current and enlarged EU[1]

1999	**Natural Gas**	**Oil**	**All Fuels**
EU 15	**45%**	**72%**	**48%**
Austria	76%	94%	66%
Belgium	101%*	91%	77%
Denmark	-58%**	-18%**	-14%**
Finland	100%	96%	52%
France	101%*	96%	52%
Germany	80%	94%	59%
Greece	100%	92%	66%
Ireland	63%	100%	83%
Italy	73%	94%	81%
Luxembourg	100%	98%	97%
Netherlands	- 57%**	71%	30%
Portugal	101%*	102%*	90%
Spain	105%*	101%*	77%
Sweden	100%	87%	35%
United Kingdom	-7%**	-88%**	-20%**
1998			
10 eastern candidates	**72%**	**88%**	**37%**
Bulgaria	100%	99%	49%
Czech Republic	99%	100%	26%
Estonia	100%	85%	36%
Hungary	72%	81%	56%
Latvia	106%*	105%*	61%
Lithuania	100%	88%	50%
Poland	67%	97%	6%
Romania	25%	44%	28%
Slovakia	99%	100%	26%
Slovenia	99%	109%*	52%

* Values over 100% are possible due to changes in stocks.
** Negative figures indicate that the country is a net exporter.
Source: EU (2001).

[1] Import Dependence = Net Imports / (Bunkers + Gross Inland Consumption).

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Russia is the EU's second most important external source of oil after Norway. Currently, more than 15% of the EU's total oil imports arrive from Russia and her proportion grows after the next enlargement.

The USA's oil balance is even less sustainable than that of the EU. Although the USA has only 3% of the world reserves, she consumes over a quarter of the globe's oil, making the US economy overwhelmingly dependent on imports. The US economy would swallow in 4-5 years all the country's own reserves, if she would not receive oil from elsewhere. Though the USA is highly dependent on imported oil, one should not forget that the USA has relatively substantial oil basins relatively near-by. Mexico's reserves, for instance, are almost as large as those of the USA are. Furthermore, the American continent holds as a whole some 15% of the global oil reserves i.e. some three times that of Russia.

China, with a quarter of the globe's population, consumes at the moment only 7% of the world oil, which is slightly less than the Japanese consumption. China's consumption grows, however, along with the progress in the industrialisation of the country. It has been forecasted that by 2020, China would have become the second largest oil consumer after the USA. In order to secure the country's supplies, Chinese companies have conducted energy-related investments in over 20 countries, including Russia. The majority of China's current oil imports come from the Middle East, but China diversifies her oil imports, and thus, eyes on Russian oil reserves with a special interest.

The world's proven oil reserves are heavily concentrated in the Middle East. The five Middle East countries account for almost two-thirds of the global reservoirs: Saudi Arabia (25%), Iraq (11%), United Arab Emirates (9%), Kuwait (9%), and Iran (9%). These five aforementioned countries are in fact the biggest oil possessors in the globe. A calculation exercise shows that with Iraq's proven oil reservoirs alone the USA could meet her total oil consumption for 17 years, if the US consumption will remain at the current level (BP, 2002).

Venezuela and Russia have the largest oil reservoirs outside the Middle East. Venezuela possesses some 7% and Russia nearly 5% of the world's oil. Russia's proven oil reserves are 6 700 million tonnes (mt). Russia produces 10% of the globe's oil production, even if her own oil consumption is only 4%. This means in practice that Russia exports a significant stake of her oil

production, approximately every second oil barrel produced in the country goes abroad (Table 2)[2].

Table 2. Russia's oil reserves, production and consumption in an international comparison

	Reserves	Production	Consumption
Russia	5% of the world total (7th after Saudi Arabia, Iraq, United Arab Emirates, Kuwait, Iran, and Venezuela)	10% of the world total (3rd after Saudi Arabia and USA)	4% of the world total (5th after USA, Japan, China, and Germany)
USA	3% of the world total	10% of the world total	26% of the world total
China	2% of the world total	1% of the world total	7% of the world total
EU15	1% of the world total	4% of the world total	18% of the world total
EU25	1% of the world total	4% of the world total	20% of the world total
Middle East	65% of the world total	30% of the world total	6% of the world total
Americas	15% of the world total	28% of the world total	37% of the world total
OECD	8% of the world total	28% of the world total	62% of the world total
OPEC[3]	78% of the world total	41% of the world total	No data available

Source: BP (2002); own calculations.

Some three-quarters of the Russian oil reserves are located in Western Siberia, in the Tyumen region. The Tyumen region belongs administratively into the Urals Federal District. Even if Tyumen holds the majority of the country's oil, highly potential reserves have also been discovered in the northern parts of European Russia. Russia's main reservoirs close to the EU are located in the Timan-Pechora area (Table 3).

[2] One barrel of crude oil is equal to 159 litres or 0,136 tonnes. One barrel per day production amounts to 49.8 tonnes per year (BP, 2001).

[3] Russia is not a member of the Organisation of Petroleum Exporting Countries (OPEC) but its observer. OPEC includes Algeria, Iraq, Indonesia, Iran, Kuwait, Libya, Nigeria, Qatar, United Arab Emirates, Saudi Arabia, and Venezuela. Astrov (2003, i) argues that "*there are reasons to believe that Russia will continue its strategy of free-riding on OPEC supply cuts in the years to come*".

Table 3. The location of Russia's oil reserves

North of European Russia	7,0%
The Northern Caucasus	0,9%
The Volga region	6,2%
The Urals	8,9%
Western Siberia	73,4%
Eastern Siberia	1,6%
The Far East	1,0%
The Continental Shelf	0,8%

Source: Dudarev & Zverev (1999).

Timan-Pechora is one of the most important oil regions in Russia outside Western Siberia. It accommodates 172 deposits with estimated oil reserves of 9,6 billion barrels. The oil and natural gas resources of the basin are to be developed jointly by Lukoil and ConocoPhillips, which plan to invest $ 20 bn in the coming decade there. Lukoil has already completed 2-3 mt-oil terminal on the Pechora Sea, and has also heavily invested in creating an arctic tanker fleet.

The Russian oil majors hold the lion's share of the Russian oil reservoirs. Prior to the 2003-merger of Yukos and Sibneft, TNK possessed the biggest oil reservoirs in Russia, followed by Lukoil, Yukos, Rosneft, and Surgutneftegaz. Together these five aforementioned oil majors have oil, amounting to almost 13 000 mt, which is double the amount BP (2002) argues that the whole Russian Federation possesses. The difference can be explained by the different classification method of oil reserves, i.e. the Russian method includes also reservoirs which are unlikely to be commercially exploited (Table 4).

Table 4. Oil reserves of major Russian oil corporations in 2000 (mt)

Company*	**Oil reserves**	**State/regional ownership**
Lukoil **	3 344	14% (currently 8%)
Yukos ***	2 607	0%
Surgutneftegaz	1 504	1% (state)
TNK ****	3 707	0%
Tatneft	841	33% (Tatarstan)
Sibneft ***	753	0%
Rosneft	1 573	100% (state)
Bashneft	365	65% (Bashkortostan)
Slavneft**	286	75% (currently 0%)

* All data applying to companies' operations inside the Russian Federation i.e. foreign activities are excluded from the figures.
** The state sold some 6% of Lukoil and Slavneft was privatised in 2002.
*** Yukos and Sibneft informed about their merger in April 2003. The new company will be the largest in Russia and 4th biggest oil firm in the world after BP, ExxonMobil and RD Shell.
**** TNK merged with BP at the beginning of 2003.
Sources: Sagers (2001); TD (2001); IEA (2002b).

2. Russia's oil production and refining

2.1. Oil Production

Russia's oil industry accounted for approximately 90% of the entire USSR's oil output. Prior to the disintegration of the Soviet Union, the Russian oil production exceeded 500 mt. Russia's production started to decline due to the break-up of the socialist system. Since the year 1999 the production has however revived.

In 1999, Russia's production was roughly 300 mt, and the Russian Energy Ministry expects it to reach almost 400 mt in 2003. It has been projected that at the end of this decade the oil production would reach almost at the same level where it used be before the disintegration of the Soviet Union (Table 5).

Table 5. The development of oil production and refining in Russia (mt)

	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2010
Production	515,9*	306,8	301,2	305,6	303,3	305,0	323,5	348,1	377,0	397,0	419,0	448,0	510,0
Refining	n.d.	174,0	199,2	197,2	163,3	174,2	179,0	186,0	182,0	195,0	200,0	206,0	214,0
Refining - production ratio	-	57%	66%	65%	54%	57%	55%	53%	48%	49%	48%	46%	42%

* BP (2001).

Source: The Russian Energy Ministry, for reference see RPI (2003a).

A clear trend in Russia over recent decades has been the deteriorating structure of the reserve base. Over 70% of the reserves currently being operated yield low flow rates, such that their development is only marginally commercial. A decade ago wells yielding flow rates of up to 25 tonnes per day accounted for nearly 55% of total reserves in development. At present, 55% of oil reserves in development now yield flow rates of 10 tonnes per day or less. The average flow per well has dropped from 11,6 tonnes in 1990 to 7,7 tonnes in 1998.

The depletion of existing oil fields in Western Siberia and the fact that oil production is exceeding the rate of discovery of new reserves by a significant margin have raised fears that Russia's current oil boom will be followed by a sharp decline in the next decade. In order to increase oil production, large amounts of capital will be required to develop new fields and to extend the life of existing oil fields with exhausted and low-yield reserves. Currently, 82 fields account for over 60% of Russia's remaining reserves (Table 6).

Table 6. Average daily oil well flow in Russia (tonnes)

	1980	1990	1995	1998	1999	2000
TOTAL	**27,6**	**11,6**	**7,5**	**7,7**	**n.d.***	**n.d.**
Old wells	27,0	11,3	7,4	7,5	n.d.	n.d.
New wells	40,5	17,4	12,0	18,9	n.d.	n.d.
Russian well stock						
TOTAL	n.d.	n.d.	148 113	135 802	135 100	139 468
Active wells	n.d.	n.d.	106 692	103 017	101 325	108 709
Idle wells	n.d.	n.d.	41 421	32 785	33 775	30 759

Sources: Sagers (2001); TD (2001).

The overwhelming majority of the Russian oil is produced in the *Urals Federal District*, particularly in the Tyumen region. This region dominates the Russian oil production, covering two-thirds of the oil output. The *Volga Federal District* accounts for almost a quarter of the production, Tatarstan being its oil centre, though significant amounts of oil is produced also in Bashkortostan, Orenburg, Perm, and Samara. The *North West Federal District* is responsible for 4% of the Russian Federations oil output, Komi being its regional oil centre. The three aforementioned federal districts form over 90% of the federation's total output (Table 7).

Table 7. The development of oil production in the Russian regions (1000 tonnes)

		1990	1995	1996	1997	1998	1999	2000	2001
TOTAL		**516183**	**306827**	**301228**	**305643**	**303283**	**305167**	**323517**	**348133**
North West Federal District		**3 %**	**3 %**	**4 %**	**4 %**	**4 %**	**4 %**	**4 %**	**4 %**
incl.	Komi	3 %	2 %	2 %	3 %	3 %	3 %	3 %	3 %
	Arkhangelsk (incl. Nenets AO*)	0 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %
	Kaliningrad	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %
South Federal District		**2 %**	**3 %**	**3 %**	**3 %**	**4 %**	**3 %**	**3 %**	**3 %**
Central Federal District		**0 %**	**0 %**	**0 %**	**0 %**	**0 %**	**0 %**	**0 %**	**0 %**
Volga Federal District		**21 %**	**26 %**	**25 %**	**25 %**	**25 %**	**24 %**	**23 %**	**23 %**
incl.	Bashkortostan	5 %	5 %	5 %	4 %	4 %	4 %	4 %	3 %
	Tatarstan	7 %	8 %	8 %	8 %	9 %	9 %	8 %	8 %
	Orenburg	2 %	3 %	3 %	3 %	3 %	3 %	3 %	3 %
	Perm (incl. Komi-Perm AO *)	2 %	3 %	3 %	3 %	3 %	3 %	3 %	3 %
	Samara	3 %	3 %	3 %	3 %	3 %	3 %	3 %	3 %
Urals Federal District		**71 %**	**66 %**	**65 %**	**66 %**	**65 %**	**66 %**	**66 %**	**66 %**
incl.	Tyumen (incl. Hanti-Mansiisk & Yamalo-Nenets AO *)	71 %	66 %	65 %	66 %	65 %	66 %	66 %	66 %
Siberian Federal District		**2 %**	**2 %**	**2 %**	**2 %**	**2 %**	**2 %**	**2 %**	**2 %**
incl.	Tomsk	2 %	2 %	2 %	2 %	2 %	2 %	2 %	2 %
Far East Federal District		**0 %**	**1 %**	**1 %**	**1 %**	**1 %**	**1 %**	**1 %**	**1 %**
incl.	Sakhalin	0 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %

* AO = autonomous area.

Source: Goskomstat (2002).

Insert Map 1. here

The Timan-Pechora basin[4] contains many already discovered, but so far underdeveloped fields. Only about 10% of the initial endowment has already been extracted. A total of 190 oil and gas fields have been discovered in the basin, while around 30 are currently being worked. When production in Timan-Pechora gathers full speed, it really places Northwest Russia in the country's oil map (Sagers, 2001).

Over 100 companies produce oil in Russia, but despite their large number, the production is practically in hands of 10 vertically integrated companies[5]. The production volume of 10 biggest companies is around 350 mt, i.e. they account for some 90% of the oil production in Russia. Two biggest alone, namely Lukoil and Yukos, cover some 40% (Table 8).

Table 8. Crude production of 10 major Russian oil corporations (mt)

	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Lukoil	50,9	53,4	53,7	53,4	69,1	73,0	78,2
Yukos	35,3	35,6	34,1	34,2	49,5	58,1	72,8
Surgutnefteg,	33,3	33,9	35,2	37,6	40,6	44,0	49,2
TNK	21,5	21,0	19,7	20,1	28,6	40,6	38,0
Sibneft	18,7	18,2	17,3	16,3	17,2	20,6	26,3
Tatneft	23,7	23,2	24,4	24,4	24,3	24,6	24,2
Slavneft	12,9	12,3	11,8	11,9	12,3	13,5	16,2
Rosneft	13,0	13,4	12,6	12,6	13,5	14,9	16,0
Sidanko	20,8	20,3	19,9	19,6	13,0	…	16,0
Bashneft	16,3	15,4	12,9	12,3	11,9	…	…

Source: Astrov (2003).

Oil business in Russia is not completely in hands of domestic companies but also some foreign oil corporations have started their activities in the Russian market. In 2000, foreign-owned companies accounted together 6-7% of Russia's oil production[6]. The foreign direct investment (FDI) to the fuel and energy sector formed some 10% of total FDI inflow (EIU, 2001; TD, 2001). The main genuine foreign actors in the Russian oil business are (in an alphabetical order): Agip, BP, British Gas, ChevronTexaco, Conoco, ExxonMobil, Neste, Norsk Hydro, McDermott, Mitsubishi, Mitsui, Royal Dutch/Shell, Statoil, and TotalFinaElf (EIA, 2002).

[4] Most of the basin lies in the Republic of Komi, but it also extends into the Nenets AO in the Arkhangelsk region. Hydrocarbon reserves in the area are an estimated 2 billion tonnes (PE, 2001).

[5] Already in the next decade, the number of the big players has probably decreased to a half, what it is at the moment. The April 2003 merger between two big oil companies, Yukos and Sibneft, is just a sign of a broader consolidation process in this industry.

[6] "*Many partners defined as foreign firms are in fact Russian-owned companies registered in foreign countries to benefit from the special privileges granted to joint ventures with foreign partners. It is estimated that JVs with 'genuine' foreign partners produced about nine mt in 1999, less than half officially reported total output for all JVs*" (IEA, 2002, 67).

BP has conducted the biggest single investment in Russia, worth almost $ 7 bn. In the beginning of 2003, BP and Alfa-Access/Renova group (AAR) announced the creation of a new company, TNK-BP. This entity is to be owned equally by these two parties. AAR will contribute its oil interests in TNK International, including the stake in RUSIA Petroleum, Sidanko and Rospan to the new company, while BP will donate its stakes in Sidanko and RUSIA Petroleum, as well as its Moscow retail network and interest in Sakhalin projects. AAR will also receive payment from BP of $ 3 billion in cash and $ 1,25 billion in BP shares a year for three years once the deal has been completed. This new business entity will be the third largest oil producer in Russia after Yukos-Sibneft and Lukoil. As a result, some 30% of BP's net reserves and 13% of its net production will reside in Russia. This new venture is the largest commitment ever by a multinational oil company in Russia and clearly very positive for the future of the country's investment climate.

2.2. Oil refining

It has been estimated that oil refining reaches around 200 mt in 2004, which is a new record since the year 1995. The Russian Energy Ministry estimates that by the turn of the next decade the refining in Russia would have climbed to over 210 mt. The domestic refining grows at a much slower pace than oil production and exports. Therefore, the country's refining-production ratio will drop from almost 60% in 1995 to nearly 40% in 2010, and correspondingly, the export-production ratio will develop vice versa, i.e. it will jump from 40% to almost 60%. This means in practice that Russian oil companies are less interested to refine crude oil at home, and thus, a proportion of crude exports grows. In this context, one should not forget that some Russian oil majors have in recent years acquired oil refineries outside Russia, i.e. Russian companies sell crude to their own refineries abroad. Revenue maximisation, taxation minimisation, tariff optimisation, and export quota planning may explain the interest of Russian oil companies to invest in foreign refineries instead of using domestic ones.

Some 10% of the world's oil refining capacity is located in the ex-USSR. Russia with over 40 major refineries has the biggest refining capacity among the former Soviet republics. Approximately 60% of the Russian refinery throughput takes place in three economic regions, namely in Urals, Volga and Central Russia (Table 9).

Table 9. Regional distribution of refinery throughput in Russia (mt)

	1990	1995	2000
North (Ukhta refinery)	**5,5**	**2,7**	**3,6**
North West (Kirishi refinery)	**19,1**	**12,1**	**16,0**
Central	**44,7**	**27,0**	**31,7**
incl. Moscow	11,6	10,0	9,3
Novo-Yaroslavl	16,0	9,4	10,6
Ryazan	17,1	7,4	11,6
Volga-Vyatka (Norsi refinery)	**20,4**	**12,5**	**3,7**
Volga	**55,3**	**28,8**	**35,6**
incl. Samara-Novokuybyshevsk	22,1	11,3	12,5
Volgograd	8,2	7,8	8,4
North Caucasus	**20,6**	**4,8**	**4,8**
Urals	**65,7**	**45,5**	**40,2**
incl. Ufa	35,8	22,8	19,4
Perm	13,3	11,2	11,1
West Siberia (Omsk refinery)	**25,1**	**16,4**	**12,6**
East Siberia	**29,4**	**22,1**	**12,9**
incl, Angarsk	22,6	16,6	7,7
Far East	**9,8**	**3,4**	**6,2**
TOTAL	**297,2**	**183,2**	**174,1**

Source: IEA (2002b).

When Russian oil producers do not export their crude - often because of the bottlenecks of Russia's pipeline system or the government's limits on company's exports - many chooses to supply their own refineries rather than sell their oil on the free market. Lukoil is the most active in its domestic refining, it is followed by Yukos and Bashneft, the major regional oil company originating from Bashkortostan (Table 10).

Table 10. Crude refining of major Russian oil corporations (mt)

	1996	1997	1998	1999	2000	2001
Lukoil	19,3	18,9	16,6	19,4	22,1	32,6
Yukos	18,0	21,9	20,1	25,5	26,7	29,0
Bashneft	22,0	18,4	17,5	16,5	19,7	20,3
Surgutneftegaz	15,3	14,8	15,9	17,2	16,0	15,9
TNK	4,1	4,5	8,1	11,1	11,6	15,9
Sibneft	15,6	16,1	13,1	12,5	12,6	13,4
Slavneft	6,7	7,2	7,7	9,8	10,8	11,6
Rosneft	4,8	4,6	3,7	6,5	7,2	7,8
Sidanko	17,5	15,6	12,1	13,6	6,3	...

Source: Astrov (2003).

3. Russia's oil exports and main export routes

3.1. Oil exports

Crude oil and oil products account for some 40% of Russia's total exports, and hence, oil is an essential source of Russia's budget revenue (BoF, 2003). Though the Russian Federation does not

belong into the OPEC, the country is an important player in the international oil business. Russia is the biggest net exporter of oil after Saudi Arabia. Russia, Norway and Mexico are the only non-OPEC countries among the 10 largest net exporters of the world (Table 11).

Table 11. Top 10 net oil exporters and importers in 2000 *

Rank	Exporter	Mn tonnes	Importer	Mn tonnes
1.	Saudi Arabia	373	USA	531
2.	**Russia**[7]	**192**	Japan	261
3.	Venezuela	152	Germany	124
4.	Norway	151	Korea	107
5.	Iran	130	France	90
6.	Iraq	104	Italy	89
7.	Nigeria	100	PR of China	74
8.	United Arab Emirates	100	Spain	71
9.	Kuwait	88	India	67
10.	Mexico	77	Chinese Taipei	45
	Rest of the world	552	Rest of the world	549

* Includes crude oil and petroleum products.
Source: IEA (2002).

In 2000, Russia exported some 145 mt of crude oil and the remaining 50 mt consisted of oil products. Since the year 2000, the exports of both crude and oil products have grown. In fact, the Russian crude exports have doubled since 1996 and are estimated to reach 200 mt in 2003. The Russian Ministry of Energy predicts that the country's crude exports will climb to almost 300 mt in 2010. Exports of crude are increasing constrained by transport bottlenecks, making Russian oil majors rely more on exports of oil products in the future. Unlike crude, oil products can be economically transported to ports by rail, making their transport less of a problem. However, at present the problem with Russian exports of oil products is its generally low quality. The country still lags behind in producing low sulphur motor fuels, which will be compulsory in the EU by 2005, and still exports a lot of fuel oil (oil product with relatively low value-added), the demand for which is declining.

In this context, one should not forget that in order to reach such an ambitious export goal, large investments should be conducted to the oil logistics, i.e. new oil pipes, pumping stations, storage tanks, and oil terminals should be constructed. As the state-company, Transneft[8], monopolising

[7] Before the collapse of the centrally planned system, the USSR was the world's largest oil exporter. The Soviet Russia represented for nearly 90% of the total Soviet oil exports.

[8] Transneft, a state controlled company, is responsible for almost 50 000 km of trunk oil pipelines. The pipeline network currently interconnects with 16 foreign countries, including Azerbaijan, Belarus, Kazakhstan, Latvia, Lithuania, Turkmenistan, Ukraine, and Uzbekistan in the former Soviet Union, and Croatia, the Czech Republic, Germany, Hungary, Poland, Serbia, Slovakia, and Slovenia. In the

the country's crude pipes does not possess sufficient financial reserves, the liberalisation of the state monopoly would be needed i.e. private oil companies should be allowed to build and own pipes[9]. Otherwise, the 2010-export goal of 300 mt cannot be reached (Table 12).

Table 12. The development of the Russian crude oil exports (mt)

	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2010**
Exports	132,8	102,0	108,4	140,0	130,8	144,5	162,1	195,0	202,0	219,0	242,0	296,0
Growth	n.d.	-23%	6%	29%	-7%	10%	12%	20%	4%	8%	11%	-
Exp. / Prod.	43%	34%	35%	46%	43%	45%	47%	52%	51%	52%	54%	58%

* Include exports of crude oil.
Source: The Russian Ministry of Energy, for reference see RPI (2003a); author's calculation.

"*By 2010 oil intended for export will exceed export capacity in Russia by some 80 million tonnes per year. Pipeline projects currently underway, such as the Baltic Pipeline System and Caspian Pipeline Consortium will do little to alleviate this export capacity deficit. Existing Russian terminals on the Baltic and Black Sea coast are capable of loading tankers of up to only 140 000 dwt due to restrictions in effect in the Turkish and Danish sea straits. For that reason, up to 80 million tonnes of oil will 'get stuck' on Russia's domestic market by 2010*" (RPI, 2003a, 29).

The overwhelming majority of Russian oil is sold outside the ex-Soviet Union. The share of net exports to countries outside the former USSR rose from 53% in 1992 to 86% in 2001. In 1999, Russia covered some 15% of the Union's entire oil imports. The main destinations within the current EU are the UK, France, Italy, Germany, and Spain. Russia's share in the US oil imports is at the moment marginal, less than 1%, but it is not an excluded option that it might grow in the middle-term. "*Of the 9.1 million of barrels of oil daily imported by the USA at present, hardly any crude is supplied by Russian companies. With the Murmansk project up and running, by 2010 the share of Russian suppliers on the American market may grow to 13%. This estimate appears quite feasible in view of the fact that oil production in several traditional key areas supplying the USA, such as the Gulf of Mexico and the North Sea, is expected to slump over 2002-2010. Russia may fill in the gap on the US market. ... However, should the USA succeed with what it plans in Iraq (toppling leader Saddam Hussein), then Iraq rather than Russia will flood USA with cheap oil*" (RPI, 2003a, 29-31).

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forthcoming years, the pipes will also go to China, when Yukos will complete its pipe there. Transneft transports over 90% of oil produced in Russia.

[9] "*In accordance with effective law on pipeline transport, privately owned crude oil pipelines cannot exist in the Russian Federation*" (RPI, 2003b, 13). At the moment, it seems that the country's first privately owned pipelines will be constructed by the end of this decade; one to Murmansk and another one from Angarsk to Daqing in China.

EIA (2002) indicates that the transportation and production costs of delivering Russian oil to the USA are considerably higher than those of the Middle East producers, making it unlikely that Russian oil will replace the Middle East oil on the US market. Besides, one should not forget that supplying a tenth of the US oil imports would mean in practice selling over 50 mt of oil annually i.e. without the Murmansk port this target is not easy to be reached.

3.2. Main export routes

In 2002, 55% of the Russian oil was exported by sea, 40% through the Druzhba pipeline, and some 5% by railway. Besides exporting of own oil, a considerable amount of other countries' oil, nearly 20 mt, transited through Russia. The overwhelming majority of transit oil originates from Kazakhstan, over three-quarters (Table 13).

Table 13. Russia's crude export routes in 2002 (mt)[10]

	Sea transportation	Druzhba pipe	Railway[11]	Total
Total Russian oil exports	75,1	57,4	5,4	137,9
Total oil transit via Russia	14,6	4,1	-	18,7
Grand total	89,7	61,5	5,4	156,6
Breakdown				
Total Russian oil exports	**75,1**	**57,4**	**5,4**	**137,9**
Via Transneft system	**71,2**	**57,4**	**4,4**	**133,0**
incl. Lukoil	16,2	9,3	0,4	25,9
Yukos	10,8	13,6	1,2	25,6
Surgutneftegaz	2,1	15,3	-	17,5
TNK	8,8	4,0	1,9	14,8
Sibneft	7,4	2,9	0,2	10,5
Tatneft	5,0	3,7	-	8,7
Rosneft	6,1	0,0	-	6,1
Sidanko	3,8	1,4	0,5	5,8
Slavneft	4,2	1,2	-	5,5
Bashneft	2,7	1,4	-	4,1
PSA operators	0,4	-	-	0,4
Oil bypassing Transneft system	**3,9**	**-**	**1,0**	**4,9**
Total oil transit via Russia	**14,6**	**4,1**	**-**	**18,7**
Transit of Kazakhstan	11,4	3,5	-	14,9
Transit of Azerbaijan	2,8	-	-	2,8
Transit of Turkmenistan	0,5	-	-	0,5
Belarus	-	0,6	-	0,6

Source: The Russian Energy Ministry, for reference see RPI (2003b).

[10] The volume of the Russian crude exports differs between Table 12 and Table 13 possibly due to the fact that Table 13 does include the Russian oil exports to the CIS.

[11] Due to the pipeline bottlenecks, the delivery blockade over Ventspils, and harsh climatic conditions in the winter 2002-2003 both in the Black Sea and the Baltic Sea, the significance of rail deliveries have increased. Feodosiya, a Ukrainian port, is now the primary destination for rail exports, having overtaken port of Tallinn.

Main oil export-linked pipelines

The main export route of the Russian oil to the West is the *Druzhba trunk line*, with a nominal 60-mt capacity. The pipe traverses Belarus before splitting into northern and southern routes. The northern link runs from Russia via Belarus and Poland to Germany. The southern line crosses northern Ukraine and goes through Hungary and Slovakia ending in the Czech Republic. The northern pipe is now fully used, while the southern arm of the trunk has still available capacity, and therefore, Russia aims at exploiting the available capacity by integrating the southern arm of Druzhba with the Adria pipeline.

The integration of the Druzhba and Adria pipes in Croatia and the reversal of Omisalj-Sisak linkage provide Russian oil exporters direct access to the Adriatic Sea, where tankers can be loaded at the deep water port of Omisalj, allowing them to bypass the increasingly crowded Bosporus Strait. The deepness of the port allows up to 500 000 dwt-tankers to collect oil from the port, which in turn makes the exports to the USA economically feasible alternative. Another advantage of Omisalj is the shorter maritime travel to US ports. It is about 600 km shorter than from Ceyhan, and roughly 1000 km shorter than Novorossiysk. The only other option that promises lower transportation costs for Russian crude to West European countries and the USA is the Murmansk port, which is likely to be constructed by the turn of the decade.

Yukos has signed a $ 20-mn agreement with a Croatian oil transport company Jadranski Naftovod (Janaf) to accomplish this integration[12]. However, the first loading of Russian crude at Omisalj has been delayed to 2004 or beyond, since the Croatian firm has failed to start to work on the integration, as the estimated costs of the reversing pipe have multiplied from $ 20 mn to $ 80 mn. It is expected that the Druzhba-Adria pipe would handle some 5 mt when it will be opened. According to optimistic plans, its capacity might be increased to 10-15 mt by 2013.

The *Baltic Pipeline System* (BPS) involves the 450-km pipe from Kharyaga (Nenets Autonomous District, Arkhangelsk region), to Usa (the Komi Republic), the Usa-Ukhta, Ukhta-Yaroslavl, and Yaroslavl-Kirishi pipelines, and the pipe from Kirishi to Primorsk. BPS is fully owned and operated by Transneft. The first stage of BPS was completed by December 2001, and the building of the second stage has started. The second stage is to be completed by the end of 2003. The completion of the second stage will increase BPS' capacity to 18 mt from the current 12 mt. The

[12] The state-owned company, INA, owns Janaf. The Croatian government plans to sell 25% plus one share of INA during the spring 2003. The Russian state-owned company, Rosneft, is a contender for this stake. The winning bidder has promised a right to buy another 21% of INA shares later.

capacity is expected to grow to 42 mt by 2005 and even to 50-70 mt by the end of this decade, if the shipments of oil products are included. BPS delivers oil mainly from Timan-Pechora and Western Siberia, though it may also transport oil from Kazakhstan.

In September 2001, Russia finished *Sukhodolnaya-Rodionovskaya pipeline*. This 250-km pipe allows Russian oil companies to deliver oil to Novorossiysk oil export terminal without using the pipe section in the Ukrainian territory. Hence, the Russian companies may avoid Ukraine's high transit fees and illegal tapping from the pipe. The throughput capacity of the pipe is around 16-25 mt.

Besides the aforementioned pipes, Kazakh oil transit Russia via *the Caspian Pipeline Consortium* (CPC)[13]. Over 1500-km CPC pipe started to operate at the end of 2001. An international consortium runs the CPC instead of Transneft. Though Transneft does not control CPC, one should keep in mind that Russia is the largest owner in the consortium, possessing almost a quarter. CPC delivers oil from large Kazakh oil field Tengiz to Novorossiysk, the Russian oil terminal on the Black Sea. The initial capacity of the pipe is nearly 30 mt, with throughput possibly increasing to over 60 mt by 2015.

CPC is not the only route of Kazakh oil transiting Russia. Kazakh oil may also be moved via the *Atyrau-Samara* pipe, to be pumped further to the Druzhba line or BPS. Smaller amounts of Kazakh oil are also shipped to Azerbaijan, where it can be put through Baku-Novorossiysk pipe. However, the amount is relatively insignificant, roughly 2,5 mt. Azerbaijan may also offer other routes, such as Baku-Supsa and Baku-Tbilisi-Ceyhan[14] connections. Baku-Supsa collects reportedly lower transit ($ 2 per barrel) fees than Baku-Novorossiysk ($ 3 per barrel), and on contrary, Baku-Tbilisi-Ceyhan higher fees ($ 4 per barrel).

Besides these Western routes, *Russia will pipe her oil to the East* in the future. Yukos aims at building a 25-30-mt crude pipe from Angarsk to Daqing in Manchuria. This pipe would be 1700 km long and its construction requires some $ 2,2 bn. At present, Yukos is supplying China with a mere 1,5 mt of crude via rail, but it has recently agreed on deliveries of 18 mt by 2005 and over 25 mt by 2010[15].

[13] In 2002, the Caspian Pipeline Consortium became Kazakhstan's main export route transiting Russia.
[14] Baku-Tbilisi-Ceyhan pipe is to be put into operation in 2005. The pipe is over 1000 km long and would have annual capacity of around 50 mt. The estimated cost of the project is $ 2,75 bn. The project's operator is BP with a 33%-share.
[15] At the end of April 2003, the Russian government postponed building of Angarsk-Nahodka pipe indefinitely.

Insert Map 2. here

Insert Map 3. here

The Sakhalin-1, a group operated by ExxonMobil, favours 250-km-underwater pipeline. The consortium members aim at exporting oil across the Tatar Straits to DeKastri, on the Russian mainland, where an existing tanker terminal could be expanded to handle exports to Asia. The pipe will be reasonably cheap to be built, but off-takers will have to contend with ice for several months a year. The consortium is planning for annual capacity of both terminal and pipe to reach between 12 to 15 mt. The Sakhalin-1 group indicates its export route will be cheaper than that of Sakhalin-2, but the group acknowledges that exports will not begin before 2005.

Sakhalin-2, a consortium led by RD Shell, has plans to export oil to Japan, South Korea, and Taiwan by building nearly 800-km oil pipe down the length of Sakhalin Island to the ice-free port of Prigorodnoye. This plan is expensive but it allows year-round oil exports.

Summa summarum, the Druzhba pipe is Russia's main export pipe. In addition to this trunk line, one can name the Baltic Pipeline System and the goal to integrate Druzhba and Adria pipes. One should not forget the eastern pipes, which allows Russia to sell more oil to the East, but nevertheless, do not provide Russia with a genuine solution for avoiding the country's oil export bottlenecks. Perhaps, the most appropriate way to solve the export bottlenecks in the middle term would be the construction of the pipe to Murmansk. In addition to building new pipe routes, the importance of the investments into the maintenance and repair should be kept in mind as the existing pipe network and other logistical facilities are ageing. In 2000, 73% of Russian oil pipelines were over 20 years old.

Major oil export ports

The port of *Novorossiysk* on the Black Sea is Russia's largest oil export terminal. In 2002, the port handled 45 mt of crude. Already in the near future, the port's capacity could be increased. Though Novorossiysk is an ice-free port, its clear disadvantage is heavy storms. This port was shut down for 85 days in the year 2002 due to storms i.e. on average the port was closed almost twice a week throughout the year. Moreover, the Bosporus Strait experienced storms further delaying shipments from Novorossiysk to the Mediterranean Sea.

The ports on the Baltic Sea are gaining importance in Russia's oil exports. The Latvian port of *Ventspils* has traditionally been the major oil terminal on the Baltic Sea. The position of Ventspils has been challenged particularly by the *Tallinn port*, which has increased its oil exports extremely fast, though oil has to be delivered there by rail, whereas the pipe connects the Ventspils terminal.

Transneft's oil embargo, which will probably last until the end of the year, has made the Ventspils port's position very difficult[16]. Thirdly, the Russian oil companies are building oil terminals in the Russian territory of the Baltic Sea, for instance in Primorsk.

Primorsk is the biggest oil terminal on the Russian territory of the Baltic Sea. In 2002, Primorsk served 135 tankers and shipped some 12 mt of crude oil. After the completion of the second pipe into the port in 2003, the capacity will jump into 18 mt. It has been suggested that the terminal will be attached to an oil product pipeline with a planned capacity of 10-20 mt per year[17]. According to some experts, Primorsk's capacity will increase into 50-70 mt by the end of this decade. Some plans are indicating even higher amounts, up to 90 mt, but the author is not fully confident whether these plans are realistic, especially taking into consideration the possible opening of the giant Murmansk terminal.

In addition to Primorsk, one should not forget the oil transportation via *Petersburg Oil Port*. Roughly 8 mt oil products went through this port 2002, and its capacity is expected to grow if the port starts to handle also crude oil.

The Bukhta Batareinaya oil terminal, to be located to the west of St. Petersburg, is to be completed by the end of 2004. The terminal is tentatively valued at $ 320 mn. Its planned capacity is some 15 mt per year. Oil is transported to this terminal by rail. Surgutneftegaz will operate this port. The company is also working on the Kirishi-Batareinaya oil products pipeline. The construction of the pipe is believed to take more than three years.

Lukoil invests all in all $ 235-300 mn in *Vysotsk* to construct an oil port with the necessary infrastructure there. The terminal with the capacity of 5 mt is to be commissioned by November

[16] Transneft's oil embargo towards Ventspils stem from the fact that the privatisation of Ventspils is expected to take place by the end of 2003 i.e. the Russian oil companies are eager to acquire the 43%-stake under the looming privatisation. Russia's four biggest oil producers - Lukoil, Yukos, TNK, and Surgutneftegaz - have asked the Russian government to lift the block, as the blockade has increased oil supply in Russia and dropped the domestic oil price.

[17] "*It [Transnefteprodukt] will begin construction of a new export oil product pipeline, Kstovo-Yaroslavl-Kirishi-Primorsk port. This $ 819-million project has been already termed - 'strategic', meaning it will reduce Russia's dependence on its nearest neighbors' markets. The throughput capacity of the new pipeline's first line is 10 million tons per year, with increase prospect to 20 million tons. ... The construction time for 'Sever' oil product pipeline has been established at three years; the expected payback time is 4.4 years from the beginning of operation*" (RPI, 2003b, 37). Transnefteprodukt is a sole Russian company that transports oil products through its multi-branched trunk pipeline system. It has a staff of over 13 000 employees.

of 2003 and by the end of 2004 the port's capacity is to be lifted to nearly 11 mt. If this plan can be accomplished, Vysotsk will be the largest oil product facility in Northwest Russia. However, it might be difficult to achieve the 11-mt target because of capacity limitations on the rail line serving the terminal. When completed the terminal allows to handle tankers up to 80 000 dwt.

Also a small oil facility has been planned in *Vyborg*, with an initial capacity less than 1 mt. In November 2000, Lukoil opened an oil terminal in *Kaliningrad*. In 2001, the company constructed another oil terminal in Kaliningrad with a nameplate capacity of 2,5 mt. These terminals are estimated to be capable of handling up to 3-5 mt of oil annually (Table 14).

Table 14. Some oil terminals in the Russia territory of the Baltic Sea Rim[18]

	Actual capacity	Planned capacity
Primorsk	12 mt	up to 70 mt (by the end of the decade)
St. Petersburg	7-9 mt	16 mt (by 2005-2006)
Bukhta Batareinaya	0 mt	6-15 mt (by the end of 2004)
Vysotsk	0 mt	5-11 mt (by the end of 2004)
Vyborg	0 mt	1 mt (extension open)
Ust-Luga	0 mt	5-6 mt (by 2010)
Kaliningrad	3-5 mt	no data

In north, Russia has four oil ports worth mentioning, namely Varandey, Arkhangelsk, Vitino, and Murmansk. *The Varandey terminal*, with an initial capacity of 1,5 mt, was built by Lukoil in August 2000. The company is looking to boost the Varandey terminal to 10 mt. It will load its own 15 000-20 000 dwt tankers at Varandey, then sail them to Murmansk, where crude will be loaded onto heavy-weight vessels, which will be used to tanker crude to north-west Europe and the USA (RPI, 2003c).

Besides, Rosneft is planning to invest about $ 15 mn to upgrade a crude and product terminal in *Arkhangelsk*. The project calls for nearly doubling the capacity of this terminal from 2,5 to 4,5 mt per year. The terminal experiences frequently problems during the winter time, since it lacks ice breakers to keep the arctic port open as Russia's ice-breaking fleet is mostly engaged by Murmansk Shipping Company in the port of Murmansk.

The Vitino port is located on southwestern coast of the Bay of Kandalaksha on the White Sea. The port's current capacity makes it possible to load 0,4 mt on a monthly basis, and over 4 mt of condensate and fuel oil per year, not counting light oil products. Crude is carried by rail to the Vitino port, from which it is shipped by small tankers, up to 70 000 dwt, to Murmansk, where it is re-loaded onto larger tankers and then exported to Europe or the USA. In 2002, the trans-shipments of oil multiplied via Vitino from 0,1 to 2,8 mt. Such a rapid hike in deliveries reflects clearly oil export bottlenecks in Russia i.e. need to end the Ventspils blockade or build new terminals, such as the Murmansk port.

One of the biggest decisions to influence oil transportation via the Baltic Sea is the plan to construct *the Murmansk oil terminal*. The consortium of four Russian oil majors, Lukoil, Yukos, TNK, and Sibneft plans to build an oil pipe from Western Siberia to Murmansk. The investment required for the financing this project is $ 3,4-4,5 bn, depending whether the pipe either cross or bypass the White Sea. Lukoil and Yukos are to cover some two-thirds of the project financing.

The Murmansk port will have several advantages. First, it will have a large capacity, 60-120 mt. Second, it will provide an ice-free sea around the year, which is a competitive advantage compared with the ports located on the eastern parts of the Baltic Sea. Third, a sheltered harbour and unique depths of the Kola Bay will allow it to load 300 000-dwt tankers, which is roughly three times bigger than the maximum tanker size in the Russian ports on the Baltic Sea. Fourth, it is economically the most feasible transport route. Transporting a tonne of oil via Western Siberia-Murmansk-USA route will cost a total of $ 24,00 to ship, whereas the transportation of the similar amount via Western Siberia-Druzhba pipeline-Adria-USA will cost $ 29,50 and Western Siberia-Caspian Pipeline Consortium-USA $ 29,90 to deliver[19]. It has been estimated that the project will begin in 2004 and will be completed by 2007.

To sum up, while the oil prices are high Russian oil companies has a special incentive to export more oil abroad. The Russian government benefits from high oil prices as the government revenues go up. Russian firms cannot, however, increase their oil exports since the export capacity is in full use. Therefore, additional export infrastructure is needed.

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[18] One should not forget that some non-Russian ports in the Baltic Sea handle a great amount of the Russian crude oil or oil products.

[19] In comparison, transporting of an oil tonne via Baku-Tbilisi-Ceyhan-USA and via Persian Gulf-USA costs $ 31,90 and $ 19,50 respectively (RPI, 2003a).

4. Foreign operations of Russian oil companies[20]

In recent years, Russian corporations have increased their investment abroad. The cumulative Russian FDI outward stock reached almost $ 15 bn in the beginning of 2002. The natural resource-related companies, particularly the natural gas monopoly Gazprom and oil majors cover the lion's share of these investments (UNCTAD, 2002).

Lukoil has been purchasing stakes in foreign oil fields. Nearly a fifth of the corporation's reserves locate abroad. Its major foreign fields used to lay in Iraq, the Azeri and Kazakh sectors of the Caspian Sea, and Egypt. Currently, the company has oil fields only in Azerbaijan, Egypt, and Kazakhstan, since the Iraqi government annulled the company's contract in the West Qurna[21]. Though almost 20% of the corporation's reserves are situated abroad, foreign production accounts for less than 5% of the group's total crude oil production (Liuhto, 2001)[22].

Besides participating in the development of foreign oil fields, Lukoil has acquired controlling stakes in refineries abroad, such as in Bulgaria, Romania, and Ukraine. An important proportion of the company's refining takes place abroad, nearly a quarter.

Lukoil has a wide network of service stations. All in all, Lukoil has some 3500 stations, of which nearly 900 stations are located in other former Soviet republics and Europe, particularly in Eastern Europe. Besides all these, the company has almost 1300 stations in the USA after it acquired Getty Petroleum Marketing (GPM) at the end of 2000 with $ 70 mn. This was the first step by Lukoil towards US expansion and the first time when a Russian firm bought a publicly traded US company.

In July 2001, Lukoil acquired a Canadian exploration and production company, Bitech Petroleum, which has operations in Colombia, Egypt, Morocco[23], and Tunisia. At the beginning of 2003, it was reported that Lukoil has failed to reach agreement with the Greek government to buy a 23%-stake in Hellenic Petroleum, the country's largest oil company. In the time of writing

[20] This chapter is an updated and shortened version of Liuhto and Jumpponen's (2003) earlier report.
[21] The Lukoil management does not accept Iraq's annulment of its contract to develop giant oil field with reserves amounting to 7 bn barrels, and aims to fight to keep its position as the operator of the pitch.
[22] Lukoil acquired at the beginning of 2003 two new oil fields in Egypt, in addition to two old ones, Meleiha and West Esh El Mallaha (WEMM). Moreover, Lukoil Overseas, an international unit of Lukoil, has signed a deal with Norsk Hydro to acquire a 25%-stake in a $ 140 mn exploration project in Iran. The Anaran block near Iran-Iraq border has estimated reserves of 2,6 bn barrels.

this report, Lukoil's position vis-a-vis Hellenic Petroleum was open.

Lukoil has shown interest to expand to Central Eastern Europe, particularly to Romania, Poland, and the Czech Republic. For example, Lukoil eyes the Romanian state-owned oil company, SNP Petrom. The Romanian government is expected to privatise a 51% of Petrom by the end of 2003[24]. In this context, one should not forget that besides Lukoil some 20 other companies, such as ExxonMobil, RD Shell, TotalFinaElf, and ÖMV, are eyeing this stake. Lukoil hopes also to get a share in Rafineria Gdanska, Poland's second largest refinery, but the changes for obtaining the stake are currently everything but high, after the breaking up the consortium with the British Rotch Energy. Furthermore, Lukoil aims at acquiring a 63% stake in Unipetrol, a Czech petrochemical refinery group.

Outside the former CMEA, Lukoil has plans, for instance, in Turkey and Italy. The company eyes a 17-18% stake in Turkish oil refinery, Tupras. Tupras owns four refineries in Turkey, accounting for 85% of the country's total oil refining capacity. This acquisition would be an attractive opportunity for Lukoil to expand into the Mediterranean downstream. In addition, Lukoil is in talks to buy elastomer and synthetic rubber units from the Italian oil and gas company, ENI Polimeri Europa, which owns ENI's petrochemical assets.

To sum up, Lukoil is very actively looking for possibilities to acquire stakes in foreign units in several countries, such as the Czech Republic, Greece, Italy, Poland, Romania, and Turkey. On the other hand, if Lukoil ultimately loses its almost 70%-stake in the Iraqi oil field, West Qurna, it is a clear setback in its outward expansion.

Yukos[25] exports a significant proportion of its crude production. The company is Russia's third biggest exporter after Gazprom and Lukoil. The corporation exported to 40 countries and its exports were valued $ 5,5 bn in 2001. During the past 18 months, Yukos has become an internationally recognised actor in the international oil business due to its aggressive

[23] In March of 2002, Lukoil gave a press release, indicating that the company aims at selling its assets in Morocco.

[24] Lukoil recently declared that it may invest up to $ 130 mn to build 250 stations in Romania by 2004. This declaration, however, is probably linked with the on-going privatisation process, i.e. Lukoil might want to show that it is interested to develop also other activities in Romania, apart from the privatisation of Petrom. Should Lukoil not manage to get the stake it is looking after, it is unlikely that it will build such a wide station chain in Romania.

[25] Yukos informed about a merger with Sibneft in April 2003, making its biggest oil company in Russia and the number four in the whole world.

internationalisation strategy.

Until the beginning of 2002, all the company's oil reserves were located in Russia and production took place there. In the beginning of 2002, however, Yukos acquired 78% of the Federovsky exploration block in Kazakhstan. It was the company's first international upstream venture. Almost simultaneously with its acquisition of the Kazakh field, Yukos acquired a 49%-interest with $ 74 mn in the Slovak pipeline company, Transpetrol. In mid-2002, the company acquired a controlling stake in a Lithuanian refinery, Mazeikiu Nafta, with approximately $ 160 mn. In ex-Yugoslavia, Yukos has been working with a Croatian company, Janaf, to modernise the Adria pipeline.

The foreign operations of Yukos are not only limited to the ex-CMEA, but it also operates in the West. In November 2001, Yukos acquired John Brown Hydrocarbons and Davy Process Technology from a British-Norwegian engineering firm, Kvaerner for $ 100 mn.

In the time of writing this report, Yukos is in talks to buy 50% of ENI's refining capacity at two plants in Italy. The deal, which should be concluded by June 2003, is estimated to value some $ 700 mn. Moreover, Yukos has plans to build a network of petroleum stations in Latvia and Estonia. It is expected that Yukos will acquire already existing chain, for instance Alexela, and integrate the acquired chain with Yukos' own chain in Lithuania.

After the USA's military campaign in Iraq, the Yukos top management has expressed its interest to operate in Iraq, though the company does not have any previous experience of Iraq. Even if the top management declines to specify its interest, it has been assumed that Yukos would eye for stakes in large fields, possibly in conjunction with foreign partners.

Surgutneftegaz has so far been passive in starting its internationalisation, except the exportation. The firm is the 5th largest exporter in Russia, with exports totalling $ 2,4 bn. The company exported to 13 countries, which is a small number compared to Yukos and Tyumen Oil Company, which both have 40 countries in their export list.

Recently however, Surgutneftegaz has announced a plan to buy oil and petrochemical processing facilities in Belarus and Ukraine in alliance with Slavneft. Besides this, Surgutneftegaz has shown interest in acquiring 800 of BP's petrol stations in Germany. Furthermore, the company has

shown interest in participating in tenders Belarus petrochemical companies: such as Naftan, Polimir, Grodno Azot, and Grodno Khimvolokno.

Tyumen Oil Company (TNK) is Russia's 4th largest exporter. Its sales abroad exceeded $ 5,5 bn in 2001. Taking into consideration the company's giant reserves, extensive exports and a wide foreign clientele, it is surprising that TNK has been so slow in expanding abroad. Though the overwhelming majority of TNK's activities are carried out inside Russia, the company is not a completely domestic company. It acquired for some $ 60 mn, the Lishichansk refinery in Ukraine through its subsidiary, TNK-Ukraina, in mid-2000. TNK plans to invest almost $ 8 mn to modernise its Ukrainian refinery. TNK also owns a filling station chain with some 700 stations in Ukraine.

Besides Ukraine, TNK aims at penetrating into Belarus. TNK has also signed an agreement with a Slovenia oil company, Petrol, to co-operate in the marketing of oil products in Bosnia-Herzegovina, Croatia, Macedonia, and Yugoslavia. The recent merger between TNK and BP will make TNK a part of an international consortium, and thus, give it an internal way for executing its internationalisation.

Rosneft, Russia's biggest completely state-owned oil company, participated in international operations already during the Soviet era. In 2001, Rosneft was Russia's 11th largest exporter with foreign sales exceeding $ 1,3 bn. In addition to exports, it participates in foreign upstream ventures, owns a refinery abroad, and retails petroleum through its foreign filling station chain.

In Kazakhstan, Rosneft has agreements with the First International Oil Corporation (to explore oil fields together with that company) and Itera (to form an oil and gas extracting holding). In Ukraine, Rosneft with Alians, a Russian firm, aim at acquiring a 20%-stake in the Kherson refinery. Alians already holds 30% of this refinery.

Rosneft operates a petrol station network in Bulgaria and Romania jointly with Slavneft. Rosneft has lately shown particular interest in Eastern Europe and is considering participation in the privatisation or purchase of the secondary market of shares. Rosneft is eyeing a 25%-stake, for example, in a Croatian oil company, INA. It is not, however, alone in this competition. The Hungarian firm, MOL, and an Austrian firm, ÖMV, are also after INA. The winner was not announced by the time of writing this report.

In the book “Growing Russian oil shipments in the Baltic Sea: Strategic decision or environmental risk?”
Ed. by Kari Liuhto, Lappeenranta University of Technology, Lappeenranta, 2003.

In June 2001, Rosneft signed a contract with Colombia's state oil company Ecopetrol and two other Colombian companies to launch oil extraction at a block in southern Colombia. Colombia Energy, a Russian-Colombian consortium, including Rosneft, has started production at the Suroriente oilfield in the south of Colombia. The field has estimated reserves of 100 mn barrels.

In Algeria, Rosneft has made a similar agreement with a local state-run oil company, Sonatrach, on the development of an oil field. In Iraq, Rosneft has signed an agreement to develop oil fields and owns via its daughter companies oil fields in the country, such as the Ekhabi drilling platform. The status of its agreements in Iraq is open after the fall of the Saddam regime[26]. Rosneft is expected to launch projects also in Sudan.

In October 2002, Rosneft signed a letter of intent to form a venture with Marathon Oil, the fourth largest US oil corporation. The venture, to be called Urals North American Marketing, is intended to support the establishing of a stronger foothold for the Urals crude in the US market.

Slavneft, owned currently by TNK and Sibneft, is among the top 10 exporters in Russia. Its exports totalled $ 1,8 bn and the firm sold oil to 25 countries. The CIS exports accounted for a third of its foreign sales. Besides exporting, Slavneft has also established units abroad.

In summer 2001, it signed a joint venture deal to develop an oil field in Sudan. Slavneft holds a 93%-stake in this company[27]. The estimated total investment volume made by Slavneft into the geological exploration and development of the deposit is $ 126 mn. Slavneft has been screening possibilities for participating in projects in Iran, where it has already been involved in maintaining oil wells. The company has also signed a co-operation agreement in Iraq. Slavneft, which co-ordinates Russian oil deliveries to Slovakia, intends to acquire filling stations in the country.

Tatneft's exports exceeded $ 2 bn in 2001 and with this amount it was the 7th largest exporter in Russia. Tatneft has a representative office in Iraq, where the company aims at carrying out oil drilling. Tatneft has signed a contract with the Iraqi oil ministry for the state-owned South Oil

[26] In 2002, Russian companies bought 124 million barrels of Iraqi oil for roughly $ 2.8 bn. Russia accounted for some 35-40% of all Iraqi oil exports prior to the USA's military operation in the country.
[27] In August 2002, Slavneft released information that the company is ending its operations in Sudan owing to high risks and low profits.

Company in the southern region of Basrah. Tatneft has also sent 20 workers to help a Russian oil firm, Zarubezhneft, used to drill 45 wells in the Kirkuk region. Tatneft's operations in Iraq are everything but certain after the removal of Saddam Hussein from power.

The biggest owner in Tatneft, the Republic of Tatarstan, is interested in acquiring Ukraine's 43% stake in Ukrtatnafta, which controls Kremenchug refinery. The Ukrainian government is expected to privatise the stake during 2003. Tatneft currently owns 9% of Ukrtatnafta, the Tatarstan government holds a further 30%, and 18% is owned by two offshore entities. Gaining control over Ukrtatnafta would be important for Tatneft, whose absence of refining capacity leaves it more exposed than Russia's other oil majors to the domestic glut in crude.

Tatneft would like to acquire 340 stations from BP in Southern Germany. Should Tatneft manage to realise this goal, it would be a big step in the company's expansion towards the West, as its earlier activities have concentrated towards the East. The authors are a bit dubious whether this deal will finally be accomplished, as other more experienced oil companies also covet these stations. Tatneft is also expected to launch projects in Sudan.

Sibneft, which recently merged with Yukos, has exports worth some $ 1,7 bn. The researcher was not able to find any significant foreign unit belonging to Sibneft.

Bashneft sells a third of its production abroad. The firm's exports totalled almost one billion US dollars in 2001. The company was able to increase its foreign sales slightly compared to a year earlier. Despite growing exports, Bashneft's destiny is not too promising, since the efficiency of its old wells is not the best possible, and moreover, Bashneft is not a vertically-integrated company. Should Bashneft decide to expand abroad, Kazakhstan might be one probable destination since she is located not far away from Bashkiria.

The 10 Russian oil majors mentioned above cover together nearly 30% of Russia's total exports, some 90% of country's oil exports, and are behind the major foreign operations of the Russian firms abroad, excluding the Russian natural gas giant, Gazprom (Table 15).

Table 15. Selected operations of Russia's 10 largest oil corporations abroad

Company	Markets (number of export countries)	Operations (export value in 2001)
Lukoil	Colombia	Exploration
	Azerbaijan, Egypt, (Iraq - status uncertain), Kazakhstan	Oil production
	Bulgaria, Romania, Ukraine	Oil refining
	Cyprus, Turkey, USA, several post-socialist countries: e.g. Azerbaijan, Baltics, Bulgaria, Czech Rep., Poland, Romania, Ukraine	Retailing: service stations
	Germany, UK	Int. holding companies
	Various countries (32)	Oil exports ($ 6,6 bn)
Yukos	Kazakhstan	Exploration
	Lithuania	Refinery
	Croatia	Pipeline project
	Slovakia	Pipeline company
	Latvia, USA	Marketing
	Various countries (40)	Oil exports ($ 5,7 bn)
Surgutneftegaz	Various countries (13)	Oil exports ($ 2,4 bn)
TNK	Ukraine	Oil refining
	Ukraine	Petroleum retailing
	Various countries (40)	Oil exports ($ 5,6 bn)
Rosneft	Algeria, Colombia, Iraq, Kazakhstan	Oil production
	Ukraine	Oil refinery management
	Bulgaria, Romania	Petroleum retailing
	Various countries (n.d.)	Oil exports ($ 1,3 bn)
Slavneft	Bulgaria, Romania	Petroleum retailing
	Iran	Maintaining oil wells
	Sudan	Oil production
	Various countries (25)	Oil exports ($ 1,8 bn)
Tatneft	Iraq	Oil production
	Ukraine	Refinery
	Various countries (43)	Oil exports ($ 2,1 bn)
Sibneft	Various countries (29)	Oil exports ($ 1,7 bn)
Bashneft	Various countries (21)	Oil exports ($ 0,9 bn)

5. Future of Russia's oil exports via the ports in the Baltic Sea

The oil industry is definitely the backbone of the Russian economy. First of all, oil covers a fifth of Russia's primary energy consumption. Second, the oil sector accounts for almost a tenth of the Russian GDP. Thirdly, oil is an important source of the state's tax revenue. According to TD (2001, 86), "*Russian oil companies paid around $ 15 billion in taxes to the federal budget in 2000, accounting for 39% of total federal budget tax revenues*". Oil is important not only for the Russian domestic economy but also for the country's external economy, as it forms over a third of

Russia's total export earnings, a tenth of the country's inward FDI stock, and a much bigger stake of the Russian outward investments (Table 16).

Table 16. The importance of the oil sector in the Russian economy

Primary energy consumption (2001)	19%
GDP (2000)	8%
Federal tax revenues (2000)	39%
Exports of crude oil and oil products (2002)	37%
Inward FDI stock - including natural gas (1999)	11%

Sources: EBRD (2001); TD (2001); BP (2002); IEA (2002b); BoF (2003).

Both the Russian government and oil companies have a strong incentive to boost oil sales abroad since the state receives a gargantuan amount of revenues from oil exports and the companies take advantage of higher prices outside Russia. Due to constraints in the oil export logistics, export growth cannot be achieved without heavy investments in new pipelines, pumping stations, storage tanks, oil terminals, and giant oil tankers[28].

If the oil prices dive, the Russian oil cannot compete with the oil producers in the Gulf of Persia, and hence, the Russian oil players may postpone their large-scale infrastructure investments. The USA's position in Iraq will determine the location, where the Russian firms will erect new export facilities, since the USA may decide to abandon her earlier plans to increase oil imports from Russia, and instead, increase imports from Iraq. If the USA abandons or seriously reduces her plans to import oil from Russia, it is obvious that Russia will target her future oil exports to the EU and Asia.

It seems that the Baltic Sea Rim will be the dominating region in the Russian oil export policy at least in the mid-term, but perhaps even in longer run[29]. It is very likely that the oil terminal capacity in the Russia territory of the Baltic Sea will grow bigger than that of the Black Sea. Moreover, it is obvious that the Primorsk port will become the biggest oil terminal around the Baltic Sea, i.e. bigger than any oil port in the Baltic States. Primorsk may even challenge Novorossiysk for the position of the biggest oil terminal in Russia before the turn of this decade[30].

[28] Currently, there is not a single shipyard in Russia capable of building vessels with deadweights of over 100 000 tonnes, and hence, megatankers have to be ordered from abroad.

[29] In addition to oil export, the Russian Ministry of Transportation estimates that in 10-15 years some 30% of Russia's foreign trade will go through the Baltic States.

It is likely that Russia will continue to reduce her dependence on oil transit via the Baltic States because Transneft is thirsty to get transit fees and port payments currently collected by the Baltic operators and ports. The future philosophy of Russian oil export policy is as follows: oil transit via the Baltic States or any foreign state acts only as additional route for oil exports, which the Russian terminals cannot handle themselves. Therefore, the role of the Baltic ports in the Russian oil export logistics will diminish, if the Murmansk port will be constructed. This will be the case even if Transneft or another Russian oil actor would get control over Ventspils.

Until the Murmansk port is constructed, the oil exports via the Baltic Sea will rise. This in turn would increase a risk of oil tanker accident. All the nations around the Baltic Sea should start together finding a solution to minimise a possibility for oil hazard in the sea, which next year becomes almost completely the inner sea of the EU. Though Russia will remain outside the enlarging Union, Russia should be integrated closer towards the co-operation with the EU, as Russia uses both the Baltic Sea and the Mediterranean Sea as her oil transport corridors to the West. The only effective method to prevent major oil average in the seas washing the EU shores is to integrate Russia closer to the relevant decision-making bodies of the EU.

The EU's decision not to allow the single-hulled tankers to enter the EU harbours after 2010 is a necessary but not a sufficient action without Russia's similar decision, since the EU's decision does not stop hazardous ships to fill their tanks in the Russian ports and sail via the international waters of the Baltic Sea to the ports outside the Union. Moreover, before the decision enters into force in 2010, already a major incidence may have occurred[31]. However, the EU's decision is a good starting point to increase safety of the oil maritime transportation both in the Baltic Sea and the Mediterranean Sea, since the EU is, nevertheless, the main buyer of Russian oil.

The Baltic Sea is special not only due to its inner sea status but also due to its severe climate. It has been estimated that the entire Baltic Sea freezes twice a century and the Gulf of Finland in every ten years. The ice coverage lasts normally some six months in the Gulf of Finland, where the oil tankers will load most of their oil in the future. The harsh climate sets special requirements for oil tankers, icebreakers, their crew, and service providers. Special climatic conditions require that both the EU and Russian authorities create a clear and homogeneous regulatory framework to

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[30] "*Transneft wants to make Primorsk the largest oil export port in Russia. Primorsk could overtake the Black Sea port of Novorossiysk, which handled 45,3 million tons of crude in 2002*" (RPI, 2003, 7).

[31] International Maritime Organisation legislation only specifies the phase-out of single-hulled fuel tankers by 2015.

prevent misfit ships or unskilled crew to enter the sea. The authorities could demand, for instance, that only tankers with a sufficient ice fortification[32] would be allowed to enter the Baltic Sea during the winter period and the tanker crew would be required to have a special training certificate to prove their skills in semi-arctic maritime conditions.

In addition to the special regulatory framework, also a strict Baltic Sea-wide control mechanism should be created to prevent misuses when the technical qualifications of the tankers and the skills of their crew are assessed. Moreover, the established control mechanism should allow authorities to take harder countermeasures, if they pinpoint ships to have released oily bilge water or other illegal emission to the sea[33]. Currently, punishments are too mild, the evaluation process too long, the burden of proof on the authorities' side, and the Baltic Sea lack uniform practices, which usually make the authorities toothless in the front of the illegally acting tankers. Therefore, I propose that regulations should be made uniform the Baltic Sea-wide, punishments should be several times higher, the system should allow authorities to levy punishment on the spot (e.g. the German model), and the burden of proof should be on the shipping companies' side.

Besides the regulatory framework and control mechanism, the nations around the Baltic Sea should invest more in upgrading Trans-Baltic ship navigation system[34]. At least two "traffic jam" areas put special pressure on developing the system; 1) the vivid Helsinki-Tallinn passenger traffic crossing the East-West route of the oil tankers, and 2) the very narrow Danish Strait[35].

When creating administrative framework for protecting the Baltic Sea, one should keep in mind three issues. First, the accident avoidance is always less expensive than the damage cleaning. Second, it should not be an insurmountable task to combine Russia's interest of maximising her oil export revenues without compromising environmental safety of the Baltic Sea, since after all the EU countries are the main recipients of the Russian oil flowing via this common European

[32] Currently, the classification on the ice fortification is not homogeneous in all the Baltic Sea rim states.
[33] During the open water, it is easier to pinpoint tankers' illegal emissions to the water, but during the winter the ice covers effluent until the spring. For instance in the spring 2003, the Finnish authorities collected several tonnes of oil from the sea, believed to have belonged to tankers waiting for the entry to Primorsk. All in all, 344 illegal oil emission were detected in the Baltic Sea in 2002, nearly a quarter of them in Finland's territorial waters.
[34] The Finnish government has proposed the Russian and the Estonian counterparts that they would create together a common maritime navigation system, called VTMIS. This proposal is a step towards the right direction, but it is utmost necessary to include all the Baltic Sea countries under the same roof to avoid any "black spot" in the Baltic Sea.
[35] Even if the Danish Strait is wider than the Bosporus Strait, the Danish Strait is nevertheless only 4 km wide at its narrowest. The strait depth allows tankers up to 150 000 dwt to arrive in the Baltic Sea.

sea. Third, the building of the Murmansk oil terminal is economically and environmentally the most rational alternative, since the Murmansk port is ice-free all the year round and can serve three times bigger tankers than even the largest Russian port in the Baltic Sea.

I am personally convinced that the construction of the Murmansk oil terminal is in long run economically the most feasible option and environmentally the safest way to export Russian oil to the West. Besides, the Murmansk option allows Russia to sell her oil both to the USA and Europe, thus decreasing Russia's dependence on 'a single buyer'. The Baltic ports do not contain such a freedom of choice, as it is not economically rational alternative to sell oil to the USA with a 100 000-dwt tankers.

Should Russia, nevertheless, continue to expand her oil maritime transportation via the Baltic Sea, millions of people living nearby the Baltic Sea hope that the Russian government would stop shipping companies to play the notorious Russian roulette with new bullets, i.e. with 100 000 dwt tankers, and possibly repeat the Prestige[36] accident in the Baltic Sea. Similar incident in the Baltic Sea would definitely not aid to intensify the relations between Russia and the EU, since eight countries out of 25 EU members can be regarded as the Baltic rim countries.

The Russian oil shipments via the Baltic Sea put the EU-Russian relations into a much more demanding test than the Kaliningrad issue. The outcome of the oil transit test will ultimately show whether the Russian oil shipments will integrate or disintegrate Russia from the European collaboration.

References

Baidashin Vladimir (2003) Terminals Boom, *Russian Petroleum Investor* 12/4, pp. 6-15.
BEE (2001) *Business Eastern Europe*, various numbers, The Economist Intelligence Unit, London.
BoF (2003) *Idäntalouksien viikko* 11/2003, Bank of Finland, Helsinki.
BP (2001) *BP Statistical Review of World Energy*, June 2001, London.
BP (2002) *BP Statistical Review of World Energy*, June 2002, London.
Dudarev Grigori & Zverev Michael (1999) *Energy Sector in Russia - Economic and Business Outlook*, ETLA Discussion Paper, No. 664, Helsinki.
EBRD (2001) *Transition Report 2001*, London.
EIA (2002) http://www.eia.doe.gov
EIU (2001) *Russia Country Profile 2001*, The Economist Intelligence Unit, London.
Expert (2002) www.expert.ru.
EU (2001) http://europa.eu.int
Goskomstat (2002) *Regioni Rossii*, The State Statistical Committee of the Russian Federation, Moscow.
IEA (2002a) *Key World Energy Statistics*, International Energy Agency, Paris.

[36] Prestige, a 26-year-old single-hulled tanker, sank nearby the Spanish coast in November 2002.

In the book “Growing Russian oil shipments in the Baltic Sea: Strategic decision or environmental risk?” Ed. by Kari Liuhto, Lappeenranta University of Technology, Lappeenranta, 2003.

IEA (2002b) *Russia Energy Survey*, International Energy Agency, Paris.
Liuhto Kari (2001) Russian Gas and Oil Giant Conquer the Markets in the West, *Journal of East-West Business*, 7/3.
Liuhto Kari & Jumpponen Jari (2003) *The Russian Eagle Has Landed Abroad - Evidence concerning the Foreign Operations of Russia's 100 Biggest Exporters and Banks*, Lappeenranta University of Technology.
NE (2001) *New Europe*, Numbers 439 and 442.
PE (2001) *Petroleum Economist*, various numbers.
PEER (2001) *PlanEcon Energy Report*, various numbers, Washington.
RPI (2003a) *Russian Petroleum Investor* 12/2, Concord.
RPI (2003b) *Russian Petroleum Investor* 12/3, Concord.
RPI (2003c) *Russian Petroleum Investor* 12/4, Concord.
Sagers Matthew J. (2001) Developments in Russian Crude Oil Production in 2000, *Post-Soviet Geography and Economics*, 42/3, pp. 153-201.
TD (2001) *Oil Sector*, May 2001, Troika Dialog, Moscow.
UNCTAD (2002) *World Investment Report 2001*, United Nations Conference on Trade and Development, New York.