Russia: An Aspiring Energy Superpower with Feet of Clay

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Introduction

Russia is a major player in world energy markets. It has more proven natural gas reserves than any country, is among the top ten in proven oil reserves, is the largest exporter of natural gas, the second largest oil exporter, and the third largest energy consumer. Energy exports have been a major driver of Russia's economic growth over the last ten years as Russian oil production has risen strongly and world oil prices have been very high. This type of growth has made the Russian economy dependent on oil and natural gas exports and vulnerable to fluctuations in oil prices.

The Russian government has moved to take control of the country's energy supplies. It broke up the previously large energy company "Yukos" and acquired its main oil production subsidiary. In Central Europe, Russian firms with close links to the Russian government have used leverage to buy energy companies to gain control over energy supply. In East Asia, Russia is contemplating a pipeline destination that would allow it to decide to whom its oil gets sold. Also, Russia briefly cut off gas supply to Ukraine because the latter did not agree to greatly increase what it pays for the gas. Russia restored supply after other affected European countries complained. Much of Russia's gas exports to Europe pass through Ukraine. The dispute was resolved temporarily through a compromise.

A number of proposals would build new or expand existing Russian oil and gas export pipelines. Some are contentious, and although the Russian government is faced with a perceived need to expand its oil and gas export capacity, it also has limited resources.

Having lost its status as a superpower with the dissolution of the former Soviet Union in 1991, Russia now aspires to emerge as an energy superpower so it may be able to flex its muscles on the international scene. Its aspiration is underpinned by what is believed to be its vast proven reserves of oil and natural gas, competition for dwindling global oil reserves and Europe's dependence on Russian gas exports.

Today Russia is the only country that is a major exporter of all the three hydrocarbons – oil, gas and coal. But it is also a major exporter of timber, metals and minerals. As if this is not enough, Russia has no outstanding debt to western banks and, along with Brazil, is the only major country to have significant underutilized farmland to grow the food or biofuels the world needs. It will take great diplomatic skill and coordinated political will if the West is to now forge a political accommodation with Russia that will allow the Caspian and Central Asian oil and gas to flow freely to western markets.

Russia's control of nearly 30% of Europe's gas supplies is a key plank of its foreign policy and renewed national pride; supply of cheap electricity and heat to Russian homes is a touchstone of the Russian government's credibility. Central Asia is now undermining both those fundamentals – and could threaten Putin's petro-politics.

But with fast declining proven reserves of crude oil and growing domestic demand for natural gas and also with its export routes reaching capacity and being constrained by political and environmental
considerations, Russia may find it extremely difficult, if not impossible, to become an energy superpower. Instead, energy supplies could prove to be Russia’s “Achilles’ heel”.

**Russian Proven Crude Oil Reserves**

Russia’s crude oil reserves were estimated by the Oil & Gas Journal at 48.6 billion barrels (bb) at the end of 2003. However, allowing for a production of 21.36 bb during the period 2004-2009 and an average 12% reserve replacement (2.56 bb) during the same period, this should give a figure of 29.80 bb for Russian proven reserves at the end of 2009, 44 bb less than the figure given by BP Statistical Review of World Energy in its June 2010 issue (see Table 1).

<table>
<thead>
<tr>
<th>BP Statistical Review</th>
<th>O&amp;G Journal</th>
<th>My Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>74.20</td>
<td>29.80</td>
<td>21.37</td>
</tr>
</tbody>
</table>


Russia’s ultimate crude oil reserves were estimated at the end of 2002 at 200 bb with 61% already depleted. This gave a total of 78 bb of remaining reserves at the end of 2002. However, applying western reserve-assessment criteria to Russian reserves will reduce them by 45% to 42.9 bb. By deducting a production of 24.47 bb during the period 2003-2009 and adding an average 12% reserve replacement during the same period (2.94 bb), we come to a figure of 21.37 bb (see Table 2).

<table>
<thead>
<tr>
<th>Date of Peak Production</th>
<th>% Discovered</th>
<th>% Depleted</th>
<th>2003-09 Production</th>
<th>Ultimate Reserves</th>
<th>2009 Actual Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>94</td>
<td>61</td>
<td>24.47</td>
<td>200</td>
<td>21.37</td>
</tr>
</tbody>
</table>


Most of Russia’s proven oil reserves are located in Western Siberia between the Ural Mountains and the Central Siberian Plateau. The ample endowment of this region made the Former Soviet Union a major world oil producer in the 1980s, reaching a production of 12.5 million barrels a day (mbd) in 1988. Roughly 25% of Russia’s oil reserves and 6% of its gas reserves are on Sakhalin Island in the far eastern region of the country, just north of Japan. There are new provinces with promising increases, such as Sakhalin, East Siberia and Timan Pechora, balanced by the declining provinces of Volga Urals and the Caucasus. However, the trend of the next few years will be dominated by West Siberia.

For West Siberia, the current reserve base can peak at about 7 mbd of oil, but then begins to decline sharply. Unless better fiscal terms are in place and significant investment made, production will steadily drop, taking overall Russian production with it. The current terms do not make optimized secondary methods and tertiary production attractive. Also, Russian companies are focusing efforts and best teams on new frontiers – Timan Pechora, the Caspian and East Siberia. The tough fiscal terms and political atmosphere (including new legal barriers to acquiring strategic projects bigger than 350 mb) are not at all encouraging to foreign companies to tackle the difficult development projects in the mature areas. 4
Russian Crude Oil Production

Russia's oil production had risen from 6.54 mbd in 2000 to 10 mbd in 2009. However, Russia can’t sustain its current production level, much less continue to boost production without massive investment in new fields.

Rising production costs and maturing fields have led to a significant fall in Russian oil production in 2008 compared with 2007 according to figures released by Russia’s Energy Ministry (see Table 3).

Table 3
Current & Projected Russian Crude Oil Production Consumption & Exports, 2000-2030 (mbd)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>6.54</td>
<td>9.98</td>
<td>9.89</td>
<td>10.03</td>
<td>9.91</td>
<td>11.23</td>
<td>11.94</td>
<td>12.04</td>
</tr>
<tr>
<td>Consumption</td>
<td>2.58</td>
<td>2.71</td>
<td>2.82</td>
<td>2.70</td>
<td>2.75</td>
<td>3.16</td>
<td>3.95</td>
<td>5.53</td>
</tr>
<tr>
<td>Exports</td>
<td>3.96</td>
<td>7.27</td>
<td>7.07</td>
<td>7.33</td>
<td>7.16</td>
<td>8.07</td>
<td>7.99</td>
<td>6.51</td>
</tr>
</tbody>
</table>


In 2008, the Russian government announced plans to raise the country’s crude oil production from 9.98 mbd in 2007 to 11.23 mbd by 2015, 11.94 mbd by 2020 and 12.04 mbd by 2030.

Some Russian industry leaders voiced doubts about whether the government’s plans are feasible. Leonid Fedun, deputy CEO of Russia’s LUKoil, warned that sustaining levels of 8.5 to 9 mbd over the next 20 years would require investing billions of rubles to develop new deposits.

Output in Russia’s oil heartland of Western Siberia is flagging as older fields mature and companies invest in harder-to-reach regions to tap deposits. In July 2008, the Russian parliament approved tax breaks championed by Prime Minister Vladimir Putin to spur investment in national production.

To maintain its industry, the International Energy Agency estimates that Russia will need $550-$700 billion of investment in energy infrastructure by 2020.

Russian production has already peaked and is starting its downward decline. For those who project that world oil production can somehow exceed 100 mbd in the next decade, they will have to look for places other than Russia for an increased supply.

There is no compelling reason to believe that Russia will break out of the current plateau—permanent decline?—of oil production as it did after 1999. Even if Russia changes policies that currently stifle investment to promote future production, that may help, increasingly in vain, to maintain, not expand oil output. And even if a modest medium-term gain of 2-3% over current production levels should somehow be achieved by 2012, that will very likely be the end of the line for Russia production growth.

According to a study by the French oil major Total, Russia needs to spend about $9 bn a year, or $7 bn more than it spends now, just to replace oil that is now being produced.

Russian policy is to sell oil products rather than crude and to move to payments in roubles. Refinery production now accounts for 48% of production and refinery investment is geared towards producing more light products to European specifications to maximize export revenues.
Russia's Oil Exports

Almost three-fourths of Russian crude oil production is exported; the rest is refined in the country, with some refined products being exported.

In 2009 Russia exported almost 5.0 mbd of crude oil and over 2.33 mbd of oil products. Roughly 1.3 mbd were exported via the Druzhba pipeline to western, central and eastern Europe, 1.5 mbd via the port of Primorsk near St. Petersburg on the Gulf of Finland, and 1 mbd via the Black Sea. However, the majority of Russia's oil exports transit via Transneft-controlled pipelines, but around 300,000 b/d of oil is transported via other sea routes or via rail (see table 4).

Table 4

<table>
<thead>
<tr>
<th>Outlet</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novorossiyisk</td>
<td>768</td>
<td>895</td>
</tr>
<tr>
<td>Other Black Sea</td>
<td>217</td>
<td>476</td>
</tr>
<tr>
<td>Primorsk</td>
<td>1,255</td>
<td>1,454</td>
</tr>
<tr>
<td><strong>Druzhba Pipeline</strong></td>
<td><strong>1,261</strong></td>
<td><strong>1,269</strong></td>
</tr>
<tr>
<td>Germany</td>
<td>437</td>
<td>420</td>
</tr>
<tr>
<td>Poland</td>
<td>466</td>
<td>516</td>
</tr>
<tr>
<td>Hungary</td>
<td>136</td>
<td>160</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>104</td>
<td>92</td>
</tr>
<tr>
<td>Slovakia</td>
<td>118</td>
<td>111</td>
</tr>
<tr>
<td>Other Baltic Sea (Eutinge, Lithuania)</td>
<td>158</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Transneft Crude Oil Exports</strong></td>
<td><strong>3,660</strong></td>
<td><strong>4,114</strong></td>
</tr>
<tr>
<td>Non-Transneft Sea</td>
<td>170</td>
<td>307</td>
</tr>
<tr>
<td>China (Rail)</td>
<td>178</td>
<td>179</td>
</tr>
<tr>
<td>Murmansk (Rail)</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>Other Non-Transneft Rail</td>
<td>47</td>
<td>45</td>
</tr>
<tr>
<td>Caspian Pipeline Consortium (CPC)</td>
<td>53</td>
<td>72</td>
</tr>
<tr>
<td><strong>Total Crude Oil Exports (includes non-Russian exports)</strong></td>
<td><strong>4,155</strong></td>
<td><strong>4,764</strong></td>
</tr>
<tr>
<td><strong>of which Russian Crude Oil Exports</strong></td>
<td><strong>3,953</strong></td>
<td><strong>3,947</strong></td>
</tr>
</tbody>
</table>

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Russia's capacity to export oil faces difficulties, however. One stems from the fact that crude oil exports via pipelines are under the exclusive jurisdiction of Russia's state-owned pipeline monopoly, Transneft. Bottlenecks in the Transneft system prevent its export capacity from meeting Russia's oil export ambitions. Only about 4 mbd can be transported in major trunk pipelines; the rest is shipped by more costly rail and river routes. The Russia government and Transneft are striving to improve the export infrastructure.

Unless significant investment flows into improving the Russian oil pipeline system, non-pipeline transported exports will grow. Without a dedicated pipeline, rail routes are presently the only way to transport Russian crude oil to East Asia. Russia is exporting about 200,000 b/d via rail to the northeast China cities of Harbin and Daqing and to central China via Mongolia.
Oil transportation in the Black Sea region may be in flux. A large portion of Russia's oil is presently shipped by tankers from the Black Sea to the Mediterranean and to Asia, mostly from the port of Novorossiysk. However, shipments through the shallow and congested Bosporous Straits are limited by Turkey for environmental and safety reasons, restricting effective capacity of lines to Novorossiysk.

Eastward, Russia faces competition for China's oil market from Kazakhstan, which with China completed in late 2005 the construction of a pipeline from Atasu in central Kazakhstan to Alaskankou on China's western border. Eventual capacity will be 190,000 b/d.\textsuperscript{12}

Natural Gas Potential

With about 1,567 trillion cubic feet (tcf), Russia has the world's largest natural gas reserves. Until 2008, it was the world's largest gas producer and the world's largest exporter. However, US gas production in 2009 overtook Russia's production for the first time.\textsuperscript{13} Russia's natural gas industry has not done as well as its oil industry in recent years, as production has stagnated in recent years before starting to decline (see Table 5).

<table>
<thead>
<tr>
<th>Natural Gas Reserves &amp; Production in 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves (tcf)</td>
</tr>
<tr>
<td>Russia</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>North Sea*</td>
</tr>
<tr>
<td>Saudi Arabia</td>
</tr>
</tbody>
</table>

* includes Denmark, Germany, Netherland, Norway & the United Kingdom.

Gazprom, the Russian natural-gas giant, is often portrayed as the 1,000-pound gorilla of the energy world. Over the past few years, the company has had huge success in locking in lucrative European markets. It has been ruthless about making consumers in the former Soviet Union pay something close to world prices for their gas –cutting off supplies, if necessary, to force reluctant customers like Ukraine to pay up. But problems are brewing. Gazprom, it turns out, has too many customers and too little gas.

The surprising Achilles' heel of Gazprom is that it produces only about 550 billion cubic meters (bcm) of gas – just enough to supply its own domestic market. It relies on cheap imports from Central Asia to meet the majority of its other commitments to customers in Europe, amounting to nearly 80 bcm. And since only Gazprom's foreign customers pay full market value, the company's exports make up the bulk of Gazprom's revenues - $21 bn for the second quarter of 2007 alone.\textsuperscript{14} Now those nations on which Gazprom's profits rely – including Turkmenistan, Uzbekistan and Kazakhstan – are beginning to cut their own deals with big new customers like China. The deals are, in turn, becoming existential threat to Gazprom, one of Russia's most valuable strategic levers of power.

Gazprom hasn't opened a new gas field since 1991, and its existing fields are dwindling. A recent report by the Russian Industry and Energy Ministry warned that if the decline continued, Russia may be unable to service even its own domestic gas needs by 2010, and recommended doubling prices, a conservation move that has upset business and could also put a damper on economic growth.

Meanwhile, Gazprom has announced a radical plan to revive the company's domestic production, investing $420 bn in exploration and new gas-production facilities.\textsuperscript{15} Relying on cheap imports to
supply foreign customers is nothing new for Gazprom; for years the company has been buying gas from the Central Asian countries for knockdown prices. Until earlier 2007, Gazprom was paying just $65 per 1,000 cubic meters to the Turkmens – then selling the same gas to customers in Western Europe who pay up to $250 (possibly only because of Russia’s pipeline monopoly). Now “Russia’s monopoly” is under attack. Other neighbours are starting to build pipelines, and local producers are getting smarter too.”

No threat is more potent than that of China’s move into Turkmenistan. In 2006 China signed a deal to buy 30 bcm of Turkmen gas each year for the next 30 years, and finance a giant new gas pipeline to China’s Xinjiang province. At the same time, the Turkmens have also signed a deal with Russia for 50 bcm a year. There are some doubts that Turkmenistan has promised to sell more gas than it can feasibly pump. The question is which customer will they choose?

A lot rides on that choice: no less, in fact, than the future of Russia as an energy superpower. But Gazprom insists there is no problem. Russia has a 25-year, long-term contract with the Turkmen government; they are obliged to fulfil their responsibilities. Gazprom contract with the Turkmens is longer than any of its contracts with the European customers.

For the Central Asians themselves, selling energy is more than a matter of dollars and cents; it is about winning real independence from Russia. It looks like China, rather than the US, is best positioned to be the big winner in Central Asia’s search for new friends. Kazakhstan, meanwhile, is booming and plans to nearly double oil production to 3 mbd by 2015. A large chunk of that will be exported to China through new Beijing-funded pipelines, or to other markets through the BTC pipeline (Baku-Tbilisi-Ceyhan), bypassing Russia. How long should Central Asian countries be locked in by Gazprom’s prices? The transit fees that Gazprom pays them are peanuts.

True enough, for all the pretensions to being Europe’s dominant energy supplier, Gazprom has stood on feet of clay. Now that Russia’s former vassals are discovering their power, Moscow may have to ditch its trademark energy strong-arm tactics and adopt new gas diplomacy.

Growth of Russia’s natural gas sector has been impaired by ageing fields, near monopolistic domination over the industry by Gazprom (with substantial government holdings), state regulation, and insufficient export pipelines. Gazprom, Russia’s 51%-owned state-run natural gas monopoly, holds more than one-fourth of the world’s natural gas reserves, produces nearly 90% of Russia’s natural gas, and operates the country’s natural gas pipeline network. The company’s tax payments account for around 25% of Russian federal tax revenues. Gazprom is heavily regulated. By law, it must supply the natural gas used to heat and power Russia’s domestic market at government-regulated below-market prices.

Europeans now fret about possible shortages, even as Americans are gleeful. It is no secret that the United States would like to put a dent in Russia’s stranglehold over the region’s energy resources. To that end, the US is encouraging a number of pipeline projects that cut Russia out of the loop; only one has been built so far, the BTC pipeline connecting Baku, Azerbaijan, to the Mediterranean – but the United States hopes others will follow. Needless to say, Moscow is working hard to keep its monopoly from being undermined. It signed a new deal with Kazakhstan in September 2007 to build a pipeline on the Caspian coast to Russia. 16

In this contest, Russia’s over-arching goal is to prevent the West from breaking a monopoly on natural gas pipelines from Asia to Europe. The Europeans are calling for a renewed effort to build the long-delayed Nabucco pipeline to bring Central Asian gas to Europe without passing through Russian territory. But there is a reason the project has never gotten off the ground: as determined as Europe is to end its reliance on Russian gas, Russia is equally adamant about extending it. 17
In July 13, 2009 the Nabucco gas pipeline that would reduce Europe’s dependence on Russian gas exports cleared a hurdle when four European countries (Bulgaria, Romania, Hungary and Austria) signed an accord with Turkey that may help finance the Nabucco pipeline, which will stretch 2,000 miles from the Caspian to Austria through Turkey. But completion of the project remains a distant goal. The project which is estimated to cost $11 bn, has been long delayed, bogged down in disagreements between Turkey and Europe over terms and by maneuvers on the part of Russia, which is pushing an alternative pipeline, South Stream. Most significantly, the pipeline has no committed suppliers, the most important element in getting the project off the ground. 18

The Nabucco pipeline was proposed in 2002 by executives from European energy companies with the express intent of undercutting Russia’s gas monopoly. It would pass through Turkey and Georgia to the Caspian Sea. However, Nabucco’s planners rapidly discovered that their biggest obstacle was not a mountain chain or a corrupt politician, but Mr Putin himself. When OMV, the Austrian energy company, formally created a consortium for Nabucco in 2005, he responded with a competing idea: a pipeline called South Stream that would terminate at the same gas storage site in Austria, but originate in Russia and bypass Ukraine by travelling under the Black Sea.

But Mr Putin did not stop there. Leaving nothing to chance, he also took steps to choke off potential sources of upstream gas supplies deep in Central Asia. He also signed an agreement in February 2008 with Bulgaria – over the objections of the United States and in spite of Bulgaria’s status as a new NATO member – making it a partner in the South Stream pipeline. Mr Putin also cut a deal with Greece in April 2008 for a spur of South Stream. And during a visit to Ankara on 6 August 2009 he signed a set of energy agreements with Turkey thus giving a boost to the South Stream pipeline project. Moreover, Gazprom and DESFA, the Hellenic gas transmission system operator, are to form a joint venture company – South Stream Greece – for the implementation of the Greek section of the South Stream gas pipeline. The company will provide engineering, funding, construction and operation of the project in Greek territory. 19

Nabucco faces a number of obstacles that raise questions about its viability. The most serious problem is finding sufficient gas to make the pipeline commercially viable. To date, only Azerbaijan has committed to supplying gas for the pipeline. But Baku can supply only a fraction of the pipeline’s capacity. To be commercially viable, Nabucco needs to find other suppliers that will contribute toward its annual transport capacity of 31 bcm. 20

Iraq has offered to supply 15 bcm of gas, nearly half the capacity of Nabucco.21 However, many energy experts question whether Iraq can be considered a reliable supplier, given the country’s disputes with the Kurdistan Regional Government (KRG) in northern Iraq over the sharing of energy resources and revenue. If the tensions between the KRG and the central government in Baghdad escalate, the Iraqi government could find it difficult to make good on its offer to supply the 15 bcm of gas it has offered to transport via Nabucco. Turkmenistan is also far from being a reliable supplier and could come under strong Russian pressure not to supply gas to Nabucco. 22

However, the opening of the Central Asia-China gas pipeline in December 2009, linking Turkmenistan with the Chinese region of Xinjiang, could significantly affect the energy equation in Eurasia. The pipeline breaks Russia’s monopoly on transit routes for natural gas and will reduce the amount of Central Asian natural gas, especially gas from Turkmenistan, available to Russia for re-export to Europe. The Turkmenistan-China pipeline could also pose a future threat to Turkmenistan’s participation in Nabucco. 23
The Russian Gas Problem

European countries face the prospect of continued reliance on Russia for natural gas supplies and a potentially awkward relationship for the foreseeable future. The EU projected its energy-import dependence (including coal) would increase from around 50% to 65%, with imports of gas rising from 57% of its needs to 84% and imports of oil rising from 82% to 93%. 24

The commercial relationship is one of mutual dependence. Europe will be Moscow’s sole source of gas-export earnings until Russia builds up gas exports to Asia and starts exporting LNG from the Arctic to the United States. This is a relationship fixed in geography (with expensive pipelines) and in time (through long-term contracts which many European companies have with Russia’s Gazprom monopoly, running until 2035). But two factors give it a mutual awkwardness. The first factor is Russia’s resource nationalism & its Gazprom monopoly: In Gazprom Europe faces the world’s biggest integrated monopoly, which controls not only the outlet for all Russia’s production but Central Asia’s output as well.

The second factor is the repeated disruption of Russian gas transit across Ukraine: Two disputes between Russia and Ukraine in 2006 and 2009 over gas price to Ukraine resulted in temporary interruptions of supplies of Russian gas to European customers. The cut-off dented Russia’s reputation as a supplier and Ukraine’s reputation for transit.

And to make a bad situation worse, Russia has decided it will not ratify the Energy Charter Treaty. Instead, the Russian president Dmitriy Medvedev has proposed a new legal framework for international cooperation, including an agreement to resolve energy transit conflicts. The growing relevance of the transit issue in European Union-Russia relations, in increasingly interdependent energy markets, is all too clear in the conflicts between Ukraine and Russia in the last two European winters. 25

As a consequence, Russian Prime Minister Putin proposed a solution for potential future crises outside the framework of the Treaty, suggesting the European Union should join Russia in Moscow in a consortium to help fund Ukraine’s gas bills. This would effectively give Russia control over the Ukraine gas pipeline system. In response the EU Commission independently offered the Ukranian government finance to develop its energy transport infrastructure, a move that produced the current impasse. 26

Russia’s opposition to the transit protocol in the Treaty not only stems from the fact it rejected the proposed provisions requiring third-party access to Russian pipelines, but that it refused to recognize itself as a transit country; instead buying gas from Central Asia and reselling it to Europe.

Oil Pipeline Politics

Russia’s export routes are reaching capacity as production rises, creating an imminent need to build several major pipelines, ports and storage terminals to break the deadlock. Russia needs at least a 6-mbd port and pipeline capacity. Current capacity is estimated at 3.6-3.8 mbd while proposed capacity is estimated at 3.6-4.4 mbd (see Table 6).

From the perspective of a strategist planner in Moscow, the vulnerability of Russia’s energy-export corridors is a formidable concern. Whereas all of its export routes used to go through Soviet or Warsaw Pact territory, most exports now cross NATO or prospective NATO countries. Russia exported an average 7.33 mbd in 2009, 40% of which sailed directly from Russian ports, mainly on the Black Sea. All Black Sea oil must clear the narrow Bosphorous Strait, which although considered an international passageway, is ultimately policed by NATO member Turkey. The remainder exits Russia via the Druzhba pipeline system or through the port of Primorsk.
## Table 6
Russian Current & Proposed Pipeline Capacity (mbd)

<table>
<thead>
<tr>
<th>Name</th>
<th>Current Capacity</th>
<th>Proposed Capacity</th>
<th>Destination</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Druzhba Pipeline Baltic Pipeline System (BPS-I)</td>
<td>1.20-1.40</td>
<td>-</td>
<td>Europe</td>
<td></td>
</tr>
<tr>
<td>BPS-II</td>
<td>-</td>
<td>1.60-2.40</td>
<td>Primorsk to Northern Europe</td>
<td>2007</td>
</tr>
<tr>
<td>Indiga Port</td>
<td>0.24</td>
<td>-</td>
<td>Primorsk to Northern Europe</td>
<td>2011</td>
</tr>
<tr>
<td>Adria Reversal Project</td>
<td>0.10</td>
<td>0.30</td>
<td>Adriatic</td>
<td>Unknown</td>
</tr>
<tr>
<td>Caspian Pipeline Consortium (CPC)</td>
<td>0.54</td>
<td>1.33</td>
<td>Kazakhstan to Novorssiyk</td>
<td>2009</td>
</tr>
<tr>
<td>Eastern Siberian Pacific Pipeline (ESPO-I)</td>
<td>-</td>
<td>0.60</td>
<td>Pacific</td>
<td>2009</td>
</tr>
<tr>
<td>ESPO-II</td>
<td></td>
<td>0.40</td>
<td>Pacific</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.6-3.8</strong></td>
<td><strong>3.6-4.4</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Druzhba Oil Pipeline to Europe

With a 1.2-1.4 mbd capacity, the 2,500-mile Druzhba is the largest of Russia’s oil pipelines to Europe. It begins in southern Russia, near Kazakhstan, where it collects oil from the Urals and the Caspian Sea. In Belarus, it forks at Mozyr, from which a northern branch runs through Belarus, Poland and Germany; and a southern one through Belarus, Ukraine, Slovakia, the Czech Republic and Hungary (see Figure 1).

**Figure 1**

Druzhba & Adria Oil Pipelines

Work has begun to increase capacity between Belarus and Poland. An extension to Wilhelmshaven (Germany) would reduce Baltic Sea tanker traffic and allow Russia to export oil to the United States via Germany.

The Baltic Pipeline System (BPS)

The Baltic Pipeline System (BPS) carries crude oil from Russia’s West Siberian and Tyumen-Pechora oil provinces westward to the port of Primorsk (see Figure 2). Throughout capacity at Primorsk has steadily increased, reaching around 1.5 mbd during 2008 on average.

The BPS gives Russia a direct outlet to northern European markets, reducing dependence on routes through the Baltic countries. But the Danish Straits through which tankers leaving from Primorsk must transit, limit tanker size to 150,000 dwt, putting a natural cap on capacity at Primorsk terminal. This also affects the price competitiveness of their cargoes. The Black Sea export route is subject to similar constraints.

Proposed pipelines would carry oil from Russia’s West Siberian and Tyumen-Pechora basins west and north to a deepwater terminal at Murmansk or Indiga on the Barents Sea (see Figure 2). This would enable 1.6-2.4 mbd of Russian oil to reach the United States via tankers in only nine days, much quicker than from the Middle East or Africa. Liquefied natural gas facilities at Murmansk and Arkhangelsk also have been suggested, possibly allowing for gas exports to American markets. The Indiga route would be closer to Tyumen-Pechora oilfields and shorter. However, in contrast with Murmansk, the port of Indiga ices over during the winter, a disadvantage that may be reduced or eliminated if Arctic ice melting continues.

The North Atlantic drift allows the port of Murmank to operate at full capacity 12 months a year. Direct
access to North America would turn Murmansk into a geo-strategic lynchpin. The downside of Murmansk is vulnerability to oil prices, as well as environmental risk. But for now, the port is likely to see only a 100,000 b/d-200,000 b/d transhipment terminal. 27

Pipeline politics is the main culprit behind Russia’s oil production slowdown. Transneft has chosen to respond to bottlenecks with stop-gap and arbitrary tariff-setting. Logistical constraints have blunted crude oil deliveries via Russian Railways (RZD), one of the alternatives to Transneft. The Indiga project, where ice conditions and shallow waters make large-scale exports unprofitable, is an example of this flawed strategy.

The Adria Oil Pipeline

The Adria oil pipeline runs between Croatia’s Sea port of Omisalj and Hungary (see Figure 3).

Figure 3
Adria Oil Pipeline


Originally designed to load Middle Eastern oil at Omisalj and pipe it northward to the former Yugoslavia and then to Hungary, the pipeline operators and transit states have been considering reversing the flow – a relatively simple step - giving Russia a new export outlet on the Adriatic Sea. Connecting the pipeline to Russia’s southern Druzhba system requires the agreement of Russia, Belarus, the Ukraine, Slovakia, Hungary and Croatia. These countries signed a preliminary agreement on the project in December 2002; however, negotiations over the details (including tariffs and environmental issues) have been slow. Some analysts expect that the Adria pipeline could transport about 100,000 b/d of Russian crude oil in the first year of reversal, with an ultimate capacity of about 300,000 b/d.

The Eastern Siberian Pacific (ESPO) Pipeline

The prospective large Chinese market for oil has led to serious consideration of building a pipeline from the Russian city of Taishet (northwest of Angarsk to Nakhodka (near the Sea of Japan) or to Daqing, in China (see Figure 4).

Both routes pass close to Lake Baikal – a site with environmentally-related problems. The Nakhodka route, which is longer, would provide a new Pacific port from which Russian oil could be shipped by tanker to Japan and other Asian markets and possibly to North America. Japan has offered $5 bn to finance construction and $2 bn for oilfield development. 28 The Daqing option is favoured by China,
although China could obtain exports via the Nakhodka route. China has pledged to invest $12 bn in Russia’s infrastructure and energy sector by 2020. 29 From Russia’s point of view, the Nakhodka route would offer access to multiple markets, whereas a terminus at Daqing would give China control. However, Russia’s environmental safety supervisory body rejected the shorter route because it would pass too close to Lake Baikal, a United Nations world heritage site. 30

![Figure 4](Figure4.png)

**Proposed Far East Oil Pipelines**

Phase I of the ESPO pipeline will connect the Russian city of Taishet to Skovoronio near Lake Baikal whilst phase II will, eventually, connect the pipeline to Nakhoda on the Pacific coast. Expected capacity of the ESPO on completion will be 1.0 mbd.

**Going for Gas**

A few days after the end of the Georgian war, major flows resumed through the twin arteries that carry Azerbaijani oil and gas to Europe: the BTC oil pipeline and the Baku-Tbilisi-Erzerum (BTE) gas pipeline. But the restoration of the greater part of Azerbaijan’s export capacity masked a string of underlying problems that will force companies and governments, producers and consumers, to re-evaluate energy policy in general and their reliance on routes through the South Caucasus in particular.

Long-term problems include Kazakhstan’s scheme to ship up to 500,000 b/d of crude oil to Azerbaijan – for input into an expanded BTC and delivery to world markets via Ceyhan. Then there are joint Azerbaijani and Kazakh plans to develop port facilities and refineries on Georgia’s Black Sea coast as part of a broader effort by their state oil companies to create a presence in the Black Sea, Turkey and the European Union (EU). 31
Before the war, the EU and Turkey had been looking to develop a ‘fourth corridor’ to carry Caspian and Middle Eastern gas to Europe, thus matching existing corridors bringing gas from Russia, Norway and Algeria. The Georgian war with Russia has made it much harder for companies to raise commercial finance for new gas lines in the Caspian, the South Caucasus and the Black Sea and to secure the necessary commitments, both to provide gas upstream and to buy it downstream. In effect, the EU and its principal gas consumers have to consider four very different options concerning gas policy.

**Option One: Forge a New Energy Relationship with Russia**

This will ensure an increased flow of gas from or through Russia. This would have to be done against a background of great mutual suspicion. Moreover, Europe still has no answers to perhaps the most worrisome question of all: Is Russia putting in place the kind of gas investment plans that would enable it to deliver, in a transparent and predictable manner, the increased volumes on which European gas policy was predicated before the Georgian war? Or is Moscow simply planning to secure the additional gas Europe needs from Central Asia, buying at one price and then selling Russian – or Central Asian- gas at quite another to its European customers?

**Option Two: Drastically Cut Back**

Drastically cut back the projected growth of gas imports by switching rapidly to other forms of energy. This is a painful choice since much of Europe’s hopes of meeting its climate change targets depend on continued use of gas in preference to oil and, especially, to coal.

**Option Three: Turn to Iran**

This not only requires resolution of the Iranian nuclear dispute, but also a radical change of policy in Iran to ensure production capable of filling a major 30 bn cubic meters per year gas pipeline to Europe such as Nabucco. Moreover, so long as Iran stands to earn far more from oil sales than it does from gas, it is unlikely to look for more than a token level of exports – perhaps around 10 bn cubic meters per year mark, for delivery to European customers beyond Turkey.

**Option Four: Push Ahead with Plans**

Push ahead with plans for increased gas purchases from Caspian suppliers. However, it is hard to see commercial banks being willing to invest in fresh schemes involving transit across Georgia while the military situation remains, to say the least, delicate.

**The Georgian War**

Russia’s war with Georgia could be interpreted as threatening and possibly blocking the southern or non-Russian routes for getting oil and gas out from Central Asia. It could also be interpreted as Russia’s signal that will not tolerate any attempts by Georgia to join NATO.

Starting with the facts – BTC pipeline is 1,100 miles long, of which 155 miles are in Georgia, and currently has a capacity of 1 mbd. Other hydrocarbon pipelines transiting Georgia are the oil pipeline to Supsa, Batumi and Poti, with a capacity of 150,000 b/d; the North Caucasus gas line which links Russia and Armenia via Georgia; and the BTE gas pipeline that runs alongside the BTC line from Azerbaijan and into Turkey. The only other pipeline route for oil out of Azerbaijan is via the 100,000 b/d line that goes to the Russian port of Novorossiysk on the Black Sea.

For the Western world, the Georgian war was a disaster. Azerbaijan and Kazakhstan are key suppliers...
of incremental non-OPEC oil and gas flows. The West was expecting to get over 1.2 mbd from
Azerbaijan with an additional 1.5 mbd from the Kazakh oilfield, Kashagan, when it is fully developed at
the end of the next decade. Realistically, the West can’t drive Russia out or come to the military aid of
Georgia.

Russia’s war with Georgia threatened a major transit corridor for oil and gas from the Caspian Sea,
raising questions about Western energy security. Major pipelines through Georgia supply Europe with
more than 1 mbd of oil and 30% of the continent’s natural gas.

Completed only four years ago, BTC is the culmination of a Western campaign to free Europe from
energy dependence on Russia; Russia’s military has changed risk perception around Georgia as a
transit route. A resurgent Russia will be less happy to see routes across Georgia expanded.

In the long term that could redraw the energy-supply map. BTC was only the latest of several Western-
backed pipelines, all conceived with an eye to skirting Russia. European partners had been planning to
extend the South Caucasus gas pipeline – it runs alongside BTC but ends, landlocked, in Turkey – to
Austria, via Bulgaria, Romania and Hungary. Nabucco (the extension) will have even more of an uphill
climb now that investors doubt the reliability of that gas route. Doubts stirred by the Russian invasion
also threaten a proposed trans-Caspian gas link between Turkmenistan and the South Caucasus pipe,
which would send Central Asian gas through Georgia.

Even Azerbaijan – which is deeply invested in the success of the Georgia corridor because those pipes
originate in Baku – may look instead toward Russia as an energy outlet, for the right price. Its state oil
company is seriously considering a bid by Moscow to buy the entire national gas output, meaning that
Russia would control the gas that the West had worked so hard to get from another source. It is clear
Russia wants to maintain a monopoly on gas exports from the former Soviet Union into Europe. Instead
of military force in Kazakhstan, it just offers a higher bid.

The war between Russia and Georgia sent a chill through boardrooms in the West when, for example,
Russian tanks scurried back and forth over one of the buried pipelines and one crew occupied a
pumping station. In doing this, Russia sent a simple message: “we can blow this up at any time”.

Still, for Europe that means that its attempts to diversify its energy supplies may have failed. Russia
may control even more if the war in Georgia ended up killing off new pipeline projects. Russia’s
covetousness of Central Asia’s hydrocarbon resources suggest that, in terms of energy, Russia can
have at its borders only enemies or vassals.

Impact of Low Oil Prices on Russia’s Economy

Since the late 1990s Russia has emerged as one of the world’s primary energy suppliers. This
prominent and growing role of the energy sector in Russia’s economy has raised concern about the
most effective way to make use of the massive oil revenues that have been accumulated since the
early 2000s.

Several Russian economists voiced concern that the country’s deepening dependence on energy
wealth was transforming it into merely a provider of raw materials for the rest of the world and
damaging the competitiveness of other economic sectors, particularly manufacturing. The challenge
was (and still is) how to manage this expanding pool of oil revenues.

The Russian government response to such concern was to establish a Stabilization Fund (SF) in 2004.
In 2008 the SF’s assets were estimated at $157 bn. 33
From its inception an intense debate about the appropriate strategy for investment of the fund’s resources has surrounded the SF. It has eventually decided that the surplus revenues be put towards the early repayment of Russia’s foreign debt. The IMF supported this approach suggesting that saving oil revenues has served Russia well “as it has prevented even stronger inflationary pressures and much faster real rouble appreciation”. 34

Despite the stabilization funds accumulated during the booming oil years, Russia’s economy has faced profound difficulties since 2008 as a result of the global recession and the fall in oil prices from $147/barrel in July 2008 to $32/barrel in 2009, blowing a hole in the government’s budget calculation and forcing it to slash expenditure in 2009.

In 2009, Russia’s economy contracted by 3.5%. Since July 2008 Russian markets have lost 75% of their value. Russia’s Central Bank has already spent nearly a third of its $650 bn in foreign assets defending the rouble. 35 However, the recent rise in oil prices to a range of $70-$80/barrel is helping the Russian economy to grow faster than expected according to Vladimir Putin. Russia will be able to solve its financial problems “more actively” this year, because the oil price is above the $58/b average used to calculate the 2010 budget. 36

**Russian Energy Policy**

Russian energy trends and policies have possible implications for US energy security. An increase in Russia’s energy production and its ability to export that energy westward and eastward may tend to ease the supply situation in energy markets in the Atlantic and Pacific basins. In the Atlantic arena, more Russian oil could be available to the United States. In the Pacific area, there would tend to be more supply available to countries such as China and Japan. This may ease the global competition for oil from the Middle East.

On the other hand, Russia’s moves to take control of the country’s energy supplies noted earlier may have the effect of making less oil available on the world market.

The United States has an interest in Russia’s large role as a supplier to world energy markets in general, in Russia’s role as a possible major exporter of energy to the United States, and in the changed patterns of world energy flows that could result from the completion of new Russian oil and natural gas export pipelines and related facilities or the expansion of existing export pipelines and related facilities. But it is also aware of the geopolitical implications of Russia’s quest to emerge as an energy superpower.

Possibly as important as Russian oil and gas industry developments is the associated potential for US suppliers of oil and gas field equipment and services to increase their sales and investment in Russia. However, potential investors complain that the investment climate in Russia is inhospitable with respect to factors such as poor intellectual property rights protection, burdensome tax laws, and inefficient government bureaucracy.

**Russia’s Central Asia’s Great Game**

From his earliest days in power in 2000, President Vladimir Putin, who left the presidency in 2008 and became prime minister, decided natural resource exports and energy in particular would not only finance the country’s economic rebirth but also help restore Russia’s lost greatness after the collapse of the Soviet Union. Mr Putin has been thinking for some time, “What are the means and tools at Russia’s disposal to make Russia great?” and he concluded that “military power would no longer be sufficient”. The energy market was, is and will remain a strategic sphere for Russia according to Mr Putin.
Just in 2009, Mr Putin's personal immersion in energy politics was on full display as he ordered natural gas shut off Ukraine, in the process cutting supplies to Europe. But the hundreds of thousands of shivering gas customers in the Balkans and Eastern Europe sent an unmistakable message about the Continent’s reliance on Russian gas supplies and Mr Putin’s willingness to wield energy as a political weapon.

In fact, the standoff in Ukraine was just one part of a far larger Russian playbook on natural gas policy under Mr Putin. In 2008, Russia has formed a cartel-like group with Middle Eastern nations with the goal of dampening global competition in natural gas, sewn up sources of supply in Central Asia and North Africa with long-term contracts to thwart competitors and used its military to occupy an important pipeline route in Georgia.

And this broader struggle extends over a dozen countries from Azerbaijan to Austria. In its sprawl and slow pace, it is often compared to the 19th century struggle for colonial possession of resources in Central Asia known as the Great Game.

Despite its best intentions, Europe is likely to remain dependent on Russian energy supplies for the foreseeable future and, perhaps, indefinitely if Mr Putin has his way. And that reflects his long-held beliefs.

Conclusions

Russia’s aspiration to become an energy superpower is already being undermined by fast depleting proven reserves of oil, peaking oil production, growing domestic demand for natural gas and export routes reaching capacity and being constrained by political and environmental considerations.

Russian oil production had already peaked and is on the decline and without huge infusion of multi-billion dollar investments over the next few years, Russia will not be able to maintain its current production levels.

Gazprom, the Russian natural gas giant, is only able to produce just enough natural gas to supply its own domestic market and that without imports from Central Asia, it will not be able to meet the majority of its other commitments to customers in Europe.

Russia’s recent war with Georgia could be interpreted as an attempt to block plans for southern or non-Russian pipelines for getting oil and gas out from Central Asia. It may also be interpreted as Russia’s answer to attempts to bring Georgia into NATO.

Far from emerging as an energy superpower, Russia is, instead, emerging as an energy giant standing on feet of clay. In fact, energy supplies could prove to be Russia’s Achilles’ heel.

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