



The Russian Oil Sector and the Global Oil Economy: A Prospectus

David Quayat

Concerned about dependence on imported oil, many U.S. policymakers have looked to Russia as a possible alternative to Saudi crude. Since 1998, Russian oil production has experienced impressive growth owing to higher average energy prices. While Russia does possess vast reserves of crude oil, however, its ability to provide the U.S. with an alternative to Middle Eastern oil is dubious given recent trends. Russia continues to attract relatively little foreign investment and its oil sector suffers from aging infrastructure that is already running at full capacity. Additionally, despite modest improvements in corporate culture and some legislative reforms, Russia remains ostracized by foreign oil firms. Without substantial modernization, particularly in upstream production and international transportation, Russia will not be able to provide the U.S. with a reliable, alternative source of crude oil.

Since the terrorist attacks of September 11, 2001, there has been increasing interest in the Russian oil sector, particularly among American legislators and policy makers. Key members of the U.S. government, including President Bush, have reinforced the perceived importance of Russia to the future of the world oil economy and energy security.¹ It has even been suggested that Russia could emerge as a challenger to Saudi Arabia's dominance of the world oil market.² Others however have been cynical of Russia's oil potential and have argued that Saudi Arabia's spare capacity and extensive reserves make it essentially untouchable as the leading global supplier of oil.^{3,4} Although Russia may not displace Saudi Arabia, its importance to the global oil market merits close scrutiny given increasing concerns over

David Quayat completed his Master's degree at the Johns Hopkins University School of Advanced International Studies (SAIS) in May, 2003. Upon graduation, he received the William C. Foster Award for scholarship, leadership, and distinguished service to SAIS. David is an international trade analyst at White & Case LLP.

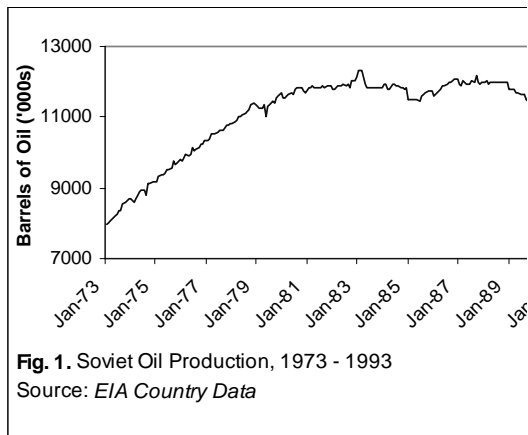
global oil security and the attention the Russian oil sector has been receiving both from policy makers and scholars.

The Russian oil economy has undergone significant change since 1992, and continues to be plagued by an inability to attract foreign capital, a regulatory scheme that is convoluted and a transportation system that is in urgent need of modernization. This paper presents an overview of the Russian oil sector through both the prism of developments since the end of the Cold War and projections of the structure of the world oil market. Included will be a survey of production and transportation issues, as well as a discussion of key players and policies both private and public. Russian oil production will be analyzed in a global context, including its potential challenge to Saudi Arabian production, and the future of exports to markets in the United States, Europe, and Asia. Finally, this paper will conclude with an overall assessment, including recommendations for the further development of Russia's oil sector, as well as the outlook for such reforms.

Russian Production and Reserves

The Union of Soviet Socialist Republics (USSR) was for much of the 1980s the world's largest producer of crude oil. The 1990s witnessed a collapse in Russian crude production to levels not seen since the 1970s, followed by a recent rebound in output that has made it the darling of American policymakers. Consistent gains in output since 1999 have brought Russia back to the top of global oil production, this time with much more of the oil being exported outside of the former Soviet Union.⁵

Two questions should be addressed in order to assess the potential of Russian oil production. First, can Russia's production increases be sustained in light of its infrastructure, and second, what are the longer-term prospects for reserve supplies? To answer these questions, an historical perspective is necessary.



The Soviet Union hit its production apex in late January 1982 when output reached nearly 12 million barrels per day (mb/d). The end of the Cold War however was devastating to the Russian oil sector. As Figure 1 shows, Russian oil production rapidly declined in the late 1980s, such that by 1993 it was at the same level as it was in 1973. The causes of the collapse of Soviet/Russian oil production are numerous and well documented.⁶

They include the collapse in domestic demand resulting from the meltdown of the Russian economy, and a lack of export infrastructure beyond the former Soviet Union that resulted in a major glut of oil in the Russian market. These problems were further compounded by poor oil field management and the scramble by Russia's oligarchs to acquire assets as they were privatized by the Russian government.⁷ Figure

2 shows that the downward trend in Russian production continued until 1997.

In 1998, a convergence of several events prompted the recovery of oil production in Russia. The first was the devaluation of the Russian ruble, which made Russian exports more competitive in international markets. In addition, Russian oil exports benefited from the recovery of world oil prices after OPEC's disastrous decision to increase production just as the Asian financial

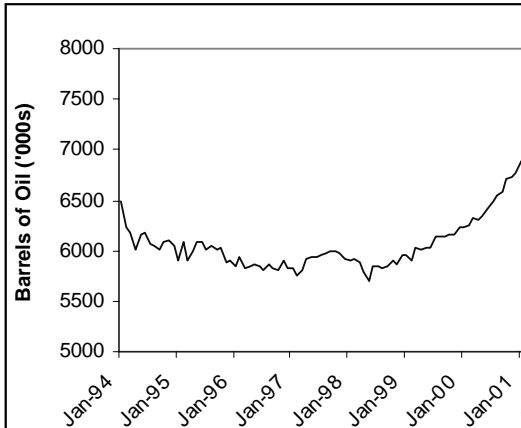


Fig. 2. Russian Oil Production, 1994 - Present
Source: EIA Country Data

crisis was getting underway.⁸ This convergence allowed Russian oil producers, now mostly in private hands, to net higher profits and invest further in the industry.⁹ Wells that were left idle since the early 1990s were brought back on line, and the life of older wells was extended. Capital investment rates have continued to increase in Russia, owing to sustained high oil prices in 2001 and early 2002. In 2000, over \$4 billion was invested in the Russian oil sector, nearly a third in drilling.¹⁰

Exploration and Production

Sustained capital infusions in developmental and exploratory drilling resulted in Russia experiencing its first increase in the number of active wells in over a decade in 1999.¹¹ The end of the 1990s witnessed the first increase in the amount of oil being generated by new wells.¹² The influx of capital has probably served as the trigger for new well development. This news is positive when considered against the balance of oil coming from new wells (less than five years old) as compared to Russia's overall output. However, as the International Energy Agency (IEA) notes, the number of idle wells in Russia continues to grow.¹³ Thus, in order to support sustained production increases, Russia has been forced to drill new wells. This new drilling has important implications for Russia's reserve position.

Recent news on Russia's upstream development has brought mixed tidings.

On the positive side, Russian majors continue to increase the number of new wells being brought online. In its annual report for 2001, Lukoil, Russia's largest oil producer, announced that it had completed 807 production wells, a 30 percent increase over the previous year.¹⁴ However, the vast majority of these wells were opened in Western Siberia, a region in which much exploration has already taken place, and the IEA forecasts will decline as a percent of total Russian output.¹⁵ New wells were also brought online by Lukoil in the underdeveloped region of Timan-Pechora, a region that is expected to be a major source of new Russian production.¹⁶ Lukoil rival, Yukos, has also focused on developing new wells, though as with Lukoil the majority of these new wells have been in Western Siberia. In 2001, approximately one-third of Yukos' new production came from newly drilled wells.¹⁷ On the negative side, Lukoil announced the closure of 5,000 wells.¹⁸ While reflecting a business decision at Lukoil, the news is indicative of the problems in Russia's production infrastructure.

Reserve Base

The development of new oil wells in Russia, while important to its continued production growth, raises several important questions and concerns. Chief among them is the future structure of Russian oil reserves and the costs of producing them. It is widely accepted that Russian production in recent years has outpaced its addition of new reserves, a trend confirmed most recently by Victor Kaluzhny, Russian special envoy for Caspian issues.¹⁹ Assessing Russia's crude oil reserves is a difficult if not impossible task. First, despite the fact that all of Russia's integrated oil companies publish reserve data, the official size of reserves remains a state secret. Second, Russian methodology for calculating reserves differs from Western countries.²⁰ Figures presented by Russian officials on reserve levels are often quite divergent. Recently, Russia's Energy Minister suggested that Russia possesses 12 percent of the world's oil reserves, compared with figures near 5 percent cited by other Russian officials and Western publications.²¹

Several sources agree that Russia currently holds 4.8 percent of the world's proven oil reserves. The future of Russia's reserves however is a source of much disagreement. Heads of both Lukoil and Yukos, eager to encourage foreign investment, offer an optimistic picture of potential discoveries, particularly in northern Russia, East Siberia, and the Caspian.²² Others however, are far more cautious, suggesting that Russia's reserves could be depleted before 2020 assuming continued increases in production.²³ Analysts have taken a middle of the road approach acknowledging that while Russian government figures are likely exaggerated, the reserve figures published by Russia's major oil producers are underestimated.²⁴

In considering Russian production and reserves, some important trends and difficulties can be observed. Regardless of the state of Russian reserves, most of Russia's current oil output comes from mature fields in Western Siberia.²⁵ While

developments have occurred both in the north and Far East, two thirds of current production comes from these already developed Western Siberian fields.²⁶ In addition, the average yield from Russian wells continues to decline. Old reservoirs have required costly investments to net further oil, raising production costs to dangerously uneconomic levels. In short, production increases in Russia are a result of pushing existing infrastructure to its limits, while supplementing them with additional wells in existing fields.

No major new finds have been made since the 2000 announcement that Russia's sector of the Caspian Sea contains approximately three billion barrels of new reserves. At current production levels, the discovery in the Caspian would only add about one year of productive life to Russia's oil sector. Second, exploratory drilling in Russia remains extremely weak, particularly in previously unexplored regions. Overall exploratory drilling has remained quite low since the collapse of the Soviet Union owing to a lack of capital investment. Of the 135 exploratory wells drilled by Lukoil in 2001, only 13 were in areas outside of Russia's traditional or mature production areas.²⁷ Additionally, approximately 60 percent of Russia's current reserves qualify as "difficult to recover."²⁸ Major producers in Russia have focused on consolidating easily accessible reserves while higher cost fields have gone unattended.

The question of the cost structure in Russia's oil production is a critical one, particularly if longer-term output increases are to be sustained. Russian oil typically costs \$5 to \$7/barrel to produce, compared with the \$1 to \$2/barrel in Saudi Arabia.²⁹ Many of Russia's undeveloped oil regions will cost even more to produce. Some figures suggest that difficult to extract crude could cost upwards of \$15/barrel.³⁰ Just as the Russian oil recovery in 1998 was triggered in part by high oil prices, sustained growth in output will also require sustained high prices. Some analysts have suggested that a dip in world oil prices below \$20 / barrel could put increasing pressure on Russian producers to avoid higher cost crude.³¹ Continued developments in Russia have reduced some of the production costs from many of Russia's major oil producers.³² Whether Russia's sustained production increases could survive a major downturn in oil prices is yet another untested hypothesis.

Forecasts for growth in Russia's oil production over the next decade are varied. Lukoil President Alekperov has suggested that Russia could reach production levels of approximately 9.1 mb/d by 2010.³³ Deutsche Bank forecasts put Russian oil production at over 9mb/d by 2007, a figure consistent with figures offered by Eugene Khartukov, head of the International Center for Petroleum Business Studies.³⁴ This growth potential provides Russia with an excellent opportunity to enhance its exports of oil and petroleum products. However, as will be discussed later, constraints on transportation infrastructure need to be overcome.

Growth in Russian oil production has and continues to be dependent on one major variable: capital investment. While Russia's oil producers have pursued a

wise strategy of capital reinvestment and asset maximization, it is well understood that foreign investment will be needed in order to sustain current production increases. Estimates on the amount of capital needed in the Russian oil sector range from \$5 to \$35 billion per annum over next the two decades.³⁵ Recent years have not produced the levels of foreign investment called for, and joint efforts by Russia and the United States have not generated significant new capital.³⁶ The reasons for a lack of foreign capital in Russia's oil sector continue to be an ineffective judiciary, complicated tax structure, and incoherent production-sharing legislation

The Role of the Russian Government in the Oil Sector

The Russian Government remains an important player in the Russian oil sector despite a shift in policy towards free markets and the government's continued divestiture of oil-producing assets. Instead of controlling oil production through state ownership, the Russian government now influences it through regulation and taxation, which are the core impediments to attracting increased foreign investment.

Legal analysis

The Law on Underground Mineral Resources, passed by the Duma in 1992 provides the basis for the exploitation of petroleum in Russia.³⁷ This law grants exclusive ownership of mineral resources to the government, permitting their use by state owned or private corporations through licensing. The issuance of a license requires dual approval from federal and state authorities, ensuring that regional interests play a significant role in the development of hydrocarbons. The role of regional authorities in the production of oil is not to be underestimated. Recently, the governor of the Nenets Autonomous Region threatened to block progress on the Kharyagansky oil project with TotalFinaElf because the Nenets Oil Company was passed over by the Russian government as a potential partner in the deal.³⁸

Perhaps the most criticized regulations regarding the Russian oil sector are those governing Production Sharing Agreements (PSAs). The PSA is a widely used tool within the OECD to permit foreign companies to enter a country and exploit a natural resource. The PSA usually supersedes other local or federal regulations, particularly those relating to taxes and other liabilities.³⁹ Instead of facing a potentially complex domestic tax structure, the foreign company negotiates with the host state on a formula that settles the distribution of proceeds. Other important conditions may apply to a PSA, including finding a domestic firm to partner with, and ensuring that a majority of the materials and labor used in the project comes from the host state. Currently, 27 PSAs have been approved in Russia; however, only three actually have proceeded into the development phase.⁴⁰

The reason cited for the continued failure of new PSAs to proceed to the development phase is the incomplete nature of Russia's PSA law. First, foreign oil companies are not permitted to decide on an oil field to be exploited via a PSA.

Rather, the government establishes a list of areas eligible for development, the most current list being approved in 1998. From this list, foreign companies can request a PSA from the Russian government. Ironically, since the passage of the PSA law in 1995, and subsequent amendments in 1998, foreign corporations have expressed interest in only seven of the nearly 27 project areas, the majority being in the Sakhalin Island area.⁴¹ Second, adoption of the PSA is then subject to ratification by federal and state authorities, who are free to impose further restrictions on foreign companies. Finally, the PSA law requires that 70 percent of the equipment used in a project comes from Russian sources, a condition that existing PSAs under development have failed to meet.⁴²

The existing PSA law, beyond containing very restrictive prescriptions, also contains several ambiguities that require legislative clarification. The first ambiguity is in the area of transportation. Presently, all pipeline construction and operations are conducted by the state owned company, Transneft. Construction of new pipelines to move oil and gas from the Sakhalin Island area has always been understood to be an important aspect of the project. However, the role of Transneft in the construction or operation of offshore pipelines remains unclear. Officials with the Sakhalin consortium have expressed fears that the pipelines would fall under the national monopoly provisions that govern oil transportation.⁴³ Such a designation would carry with it a number of tax and legal implications that the consortium would prefer to avoid. A similar situation recently arose with respect to the Caspian Pipeline Consortium, which was designated under the national monopoly regulations. A second and equally troubling ambiguity is the provision within PSA law that permits the federal government to unilaterally amend the requirements of an already signed PSA should a “significant change in circumstance” occur.⁴⁴ The meaning of that phrase has yet to be tested or defined by either the Duma or Russian courts.

Despite the ambiguities of the amended PSA law, progress on further reforms has been slow. The Ministry of Economic Development and Trade (MEDT) is preparing to submit amendments to the Duma dealing with the tax status of PSAs.⁴⁵ These clarifications have been made necessary by the lack of enabling legislation that the original PSA law required with respect to tax issues. These amendments will clarify what costs are to be deducted when calculating the tax liability of a PSA. While drilling and exploration costs are presently accounted for, other costs such as road and other infrastructure are not permissible tax deductions.⁴⁶ Russian officials have been skeptical of reforms to the PSA law. They fear that further amendment will permit exploitation by Russian vertically integrated companies (VICs) acting through foreign companies they own or control, thus securing tax and regulatory advantages.⁴⁷

Tax Code

Another major policy tool used by the Russian government to influence the

oil sector is the tax code. On January 2, 2002, a series of tax reforms went into effect including reductions in corporate and personal income tax. However, the tax code remains complicated, further discouraging foreign investment in the Russian oil sector. In addition, tax policy is used not only to generate revenue for the federal government, but it is also used to control export levels and prices on the domestic market. In so doing Russia's tax policy, combined with its management of the transportation system, has created huge disparities between prices for crude on the domestic market and world oil prices. Though the price gap had gradually closed over the 1990s, the 1998 financial crisis that prompted the devaluation of the Russian ruble caused the price gap to expand.⁴⁸ This tax policy has not only harmed Russian exports, but has also created a mechanism for Russian oil companies to escape tax liabilities.

Russia's taxation policies also have deterred investments because of the overall tax burden Russian oil companies have faced. Throughout the 1990s, Russian oil companies often faced tax bills that exceeded their total profits for the year.⁴⁹ Russian tax policies traditionally have focused on volume of oil extracted, not on the revenues generated from the sale. By basing the tax structure on volume as opposed to profit, the tax code penalizes projects with large up-front costs, rendering them uneconomic as compared to other tax regimes where profits are taxed.⁵⁰ Another difficulty with the Russian tax regimes is simply the number of taxes that must be paid to different state and federal authorities. This bureaucratic complexity is a deterrent to further growth and does not help to attract long-term foreign investment.

Protection of Foreign Investors

United States' interest in the Russian oil sector has caught the attention of the Russian government. This has led to the creation of working groups at the governmental level. This rejuvenated interest in Russia has helped the Russian government to improve its relations with the West, and has given President Vladimir Putin a new tool in the international arena. When coupled with Russia's continued dependence on the tax revenue generated from the energy sector, the Russian government has a vested interest in staying involved in domestic energy affairs. This likely means continued micromanagement of taxation policy, government monopolies in transportation, and PSA laws, to mold the Russian oil economy. The Russian government appears split over whether to maximize profits or protect its industry. A Russia interested in maximizing tax revenues and international clout could pursue further liberalization and reforms that encourage the foreign capital needed to achieve higher output. Alternatively, Russia could remain guarded about access to its resources, shut out foreigners with unworkable PSA laws and attempt to exert greater control over the private sector.

The Russian Duma has made some progress in reforming Russia's laws related to taxation and oil production, as well as investment protection particularly through the bankruptcy code. However, risks appear to be very high, leaving foreign

investors deterred from investing and Russian companies exploiting a system rife with loopholes.

Private Actors and the Russian Oil Sector

The most significant development in the Russian oil sector over the past decade has been in the transition to a market economy, and the privatization of oil production. Most of Russia's oil production is now in private hands, and the Russian government has recently continued its push to shed its remaining holdings in oil companies.⁵¹ The privatization process was far from smooth, with wealthy business oligarchs scrambling to swallow as many of Russia's oil producing assets as possible, even by extra-legal means.⁵² Non-Russian private actors have played a limited role in Russia's "private" oil sector, and their experiences have often been less than positive.⁵³ Russia's oil producers have continued to court foreign capital while consolidating assets at home.

When Russia's oil sector was privatized it was organized into several VICs. Currently Russia's ten VICs control approximately 90 percent of oil output, with the remainder being produced by Gazprom, Russia's government-owned producer of natural gas, and independent oil producers with output less than 10mt of oil per year.⁵⁴ Chart 1 shows the past, present, and forecast production by Russia's VICs. As the designation VIC suggests, Russia's VICs are also involved in both upstream and downstream operations, including retail sales within the Russian Federation.

	1998	1999	2000	2001	2002f
LUKoil	1268	1346	1515	1532	156
YUKOS	866	901	998	1170	140
Surgut	709	757	818	887	98
TNK	396	404	768	826	72
Sibneft	342	322	338	415	54
Tatneft	491	485	491	495	48
SIDANCO	350	336	194	192	32
Rosneft	243	248	269	301	32
Slavneft	237	240	247	288	30
Bashneft	303	265	241	239	24
ONACO	142	146			
TOTAL	5347	5450	5879	6345	689

Chart 1: Russian Production: A Company Perspective (000s bpd)

Source: Deutsche Bank Oil Market Outlook

Production in Russia is led by three major producers—Lukoil, Yukos, and Surgut—who continue to increase their collective share of crude oil production. However, while Russia's three largest companies continue to grow relative to total production by Russian VICs, their share of the overall Russian market is expected to decline, owing to increased production from joint ventures and Gazprom. If forecasts continue to hold, however, Russia's oil output will be concentrated in fewer and

fewer hands. In 1998, only three companies produced more than 10 percent of output among Russian majors, and the five largest Russian oil companies produced roughly 70 percent of output. It is expected that by 2007, the five largest VICs in Russia will control 85 percent of output among Russian majors, reflecting anticipated consolidation in the Russian market. The most recent merger announcement of Yukos and Sibneft is indicative of this movement towards consolidation.⁵⁵

Fig. 3. Russian Oil Production by VICs - 1998

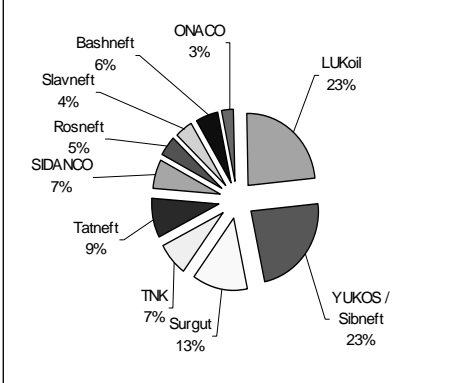
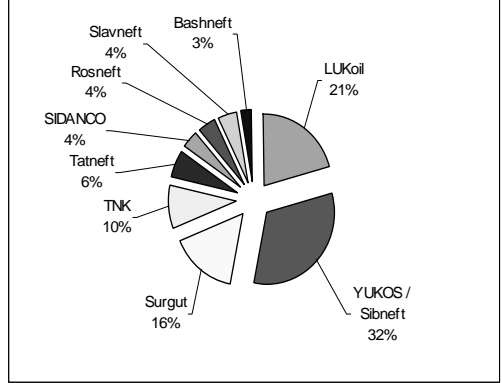


Fig. 4. Russian Oil Production by VICs - 2007



More important than the share of production is the share of reserves held by Russia's largest oil companies. Unlike oil production in 2001, which was led by a small number of firms, reserves in Russia are more evenly divided. Lukoil and Yukos lead the way with approximately 23 and 20 percent, respectively, of reserves held by Russia's VICs. Four other firms hold 10 percent or more of reserves among Russian majors. In comparing reserves held with output, a measure of sustainable production, output by Russian VICs is mixed. Lukoil and Surgut appear to be overproducers, while Yukos continues to underproduce. Yukos' merger with Sibneft will give it the largest reserve base in Russia. It is worth noting here that an evaluation of oil reserves held by Russian majors compared with reserves attributed to the Russian Federation produces strikingly different figures, making effective comparisons difficult.

Performance by Russia's VICs has been steady over the past three years, with several trends noticeable. Russian oil companies have made transition to Western-style business techniques an important priority. Russia's VICs have established a corporate presence in the media and on the Internet, and boast about commitments to transparency in corporate governance. Many of Russia's oil companies now release financial information according to American accounting standards, and auditing of proven and probable reserves has become common practice. Despite this, Russia's oil industry continues to be dominated by a privileged elite in Russia. When President Putin came to office, he pledged to curb the power of the oligarchs. According to some sources, this pledge has gone unfulfilled.⁵⁶

Recent financial data from Russian majors has shown that their performance slipped in 2001 and could continue to do so through 2002. Lukoil and Yukos both reported profits declining by as much as 25 percent in 2001, with analysts expecting the decline to continue through 2002.⁵⁷ The weakening of profits can be generally attributed to three factors. First, the price for a barrel of Russian crude has slipped from its high in 2000.⁵⁸ Although the decline has not been drastic, increasing reliance on export revenues has increased their exposure to price volatility. Second, financial reports from Russia's majors show increased production costs as a cause for declining profits. As the discussion above on production indicated, older infrastructure is being pushed to its limits, resulting in an increase in capital costs. Finally, a depreciating ruble vis-à-vis the U.S. dollar has driven costs up for imported equipment and materials.

	Reserves	% of Reserves
LUKoil	14,280	23%
YUKOS	12,500	20%
Surgut	6,990	11%
TNK	8,200	13%
Sibneft	4,720	7%
Tatneft	6,140	10%
Rosneft	6,415	10%
Slavneft	2,820	4%
Bashneft	1,350	2%
Total	63,415	

Chart 2: Reserve / Output Comparison Among Russian Reserves and Output in '000s of Barrels
Sources: *Deutsche Bank, Prospect Investments*

The overriding theme among private actors in the Russian oil sector continues to be asset consolidation. Numerous small inter-company transactions have been reported that reinforce this trend. The theme has also carried over into the annual financial statement of Russia's VICs. Generally speaking, asset consolidation has involved the purchase of smaller entities by larger Russian oil companies such as Lukoil, Yukos, and TNK.⁵⁹ Some analysts have forecast continued consolidation will result in the number of VICs declining to five over the medium term.⁶⁰ Some of this consolidation has occurred as VICs have acquired shares in Russia's state-owned oil sector. For example, Sibneft and TNK recently acquired the government's controlling interest in Slavneft, one of the few oil producers left in government hands. It is expected that Sibneft and TNK will divide up the assets, paving the way for a possible merger between the two companies.⁶¹

As discussed previously, foreign private actors have played a peripheral role in structuring Russia's oil sector. British Petroleum (BP) has been the most signifi-

cant foreign player in Russia, owning a minority stake in the Russian producer Sidanko, an affiliate of TNK. However, this investment has not been without its difficulties, and has even required intervention by American political leaders to ensure its viability.⁶² The Chinese National Petroleum Company recently made a push to acquire Slavneft.⁶³ Many in Russia were opposed to the idea of foreign ownership of Russian companies, and the Duma even took up a resolution urging the government to ensure that the buyer was a Russian firm.⁶⁴ Foreign participation has more typically taken place through joint ventures (JV) or via production sharing agreements (PSA). ExxonMobil has been a major player in the development of oil reserves off of Sakhalin Island as well.⁶⁵

Russian Oil Exports

Like its production, Russia's crude oil exports have risen steadily since 1997. Forecasts for 2002 have placed total exports at approximately 5mb/d.⁶⁶ Approximately 1.3mb/d is exported to the other republics of the former Soviet Union.⁶⁷ Russia's dominance in this market is attributable to its pipeline system, which was constructed to serve Soviet satellites during the Cold War. Of Russia's remaining exports, approximately 3mb/d finds its way into the Western European market including Germany, France, the United Kingdom, and Switzerland.⁶⁸ During the summer of 2002, Russia also made its first oil deliveries to the United States, although it was mostly a ceremonial gesture ahead of energy talks held in October.⁶⁹ The steady rise in Russian oil exports makes it the second largest exporter behind Saudi Arabia.

Assuming Russia could overcome obstacles to increasing its production capacity, the road to becoming a major global oil supplier requires transportation infrastructure to support surging exports. Russia's existing oil pipeline and export network, such as port facilities largely inherited from the Soviet era, was designed to bring oil to communist satellites of eastern Europe only.⁷⁰ This transportation network has been and continues to be converted to service other European and Western markets. Much like its upstream production, Russia's transportation infrastructure is aging and in need of renovation. In addition, with existing transportation infrastructure already operating at peak capacity, Russia will need to either expand the capacity of existing routes, or add entirely new pipelines in order to meet growing production. As with expanded capacity, the ability to move more oil to market will require serious investment, which so far has been limited.

The collapse of the Soviet Union had serious consequences for the Russian pipeline system. First, Russia found itself with a significant portion of its pipeline system now in foreign countries. The Baltic ports of Ventspils and Butinge, and the Druzhba pipeline represent important components of the Russian export system now outside of Russian territory. This means that Russian oil companies face additional transportation tariffs charged by the former Soviet republics. For example, oil shipped to the Czech Republic or Germany via the southern branch of the Druzhba pipeline

face three or four sets of tariff charges for shipment, significantly raising the price of exporting oil. The alternatives to the pipeline system through eastern Europe are very limited for Russian exporters. The most significant transport facilities are the Black Sea ports of Tuapse, Novorossiysk, and Ozervka.⁷¹ In 2000, over half of Russia's oil exports traveled through the Bosphorus.⁷² Russia's Black Sea facilities are currently operating above their capacity, with additional oil from the Caspian Pipeline Consortium (CPC), mostly Kazakh oil, further straining the system.

Very little new pipeline construction has occurred in Russia during the last five years owing in part to a lack of government expenditure of foreign investment in pipeline construction. The most significant project to date has been the Baltic Pipeline System (BPS), connecting Yaroslval to the Baltic port of Primorsk. Currently, the BPS pumps 240,000b/d, with an expansion to 360,000 expected by the end of 2003.⁷³ Transneft, Russia's government-owned pipeline operator recently filed with the government its intention to proceed with phase II of the BPS upgrade.⁷⁴ The construction of BPS has allowed Russia to avoid paying transit fees through Baltic states on the way to the Ventspils facility. However in reducing its dependence, Russia is not expanding its export capacity; rather it is diverting exports. Since the activation of the BPS, oil shipments to Ventspils have fallen considerably.⁷⁵ Other pipeline projects have been relatively minor, aimed at further reducing Russia's dependence on foreign transit providers. For example, the Ukraine by-pass pipeline was constructed to reduce the tariffs faced by Russian oil flows through Ukraine on the way to the Black Sea ports.⁷⁶ A by-pass was also built for the pipeline traveling through Chechnya.

Several new pipeline projects are currently under consideration although many are several years away from commencement. A pipeline to China is one of the most ambitious projects being studied. The governments of China and Russia agreed to study the project, and a final investment decision is expected in the near future. The cost of the pipeline would be significant, estimated to be upwards of \$6 billion. It would allow Russia to transport approximately 600,000b/d to China by 2010.⁷⁷ An alternative pipeline to bring oil to the Pacific via Nakhodka is also being considered. This project would allow Russia to export beyond China, at a capacity of 1.2mb/d.⁷⁸ However, the Pacific project would require a much longer pipeline and the construction of new port facilities on Russia's east coast, raising the cost of the project considerably. Another major project is a pipeline and deepwater port facility at Murmansk in the Russian far north. A memorandum of understanding for this project was signed on November 27, 2002, between Transneft, Lukoil, and Yukos with project completion scheduled for 2007.⁷⁹ This project would permit easy access to European and American markets.

The operation of Russia's pipeline system is an important issue when analyzing oil transport in Russia. Unlike other Russian oil assets, the operation of the pipeline system has remained in government hands. Transneft is nominally a fee-for-

service carrier responsible for providing equitable access for Russian oil companies.⁸⁰ Tariffs charged by Transneft have been historically volatile in Russia, representing the most significant cost of exporting oil. Transneft recently made waves by announcing a rate freeze for 2003.⁸¹ Construction of new pipelines has typically been financed by the government, in part through profits accumulated by Transneft, or special taxes assessed against all oil producers. Given the serious debt obligations facing the Russian government in the coming years, and the billions of dollars that will be needed to construct some of the loftier projects under consideration, Russia may need to consider alternative financing arrangements to meet its capital needs.

Analysts vary greatly in their assessment of the future of Russia's export capacity.. The ESAI has put Russian export capacity to markets outside of the former Soviet Union at just over 3mb/d by 2005 and 4.2 mb/d by 2010.⁸² Slightly more optimistic estimates have been advanced by Eugene Khartukov who believes Russian exports outside of the former Soviet Union will reach 3.9mb/d by 2005 and upward of 6mb/d by 2010.⁸³ With Russia's pipeline system already working at peak capacity, further increases in output will only antagonize bottlenecks to Russia's export ports. Several analysts suggest that a sensible policy by Transneft and the Russian government would be to continue pipeline development, regardless of the current price of oil.⁸⁴ In addition, with demand growth in Asia expected to outpace that of North America, Transneft will need to seriously examine Russia's limited Asia export capacity and act accordingly. Russian strategists realize this, and thus most proposals for new pipelines in Russia focus on delivery to the Asian market.

Russian Oil in the World Oil Market: A Forward-Looking Assessment

Given the above analysis of Russia's upstream oil production and transportation system, a broader analysis of the role of Russian oil can be conducted. As noted from the outset, interest in Russian crude oil production has increased since September 11, 2001, with many policy makers and analysts arguing that Russia could rival Saudi Arabia in the American oil market and in the context of global energy policy more generally. Considering the limitations of and issues with Russian reserves, infrastructure, government policy, business practices, legal system, pipeline system, and export network, this optimistic assessment of Russia's future role seems at best generous, and at worst naive. Russia's importance in the global oil market will no doubt increase over the next decade. But neither the realities of Russia's oil sector nor the forecasted structure of global oil demand in the coming years support the conclusion that Russia will be able to assert any form of dominance.

In evaluating the importance of potential increases in Russia's production and export capacity, it is important to keep in mind the forecasts for global oil demand until 2010. Deutsche Bank analysts have suggested that by 2005 global oil consumption will reach 81mb/d, representing a 3.5mb/d jump over 2002 levels.⁸⁵ During the same period, Russia's export capacity is expected to rise less than 1.0mb/

d. Furthermore, Russia is not expected to add any export infrastructure by 2005 that will give it the ability to ship economically far from Europe. Thus Russia will need to rely on its traditional markets in Europe to absorb its exports. However, demand growth in Europe through 2005 is expected to be weak, especially given the economic slowdown currently plaguing that region. Russia's ability to export to the European market only may put downward pressure on Russian oil prices by saturating western Europe with more oil than it requires, affecting Russia's ability to finance additional expansion of production or transportation.

Looking to Russia's eastern neighbors, Asia is expected to be a source of major demand growth over the next decade. Over a longer time horizon and assuming Russia completes some of the major Asian pipelines that are being proposed, prospects for Russia's oil exports can improve. Additionally, Chinese fears over energy source security may prompt it to seek a diversified supply, giving Russia an excellent opportunity to expand its presence in the Asian market. However, optimism here must also be tempered with the realities of Russia's limited infrastructure. Assuming a best case scenario for production and pipeline development, by 2010 Russia could potentially export upwards of 1.0 – 1.5mb/d to the Asian market.⁸⁶ Oil demand in the region is forecast to grow by 4.3mb/d by 2010.⁸⁷ Thus, even if Russia could bring new production and distribution online, it would only be able to account for approximately 25 percent of new oil demand in the region.

In North America, growth in Russian oil sector's export capacity could play a more significant role. Forecasts through 2010 put American demand growth for oil between 2.5 to 4.0mb/d. Successful conversion of the Druzhba-Adria pipeline system, as well as expansions at Primorsk and completion of Murmansk would give Russia the ability to export between 1.0 to 1.5mb/d to the United States. This could mean that Russia could conceivably provide 50 percent of the new oil demand in the United States. However, this would leave existing American imports of 10mb/d of oil dependent on the Middle East and Venezuela. Thus, while Russia does offer the United States an opportunity to temper further dependence on Middle East crude, it is virtually impossible for the Russian oil sector to make inroads against present American dependence on Saudi Arabia.

In sum, Russia's role in the global oil sector could grow over the next decade, assuming it is able to increase both its production and export capacity, and restructure its legislation and government policies. However, its role will be limited to making gains based on expanded global demand in key markets including the United States and Asia. It will be unable to meet all of the forecasted growth in oil demand, at best 25 percent in the Asian market and 50 percent in the American market. Thus, while this may provide some insurance against further dependence on Middle Eastern or Latin American oil, it will do little to reverse existing U.S. dependencies. Steady oil prices in the low \$20/barrel range that are forecast give Russia a reasonable chance at filling this role.

Conclusion: Where Can Russia Go From Here

First and foremost, Russia needs to improve its investment climate in order to attract the capital necessary to facilitate expansion in production and distribution. Foreign investment in Russia continues to fall below the levels envisioned both by outside analysts and Russian government officials. Clarifying laws on PSAs and simplifying the tax code are essential in the short term to reverse stagnant foreign investment trends. In addition, the role of the Russian oligarchs continues to make the news in the western media. While major legal battles, such as the one involving BP and Sidanko, have not come to the fore in recent years, the ongoing perception of the power of the oligarchs does not inspire confidence among investors.

Over the next decade, the Russian oil industry appears best suited to take a niche or limited role. Given that the Russian government will likely be forced to finance, at least in part, major pipeline infrastructure development and that foreign investment is not likely to reach desired levels, Russia should consider picking a limited array of markets and developing the appropriate resources. Based on recent projections, China and other Asian countries will have the highest oil demand growth in the world over the next decade. Russia is already strategically placed to play a role here given developments in the Sakhalin region. Reinforcing this with export capacity in the East, whether through China or to Russia's Pacific basin would allow Russia to tap a potentially large market. Alternatively, Russia could pursue a "fuel-America" strategy. This would certainly bring Moscow politically closer to the United States, and would probably be less costly and more probable in a shorter time period than the Asia strategy.

The Russian oil sector and its potential future role in the global oil economy present an interesting set of interactions between government and private actors, as well as strategic considerations. Russia and the United States should not be under any illusion that Russia can compete with Saudi Arabia as the dominant player in the global oil market, as Russia lacks both the surge capacity and the export infrastructure. Additionally, Saudi oil will continue to enjoy a comfortable cost advantage over Russian crude, which also tends to be of lower quality.

However, being unable to displace Saudi Arabia's role over the next decade does not prevent Russia from becoming a more significant player in global oil markets. Several countries continue to have concerns about oil source security, including the United States, Asia, and Europe. Russia presents an excellent opportunity to diversify their supply. Whether Russia will be able to play that role is a question largely of restructuring infrastructure, laws, and target markets. These are matters that the Russian government must control, though a little good luck in terms of oil prices certainly could not hurt.

NOTES

¹ Secretary of Energy Spencer Abraham has publicly stated “Russia will play a pivotal role in ensuring global energy security.” See Peter Baker, “Russia Sees U.S. as New Market for Oil Reserves; Deals Could Ease Washington’s Reliance on Mideast, Create Windfall for Moscow,” *Washington Post*, 8 September 2002, A25. See also “President Bush, President Putin Announce New Energy Dialogue,” 25 May 2002. Available at: <http://www.whitehouse.gov>; 12 October 2002.

² See generally Edward L. Morse and James Richard, “The Battle for Energy Dominance,” *Foreign Affairs* (March-April 2002): 16-31.

³ Shibley Telhami and Fiona Hill, “America’s Vital Stakes in Saudi Arabia,” *Foreign Affairs* (November-December 2002): 168-9.

⁴ Adullatif A. Al-Othman, “The Reliable Supplier,” *Foreign Affairs* (November-December 2002): 174-5.

⁵ Energy Information Administration, “Russia Country Analysis Brief,” April 2002. Available at: <http://www.eia.doe.gov/emeu/cabs/russia.html>; 5 October 2002.

⁶ See generally Robert Ebel, “Russia: Breakthrough or Breakdown,” *Geopolitics of Energy* Vol. 22 (February 2000): 8-12.

⁷ For a discussion of the role of the oligarchs in Russia see generally David Hoffman, *The Oligarchs: Wealth and Power in the New Russia*, (New York, 2002).

⁸ For a discussion on decision to increase output see generally Wilfrid L. Kohl, “OPEC Behavior, 1998-2001,” *The Quarterly Review of Economics and Finance* Vol. 42, no. 2 (2002): 209-33. Available at: <http://www.sciencedirect.com/science/journal/10629769>

⁹ Energy Information Administration, “Russia Country Analysis Brief.”

¹⁰ International Energy Agency, *Russia Energy Survey 2002* (France, 2002), 73.

¹¹ *Ibid.*, 74.

¹² Matthew J. Sagers, “Developments in Russian Crude Oil Production in 2000,” *Post-Soviet Geography and Economics* Vol. 42 (2001): 166.

¹³ IEA, *Russia Energy Survey 2002*, 74.

¹⁴ The term “Russian Majors” refers broadly to the oil companies referenced in Chart 2. Lukoil, *Annual Report for 2001*, (2002), 8-12. Available at: http://www.lukoil.com/report/year_reports_all.htm; 2 December 2002.

¹⁵ IEA, *Russia Energy Survey 2002*, 73.

¹⁶ Lukoil, *Annual Report for 2001*, 10-2.

¹⁷ Yukos, *Annual Report for 2001: Drilling and Exploration*, 2002. Available at: www.yukos.com; 2 December 2002.

¹⁸ “Russian Oil Company to Close Unproductive Wells in Restructuring Programme,” *Global News Wire*, 23 April 2002 [Lexis/Nexis, 12 March 2003].

¹⁹ “Active Oil Reserves in Russia are Sufficient for 15 Years,” *The Russian Oil and Gas Report*, 4 November 2002 [Lexis/Nexis, 12 March 2003].

²⁰ IEA, *Russia Energy Survey 2002*, 71.

²¹ See “For Provision of Oil Production Growth in Russia it is Necessary to Invest \$50 Billion,” *The Russian Oil and Gas Report*, 4 October 2002 [Lexis/Nexis] citing Russian reserves as 12 percent of global reserves compared with the 5 percent figure cited by British Petroleum in *BP Statistic Review of World Energy 2001*. Available at: www.bp.com; 1 December 2002.

²² “CEO of Yukos Presented His Own Version of Russia’s Energy Strategy,” *The Russian Oil*

and Gas Report, 23 October 2003 [Lexis/Nexis]; “Lukoil Head Posts Forecasts on Russian Oil Reserves,” *RosBusinessConsulting Database*, 31 October 2002 [Lexis/Nexis].

²³ “For Provision of Oil Production,” *The Russian Oil and Gas Report*.

²⁴ *Ibid.*

²⁵ Mature fields are those that have been in production for some years and where the rate of crude extraction has diminished, requiring further techniques to extract oil, such as water or gas injection. Mature fields result in higher production costs.

²⁶ IEA, *Russia Energy Survey 2002*, 73.

²⁷ Lukoil, *Annual Report for 2002*, 9.

²⁸ IEA, *Russia Energy Survey 2002*, 74-6. Difficult to recover reserves are those found in complex geological formations, often requiring more difficult and highly costly drilling equipment and techniques.

²⁹ “Active Oil Reserves in Russia are Sufficient for 15 Years,” *The Russian Oil and Gas Report*.

³⁰ *Ibid.*

³¹ Vlada Tkach, “Global View: The Great Bear Market – Russia,” *Investors Chronicle*, 1 March 2002, 32-3 [Lexis/Nexis, 7 December 2002].

³² Bill Powell, “Russian Oil,” *Fortune Magazine*, 13 May 2002, 88.

³³ “Lukoil Head Posts Forecasts on Russian Oil Reserves,” *RosBusinessConsulting Database* 31 October 2002.

³⁴ Deutsche Bank, *Oil Market Outlook: OPEC’s Balancing Act*, 5 September 2002, 48. Eugene Khartukov, “Russia’s Oil Exports: Myth and Realities,” presentation to the International Petroleum Executive Seminar, Johns Hopkins SAIS, Washington, D.C., 17-8 October 2002.

³⁵ “Ursula Hyzy, “Russia Crucial to Energy Security in Coming Decades: IEA,” *Agence France Presse*, 22 September 2002 [Lexis/Nexis]. “Russia Sitting on Slick Profits,” *The Russia Journal Daily*, 10 December 2002. Available at: www.russiajournal.com; 14 December 2002. “For Provision of Oil Production Growth in Russia it is Necessary to Invest \$50 Billion,” *The Russian Oil and Gas Report*. Sagers, “Developments in Russian Crude,” 169.

³⁶ IEA, *Russia Energy Survey 2002*, 87.

³⁷ IEA, *Russia Energy Review 2002*, 78-9.

³⁸ “TotalFinaElf is Accused of Artificial Increase of Expenses on Kharyaginsky Project,” *The Russian Oil and Gas Report*, 14 August 2002 [Lexis/Nexis, 7 December 2002].

³⁹ IEA, *Russia Energy Survey 2002*, 81-3.

⁴⁰ *Ibid.*, 86.

⁴¹ *Ibid.*

⁴² “Russian Deputy Premier Downbeat on Production Sharing Agreements,” *Global News Wire*, 1 August 2002 [Lexis/Nexis, 6 December 2002].

⁴³ “Sakhalin Energy Threatens to Suspend Developments of the Sakhalin-2 Project Worth \$8.5 billion,” *The Russian Oil and Gas Report*, 22 November 2002 [Lexis/Nexis, 12 December 2002].

⁴⁴ IEA, *Russia Energy Review 2002*, 84-5.

⁴⁵ “Duma to Debate Uniform Bill on Amendments and Supplements to Production Sharing Law,” *The Russian Oil and Gas Report*, 13 November 2002 [Lexis/Nexis, 5 December 2002].

⁴⁶ “Expert of Yukos on Experience Accumulated in Attempts to Sign Production Sharing Law,” *The Russian Oil and Gas Report*, 5 July 2002 [Lexis/Nexis, 7 December 2002].

⁴⁷ IEA, *Russia Energy Survey 2002*, 84.

⁴⁸ *Ibid.*, 77.

⁴⁹ *Ibid.*, 80.

⁵⁰ *Ibid.*, 82-3.

⁵¹ Eugene Kartukov, "Russia's oil majors: engine for radical change," *Oil & Gas Journal*, 27 May 2002, 22. Recently the government of Russia has liquidated its remaining shares in Lukoil (5 percent) and all of its shares in Slavneft. See "Moscow Sells 5.9% of Lukoil for \$775M," *Global News Wire*, 5 December 2002 [Lexis/Nexis]; and Catherine Belton, "Sibneft, TNK Snap Up Slavneft for \$1.8Bln," *Moscow Times*, 19 December 2002 [Lexis/Nexis, 3 December 2002].

⁵² Khartukov, "Russia's oil majors."

⁵³ Barry A. Curtis and James R. Harrison, "Rising Russian oil production must deal with transportation, business issues," *Oil & Gas Journal*, 27 May 2002, 68.

⁵⁴ Deutsche Bank, *Oil Market Outlook*, 48.

⁵⁵ Andrew Jack, "Russian oil rivals Yukos and Sibneft merge," *Financial Times* (April 21, 2003).

⁵⁶ Peter Baker, "Oligarchs' Power Unfettered Under Putin," *The Washington Post*, 14 December 2002, A18.

⁵⁷ "Yukos Released Financial Statements According to US GAAP Standards," *The Russian Oil and Gas Report*, 25 October 2002 [Lexis/Nexis, 3 December 2002]. "Lukoil Says 2002 Profit to Shrink 5% to \$2 Bln," *The Moscow Times No. 2570*, 22 November 2002 [Lexis/Nexis, 5 December 2002]. "Surgutneftegaz Released Financial Statements for 2001 According to US GAAP Standards," *The Russian Oil and Gas Report*, 22 November 2002 [Lexis/Nexis, 27 November 2002].

⁵⁸ The price of Russian crude oil did receive a boost in the first half of 2003 owing to invasion of Iraq. However, that boost has been short-lived. See generally Energy Information Administration, "World Crude Oil Prices," 4 July 2003. Available at: ftp://ftp.eia.doe.gov/pub/oil_gas/petroleum/data_publications/weekly_petroleum_status_report/current/txt/table12f.txt; 29 July 2003.

⁵⁹ "Consolidation of Russian Oil and Gas Industry Continues," *The Russian Oil and Gas Report*, 8 July 2002 [Lexis/Nexis, 28 November 2003].

⁶⁰ *Ibid.*

⁶¹ Belton.

⁶² Curtis and Harrison.

⁶³ "China's energy giant CNPC withdraws from Russian oil sell-off: report," *Agence France Presse*, 17 December 2002 [Lexis/Nexis, 11 February 2003].

⁶⁴ Andrew Jack and David Stern, "Chinese group 'pulls out of Russian oil sale'," *Financial Times*, 18 December 2002, 27.

⁶⁵ See generally Deutsche Bank, "Big Oil in Sakhalin," 2 December 2002.

⁶⁶ EIA, "Russia Country Analysis Brief."

⁶⁷ Kharukov, "Russia's Oil Exports."

⁶⁸ IEA, *Russia Energy Survey 2002*, 91-2.

⁶⁹ Peter Baker, "Russia Sees U.S. as New Market for Oil Reserves," *The Washington Post*, 8 September 2002, A25.

⁷⁰ Energy Information Administration, "Russia: Oil and Natural Gas Export Pipelines," April

2002. Available at: <http://www.eia.doe.gov/emeu/cabs/russexp.html>; 5 October 2002.

⁷¹ IEA, *Russia Energy Survey 2002*, 94-5.

⁷² Ibid.

⁷³ "More oil to more destinations," *Petroleum Economist* (August 2002): 24.

⁷⁴ EIA, "Russia: Oil and Natural Gas Export Pipelines."

⁷⁵ "Oil Transit in Latvia has no Perspective," *Baltic News Service*, 19 November 2002 [Lexis/Nexis].

⁷⁶ IEA, *Russia Energy Survey 2002*, 98-9.

⁷⁷ "Projects aim to speed flow," *Lloyd's List*, 9 December 2002 [Lexis/Nexis, 16 December 2002].

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ IEA, *Russia Energy Survey 2002*, 89.

⁸¹ "Russia: Transneft Jolts Oil Industry with Rate Freeze," *Global News Wire*, 19 December 2002 [Lexis/Nexis].

⁸² Sarah Emerson, ESAI, "World Oil Supply and Demand," Presentation to the International Petroleum Executive Seminar, Johns Hopkins SAIS, Washington, D.C., 17-8 October 2002.

⁸³ Khartukov, "Russian Oil: Myths and Realities."

⁸⁴ "More Oil To More Destinations" *Petroleum Economist* (August 2002), 24.

James R. Harrison and Barry A. Curtis, "Rising Russian oil production must deal with transportation, business issues," *Oil & Gas Journal*, 27 May 2002, 66-7.

⁸⁵ Deutsche Bank, *Oil Market Outlook*, 33-5.

⁸⁶ This assumes that major pipeline projects to Russia's Far East or China are completed prior to 2010.

⁸⁷ Deutsche Bank, *Oil Market Outlook*, 33-5.