Russia in Perspective

Scenarios of Russia's Economic Future 10 to 20 Years Ahead

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The picture on the cover depicts Moscow with its new business centre and the Federation Tower under construction in July 2008. Photo: Dmitry A. Mottl. *This file is licensed under* the Creative Commons Attribution ShareAlike 3.0 *License. In short: you are free to share and make derivative works of the file under the conditions that you appropriately attribute it, and that you distribute it only under a licence identical to this one. Wkipedia.commons.org*

Photo on back of cover: The picture shows the Federation Tower which is built adjunct to the new international businesscenter in Moscow in 2008.

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Sammanfattning

Syftet med studien är att utveckla scenarion över den ekonomiska utvecklingen i Ryssland 10-20 år framåt genom att studera trenderna i de viktigaste ekonomiska tillväxtvariablerna – arbetskraft, kapital, energiutbud och teknisk utveckling.Tre scenarion utvecklas som har fått låna namn och politisk färg av tre historiska ryska ledare: *Peter den Store, Batu Khan och Alexander III*.

Dessutom diskuteras egenskaperna hos det ryska ekonomiska systemet, dvs. den ryska kapitalismen och marknadsekonomin, eftersom det är det som sätter de ekonomiska ramarna för den ekonomiska utvecklingen och den ekonomiska politiken. Studien visar att de största utmaningarna för Rysslands fortsatta ekonomiska tillväxt är: den kraftiga nedgången i arbetskraften, långsam teknisk utveckling och produktivitetstillväxt, hög energianvändning och högt beroende av det externa oljepriset, en monopolistisk inhemsk gasmarknad, och ofullständig konkurrens i många sektorer.

Den utrikespolitiska, säkerhetspolitiska och inhemskt politiska utvecklingen analyseras inte i denna ekonomiska rapport. Antaganden om den politiska situationen ansätts enbart i de olika scenarierna.

Nyckelord: Ekonomisk utveckling, Ryssland, scenario, tillväxt, arbetskraft, kapital, investeringar, ekonomiskt system, konkurrens, olja, gas, kärnkraft, militär sektor.

Summary

This study develops scenarios of possible economic developments in the Russian Federation 10 to 20 years ahead through studying trends in the most important variables affecting economic growth – labour, capital, energy supply and technical change. Three scenarios were developed, each bearing the name and the policy characteristics of three Russian rulers: *Peter the Great*, *Batu Khan* and *Alexander the Third*.

The characteristics of the Russian economic system, i.e. the Russian-style capitalism and market economy, are also discussed since they set the economic framework for economic development and economic policy-making. The main economic challenges to Russia's future economic growth were found to be: the sharp drop in the labour force, slow technical change and productivity growth, high energy intensity, dependence on the external oil price, unreformed domestic energy markets and low degree of competition in many sectors.

Foreign, security and domestic policy developments are not analysed in the report. For each scenario the political prerequisites are just assumed and presented.

Keywords: Economic development, Russia, scenarios, growth, labour, capital, investment, economic system, competition, oil, gas, nuclear power, military sector

Preface

The present report is a result of work done in 2009 in cooperation of two projects, FoRMA/Omvärldsanalys and RUFS/Russian Foreign, Defence and Security policy project. FoRMA is a project that provides methods and analyses for long term planning in the Swedish Armed Forces. In international trends analysis, possible trends are studied for three overall subject categories: themes, actors and regions. *Russia in Perspective* is in the theme category. RUFS produces reports and analyses on Russia for the Swedish Ministry of Defence (MoD), the main assessment being Russian military capability in a ten-year perspective.

The purpose of the report is to describe possible trends, not to make predictions. In the long term planning Perspective Studies, the report will be used as a basis for developing scenarios. It will further be part of the international trends analysis described in the annual reports.

Åke Wiss
Project manager, FoRMA

Jakob Hedenskog
Project manager, RUFS

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1 Introduction[1]

Russia embarked on its amazing road to a market economy in 1991-1992. Yeltsin's election as Russia's president in 1991 and the unsuccessful coup in August 1991 sealed the fate of the Soviet Union – the 70-year dictatorship of the Communist Party was over. With the abolition of communist rule, Russia, for the first time in its history, had the opportunity to create a democratic state with liberal economic values.

The challenges facing Yeltsin and his team were immense. Reforming the politicised, militarised, overregulated, priority-driven communist command system into a market economy meant that the economy had to be turned through 180 degrees. The political risk was high and the international experience of going from communism to capitalism was nil. Nobody knew what would work in the long run or how measures would work in Russia, a country of quite different size and internal conditions compared with the smaller Soviet satellites, such as Poland, that underwent the same kind of transformation.

Now, 17 years later, we know that the economic reforms have been successful in terms of Russia being a market economy, although with imperfections.[2] Shortages were abolished immediately with price liberalisation and consumer markets are working fairly well. The majority of the old Soviet industries have been privatised and a new private sector and, in particular, private services have developed. Combined with the high oil price during the latter part of the 2000s, growth has been spectacular, when compared to the 1990s. Average annual growth in GDP was 7%[3] in the period 2000-2007.

For private citizens, there is economic freedom that they did not have in the past: all goods and services can be bought freely on the market, people may own and

[1] Research for this paper was supported by two FOI projects - FoRMA and RUFS. RUFS – Russian Foreign, Defence and Security Policy – is financed by the Swedish Ministry of Defence (MOD). I am most grateful to the project leader of the RUFS project, Jakob Hedenskog, and to my former and present RUFS collegues Jan Leijonhielm, Ingmar Oldberg and Fredrik Westerlund for their patient reading and constructive comments on drafts of the paper. I am also most obliged to Professor Julian Cooper, Birmingham University, U.K., for useful comments and corrections of some facts and to Ms Elizabeth Teague at the Foreign & Commonwealth Office (FCO) U.K. who made some of the FCO scenarios on Russia available to me. Associate Professor Ann-Mari Sätre, Uppsala University, acted as FOI's external referee on the final draft and I am most obliged to her remarks that have improved the quality of the paper. All remaining errors and views expressed in the paper are solely mine.

[2] In 2002 both the EC and US Commerce Department acknowledged that Russia is a market economy.

[3] Ministry of Development (MED) 2008, p. 69. Compared with EU 2.0% and USA 2.5%: China 9.9%; India 7%; Brazil 3.3%. Other figures in the introduction are also from MED, 2008, pp. 5-28 unless otherwise indicated. Several analysts attribute 2 percentage points of growth to oil exports.

sell their apartments, houses and private land. People can travel abroad on vacations and business trips without too much bureaucratic red-tape and consumer credit has made purchasing a car a possibility for many. The real monetary income of the population rose by an average of 11% per year in 2000-2007. Poverty has decreased by 12.5 million and is down to 11% of the population (World Bank, 2009, p.17). There is a middle class of around 20% of the population. In short, it is possible to earn money today in Russia and improve one's standard of living, an opportunity that Soviet citizens never had.

The global economic crisis struck Russia during the latter part of 2008. An economic crisis is usually a short-term phenomenon, which will pass if it is not due to deep systemic problems. However in this paper, which is devoted to long-term aspects of Russian economic development, we do not dwell on whether Russia will recover quickly or not, or discuss short-term policy options, but simply make assumptions about Russia's economic recovery in different scenarios. The focus is on long-term development trends in the main variables that determine long-term growth and social development.

Very few people predicted the fall of the Berlin Wall in 1989 or the collapse of the USSR in 1991. Likewise, in the 1990s, nobody thought the Russian economy would be flourishing in the 2000s. As late as in early 2008 nobody foresaw that Russia would be badly hit by the global crisis. Since it is so difficult to understand the short-term future, it follows that it is a difficult task to say something about the Russian economy in 10 to 20 years – at most we can create scenarios and make speculations. With scenarios we write histories of the future, which means that we do not have any evidence that this or that will happen. The only clues we have are those of history. Thus, before embarking on the journey into the future, let us briefly look back 20 and 10 years to see what can be learned from history and to identify some trends in crucial variables that may be used in scenarios.

1.1 Objective

The objective of this study was to develop scenarios of possible economic developments in the Russian Federation 10 to 20 years ahead. Developing scenarios is not a forecasting exercise, where a true outcome, or a result as near to reality as possible, is sought. Scenarios are developed to explore extreme outcomes in order to understand the boundaries of what could be possible and what could happen. In this study, three extreme scenarios were developed. They all share a common history in the economic and political developments in the Soviet Union and Russia and therefore much of this paper is devoted to studying trends in the variables affecting economic growth, here understood to be growth in the Russian GDP.

The main variables examined in the study were:

a) *The economic system (Section 2)*
b) *Labour force (Section 3)*
c) *Investment and technical change (Section 4)*
d) *Developments in the energy sector (Section 5)*

1.2 Method

The study takes its starting point in the economic system prevailing in Russia and attempts to systemise characteristics that are good or bad for future economic growth and governance.

Economic growth theory states that growth in GDP depends on the production factors labour, capital and technical change and we look at the trends in these variables. Since Russia's economic growth is also dependent on the energy sector and oil and gas prices, developments in this sector are studied specifically.

For the scenarios, the author was inspired by the Yergin & Gustafsson (1995) scenarios of Russia in 2010 and uses their idea of how to tell a story of the future. The author studied FOI publications with scenarios, especially those by Leijonhielm *et al.* (1999) and (2005), which describe Russia up to 2010 and 2025 respectively.

In the scenarios in the present paper, different assumptions were made regarding Russia's development in foreign and security policies and domestic policy, and these are presented together with each scenario.

The author also uses critical study of Russian and international sources as a method to form a holistic picture of Russian economic development. This method, used widely by scholars studying Russia and other former Soviet republics, has been further developed in the FOI RUFS project.[4]

[4] The main project on Russia and CIS at FOI is called "Rysk utrikes, försvars- och säkerhetspolitik" – RUFS. See footnote 1 for translation. The RUFS project publishes several papers per year on Russia and CIS in the area of e.g. foreign policy, security policy, military sector, energy, economics, democratic development, civil society. Every third year the group publishes an Assessment of Russian Military Capabilities in a 10-year Perspective. See Leijonhielm *et al.* (1999; 2000; 2002; 2005; 2009).

1.3 Limitations

The analysis is entirely qualitative. In some areas there are Russian government programmes and forecasts and scenarios developed by other agencies and researchers that give future expected values for different key variables.The study uses these references to exemplify possible outcomes.

The political situation is not a topic of study in this economic report. Assumptions on foreign, security and domestic politicies are made in each scenario.

The study was assigned 160 hours of research time, which limited its depth.

1.4 Outline

In order to understand today's economic system and its future development, section 2 starts with describing the system prevailing under Gorbachev in the 1980s which was reformed under Yeltsin in the 1990s. Military spending and the development of the military industrial complex (MIC) are crucial issues when the Russian economy is studied. In the past, the military burden on the economy was substantial and it affected the economic system and the structure of the economy. Therefore the military burden and MIC are addressed in the analysis of the economic system. Section 2 concludes with a table summarising findings on the quality of the Russian market economy. Section 3 describes the development in the labour force and section 4 that of investment and capital. In section 5, the development in the energy sector is analysed with special emphasis on oil, gas, nuclear power, hydro and coal. Section 6 gives the three scenarios with concluding remarks linking back to the economic system discussion in section 2.

2 From inefficient commands to a market economy in 20 years

2.1 Gorbachev's perestroika in the mid-1980s

In the 1980s, many scholars tried to find a rationale behind the Soviet economic system that failed to deliver basic goods to consumers or improve living standards but created an economy hampered by malfunctions and shortages at all levels (see Oxenstierna, 1990, Ch. 2-3). Most economists made the implicit assumption that central planners attempted to achieve economic efficiency in resource allocation and to balance supply and demand on commodity markets. However, explaining the functioning of the Soviet model on the assumption that it was designed to solve the basic problem of scarcity and to balance supply and demand proved frustrating. By the end of the 1980s, Badgett (1988. pp. 8-9, *cit*. Oxenstierna, 1990 p. 71) had concluded that:

> *It is precisely the unfettered interaction between consumers and producers in a market-exchange economy – and the resultant economic configuration – that centrally administered economy is designed to avoid.*

From this understanding, Ericson (1988) formulated the concept of a *priority driven command economy*, which stresses not only that the economy was not market-orientated but, more importantly, that it was controlled and driven by the priorities of the central rulers.

The Soviet economic system was an instrument of the Politburo of the Communist Party, to impose their preferences on society. In the case of the Soviet Union the top priority of the Politburo was obviously to keep up the arms race with the US, which the economic system managed up to the mid-1980s. The cost of this priority was enormous, since the economic system was so inefficient that it could not provide the Soviet population with a decent standard of living at the same time. The cost was borne by the entire Soviet population.

The main characteristics of the system were:

- Priority to defence and heavy industry
- Fixed prices set by a central price committee
- No real markets and no market competition
- No private property rights
- A huge central planning apparatus that tried to allocate all goods and services
- Persistent shortages in all sectors of the civilian economy

- Inflation overhang in consumer markets due to uncontrolled wage increases and underprioritisation and excess demand in the consumer goods and service sector
- Soft budget constraints, i.e. enterprises were allowed to be loss-making
- Industry structure with mainly large state monopolistic enterprises with thousands of employees, and no small and medium-sized enterprise (SME) sector
- Large second economy to solve all the allocation problems caused by central planning
- Low standard of living of the population and no option to improve it by engaging in legal economic activities or entrepreneurship.

In addition, the Soviet Union had benefited from very high oil prices throughout the 1970s, which precluded reforms. In the 1980s oil prices fell, reaching their lowest level in 1986, which is when Gorbachev launched *perestroika*. Together with the large budget deficit, the low oil price undermined the Soviet Union's international finance, which drove the need for more radical reforms and a change of economic system (Gaidar 2006, *cit.* Åslund, 2007, p. 40).

2.2 Market reforms under Yeltsin in the 1990s

The reforms under Yeltsin were in many respects inspired by the blueprint of the economic reforms undertaken in Poland and Czechoslovakia in 1990 and 1991. 'Shock therapy' was the name of this radical approach, which believed that comprehensive reform measures should be introduced quickly and harshly, not gradually as some economists argued (e.g. Kornai). It was argued that the faster reform was undertaken, the less the population would suffer from the systemic change. The main blocks in the shock therapy were:

- Liberalisation of prices
- Liberalisation of trade – internal and external
- Macroeconomic stabilisation
- Introduction of private property rights and privatisation

The measures introduced in late 1991 and early 1992 had visible effects on the consumer goods market, where goods appeared immediately, in particular imported goods, and the persistent shortages disappeared, but at the same time prices skyrocketed – inflation during the beginning of 1992 was around 40% a month. Industrial output was in freefall, and the fact that Russia did not have its own national currency, but the Soviet rouble, meant that the Russian economy was wide open to rouble issuing by the 15 other central banks in the former Soviet territory. The Russian Government had difficulties stabilising the

economy until the rouble zone broke up in September 1993. Earlier that year, Russia had concluded an agreement with IMF which provided Russia with a framework for macroeconomic policy. By November 1993, Russia had attained a positive real interest rate and the monetary emission diminished. The Ministry of Finance started to issue short-term treasury bills to finance the federal budget deficit, and no longer had to rely on money emission by the Central Bank. Inflation was more or less under control.

Virtual production in the old Soviet-type companies

The reforms were successful in creating a new private sector[5] where market competition and hard budget constraints prevailed. However, the old Soviet-type enterprises lacked the will and usually the ability to restructure and adjust to the reformers' demand for modernisation. Very often these enormous enterprises were the sole employer in a city, or in a region, with many thousands of employees. According to Gaddy & Ickes (2002), over half the industrial workforce worked in sole-enterprise cities. Even though these enterprises did not produce any value added, it was not possible to let them close down. The managers were well connected and what they lacked in market skills they possessed in *relational capital*. Accordingly, they managed to get preferential treatment from government agencies, i.e. soft budget constraints prevailed, and they engaged in survival strategies involving barter, wage arrears, tax arrears and offsets and serious rent-seeking.

At the heart of these barter transactions outside the market system were the three major natural monopolies in Russia: Gazprom – the natural gas monopoly, RAO UES – the electricity monopoly, and RZhD – the state railways. All three frequently complained that they collected as little as 10% of their revenues in cash. Almost all enterprises in Russia are consumers of the output of these three companies; rail freight transport, gas and electricity. The three also accounted for almost 25% of the revenues to the federal budget. Having a product that was demanded by one of these natural monopolies was the key to survival in Russia. (Gaddy & Ickes, 2002, pp. 34-35).

Social services within enterprises

An aspect of the old Soviet-type enterprises that is seldom mentioned in the literature is that they had many of the characteristics of a feudal economic system. The enormous industrial enterprises with thousands of workers not only controlled production and the workers' working time, but also provided housing, catering, daycare for children, schools, hospitals, and consumer goods for their staff in special company shops. It follows that the value of being employed could be many times higher in terms of standard of living than indicated by the often miserable cash wage. The enterprise was the worker's whole life. During the

[5] In particular in trade, construction and private services. Entrepreneurs met a lot of bureaucratic redtape and had to cope with inspections from many state control organs and private mafia.

transition, although enterprise output dropped, employers did not shed labour at the same pace. There was a mutual benefit in keeping the employees even if they were not paid any cash wages. They lived in their company-owned flats, used company facilities and could get some goods, for private use or sale, from the barter deals in which the company was involved. In the reform process, stripping the state enterprises of their social assets has been a general recommendation in the attempts to make the enterprises more profitable. However, these attempts have been in vain and Russian municipalities and cities have not been able to take over social services because of lack of funds. Even new, larger establishments in Russia tend to internalise many services that in other countries would be outsourced and provided by public or private agencies.

2.3 The military sector

The military sector was a large part of the Soviet economy.[6] The reason for discussing the military sector here in connection with the economic system is that in the Soviet era the military sector was a structural feature of the economy and permeated the whole of society. The Politburo gave first priority to the arms race with the US and Soviet society was organised more or less as a war economy. The important question for the future is: Did Yeltsin's reforms demolish this structure and can we now regard the military sector as being of similar scope to other sectors?

The Soviet military burden

During Soviet times, Western scholars and organisations concerned with the Soviet economy and the military strength and ability of the Soviet Union spent enormous time and resources trying to figure out the magnitude of the Soviet military budget and the total military burden and its share of Soviet GNP. The CIA estimated the Soviet total defence burden to be around 15% of GNP between 1970-1985 (Rosefielde, 2005, p. 5). However, Åslund (1988, pp. 39-45) showed that the CIA overestimated the Soviet GNP, pointing at different indicators to show that the USSR belonged to the so-called group of 'upper-middle-income developing countries'. He cited Soviet sources that estimated the defence burden to be the equivalent of 22-28% of Soviet GNP *(ibid*.). Later, Åslund (2007), referring to this discussion, set the Soviet defence burden at 25% of GNP at the start of Gorbachev's perestroika.

Post-reform situation

The reforms in the 1990s substantially reduced the defence budget. The federal budget ran huge deficits and all sectors of the economy declined. In Putin,

[6] Approximately 22 million people worked in the Soviet MIC and 5 million of these were directly involved with military production. When the Soviet Union was dissolved, Russia had 73% of the employment and 73% of the defence enterprises of the old Soviet totals. (Sapir, 1995, p. 138)

however, the defence sector has got a supporter who listens to its needs to modernise and develop. Putin has called for the creation of an 'innovation army', which would involve the production of new types of weapons equal and sometimes superior to the Soviet ones. Medvedev has also said that Russia will increase its combat readiness and begin 'large-scale rearming' in 2011 in response to what he described as threats to the country's security. In a speech before generals in Moscow, Medvedev cited encroachment by NATO as a primary reason for bolstering the military, including nuclear forces (Herald Tribune March 17, 2009, accessed 2009-03-25.) The question is to what extent this will increase military spending.

The official figures on military spending can be found in the federal budget. The military budget in 2008 amounted to around 700 billion RUR, which corresponded to 2.7% of GNP (Leijonhielm *et al.* 2009, p. 129). If other security and military related activities were added, the total defence budget would have been 1,368 billion RUR or 4.2% of GNP (*ibid*.).

The Russian Federation (RF) Ministry of Finance issued a budget strategy in August 2008 which pegs spending on 'national defence' at 2.5% for the entire period 2010-23 (Cooper, 2009, p. 9). The original allocation for 'national defence' in 2009 was 1,334 bn RUR. In the amended budget in March 2009, the allocation had been reduced by around 10%, to 1,197 bn RUR (*ibid.*, p. 11). Cooper (2009) assumes that this will result in a defence budget of 2.8% of GDP. The approved state defence order of 520 bn RUR is retained in the revised budget, but it is unlikely that the state defence order will be fulfilled due to the financial and credit problems of the enterprises involved (*ibid*., p. 13)[7].

MIC

The MIC has diminished and it now consists of about 1,400 companies/ organisations and a workforce of 1.5 million (*ibid*., p. 15). The MIC has severe problems due to the current economic crisis, as have other parts of the engineering industry. Civilian goods produced by MIC have contracted sharply, which increases the cost inefficiency of the enterprises since it increases overhead costs in the military areas. The Government has instituted special measures for MIC, which include e.g. nationalisation of remaining private MIC

[7] Does this imply that military spending dropped from 15-25% to 2.7% or 4.2% of GNP depending on definition? A problem in answering that question is that we may be comparing apples and pears since the figures talk about defence budget and defence burden respectively. There are estimates showing that the Russian defence burden is still much higher than the defence budget figures reveal. For instance Rosefielde (2005, p.5) estimates the defence burden at 13% GNP in the year 2000 in accordance with CIA methodology. This figure is thus directly comparable to the earlier CIA estimate of 15-17%. At a seminar at FOI (2009-03-09), Rosefielde put the current estimate at 10% of GNP.

companies, special interest rate for companies in the state-owned banks, extra funding to increase capital, and budget support for exports (*ibid*., p. 18).

Reforming military procurement

As could be seen during the war in Georgia, Russia's weapons are obsolete and there is a need to purchase modern weapons if Russia is to match the equipment of the NATO armed forces. When Putin came to power and appointed Sergei Ivanov as Minister of Defence, the military was to be reformed[8] and more money was allocated for procurement of new material. However, the results are meagre. Little new equipment has turned up for the billions of dollars spent, $8.27 billion in 2006 according to Herspring (2009, p. 21). Arms procurement is apparently an extremely corrupt sector and the additional funding seems to have disappeared. The MIC continues to repair old models of weapons and to some degree modernise them, apparently greatly helped by the MOD's own facilities.[9] Ivanov tried to address the problem by reorganisation of the MOD and ordering an audit of military spending. After this, the MOD was called:

> *the unchallenged leader of misusing federal budget money* (*ibid*. p. 22*)*.

In 2007, Putin appointed the former head of the Federal Tax Service, Anatoly Serdyukov, as Minister of Defence. By mid-2008, Serdyukov had finalised the process that Ivanov began: isolating the uniformed military from involvement in the weapons and arms procurement process. The Ministry of Defence was ordered to transfer responsibility for procuring weapons and equipment to Rosoboronpostavka - the Federal Agency for the Supply of Armaments, Military and Special Equipment of Material (*ibid*. p. 28.). This means that the Kremlin has removed the military from the procurement process and that Rosoboronpostavka will handle the money instead. This source of corruption has thus left the Ministry of Defence and moved to another agency.

From this evidence it appears that the military burden in the Russian economy is not in the neighbourhood of that of the Soviet Union. The military *budget* is down at around 2.5-3% of GDP. The ending of the Cold War, the economic reforms and the opening up of the country to the world has diminished the role of the military. Russian leaders after Yeltsin have tried to modernise and equip the Armed Forces, which is natural since during the first 10 years of reforms the military was totally neglected. There are great difficulties because of corruption in the process of arms procurement and the fact that the Russian MIC is not in the best shape. The main problem of this economic sector is that it lacks competition, since the Russian leaders do not want to import weapons, systems or components. Moreover, it is a sector that was formerly given priority and all the resources it needed. Now, funds are scarce and the question is whether a

[8] See further Pallin (2009) for a comprehensive analysis of Putin's military reforms.
[9] This information was given to me by Julian Cooper 28 May 2009.

state-owned, inefficient MIC can meet the challenges of the present and future. It probably needs to restructure completely and be subject to competition from international firms if it is going to produce weapons that are of a comparable standard to those of NATO.

2.4 Russian-style market economy in 2009

Having discussed some aspects of development of the economic system in Russia since the late 1980s, we can sum up and see the degree to which the economy has developed as a market economy and thereby its potential for improving its performance along the lines of Western market economies. Table 1 tries to give a rough picture of developments in the economic system since the Gorbachev years up to now with respect to variables that are vital to the performance of the economy.

Table 1 shows that only in some aspects of the section of governance does Putin/Medvedev have a stronger market economy than Yeltsin. Concerning the basic market characteristics, more state involvement in the economy has made the markets less competitive and private property rights in attractive sectors are not fully respected, although the general legal base has developed under Putin. In strategic sectors, such as oil and gas, we have seen renationalisations. In the area of communist inertia there has been some improvement, but the tendency for the state to subsidise loss-making firms, barter deals and virtual production is still a problem. Rent-seeking is at least as bad as during Yeltsin, it has only taken different forms, and state corruption appears to have increased. When it comes to consumer markets and private housing, it seems that Putin and Medvedev have consolidated the achievements of the initial reforms.

In conclusion, Russia is a market economy with imperfections, and there are still important issues to address, in particular as regards respect for private property rights and improving market competition. Diminishing corruption is of great importance, and increased transparency in state affairs will help. If the leadership pursues a policy that improves the market characteristics of the economic system, Russia could develop into a more Western-style market system in, say, 10 years. However, if the state continues its present policy of imposing state ownership on strategic sectors and concentrating its economic activities rather than strengthening competition, the performance of the economy will deteriorate and Russia will struggle with its Russian-style capitalism and market imperfections, causing great losses in economic efficiency for society and lower living-standard than necessary.

Table 1. Development of the economic system in Russia 1985-2009

	Gorbachev	Yeltsin	Putin/Medvedev
Governance			
Budget discipline	- - -	-/+	+++
Tax collection	0	-/+	++
Rule of law		- -	+
Public administration efficiency		--	---
Corruption and rent-seeking		+++	+++
Market economy			
Liberalised prices	0	+++	+
Private property rights	0	+++	+
Competition	0	+++	+
Free trade	0	+++	-
Unemployment	Frictional	8%	9-12%
Communist inertia			
Shortages	+++	0	0
Barter deals	+++	++	+
Nonmonetary tax/fee transactions	Systemic	+++	+
Arrears	+	+++	+
Shadow economy	10-25% GDP	+	-
MIC	+++	++	+++
High military burden	15-25% of GDP	-	Military budget 2.5% of GDP
Energy monopoly	+++	+++	+++
Labour hoarding	2-4 times more labour than in West	-/+	-/+
Social justice – equality			
Consumer markets	0	+++	+++
Private housing	+	+++	+++
Social services	+	-	+
Education	+++	+	++
Income distribution Inequality - Gini coefficient	1:3	High income inequality	Very high inequality 41

Footnote: A high level or increase in a variable is depicted '+'. A low level or decrease is depicted '-'. Zero '0' means that the element does not exist. **Red colour** depicts 'communist system', **green colour** depicts 'market economy' and **yellow colour** depicts an 'intermediate state or market with considerable imperfections' (such as barriers to entry and deficient competition)'. Several '+' or '-' marks indicate stronger development in the direction indicated.

3 Demography and labour force

3.1 Decline in the working age population

Russia's population was 142 million as of January 1, 2008. Prospects are gloomy, however, and if current reproductive trends continue, they could lead to a reduction of the total population to 125-135 million by 2025, i.e. a drop of 17 million, and to a total as low as 100 million by 2050 (UN, 2008, p. 9). Between 1992 and 2008, the country lost approximately 12 million individuals due to the mortality rate exceeding the birth rate. This was partly compensated for by 5.5 million migrants (*ibid*.). The economic impact of these changes will be felt most through the rising proportion of the elderly – those aged 65 and older – which leads to a smaller labour force and higher dependency ratio.

The reduction in population is hitting the working age population[10] most. The reduction in the working age population is to some degree due to the longstanding low fertility rate, but the main cause in the Russian case is the high mortality rate, which worsened during the first decade of transition. Life expectancy at birth for males is currently the same as in 1950, around 60 years (World Bank, 2007, p. 53). Female life expectancy has risen from 67 in 1950 to 73 years at present, which is a comparably modest increase (*ibid*.). Excessive alcohol consumption, extreme stress and uncertainty and other lifestyle/social situation-induced sicknesses are the main reasons why Russian men of working age die early. Cardiovascular diseases, cancer, traffic accidents and violence continue to be major official causes of death among this group.

Between 1992-2000, the premature mortality rate[11] for men was 20% (Kuboniwa, 2006. p. 324). This corresponds to 2 million people. The age groups primarily hit were the 15-59 year-old group, which lost 1.4 million people, while the 60 years and over age group lost around 400,000. Kuboniwa concludes that:

> *Premature deaths during the transition process in Russia are characterised by the fact that they* ***primarily*** *affect the working population [15-54/59 years]. (Ibid.* p.324, my bold and brackets).

[10] Internationally, working age is defined as women and men between 16 and 64 years. In Russia, however, the stipulated pension age is low – 55 for females and 60 for men, and data for 'working age' sometimes concern 16-54/59 years. In this paper, we use the international definition unless otherwise stated.

[11] Premature mortality is defined as death occurring before age 75.

This means that the reduction in the working age population is not only a result of past demographic catastrophes[12] during Soviet times, but also of the lifestyle and social situation of people in prime working age during the transition.

3.2 Labour force and pensioners

The proportion of people of working age in the total population is estimated to drop from 70% to 67% in 2020 (World Bank, 2007, p. 64). ILO has estimated the development in the labour force, with labour force participation rates adjusted to recent trends. According to these estimates, the labour force in Russia will decline by over 7.5 million up to 2020 (*ibid*., p.82). Assuming convergence to EU25 participation rates (which are lower for women than in Russia), the decline would be even larger, almost 9 million (*ibid*.). As a result, the labour force will fall from 50% of the total population in 2005 to 47-49% in 2020 (*ibid*.).

Pensioners

The proportion of the population over 65 will have increased to 12% by 2025. This means that the elderly dependency ratio will be around 25% (World Bank, 2007, p. 77). However, early exit from the labour force (the Russian pension system makes this possible at 55 for women and 60 for men) means that the dependency ratio might become higher.

Could pensioners help counter the decline in the labour force? In Soviet times, retired people often continued their working life after mandatory pension age, not least during the 1980s when the Soviet economy experienced a 'labour shortage'. In 1986, the average state pension equalled 47% of the average wage in the state sector (Oxenstierna, 1990, p. 196) and about 11 million old-age state sector pensioners worked (*ibid.* p. 198). In addition, an estimated 2.5 million *kolkhoz* farm pensioners, with pensions equalling 30% of average earnings, worked (*ibid*. pp. 196, 199). In the 1980s, the labour force participation rate of state pensioners was 35% and that of *kolkhoz* pensioners was estimated to be 25% (*ibid.* pp. 198-199).[13] The principal reason for this continuation of working life was the need for supplementary income.

The replacement rate of earnings in pensions during the transition period first dropped to 26% in 1992, then recovered to a maximum of almost 40% in the mid-1990s, before declining again to 28% in 2004 (Ohtsu & Shinichiro, 2006, p. 203). Thus, many pensioners currently have an economic motive to stay employed if they can, unless they have some other way to supplement their income. All governments since 1992 have seriously tried to introduce pension reform, since the present system is not sustainable. Pensioners are an important

[12] Revolution, civil war, collectivisation, starvation, purges, WW II.

[13] The *kolkhoz* pensioner additionally worked on their private allotments, but self-sufficient farming does not count as employment.

group of usually conservative voters, and they have been protesting quite vigorously against the economic reforms in general and against cuts of their benefits in particular. Political decision-makers have had a hard time finding a solution that could be accepted. Due to the effects on the inter-generational income distribution, changes in a pension system are complicated even in countries with stable, long-term social development.

Pension reform

After several attempts, in 2002 Putin's Government launched a new pension reform, but even this reform, which had been quite well prepared, met numerous public, legislative and bureaucratic obstacles. When the Government attempted to monetise welfare benefits for pensioners and other dependents in January 2005, pensioners – including military veterans, the disabled, Chernobyl victims – took to the streets and protested since they did not believe that the monetary compensation would correspond to the same quantity and quality of support as the existing benefits in kind. The Government had to make concessions, and this put an end to the attempts to make the Russian social benefits more rational and severely weakened the feasibility of pension reform (*ibid*., p. 219).

Specialists assume that there is a long way to go to create a Russian pension system that will be sustainable. Now the Pension Fund of Russia needs to be supplemented over the Federal Budget and the replacement rate (the share of pensions in earnings) can hardly exceed 30% (*ibid*. p. 228).

Standard of living

During Russia Day celebrations in the Kremlin on 12 June 2008, President Dmitry Medvedev stated that an important task facing Russia will be ensuring that the country's economic success produces a higher standard of living for the population:

> *Our present task is to convert economic success into social programs, improving the quality of life, education level and health of the people.* (RIA Novosti-090222)

In addition, he stated that:

> *To achieve this it is important that we provide support to small businesses, fight corruption and excessive administrative barriers; and of course, a priority is to develop national science and culture*.(*ibid*.)

The disparity in income has increased substantially during the 1990s and 2000s. At present, Russia's per capita income – $16,161 PPP[14] – is in 53rd place among

[14] Purchasing parity according to IMF estimations.

the countries of the world, lying between that of Gabon and Croatia. Its Gini coefficient[15] is 41, which is about the same level as the US. The Scandinavian countries lie around 25 (www.wikipedia.org, accessed 2009-02-03).

[15] The Gini coefficient is a measure of statistical dispersion, commonly used as a measure of inequality of income distribution or inequality of wealth distribution. It is defined as a ratio with values between 0 and 1but it is often multiplied by 100 to range between 0 and 100: A low Gini coefficient indicates more equal income or wealth distribution, while a high Gini coefficient indicates more unequal distribution. 0 corresponds to perfect equality (everyone having exactly the same income) (www.wikipedia.org accessed 2009-06-29).

4 Investment

The capital stock that Russia inherited from the Soviet Union was totally outdated and both economically and physically obsolete. The need for investment in infrastructure and production facilities was, and still is, enormous. During the 1990s, much needed capital left the country. During the 2000s the situation has improved, even though domestic investment has been lower than in most developed and emerging economies – 18.9% of GDP on average for 2000-2005 (OECD, 2008, p. 18). In 2006, the Government initiated the creation of the *Investment Fund* to support private-public partnership in infrastructure. In 2007, the *Development Bank* was formed by restructuring the Vneshekonombank and is intended to finance projects in infrastructure, export and high technology industries. In 2007, the MED established the *Russian Venture Company*, which is intended to contribute to technological development and an innovation-driven economy. These three state development agencies received initial funding from the *Stabilisation Fund*[16] (*ibid*., pp. 19-20).

4.1 Foreign direct investment - FDI

Before the 2000s, Russia had problems attracting FDI, and Russian capital fled the country because of the great instability in the 1990s, tax avoidance, inflation and undetermined property rights. Since 2001, Russia has been a net receiver of investments, even if the ratio of inward to outward investments is high, 80% (OECD, 2008, p.18).

In 2007, Russia attracted $52.5 billion in FDI (only 4.1% of that of China, India, and Brazil). Russia's per capita cumulative FDI still lags far behind that of countries such as Hungary, Poland, and the Czech Republic. Thus, even though Russia has a challenging business climate, lack of transparency and weak rule of law/corruption, investors are attracted by Russia's macroeconomic performance and the consumer and retail boom, which is providing double-digit returns to investors.

[16] The Stabilisation Fund was initiated by Minister of Finance Alexei Kudrin and was established by a resolution of the Government of Russia on 1 January 2004, as part of the efforts to balance the federal budget at a time when oil price falls below a cut-off price, currently set at $27 per barrel. In February 2008 the Stabilization Fund was split into a Reserve Fund, which is invested abroad in low-yield securities and used when oil and gas incomes fall, and the National Welfare Fund, which invests in riskier, higher return vehicles, as well as federal budget expenditures. The Reserve Fund was given $125 billion and the National Welfare Fund was given $32 billion.

Strategic sectors and corporations

Under Putin, the policy on strategic production and innovation has been characterised by a strengthening of state control. The law on strategic sectors adopted in March 2008 requires foreign investors to be subjected to prior Government approval before they can invest in 42 specified sectors. Foreign investors must submit information 180 days in advance to the relevant Government body if they acquire 5% or more of shares in strategic business entities (OECD, 2008, pp. 24-25). In addition to this new law on strategic sectors, the Russians restrict foreign interest in their national strategic companies, which are listed in the decree 'On adoption of the list of strategic joint stock companies' issued August 2004 (*ibid.,* p. 28).

The status of strategic state corporation prevents the privatisation of such firms, while allowing them to obtain funding from the federal budget. Foreign participation may be allowed subject to prior approval by the Government and the state must retain the controlling stake. The sectors in which the Government intends to maintain control, including inward and outward FDI, is quite extensive. All the main state-controlled companies in the energy sector are included: Gazprom, Rosneft, Transneft, Transnefteprodukt, RAO UES, Rosatom, Atomenergoprom. The defence industry is represented by *Russian Technologies*, which formerly went under the name Rosoboronexport. This company is intended to lead the modernisation of the defence industry and Russia's heavy industry. The leading Russian car producer, AvtoVaz, is controlled by Russian Technologies. Aircraft construction and shipbuilding are listed through United Aircraft Construction Corporation and Sovkomflot[17] (*ibid*., pp. 30-31).

The four largest state-controlled banks – Sberbank, Vneshtorgbank, Gazprombank and Bank Moskvy – are also among the strategic corporations, as is the Development Bank. The fixed-line telecommunications companies are controlled by Svyazinvest, while Rostelecom keeps its monopoly over long-distance domestic and international calls. The state took control of the media under Putin and the state-controlled television broadcasting companies ORT, TV Channel, and NTV belong to the strategic corporations. The nano-technology company Rosnanotekh and national priority programmes in healthcare, housing, education and agriculture are also among the strategic areas. It is interesting to note that foreign ownership over forests is not allowed and that the Government intends to stimulate the wood processing industry through increased tariffs on exports of raw wood (*ibid*. pp. 32-33). The concentration of these companies in the hands of the state is understandable, considering how much of Russia's wealth disappeared during privatisation. From a management and efficiency point of view, however, it is not a development that will spur growth due to the low efficiency of large state firms in Russia. It is also known that if innovations

[17] Sovkomflot is a commercial shipping company. According to Julian Cooper in his remarks to this paper 2009-05-28, the company on the list should be United Shipbuilding Corporation.

are to materialise into production, intellectual property rights need to be protected and there must be economic incentives for the people and organisations involved. During recent decades in the West, SMEs have played an instrumental role in diffusing innovative products and services onto the market and they are as a rule much more cost-effective. Thus, if the Russian leadership wants to support innovations it appears that measures aimed at strengthening the intellectual property rights, the rule of law in general, a more positive attitude to foreign investors and massive support for the development of the SME sector would be a better option than resolving to concentrate resources in old structures and in supporting large state companies.

5 The energy sector

According to official Russian statistics, energy contributed only 9% to GDP in 2006. However, the Russian national accounts underestimate the importance of energy in Russia's GDP because of low domestic energy prices, especially for gas. At normal market prices, energy would have contributed almost 20% of GDP in 2006 (World Bank 2004, *cit*. Åslund, 2007, pp. 270-271). In 2006, energy accounted for 63% of Russia's exports and about 50% of its tax revenues.

Russia is well endowed with energy resources and if it had a well functioning market economic system, it would be able to use this wealth to become a prosperous economy creating a high standard of living for its population. However, the energy sector, like other industries, has been hampered by problems caused by the Soviet economic system, which resulted in abundant resources being extremely inefficiently used and now experts argue that oil and gas will become scarce quite soon.

In order to keep its comparative advantage in energy resources, Russia needs substantial investment resources. According to the International Energy Agency (IEA), the estimated investment requirement of Russia's energy sector from 2003 to 2030 is $930 billion. Of this, roughly 40% is needed for the oil sector, 32% for gas and 25% for electricity (OECD, 2008, p. 68).

5.1 Oil

The oil industry the Russians took over from the Soviet Union in 1991 produced 9.3 million barrels a day (462 tons) at a falling export price of $29 per barrel (Goldman, 2008, p. 36). The system shift coincided with a 10% decrease in production. Production and the export price reached lows in 1998, with 6 million barrels per day at $16 per barrel. Since then production has surpassed the Soviet level and the price began to grow in 2000 (*ibid.*). In 2008, the Russian oil companies produced 9.86 million barrels a day.[18]

The Russian oil-producing regions are found in the Volga-Ural basin, West Siberia and in emerging regions such as East Siberia, Sakhalin Island, Timan Pechora region, the Arctic shelf and the Caspian Sea.

The oil sector was restructured and then privatised during the Yeltsin years and foreign capital was permitted in. In 1992, four vertically integrated oil companies were created: Surgutneftegas, Lukoil, Rosneft and Tatneft. In 1994, several other companies were created as spin-offs from Rosneft – Sidanco, Slavneft, Opaco,

[18] See www.energyinvestmentstrategies.com, 2009-03-23.

TNK, Sibneft, Easter Oil Company, KomiTEK and Bashneft (Erochkine and Erochkine, 2006, p. 83). In 1995, the loans for share privatisation started and the financial groups in Russia acquired most of the oil assets. Menatep bought Yukos, NFK bought Sibneft, and the Oneksim Group bought Sidanco. Surgurneftegas was acquired by its management. Alfagroup and Renova bought 80% of TNK and a large stake of Lukoil was privatised in 1997 (*ibid*.).

The companies benefited from the collapse of the rouble in 1998, since all their revenues were in dollars, while costs were in roubles. After the crisis, the larger vertically-integrated companies such as Yukos, Lukoil and Surgutneftegas were able to take over several of the spin-offs of Rosneft. In 2003, the surviving TNK eventually formed a joint venture with BP – TNK-BP (*ibid.* p. 84, 87). In the end, eight major vertically-integrated oil companies dominated the Russian oil scene. They were TNK-BP, Surgutneftegas, Sibneft, Tatneft, Bashneft, Rosneft Yukos and RussNeft. The top companies produced up to 95% of Russia's crude oil and more than 70% of its refined products. The only company controlled by the state as a shareholder was Rosneft. The remaining Government stake in Lukoil was sold at auction to the American Conoco Philips for $1.988 billion (*ibid.*, p. 85).

The financial groups in Russia made unrealistic windfall gains in the privatisation process, but the fact that the oil assets fell into private hands resulted in the oil industry being restructured and managed in an efficient way. The Government's main criticism against these companies is that they do not spend enough money on exploration of new oil reserves or investment in new technology. This in turn is largely caused by the high taxation on oil profits, but also by uncertainties regarding e.g. property rights.

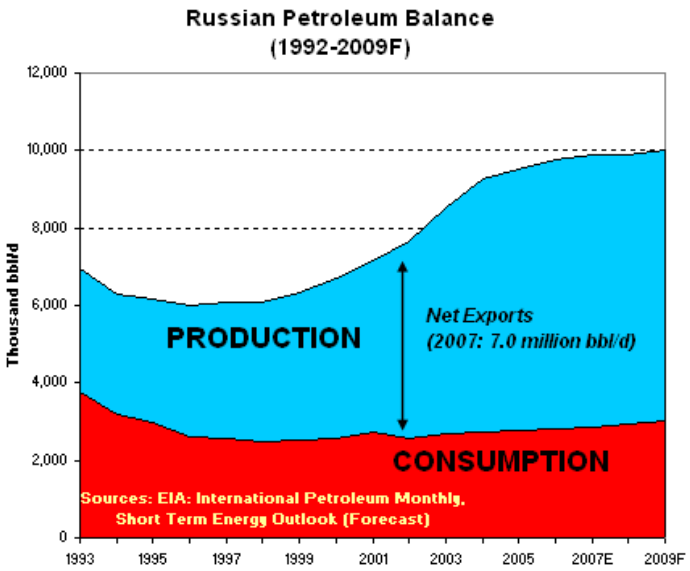
Renationalisation

As we all know, the tendencies in the ownership structure of the Russian oil industry have shifted since 2004, when Yukos was taken over by the state. Other oil companies such as Bashkir and Bashneft were also renationalised in 2007 (Larsson, 2008, p. 54). Åslund states that Russia suffers from an energy curse in its structural policies that leads to state ownership (Åslund, 2007, p. 271). Corruption started to rise with the renationalisation drive after 2004, as state officials could not resist the temptation to transfer oil and gas wealth to themselves (*ibid*, p. 272).

There is plenty of money in oil and for its own benefit the Russian state can use any pretext to become directly involved in the companies, not just indirectly by changing rules and tax profits. Yet, the Russian oil reserves still tend to attract foreign investors, which points at outside players valuing the potential of the Russian oil industry highly. Against this background, the notion that Russian oil

reserves will cease during the next decade seems implausible.[19] According to the BP Statistical Review, Russia has the world's seventh largest oil reserves – 69 bn barrels. After more exploration, these reserves could be as much as 100-200 bn barrels. The Arctic area alone is thought to contain 25% of the world's undiscovered oil reserves (Erochkine, 2006, p.48).

Figure 1. Russian petroleum balance 1992-2009.



Source: EIA (2008) p. 2.

Figure 1 shows the production and domestic consumption of oil in Russia, and the scope for exports, which was 7 million barrels per day in 2007. The problem in the oil sector is that exploration activities into new oil fields and investments have been very low since the 1990s. In the 1980s, more than $10 billion per year was allocated for exploration works from the Soviet budget. In 2000 the Federal budget allocated $3 billion, and in 2003 $2. The private oil companies spent $3 billion in 2003, which means a total of $5 billion that year. According to Erochkine (2006, p. 50-51), $30 billion would be required to reverse the decline in Russia's oil reserves. It would take at least 10 years to get exploration and drilling to the level of the 1980s (*ibid.*).

[19] In 1977 the CIA predicted that the USSR would (at that time) soon become a major importer of oil (Goldman, 2008, p. 53).

Robust export growth will not be possible without a further increase in exports of oil products. This in turn will necessitate investment in pipeline infrastructure (see Annex 2 on planned oil pipelines), as well as the development of new fields. Therefore, if Russia is to maintain reasonable oil sector growth beyond the end of the decade, it will be vital to ensure that fiscal and regulatory policies encourage the development of new oil fields to replace production from those currently in decline and to attract FDI into this sector.

5.2 Gas

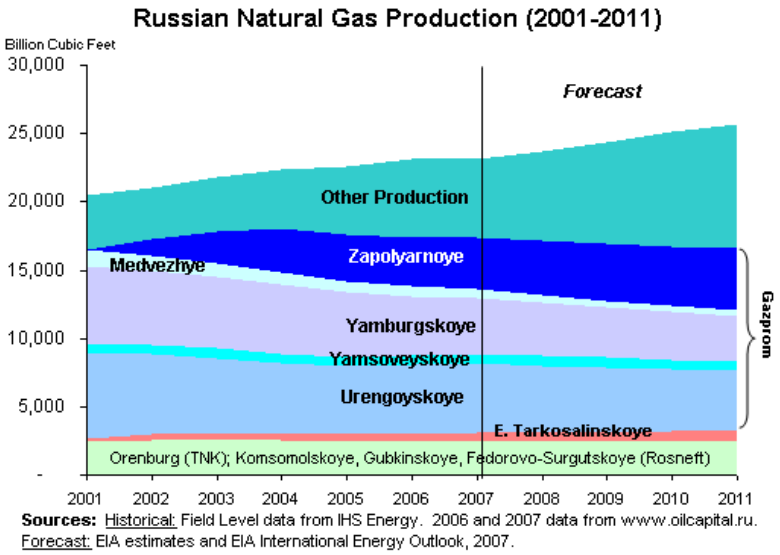
The organisation of the Russian gas industry has taken a very different path from that of the oil industry. Instead of privatisation and restructuring, all gas production has been organised into Gazprom as one super-company that includes literally all the old Soviet structures dealing with gas: producing companies, refineries, pipelines, trading companies, the gas foreign trade company, all regulatory agencies, teaching and research institutes, and 200 state farms. It employs about 400,000 people (Åslund, 2007, p. 140). Gazprom has almost complete monopoly in the production, sale, transport and export of natural gas. The gas industry is the most monopolised and regulated industry in Russia. All other industries have been subject to licences and quotas, but Gazprom has been exempt from export tax, some import tariffs, and value added tax (*ibid*., pp.140-141).

Gazprom has become increasingly powerful and is now active in the oil market too. Since natural gas is a by-product of oil production, oil producers have tried to get access to Gazprom's distribution system to handle their associated petroleum gas (APG). However, Gazprom has refused to let other producers use their pipelines. Gazprom's refusal to allow petroleum-producing companies access to its pipelines is a way of preventing non-state oil producers from following their contractual commitments to deliver APG, thereby forcing them to pay fines or return ownership to the state. Goldman (2008, p. 185) gives the following example: Gazprom refused to allow TNK-BP to build a pipeline so it could transport the gas it produced from the Kovytka field in East Siberia. With no transportation to major markets TNK-BP could not dispose of the gas. This led to warnings about failure to produce enough gas and eventually TNK-BP had to sell its share in the Kovytka field to Gazprom at below market price. Dutch Shell and its Japanese partners were forced to sell half their holdings in Sakhalin II to Gazprom because of alleged violations of other production commitments and charges of pollution (*ibid.*). Several new pipelines are planned to be built (see Annex 3).

Thus, so far Gazprom is more interested in defending its monopoly and its substantial monopoly profits and short-term economic benefits than in the long term possibilities of supplementing its own gas production with that of the

independent oil producers and other gas producers. However, there are hints of a change in policy so that Gazprom would produce only 65% of total production in 2020, through a rise in the domestic gas prices and through letting others produce gas (Goldman, 2008, p. 186). The acquisition of the oil company Sibneft might have affected Gazprom's thinking, since they themselves now produce the APG that comes up with crude oil. Gazprom realises that flaring the gas is a lost profit opportunity, and has announced that by 2012 it will use 95% of its APG (*ibid.*). Even Putin has become concerned, since oil producers burn off more than 20 billion cubic metres of the APG they produce every year (*ibid.*). In August 2007, Putin warned Transneft, Rosneft and Gazprom that if they burn off more than 5% of their APG, they will be fined. According to the Ministry of Natural Resources, that could mean state and private oil producers having to pay fines of $580 million a year (*ibid.*). The EIA forecast of Russian gas production up to 2011 is shown in Figure 2.

Figure 2. Russian natural gas production 2001-2011.



Source: EIA (2008, p.5).

The core of the problems and waste in the gas sector is Gazprom's super-monopolistic position and the priority concern of power and control rather than economic efficiency. Not allowing private producers to use the pipelines or let them install their own is just a power game without any economic rationale for society as a whole. In order to increase the efficiency in the gas sector and open it up for other producers and competition, prices must rise and Gazprom has to be restructured.

Table 2. Domestic prices of gas and electricity 2008-2011

Planned Natural Gas and Electricity Price Increases (2008-2011) *Annual Percentage Change*				
	2008	**2009**	**2010**	**2011**
Natural gas				
Wholesale market	28.6	19.9	28	40
Regulated prices	25	20.3	28	--
For households	25	25	30	40
For all others	25	19.6	27.7	--
Electricity				
For households	14	25	25	25
For all others	16.7	26	22	18

Source: EIA (2008, p. 10)

According to Grigoriev (2008), domestic energy prices will be increased by 2011-12. (See Table 2.) All parties have agreed to this, but there is no agreement as to what should be the final price. The gap between Russian domestic prices and world market prices widened up to the crisis. The monopoly Gazprom wants as high a price as possible but the domestic industries (e.g. aluminium, chemical, fertilisers) that use gas at the subsidised rate are lobbying against any increase. There is no strategy for how to reduce domestic gas consumption and make Russian production less energy-intensive. The emphasis in the energy sector is modernisation rather than production. According to Grigoriev, the energy strategy envisions a small growth in production and export up to 2030. There has been no new field exploration for 20 years. There is waste and flaring of gas that could be reduced.

Russia has 25-30% of the world's proven reserves of gas and 6% of the oil (Leijonhielm *et al.*, 2009, p. 103). Yet, there is a fear that Russian oil and gas reserves will dry up, which will not only be a serious problem for Russia, but also for all European countries that are dependent on Russia for their energy. Some experts estimate a gas deficit of 132 billion cubic metres already in 2010, while others have come to a deficit of 343 billion cubic metres in 2020 (*ibid.*).

The gap between the domestic price for gas and the export prices leads to rent-seeking and distorted production. Old-type Soviet enterprises can continue their value destruction, producing non-competitive goods. In addition, cheap energy means that Russia has extremely energy-intensive production lines, while consumers continue to waste energy. Europe managed to cut energy consumption

following the first oil shock. Russia is at best where Europe was in 1973 concerning energy efficiency. Low domestic prices discourage investment in energy-saving technology and in new reserves.

5.3 Nuclear power[20]

Russia's existing nuclear plants contain 31 operating reactors totalling 21,743 MWe (megawatts of electrical power). Economic reforms following the collapse of the Soviet Union resulted in an acute shortage of funds for nuclear development and a number of projects were stalled. However, by the late 1990s exports of reactors to Iran, China and India were negotiated and Russia's stalled domestic construction programme was revived as far as funds allowed. (WNA, 2009, pp. 1-2).

In general, reactors are licensed for 30 years from the start of operation. Late in 2000, plans were announced for lifetime extensions of twelve first-generation nuclear plants and the extension period envisaged is now 15 years, necessitating major investment in refurbishing them by 2006 (see Table 3).

Table 3. Nuclear power reactors in operation in Russia

Reactor	Type V=PWR	MWe net, each	Scheduled close
Balakovo 1-2	V-320	950	**2015, 2017**
Balakovo 3-4	V-320	950	**2018, 2023**
Beloyarsk 3	BN600 FBR	560	**2010**
Bilibino 1-4	LWGR EGP-6	11	**2009, 09, 11, 12**
Kalinin 1-2	V-338	950	**2014, 2016**
Kalinin 3	V-320	950	**2034**
Kola 1-2	V-230	411	**2018, 2019**
Kola 3-4	V-213	411	**2011, 2014**
Kursk 1-2	RBMK	925	**2021, 2024**
Kursk 3-4	RBMK	925	**2013, 2015**
Leningrad 1-2	RBMK	925	**2019, 2022**
Leningrad 3-4	RBMK	925	**2009, 2011, +20 yr**
Novovoronezh 3-4	V-179	385	**2016, 2017**

[20] This section draws on WNA, (2009).

Reactor	Type V=PWR	MWe net, each	Scheduled close
Novovoronezh 5	V-187	950	**2010**
Smolensk 1-3	RBMK	925	**2013, 2020**
Volgodonsk 1	V-320	950	**2030**
Total: 31			

Footnotes: **RBMK** means *High Power Channel Type Reactor*, graphite-moderated nuclear power reactor. The RBMK reactor was the type involved in the Chernobyl accident.
V-XXX = VVER *Water-Water Energetic Reactor* is a series of pressurised water reactors (**PWR**s) developed by the former Soviet Union and used by the former satellites in Eastern Europe, China, Finland and the present-day Russian Federation.
LWGR *Light water graphite reactor***.** The LWGR is a Soviet invention. It is uniquely designed to generate power and produce plutonium. The coolant is light water and the moderator is graphite. This coolant/moderator combination is unique to the LWGR.

Source: WNA, 2009, pp. 2-3.

By 2006 the Government's resolve to develop nuclear power had firmed and there were projections of adding 2-3 GWe (gigawatts of electrical power) per year to 2030 in Russia, as well as exporting plants to meet world demand for some 300 GWe of new nuclear capacity in that timeframe.

In 2006 Rosatom announced a target of providing 23% of electricity from nuclear power by 2020 and 25% by 2030, but 2007 plans approved by the Government have scaled this back a little (see Annex 1 for the planned extensions of nuclear capacity) (WNA, 2009, p. 3).

Organisation
The state corporation Rosatom took over Russia's nuclear industry in 2007, from the Federal Atomic Energy Agency (also known as Rosatom). This was formed from the Ministry for Atomic Energy (Minatom) in 2004, which had succeeded a Soviet ministry in 1992. The civil parts of the industry, with a history of over 60 years, are consolidated under AtomEnergoProm (AEP).

AEP is the single vertically-integrated, state holding company for Russia's nuclear power sector, separate from the military complex. It was set up at the end of 2007 to include uranium production, engineering, design, reactor construction, power generation and research institutes in its several branches, but is not used for fuel reprocessing or disposal facilities for the time being. During 2008 there was a major reorganisation or 'privatisation' of nuclear industry entities involving a change from Federal State Unitary Enterprises to Joint Stock Companies, with most or all of the shares held by AEP. By mid-August 2008, 38 of 55 civil nuclear companies had been reformed *(ibid*., pp. 14-15).

Extending nuclear capacity
Rosatom's initial proposal for a rapid expansion of nuclear capacity was based on the cost-effectiveness of completing the 9 GWe of then partially built plants. To get the funds, Minatom offered Gazprom the opportunity to invest in some of these partly completed nuclear plants. The argument was that the US$ 7.3 billion required for the whole 10 GWe (Gigawatt of electrical power) would be quickly recouped from gas exports if the new nuclear plants reduced the need to burn that gas domestically (see Annex 1 for planned extension of nuclear plants).

To achieve its goal by 2020, Rosatom will commission two 1200 MWe plants per year from 2011 to 2014 and then three per year until 2020, which would result in around 44,000 MWe of nuclear capacity at that time.

In 2006, Russia adopted a $55 billion nuclear energy development programme, with $26 billion of this sum coming from the federal budget up to 2015. The balance will be from state-owned industry (Rosatom) funds, but there is no private investment involved. The Ministry of Finance is strongly supporting the programme in order to increase the nuclear share from 15.6% to 18.6% of total, hence improving energy security as well as promoting exports of nuclear power technology. After 2015, all funding will be from Rosatom revenues.(*ibid.*)

In April 2007 the Government approved in principle a construction programme to 2020 for electricity-generating plants. It is designed to maximise the share of electricity from nuclear, coal, and hydro, while reducing that from gas. This envisages starting up one unit per year from 2009, two from 2012, three from 2015 and four from 2016. Current nuclear capacity is to increase at least 2.3 fold by 2020 (see further Annex 1).

5.4 Hydroelectricity and overall electricity supply and demand

In parallel with this, Russia is greatly increasing its hydro-electric capacity, aiming to increase by 60% to 2020 and 200% by 2030. *Hydro OGK*, which is Russia's biggest power producer, is planning to commission 5 GWe by 2011. The 3-GWe Boguchanskaya plant in Siberia is being developed in collaboration with Rusal for aluminium smelting. The aim is to have almost half of Russia's electricity coming from nuclear and hydro power by 2030.

Overall electricity supply and demand
Russia's electricity supply, formerly centrally controlled by the Russian Joint Stock Company Unified Energy System (RAO UES), faces a number of acute constraints. First, demand is rising strongly after more than a decade of

stagnation. Second, some 50 GWe of generating plant (more than a quarter of existing stock) in the European part of Russia comes to the end of its design life by 2010. Third, Gazprom has cut back on the very high level of natural gas supplies for electricity generation because it can make about five times as much money by exporting the gas to the west (27% of EU gas comes from Russia).

The UES gas-fired plants burn about 60% of the gas marketed in Russia by Gazprom. The idea is to cut this by 50% up to 2020. In addition, by 2020 the Western Siberian gas fields will be so depleted that they will be supplying only a tenth of current Russian output, compared with nearly three-quarters now. There are also major regional grid constraints so that a significant proportion of the capacity of some plants cannot be used.

Privatisation of RAO UES
After many years, the restructuring of Russia's power generation sector was completed in July 2008, when the state monopoly RAO UES was dissolved. Tariff rates on the domestic market are to be made more universal instead of region-specific. The country's transmission grid will remain under state control. The reform has created a generating sector divided into six wholesale electricity companies (OGKs), which participate in a new competitive wholesale market. The creation of all six OGKs was completed in September 2006.

Fourteen territorial generating companies (TGKs) will also be created, and this TGK programme generated over $24 billion in investment from private investors in 2007. Germany's E.ON and RWE, Italy's Enel, the Finnish Fortum and EBRD are some of the foreign investors who have paid premiums for strategic or controlling stakes in the generating companies. The current plan is to transfer the state share in the generating companies to two companies, the Federal Grid Company and Hydro-OGK. The goal is for the market to be completely liberalised by 2011 (EIA, 2008, p. 14).

5.5 Coal

With 173 billion short tons[21] (S/T), Russia holds the world's second largest recoverable coal reserves, behind the United States, which holds roughly 274 billion S/T. Russia produced 321 million S/T in 2006 (roughly a quarter of US coal production), making it the fifth largest in the world. The country consumed roughly 260 million S/T, leaving 61 million S/T for export. According to the Government's energy strategy, Russia should produce between 441 and 496 million S/T by 2020 (www.russiancoal.com, accessed 2009-03-18).

The coal industry has been a long-standing problem for reform in Russia. The number of people employed had to be reduced from 900,000 in 1991 to 400,000

[21] The short ton (S/T) is a unit of weight equal to 2,000 pounds (907.18474 kg).

in 2001. Since 1994, the Government has spent more than $2 billion on restructuring the coal industry and has closed 150 unprofitable mines. In spite of the slight increases in profitability, the situation in the coal industry as a whole remained complicated for a long time. It was only in 2001 that the number of unprofitable coal companies fell below 50% (*ibid*.)

After restructuring, now almost 80% of domestic coal production comes from independent producers. Russian coal production began a three-year upswing in 1999. After a slight decline earlier in the decade, production has increased markedly in recent years.

Coal accounts for 18% of power production in Russia.[22] In Russia, coal loses out to gas because of the lower prices for the latter maintained by the Government. The recently adopted Russian Government strategy of increasing coal production and building more coal-fired plants will help reduce demand for natural gas, thus allowing for more natural gas exports. There is currently a proposal to reduce the excise duty on coal production by 50% *(ibid*.)

5.6 Energy as a measure of control or threat

Energy supply is used by the Russians as a weapon in foreign policy. Since 1991, Russian energy policy has resulted in around 50 'incidents' (Larsson, 2008, p. 44). These are usually a question of temporary stops in deliveries that are often explained by unpaid debts by the client or the necessity to raise prices (*ibid.*). Thus, for some countries, especially the CIS states, it is difficult to be dependent on Russia for energy. In a few cases Russia has issued ultimatums, e.g. demanded military services by the client in order not to increase the gas price (*ibid.*, p. 45). However, Europe does not have much choice in the short-run than to cooperate with Russia on energy issues, since many countries are strongly energy-dependent on Russia.

[22] While the United States and Germany have more than 50% and Great Britain has 35%.

6 Scenarios

Scenario creation or scenario planning is used to 'think the unthinkable' and for 'idle speculation' and was developed in major American corporations in the 1970s (Yergin & Gustafsson, 1995, p. 10-11). The reason was that conventional long-term planning and forecasting was deficient in anticipating considerable change in investment conditions, market conditions and technological change and this cost the companies a great deal of money. For example, GM could not imagine that the American car market would be flooded by Japanese cars in the mid-1970s, while IBM missed the PC revolution and paid a heavy price due to the totally unforeseen dramatic shift in their competitive position (*ibid*.).

It must be stressed again that the purpose in the present study is not to develop forecasts of the most probable development, but to explore the unknown and look at more extreme possibilities in the range of possible outcomes.

6.1 Previous scenarios for Russia

FOI scenarios

At FOI and within the FORMA project, scenarios describing possible future development in different countries and sectors have been used for a long time. Several scenarios for Russia have been presented over the years by the RUFS[23] project team. In their first major report, Leijonhielm *et al*. (1999, pp. 294-305) presented these three scenarios looking 10 years ahead:

- *Lone Wolf* – Patriotism as an economic engine.
- *Great Russia* – Russia increases her relations with Asia and develops a growing mistrust towards the US and Europe.
- *Disintegration* – Russia is weakened by internal disintegration

None of these scenarios has materialised fully, but recent assessments of their predictions show that they were often right in giving the broad picture, although perhaps not in every detail (see e.g. Unge, 2009, pp. 40-63). I use some of the ideas of the *Great Russia* and the *Lone Wolf* scenarios in the scenarios below. The *Disintegration* scenario was relevant at the time of the end of Yeltsin's reign, with strong regions and independent regional governors. However, the central federal power has reasserted itself under Putin and Medvedev, and regional disintegration does not seem to be an option during the next 10-20 years. This does not mean, however, that this cannot become a relevant scenario again

[23] For a presentation of the RUFS project see footnote 4 above.

if the political situation changes. Leijonhielm *et al.* (2005) present a negative and a positive scenario for different sectors of Russian society up to 2025.

Cambridge Energy Research Associates (CERA) scenarios
CERA has applied scenarios to energy and to broader subjects since the mid-1980s. The Yergin & Gustafsson (1995) book *Russia 2010* includes several scenarios that were modelled in the early 1990s:

- Muddling Down – the unwinding of the Soviet State
- Two-Headed Eagle – a reassertion of power by a central government that is based on an alliance of private finance and industrial management with the army and the police
- Time of Troubles – a family of scenarios consisting of varying degrees of chaos and reaction. Among these scenarios are:
    - *Long Goodbye* – a Russia of semi-autonomous regions
    - *Russian Bear* – a violent breakdown of civil order, followed by military intervention.
    - *Chudo* – the Russian economic miracle.

All Yergin & Gustafsson scenarios end up in a state called *Capitalism Russian-Style*. Since we are almost in 2010 now, we can ask: What can be said about their accuracy now, in 2009? Which one tells the best story about the probable state of affairs in Russia in 2010? The main characteristics of each scenario are listed below.

Muddling Down
The *Muddling Down* scenario describes several aspects of development 1993-2000:

- A weak central government.
- Vast regional freedom and independent governors
- Competition among politicians and economic agents at all levels for power, rents and property
- Economic decline and difficulties of the central government in meeting its obligations
- Soft budget constraints among the old Soviet-type companies
- Corruption in the state apparatus and mafia

The developments according to the *Muddling Down* scenario are very risky, since it is assumed that the central government cannot effectively defend the society against extreme political movements or conduct any meaningful economic policy due to the lack of strength and resources. In Russia, there was a risk of the Russian Federation falling apart with the strong donor regions demanding more freedom during Yeltsin's last presidential period. Yet looking

back at 1993-2000, we can see that although very difficult, the period resulted in private property rights being distributed, a new private sector being developed and a small middle class being formed. The vacuum created by the weak central government did not fill with extremists and Russia did not implode. When Putin came to power, the federation and central government strengthened their position again.

Two-Headed Eagle

The Putin period is fairly well depicted by the *Two-Headed Eagle* scenario. The two-headed eagle was the symbol of tsarist Russia and it carries the idea of a Great Russia and great power traditions. The characteristics of this scenario are:

- Reconstitution of a strong central government
- Coalition between managers of the large strategic industries, central bureaucracy in Moscow, the military, police and state security.
- Economic recovery through the re-establishment of strong central power and civil order
- Public support for a strong hand
- Anti-crime

A feature that needs to be added to this scenario for it to reflect the Putin reign better is state corruption, which increased particularly during Putin's second presidential period.[24]

Chudo

Chudo means 'miracle' in Russian. If we compare the scenario with what has happened in reality 2000-2009, one feature that was not taken into account was the rise in the oil price, which to such a great extent has enabled the Putin regime to contend economically. Thus, the Putin years also have characteristics of the economic miracle scenario:

- The government is competent and has good control over fiscal policy
- Secure property rights
- Curtailment of subsidies to old large enterprises and increasing credits to new private sector
- Excess capacity and cheap qualified manpower
- Reallocation of resources from old to new private sector
- Strong growth of global economy
- Technological innovations together with Western partners
- A stable rouble

[24] This is my conclusion based upon developments in Putin's Russia since the Yukos affair.

As a matter of fact, most of the scenarios have some truth about the developments in the early 1990s-2010, although the *Two-Headed Eagle* and *Chudo* appear to have most ingredients characterising developments between 2000 and 2008. Where Putin has particularly failed is to secure private property rights in a Western understanding and reallocate resources from the old to the new sector. In addition, the financial crisis that started in Russia in the second half of 2008 means that the final outcome of economic development in 2010 will not be as fantastic as envisaged by *Chudo*. Neither scenario emphasises the corruption that has coloured Russian economic development since the reforms started and that has increased under Putin.

Yergin and Gustafsson (1995) also discuss the effects of 'surprises', for instance:

- Another Chernobyl accident
- Missing plutonium
- Collapse in world demand for oil
- Aids out of control
- Iran invades Azerbaijan
- Southern Cossacks claim provinces in Kazakhstan
- War between Russia and Ukraine

All these risks are as relevant now as they were in the 1990s when Yergin & Gustafson wrote them.

The following sections describe three main scenarios developed in the present study, which have borrowed some traits from the FOI and CERA scenarios. Before each economic scenario, the assumptions made about the foreign and security and domestic policy conditions are discussed. A feature common to all scenarios is that the presidential periods in Russia are 2008-2012, 2012-2018, 2018-2024 and 2024-2030.

6.2 Scenario 1

Peter the Great*[25] *– continued Western-style modernisation

Foreign and security policy conditions
The assumptions for this scenario are that Russia will prioritise its relationship with the EU, its greatest trade partner. The gas pipelines to Western Europe – South Stream and Nord Stream – will be built in partnership with EU

[25] Peter the Great (1672-1725) was the Russian tsar who looked to Western Europe for inspiration for reform of a rather backward Russia. Among other things, Peter imported shipbuilding and stove building from Holland and public administration organisation from Sweden. He built the new capital of Russia, St. Petersburg, 'Venice of the North', on the swamp around the river Neva using techniques learned in Holland. Peter was a dictator but modernised Russia in many respects.

member states and private investors. The visa regime[26] will be eased and by 2012, when Medvedev has been re-elected for his second term, EU citizens travelling to Russia will not need specific invitations and will only have to apply for a visa once and renew it when their passport expires. The regime will be mutual and the EU and Russia will aim to abandon the visa requirement altogether in 2030. Russia will maintain good relations with its Eastern neighbours, helping to reform the Central Asian economies, and will have increasing trade and scientific contacts with China, which will have become Russia's second trade partner after Europe. China and Turkey will play a crucial role in providing Russia with skilled labour and filling the gap due to the demographic drop in the labour force. Labour migrants from former Soviet republics will be offered Russian citizenship if they can prove that they are long-term legally employed.

In 2012 Russia will join the WTO and the US will be convinced that Russia intends to become an economic superpower instead of a military one, and it is widely believed that it will keep its military spending at a level of around 3% of GDP, as has been the case in the past three years. By 2018, economic growth and wellbeing and the generation shift in the military will make it possible to finally undertake real military reform and transfer to a professional army, with this process being completed by 2030. Together with Ukraine, Russia will get a special partnership agreement with NATO in 2018, and its then semi-reformed MIC will extend its cooperation with Western arms producers to develop modern arms suitable for international operations and peacekeeping in the immediate neighbourhood. Russia will become a crucial partner to the EU and NATO in security matters.

Domestic policy conditions

The political assumptions in this scenario are that under President Medvedev Russia will remain a 'managed democracy' of the current model and that Dmitry Medvedev will be re-elected President of Russia for a second six-year term[27] 2012-2018. The internal political situation will be stable and the next president, Peter, born in the 1970s into a democratic and politically active family and elected in 2018, will be a person who grew up under Gorbachev and Yeltsin and never knew the oppression of communist rule. Peter will be coached by his predecessors into this position and will occupy high government positions before campaigning for presidency.

[26] The present visa regime means that a foreign visitor cannot go to Russia without a personal invitation. A Russian business partner, cooperation partner or private citizen must send the visitor a formal invitation in original, i.e. by letter. Visa handling is cumbersome, time-consuming and expensive. Visas are big business both within the Russian bureaucracy and in commercial travel agencies that manage the visa regime. Recently the EU and Russia have agreed a somewhat eased regime for scientific exchange and other non-commercial activities, which e.g. means that faxed invitations are accepted.

[27] The term was changed from 4 years to 6 years shortly after Medvedev was re-elected in 2008.

The new President will stay for another two six-year terms, 2018-2030. During this period, steps will be taken for Russia to become a more full democracy. Censorship on the media will be eased and NGOs with foreign financing will once again be accepted. The grip over the regions, however, will still be firm, and Russia will remain a very centralised country during the 20 years covered by the scenario.

Economic development

In the *Peter the Great* scenario, Russia will recover from the financial crisis of 2008-2009 in 2010-2011 and GDP growth will return to the trend growth rate of 4.6% (RAND, 2009, p. 51). The crisis will have shown all central decision-makers that Russia is integrated in the global economy, and the belief that Russia is 'special' will have disappeared. Well-conducted economic policies during the crisis and the fact that Russia was in a much better position to cushion the initial crisis than many Western countries will have given Russia a quick recovery and strong self-confidence. The country will get back on track with the economic strategy up to 2030 prepared by the Ministry of Economic Development and Trade before the crisis.

The heart of the economic strategy will be the deregulation of the electric power market and the liberalisation of domestic energy prices. Raising the domestic energy prices will be a condition for Russia entering the WTO, since the present level of domestic prices at 20% of world market prices gives Russian industry unfair competitive advantages. Russia uses 3.2 times more energy per unit GDP than the EU (RAND, 2009, p. 54). In a first round, Gazprom will raise domestic prices per thousand cubic metres of gas from $45 to $125 (2.8-fold increase) in 2011. The crisis will result in some of the old large, Soviet-type industries being liquidated or restructured, and the increase in energy prices will cause structural change with shut-downs of other industries. The Government will manage this development through a gradual process and a programme of assistance that targets unemployed individuals, not through subsidising companies. In addition, there will be a programme for intensifying the establishment of SMEs in regions where larger enterprises are closed or workers are laid off.

The electric power generating structure and grid will be opened for private investment and acquisition and FDI in 2010, providing the necessary investment to renew and expand the grid. Russia's $55 billion nuclear energy programme will be realised and Russia will build the 25 reactors planned up to 2020. Rosatom will cooperate with foreign partners and become an important international electrical power provider. The Russian hydro-electric capacity will increase by 60% to 2020 and by 200% by 2030. The goal to supply 50% of Russia's electricity from nuclear and hydro power by 2030 will be realised.

Gazprom will stay a monopoly during the process of deregulation of the electricity market and increasing energy prices up to around 2020, when this process is assumed to finish. A special independent Parliament (Duma)

commission will monitor the company closely to ensure that the increased monopoly profits go to development and extraction of new gas findings and building of pipelines. When the energy market has stabilised, the company will be restructured. All downstream activities will be privatised. Alternative private gas producers will be encouraged. The dismantling of Gazprom will improve Russia's Transparency Corruption index and the country's ranking will jump from number 143 of 179 countries in 2007 (RAND, 2009, p. 60) to number 100 in 2022 and 50 in 2030.

Private companies will be offered the chance to buy stakes in the pipeline system and all gas producers will have the same rights to use the system. The reforms in the gas sector will result in increasing gas output to an average of 850 billion cubic metres per year, largely thanks to a doubling of the output of private independent gas producers.

Projections for the Russian oil sector are that oil production will grow by 1.5-2.5% a year, which means it will be around 10 million barrels a day in 2020 and 11 million barrels a day in 2030 (estimate by RAND, 2009, p. 54). Even though the state will have renationalised some oil companies, most oil will still basically be pumped by private companies. The oil price is assumed to fluctuate but on average it will be $50-70 during the coming 20 years. This means that the contribution of oil and gas to GDP will be around 15% in 2020, a fall from 18.7% in 2007, also due to diversification.

The MIC will be encouraged to increase its cooperation with foreign partners. In particular, this concerns the existing cooperation within the aerospace sector. Among other ventures, Russia will increase the number of aeroplane projects with Germany and the EADS. The ongoing satellite projects will be expanded. MIC will undergo restructuring and diminish from 1,400 companies to 700 by 2020. Further rationalisations and reductions will be made up to 2030.

The higher cost of energy will result in resources being released from the old Soviet-type energy-intensive sectors and opened up for expansion of new innovative companies in IT, construction, real estate services and trade. By 2025, per capita income PPP in Russia will have risen from $16,000 in 2008 to $21,000, which corresponds to Western European lower income countries today. The middle-class will make up around 50% of the population and the Gini coefficient will have fallen from 41 to 35[28]. The level of poverty will be 6%.

To conclude, in the *Peter the Great* scenario Russia will aspire to become a strong economic partner to Europe and other neighbours. The strategy is to modernise Russia and to attain this by looking West, as Peter the Great did, and to develop a Western-type market economy and democracy.

[28] See footnote 15.

6.3 Scenario 2

Batu Kahn*[29] *– expansion to the East

This scenario has some features in common with the *Great Russia* scenario in Leijonhielm *et al.* (1999).

Foreign and security policy assumptions

In this scenario the assumption is that Russia will get tired of the EU and it will be very difficult to get the agreements on the gas pipelines in the North and South. The European pipelines will not be built. (See Annex 3).The visa regime for EU citizens and business partners will remain strict. The EU will continue to be Russia's biggest trade partner but political and cultural exchanges will become frosty. Russia's relations with the US will deteriorate, since Russia will perceive that the US and NATO are meddling with its close neighbours, the chaotic Ukraine, divided Moldova and Caucasus, 'internal affairs' in the Russian view, and also because of the US continuously demanding improved human rights and increased democracy even to let Russia into the WTO.

Russia will turn its back on the WTO and on the West as a whole, turn East and deepen its contacts with China, Iran and the rest of Asia. China will import 20 billion cubic meters of gas per year from the *Kovykta* fields, which will be owned by Gazprom. Turkey, having been turned down by the EU, will become a very close partner of Russia in developing economic infrastructure and trade links. The gas supplies through *Blue Stream* will increase to 16 billion cubic meters per year thanks to a new gas compressor station in Russia. Turkey is a population-rich country with a young population, and will become an important exporter of labour to Russia, as will China.

Domestic policy developments

The relatively Western-minded Medvedev from St. Petersburg will lose the presidential seat in 2012, much due to state corruption, to economic recovery at 2-3% growth a year not being strong enough to meet all the demands and to the perception that he let Russia be badly treated by the EU and US.

A group of Kazan-based entrepreneurs and directors from the Tatar oil and petrochemical industry, KamAz and the Kazan helicopter plant will start a movement in 2010 to win the presidential seat in 2012. Their leader, Sultan Kahn, a 35-year engineer with an economics degree from Harvard and many business trips to Arab countries and China, will claim that Russia could become an economic superpower by innovations and more efficient use of the rich resources of the country. He will criticise state corruption, which Medvedev will

[29] Batu Khan (1205–1255) was a Mongol ruler of the Golden Horde, the sub-khanate of the Mongol Empire, and the founder of the Blue Horde. Batu was a grandson of Genghis Khan. His *Blue Horde* was the chief state of the Golden Horde (or Kipchak Khanate), which ruled Rus (present Russia) and the Caucasus for around 250 years.

not have been able to curb, and Gazprom will be a particular target. The Kazan group will be all for capitalism and a market economy and will welcome deregulation of the electrical power generation and grid but will want a faster liberalisation of energy prices and the opening up of gas and oil markets in Russia.

The energy reform will result in rapid rises in energy prices and old enterprises will be shut down. For the first time since the system shift began, Russia will have high, double-digit, open unemployment in major industrial regions and towns. There will be great public protests and Medvedev, lacking an efficient labour market policy, will need to pay high social compensation and stop the energy price reforms. There will be no effective labour market or other economic policies to mitigate the social effects of the increasing energy prices. Medvedev will become unpopular among both the population and the market reform lobby. In 2012 the Kazan lobby will manage to get Sultan Kahn elected as President of Russia. He will stay in power for two subsequent periods up to 2024. Before the third period, Sultan Kahn will have the constitution changed so he can run for a third term as President of Russia.

Economic development

Russia will recover from the financial crisis of 2008-2009 in 2010, but GDP growth will be under the trend growth and will stay at 2-3%. The crisis will have shown all central decision-makers that Russia is integrated in the global economy, but in this scenario the voices that want Russia to remain 'special' will be heeded and Russia will try to find alternatives to Western financial institutions.

Deregulation of the electric power market and the liberalisation of domestic energy prices will be central. Raising domestic energy prices will be motivated by the need to restructure the economy and use resources efficiently and to maximise exports of gas to earn export income. The Kazan movement and liberal market economists will press to accelerate these changes.

The Kazan group will see China as a *best practice* example of how to combine an expansive market development and 'economic miracle' with political control over the population and foreign influences. After winning the elections in 2012, Sultan Kahn can start implementing the Kazan group's ideas. The country will get back on track with the MED economic strategy up to 2030 and attempts will be made to reach the average annual growth rate of the original 'innovation' development scenario, i.e. 6.5% growth per year rather than around 4% (MED, 2008, p. 30).

The new Government will continue the energy price reform and use Ministry of the Interior troops to resolve popular uprisings against price increases. The regions will be forced to open public works for the unemployed and federal programmes will be started to send unemployed people and volunteers to

extraction works in the new hydrocarbon fields. Thanks to the negative change in the labour force, the forceful public works programme and the increased efforts in the SME programme, unemployment will decrease to 5-6%.

The Kazan movement will be strongly against corruption[30] and the monopoly Gazprom will be a prime target. There will be a compulsory external audit of the company, which will find that billions of dollars have disappeared into the pockets of its directors and those of Government officials. The company will be broken up and parts of it privatised. The state will keep the upstream activities, while all downstream activities will be privatised. The Government will embark on ambitious projects in the Shtokman fields and Kovykta fields with investments from China, Iran and other Arab countries and skilled labour from Turkey.

Alternative private gas producers will be encouraged. Sultan Kahn and his government will rule with economic instruments and welcome private investors who can produce more efficiently than public managers. Taxes will be adjusted to cover all public spending needs. Private companies will be offered the chance to buy stakes in the pipeline system and all gas producers will have the same rights to use the system. All investors will be invited, but if a country criticises Russia's domestic policies, investors from that country will be dismissed. However, the main idea of the rulers will be to create economic growth and prosperity, not to cause political conflict. The reforms in the gas sector will result in gas output increasing to an average of 1000 billion cubic metres per year, largely thanks to the opening of new fields and a doubling of the output of private independent gas producers.

Private oil producers will be encouraged to increase their output and open new fields. Expected increases in the Russian oil sector will cause oil production to grow by 2.5-3.0% a year, to around 11 million barrels a day in 2020. The Muslim Tatar rulers of Russia will manage to get an agreement with OPEC and thereby keep the average oil price above $70 per barrel over the whole period.

The MIC will continue to export to China, the receiver of around 50% of Russian arms exports since the 1990s (Leijonhielm *et al.* 2009, p. 256). The cooperation between the two countries will deepen and China will gain increasing access to advanced technology from Russia. India will continue to be a reliable client and Sultan Kahn will manage to get large contracts from Arab countries. At the same time, rationalisation of the MIC will be considerable and the Tatar Russians will outsource some production to China, where there are more workers and work discipline is higher.

The new Government will want to see the Russian economy grow by at least at 6-7% a year, which will require innovations and development of the advanced

[30] Tatars are ethnic muslims.

technology sector. The new Government will understand the role of patents in intellectual property rights and the fact that scientists need to be able to protect innovations. It will also understand that the creators of innovations need both stick and carrot to work efficiently and that another weak spot in Russia's technological development that needs to be addressed is how to transfer innovations into production and markets. The Government will look to China and Asia to solve these problems.

6.4 Scenario 3

***Alexander the Third*[31] – nationalistic, orthodox, isolationistic**

This scenario has a lot in common with the *Lone Wolf* scenario in Leijonhielm *et al.* (1999).

Foreign and security policy conditions
Russia will feel provoked by the US installation of missile shields in Europe and will decide to advance its military presence in its European regions. The EU will continue to stretch out towards Ukraine and Moldova, and as a result Russia will intervene and take control of these countries and use them together with their old ally Belarus for military bases. This will greatly upset the US, causing them to introduce trade sanctions. Europe will then experience problems due to its energy-dependence on Russia The human rights situation in Russia will deteriorate further as the nationalistic leadership opposes any religion other than the Orthodox Russian Church. Jews, Tatars and other ethnic Islamic groups will be persecuted and try to emigrate. Russia will cooperate with the Central Asian republics in its energy politics but will not allow any migration from these Islamic countries.

Domestic policy conditions
Russia will not recover from the financial crisis in 2008-2009 and will experience zero growth in 2010. The energy price reform programme cannot be embarked upon due to the recession and there will be serious social protests that the security forces need to settle. Rumours will spread that American bankers are to blame for the financial crisis and on the whole, 'the West' will be blamed for

[31] Alexander III (1845-1894) succeeded his father Alexander II, who was murdered in 1881 and who had been trying to liberalise the Russian society. Alexander was very conservative and in his opinion Russia was to be saved from anarchical disorders and revolutionary agitation, not by the parliamentary institutions and so-called liberalism of western Europe, but by the three principles which the elder generation of the *Slavophils* systematically recommended—nationality, Eastern Orthodoxy and autocracy. His political ideal was a nation containing only one nationality, one language, one religion and one form of administration. His statue in front of the Christ the Saviour Cathedral in Moscow was torn down by the Communists in 1923.

Russia's hardships. Medvedev will not be able to cope with the situation and he will lose the presidency to General Alexander Shamanov in 2012. The General will want to reinstate the tsar but the Romanov family will decline.

Economic development
The economy will start growing again in 2012 thanks to increasing world demand, which will raise the oil price to over $100 per barrel. The whole oil industry will be renationalised by the military. However, due to the repressive policies and preservation of inefficient companies and isolation from foreign know-how and finance, Russia will not be able to make the necessary investment in infrastructure and extraction and GDP growth will stay at 2% per year. Instead, the military will spend the oil money on the domestic MIC and more weapons. Emigration of skilled labour will aggravate the situation on the labour market, where labour supply will shrink dramatically. In addition, the military will reinstate the 2-year military service requirement and compete for young new entrants into the labour force. Wage inflation will occur as a result of the tight labour market and oil money unwisely spent on welfare and arms leading to overheating. Military expenditure will soon be up at 7-8% of GDP and, reluctant to use 'Western instruments' as Treasury bills to finance the Government deficit, the Government will let the Central Bank of Russia print money. Inflation will start galloping and the rouble will fall like a stone.

In this military autocrat scenario, the economy will go bankrupt in 5-6 years and the generals will need to reinstate some good economists and put them in charge of the economic policy and open the door either to the West or to the East to increase trade and get FDI, or they will need to revive the command economy, i.e. a war economy, that operates without any concerns about economics, as was the case in the USSR.

6.5 Concluding remarks

The three scenarios reflect three distinct ideas on how Russia could develop. They are each quite extreme and will not materialise as described above. Rather, developments in Russia will fall somewhere between the scenarios, with some elements of them all. The nature of the mix will be determined by the external and domestic political situation in Russia, topics not studied in this report.

The characteristics of the economic system that were used in section 2 to describe the Russian economic system over the period 1985-2009 (see Table 1) are used again in Table 4 to summarise the scenarios regarding how different aspects of the economic system will develop over the coming 10 to 20 years.

As can be seen from Table 4, the *Peter the Great* scenario is assumed to lead to a fully fledged Western type market economy in 2030.

Table 4. Economic system of Russia in the three different scenarios 2030

Scenario	1 *Peter I*	2 *Batu Kahn*	3 *Alexander III*
Governance			
Budget discipline			
Tax collection			
Rule of law			
Public administration efficiency			
Corruption and rent-seeking			
Market economy			
Liberalised prices			
Private property rights			
Competition			
Free trade			
Unemployment		Public works	
Communist inertia			
Shortages			
Barter deals			
Nonmonetary tax/fee transactions			
Arrears			
Shadow economy			
MIC			
High military burden			
Energy monopoly			
Labour hoarding			
Social justice - equality			
Consumer markets			
Private housing			
Social services			
Education			
Income distribution Inequality - Gini coefficient			

Footnotes: **Red colour** depicts Soviet style war economy, **green colour** depicts 'market economy' and **yellow colour** depicts an 'intermediate state or market with considerable imperfections' (such as barriers to entry and deficient competition).

The only remaining questions concern whether a democratic government will be able to cope with the corruption and rent-seeking traditional in Russian governmental circles in such a short time.

The *Batu Kahn* scenario is more similar to the present system, but due to the assumptions made regarding the origin of the rulers, there is more hope that they could fight state corruption. It is important to understand that it is possible to have a functioning market economy with high growth rates under a limited and restricted political system. To have democracy, however, a market economy is a necessary condition.

In the *Alexander the Third* scenario, Russia will regress and in the long run there will be an economic system that bears a great resemblance to that already experienced in the Soviet Union, although not with a communist leadership, but with a nationalistic one.

Development along the lines of the *Peter the Great* and *Batu Kahn* scenarios are preferable from an economic point of view. Whether the Western democratic or Eastern type political model will overweigh in the Russian society will be seen as time goes by and is a question that will primarily be determined by the political development.

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8 List of Acronyms

AEP	AtomEnergoProm (State holding company for Russia's nuclear power sector, separate from MIC)
APG	Associated petroleum gas
BP	British Petroleum
CC	Candidate countriy to the EU
CERA	Cambridge Energy Research Associates
CIA	Central Intelligence Agency of the USA
EBRD	European Bank of Reconstruction
EC	European Commission
EIA	Energy Information Administration
EU	European Union
FDI	Foreign direct investment
FOI	Swedish Defence Research Agency
GDP	Gross Domestic Product (aggregated value added produced in a country during a year)
GWe	Gigawatt of electrical power (1 GW = 1,000 MW)
GNP	Gross National Product
IEA	International Energy Agency
IISS	International Institute for Strategic Studies
ILO	International Labour Organisation
IMF	International Monetary Fund
MED	Ministry of Economic Development of the Russian Federation
MIC	Military Industrial Complex
MOD	Ministry of Defence
RZhD	The State Railways of the Russian Federation
MWe	Megawatt of electrical power (1 MW = 1,000 kilowatt)
NATO	North Atlantic Treaty Organisation

NGO	Non-governmental organisation
OGK	Wholesale electricity companies
PPP	Purchasing Power Parity
RF	Russian Federation
RUFS	FOI project on Russian foreign, defence and security policy
RUR	Russian roubles
TGK	Territorial Power Generating Companies
UES	Unified Energy System
US	United States of America
USSR	Union of Soviet Socialist Republics
WNA	World Nuclear Association
WTO	World Trade Organisation
WW II	Second world war

Annex 1

Major Nuclear Power Reactors under Construction and Planned

Plant	Type	MWe	Status, Start Construction	Commercial operation
Rostov /Volgodonsk 2	V-320	1000	Const	2009
Kursk 5	RBMK	1000	Const	2010??
Severodvinsk	KLT-40S	40 x 2	Const	2010
Kalinin 4	V-320	1000	Const	2011
Beloyarsk 4	BN-800 FBR	800	Const	2012
Novovoronezh II -1	AES-2006 / VVER 1200	1200	Const 6/08	2012
Leningrad II-1	AES-2006 / VVER 1200	1200	Const 10/08	10/2013
Subtotal of 8		**6280 gross, 59800 net**		
Novovoronezh II -2	AES-2006 / VVER 1200	1200	Planned 2009	2013
Rostov /Volgodonsk 3	AES-2006 / VVER 1200	1200	Planned 2009	2013
Leningrad II -2	AES-2006 / VVER 1200	1200	Planned 2010	10/2014
Rostov /Volgodonsk 4	AES-2006 / VVER 1200	1200	Planned	2014
Seversk 1	AES-2006 / VVER 1200	1200	Planned 2010	2015
Tver 1	AES-2006 / VVER 1200	1200	Planned	2015
Baltic 1 (Kaliningrad)	AES-2006 / VVER 1200	1200	Planned 2010	2015
Leningrad II -3	AES-2006 / VVER 1200	1200	Planned	2015
Nizhegorod 1	AES-2006 / VVER 1200	1200	Planned	2016
Leningrad II -4	AES-2006 / VVER 1200	1200	Planned	2018
Baltic 2 (Kaliningrad)	AES-2006 / VVER 1200	1200	Planned	2016
subtotal of 11		**13,200 gross, 12,870 net**		
South Ural 1	AES-2006 / VVER 1200	1200	Proposed	2016
Novovoronezh II -3	AES-2006 / VVER 1200	1200	Proposed	2017 ?
Tver 2	AES-2006 / VVER 1200	1200	Proposed	2017
Seversk 2	AES-2006 / VVER 1200	1200	Proposed	2017
Tsentral 1	AES-2006 / VVER 1200	1200	Proposed	2017
Kola II - 1	VK-300 or VBER 300	300	Proposed	2017
Nizhegorod 2	AES-2006 / VVER 1200	1200	Proposed	2018
South Ural 2	AES-2006 / VVER 1200	1200	Proposed	2018
Kola II - 2	VK-300 or VBER 300	300	Proposed	2018
Novovoronezh	AES-2006 / VVER 1200	1200	Proposed	2019 ?

Plant	Type	MWe	Status, Start Construction	Commercial operation
II -4				
Tver 3	AES-2006 / VVER 1200	1200	Proposed	2019
South Ural 3	AES-2006 / VVER 1200	1200	Proposed	2019
Tsentral 2	AES-2006 / VVER 1200	1200	Proposed	2019
Kola II - 3	VK-300 or VBER 300	300	Proposed	2019
Primorsk 1	VK-300 or VBER 300	300	Proposed	2019
Nizhegorod 3	AES-2006 / VVER 1200	1200	Proposed	2019
Nizhegorod 4	AES-2006 / VVER 1200	1200	Proposed	2020
Tsentral 3	AES-2006 / VVER 1200	1200	Proposed	2019 ?
Tsentral 4	AES-2006 / VVER 1200	1200	Proposed	2020 ?
South Ural 4	AES-2006 / VVER 1200	1200	Proposed	2020
Tver 4	AES-2006 / VVER 1200	1200	Proposed	2020
Kola II - 4	VK-300 or VBER 300	300	Proposed	2020
Primorsk 2	VK-300 or VBER 300	300	Proposed	2020
Pevek	KLT-40S	40 x 2	Proposed	2020
subtotal of 25 units		**22,280**		

Source: WNA, 2008, pp 4-6

Annex 2

Major Russian Oil Pipeline projects

Major Russian Oil Pipeline Projects							
Name	Length (miles)	Cost	Current Capacity (th. bbl/d)	Expected Capacity (th. bbl/d)	Location	Completion Date	Notes
Adria Reversal Project	470	$300 Million for expansion.	100	300	Central Europe (Hungary, Slovakia) to Croatian Adriatic Port of Omisalj	Unknown - but once approval given--> immediate	Environmental hold-up in Croatia; Unlikely to move forward
CPC - Caspian Pipeline Consortium Expansion	940	$1.5 billion	540	1,330	Kazakhstan to Novorssiysk, RF	2009	Some agreements made, but still held up due to Russian insistence on higher tariffs
Baltic Pipeline System (BPS-II)	1,600	$500 million	1,000	1,300	Exports from Timan-Pechora region via Baltic Sea port of Primorsk and/or Ust-Luga	2011	Latest export capacity of 1.2 million bbl/d
Kharyaga-Indiga	320	$2-6 billion	0	500	Baltic Sea (NE of Primorsk)		Transneft proposal. Not ice-free like Murmansk.
Murmansk	various	$6 billion	0	3,000	Baltic Sea (NE of Primorsk)	none	Project for pipeline and terminal - Lukoil pipeline proposal, lost out to Indiga route
Eastern Pipeline (Taishet-Skovorodino-Perevoznaya)	2,480	$16-18 billion	0	1,000	Phase 1: Taishet to Skovoronio (near Lake Baikal). Phase 2: Skovorodino to Pacific Coast	2009 (First Stage)	2 stages: first to Skovorodino, and then to Pacific Coast. Environmental concerns with Lake Baikal and Perevoznaya Bay

Source: EIA, 2008, p. 8

Annex 3

Major Proposed Natural Gas Pipelines

Yamal-Europe II

The Yamal-Europe I pipeline, which carries natural gas from Russia to Poland and Germany via Belarus. Gazprom is seeking a route via southeastern Poland to Slovakia and on to Central Europe, while Poland wants the branch to travel through its own country and then on to Germany. Expansion is expected to be completed by 2010 at a cost of around $10 billion.

South Stream

In June of 2007 Italy's Eni and Gazprom signed a memorandum of understanding (MoU) on a feasibility study for the underground and first component of the South Stream project. The first component of the South Stream project plans to send natural gas from the same starting point as the Blue Stream pipeline at Beregovaya for 560 miles under the Black Sea. The second, onshore component will cross Bulgaria with two alternatives: one directed towards the northwest, crossing Serbia and Hungary and linking with existing gas pipelines from Russia; and the other directed to the southwest through Greece and Albania, linking directly to the Italian network. Russia and Bulgaria signed an intergovernmental agreement on the pipeline in January 2008. Gazprom expects the project to be completed in 2013.

Blue Stream Expansion and Interconnection

The Blue Stream natural gas pipeline connects the Russian system to Turkey through a pipeline that extendsa underneath the Black Sea . Natural gas began flowing through the pipeline in December 2002,. The launch of a new gas compressor station in Russia will allow the pipeline to run at its design capacity.

Nord Stream Pipeline

A northern pipeline extending over 2,000 miles from Russia to Finland and the United Kingdom via the Baltic Sea, was proposed in June 2003 by Russia and the UK, and was renamed Nord Stream by the stakeholders in 2006. About 700 miles of the pipeline will pass under the Baltic Sea. In November 2006, Gazprom (51% shareholder), and Germany's BASF and E.ON (24.5% each) submitted project information to Baltic Sea countries for the start of an environmental impact assessment. Offshore pipe laying is expected to begin between 2008 and 2010. The project is expected to cost more than $11 billion (or 7.4 billion Euros, two times as much as originally planned) . Project sponsors currently expect test deliveries by spring of 2011. The main advantage of this pipeline is Russia will no longer have to negotiate transit fees with nearly half a dozen countries or pay them in natural gas. A possible spur connection to Sweden has also been

considered. Polish and Latvian leaders have expressed frustration that they were not included in the negotiations.

Eastern Siberia and Natural Gas for China

The Kovykta natural gas field could provide China with natural gas in the next decade via a proposed pipeline. It will not arrive until 2012 at the earliest and since China is pursuing other natural gas import plans in the meantime, it is possible that Kovykta natural gas will not have a buyer. A comprehensive, independent analysis of the transportation options from the field is available from TNK-BP's website. The Kovykta field is operated by RUSIA Petroleum, which is 63 percent owned by TNK-BP. The finalization of a June 2007 'heads of terms' agreement stipulates that TNK-BP will be selling its stake in RUSIA Petroleum to Gazprom for $700-$900 million. (TNK-BP has sold its share.)

Source: EIA, 2008, pp. 12-13

About the author

Susanne Oxenstierna got her Ph.D. in economics at Stockholm University in 1991 with a thesis on the Soviet labour market. In 1992, she was recruited by the Swedish Ministry of Finance to set up a project office in Moscow and be part of a team that assisted the Ministry of Finance RF to reform their budget process, debt management, tax policy etc. In 1997, she started a four-year Sida project on reform of research and teaching in Public Economics at St. Petersburg State University. In addition, she worked with project preparation, result analyses, and evaluations of other Sida and EU projects in different East European and CC countries. She also taught at Uppsala University and at the Department of Economics of Stockholm University. Since 2001 Susanne has been working for several international consulting companies in EU TACIS/Phare/CARDS and DFID financed projects on different issues linked to public sector reform in Russia, Moldova and Western Balkans. Since February 2009 Susanne is a Senior Researcher at the Division of Defence Analysis of FOI.