

# From brownfield to greenfield

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Russia is the world's largest holder of proved oil and gas reserves, its largest oil producer and currently ranks only second behind the US in terms of gas output.<sup>1</sup> Furthermore, its future position as a major force in the global energy economy seems assured by the level of hydrocarbon resources that remain to be exploited within its borders. A 2007 survey by the USGS identified more than 100 billion barrels of oil equivalent of total yet-to-find oil and gas resources within Russia's major hydrocarbon basins, and a more recent survey of global Arctic resources suggested that Russia holds the further potential of more than 50 billion barrels of liquids plus 1,200 trillion cubic feet (tcf) of gas resources in its most northerly regions.<sup>2</sup> However, this last statistic serves to emphasise one of the key challenges facing the country over the next decades, namely that its oil and gas industries will increasingly need to operate in more remote and challenging areas if Russia is to maintain its place as the world's leading hydrocarbon producer.

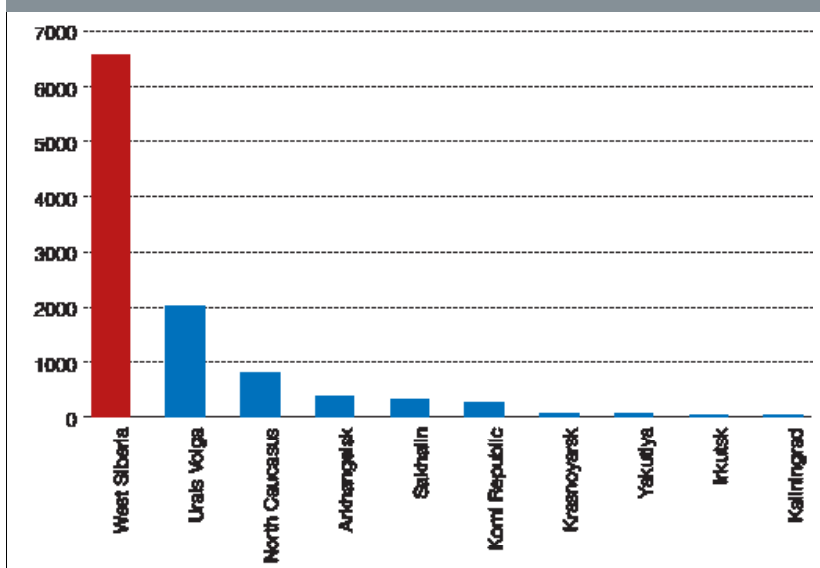
Current Russian oil production of c.10 million barrels per day continues to be dominated by regions that have been the foundation of the country's output since the Soviet era, with West Siberia, the Urals Volga region and the North Caucasus accounting for almost 90 per cent of overall production (see figure 1).

Indeed West Siberia alone, with production of over 6.5mmbpd, would rank as the world's third largest oil producer after Saudi Arabia and the US. However, a gradual evolution of industrial activity away from this traditional heartland and towards new "greenfield" regions is starting to take place, as highlighted by the most recent Russian Energy Strategy to 2030. Although specific forecasts from the Strategy need to be treated with caution, given the long timescales involved, the clear trend is that new regions are set to play a much greater role in oil sector development over the next 20 years and are likely to be focused increasingly on exports to eastern markets, in contrast to the historic dominance of western markets in Russia's hydrocarbon export mix. For example the amount of drilling anticipated in East Siberia is expected to be more than double the levels in West Siberia by 2020, while seismic exploration activity on the hitherto largely unexplored Russian shelf is expected to match that in West Siberia over the same period, emphasising a huge potential shift in the domestic oil industry's operational focus. To underline the point, the share of Russia's overall production from East Siberia and the Far East of Russia is expected to rise from only 3 per cent in 2008 to as high as 20 per cent by 2030, implying an increase in output from 300,000bpd to 2.2mmbpd over the next two decades.<sup>3</sup>

Corporate activity in the oil sector suggests that this overall strategic plan is already being actively put into practice. Rosneft has led the way in East Siberia with the development of the giant Vankor field, which produced its first oil in 2009 and is on track to reach peak output of over 500,000bpd by 2014. Rosneft has also built a large portfolio of new licenses in the Russian East from which it plans to develop the oil resources that will fill the new East Siberia-Pacific Ocean (ESPO) pipeline that is Russia's new link with the fast growing markets in China and the rest of Asia (see figure 2). The ESPO was opened in December 2009, with a spur to China added in January 2011, and the completion of this new export infrastructure marks an important strategic and commercial turning point for Russia as it has now managed to diversify its hydrocarbon sales away from reliance on traditional western markets and towards a rapidly expanding customer base for oil imports in the East.

Other Russian companies such as TNK-BP and Surgutneftegas are also producing significant quantities

Figure 1: Russian oil production by region 2009 - kbpd



of oil in East Siberia, again targeted at exports through the ESPO, while LUKoil is leading the exploitation of another new region, the Caspian Sea. However, further development of these and other new regions in Russia is now being hampered by a common problem, namely the high level of oil taxation, particularly on exports. The current tax system was designed to extract revenue from an industry that was selling oil from fields that had largely been developed in the Soviet era and which required relatively low levels of new investment capex to encourage improved performance. This “brownfield miracle,” which occurred as new technology was applied to older fields, caused the dramatic rebound in Russia’s oil production from a low of 6mmbpd in the late 1990s to the current level of over 10mmbpd, and high rates of revenue-based upstream taxes (including a marginal rate of almost 90 per cent on sales of exported crude at oil prices above US\$25 per barrel) were justified by the huge returns that could be made from this rising output at high oil prices.

As of 2011, though, the planned evolution of the Russian oil industry towards regions requiring significant investment in new infrastructure and field development is likely to necessitate a tax system more sympathetic to the needs of oil companies looking to recover large capital outlays before any return is made. Initial government support for new developments has been provided through tax holidays, with a list of 22 fields in the East offered a lower export tax rate in their initial development phase. However, the need for a more fundamental shift in tax policy, that can provide longer-term confidence to an industry with a 20-30 year investment horizon, is now becoming clear as uncertainty over future levels of taxation is not encouraging companies to take more risk and commit capital to new field projects. An interim plan to reduce the top rate of crude export tax from 65 per cent to 60 per cent, set to be introduced in summer 2011, is a first step to encourage greater upstream investment, with any losses to the federal budget being offset by an increase and re-balancing of downstream taxes.<sup>4</sup> Importantly, though, discussions about the introduction of a more profit-based regime, centred on an excess profit tax to be applied to greenfield projects, appear to have stalled due to the potential impact on government revenues in a pre-election year, and this could delay further development of Russia’s new regions with important consequences for the country’s long-term production profile.

A further important step in the development of Russia’s new regions, and in particular the offshore Russian shelf, may be increased partnership between Russian and international companies, with the latter bringing technology and experience relevant to fields where domestic players have so far had little exposure. Again Rosneft has led the way in its alliances with

ExxonMobil and Chevron in the Black Sea and its failed attempts to partner with BP in the Arctic. Indeed Igor Sechin, a Deputy Prime Minister of the Russian Federation, commented on the BP deal at the time that it would “lay the basis for strategic development, for Rosneft to acquire new competence, primarily the competence of work on continental shelves, in places that are hard of access, in the Arctic zone. This is part of the competence of British Petroleum, and we are convinced that it will be a strategic effort.”<sup>5</sup> He also noted further evidence of the benefits of partnership in the Black Sea, stating that “ExxonMobil technologies will efficiently complement Rosneft’s experience and resources,”<sup>6</sup> and overall highlighted the fact that “global capital and Russian companies are clearly ready to invest in world-class projects in Russia; and Russian companies are quickly emerging at the forefront of the global energy industry.”<sup>7</sup> As a result, and despite the current hiatus in Rosneft’s negotiations with BP, it seems clear that a further consequence of Russia’s move to exploit its more remote resources can be an increased willingness to form partnerships with foreign companies who to date have had relatively limited exposure to assets in Russia’s heartland.

Similar themes of more remote field developments, a greater eastern focus, potential for tax changes and greater participation of foreign actors are also prevalent in the gas industry, with the added dimension of the potential for the greater liberalisation of a sector that has historically been dominated by one player – Gazprom. Change has again been catalysed by the gradual decline of core Soviet-era assets and the need to develop new resources, with the issues surrounding this move being compounded by a number of domestic and

**New regions are set to play a much greater role in oil sector development over the next 20 years and are likely to be focused increasingly on exports to eastern markets**

Figure 2: The route of the East Siberia - Pacific Ocean pipeline



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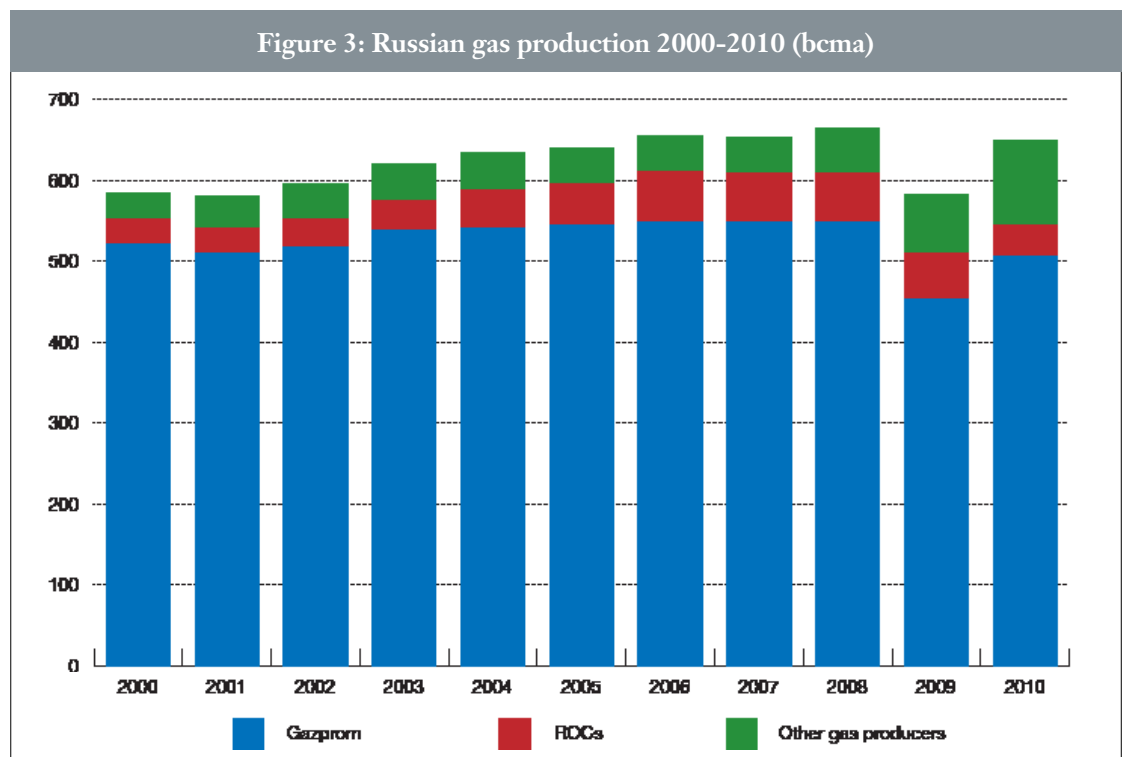
global factors. During the 2000s Gazprom has seen an increased need to develop new fields to replace falling production from its core West Siberian assets, with development of the Shtokman field in the Barents Sea and the Bovanenkovskoye field on the Yamal Peninsula planned as the long-term foundations of the company's production profile. However, both these fields are in remote Arctic regions with high development costs and significant technical challenges, and their economic prospects have recently been called into question. Firstly the sharp fall in European gas demand during the 2008/09 economic crisis raised the issue of the need for significant new gas supply from Russia, and this concern was then compounded by the emergence of significant shale gas production in the US, which had the double impact of reducing gas import needs in the US and lowering prices in Europe as LNG cargoes were re-directed to new markets. As a result, Gazprom was forced to delay both its key new projects.

Although prices and demand in Europe have since recovered, and the Bovanenkovskoye field is now again expected to produce first gas in 2012/13, the consequences for the gas sector in Russia have been dramatic and long-lasting. Firstly, and perhaps most importantly, the Russian Administration has been encouraged to continue the promotion of higher gas prices in the domestic Russian market in order to underpin the development of domestic gas resources and reduce the reliance on export sales. A target of "export netback parity" set in 2006, with an initial

target of 2011 but then extended to 2015, has resulted in gas prices rising by an average of 19 per cent per annum over the past 5 years. However, the recent sharp rise in oil prices, to which export gas prices are currently linked, has caused the Ministries of Energy and Economic Development to question the need for parity to be achieved on such a rapid timescale due the potential negative impact on the domestic economy<sup>8</sup>, with increases in line with inflation now being suggested as more appropriate for the next three years. Nevertheless, despite this potential short-term shift in policy, higher prices have been achieved and have provided a platform for increased development of Russia's gas resources as well as catalysing the emergence of a new "independent" group of players in the gas sector.

These "Non-Gazprom" producers, led by Novatek and the Russian oil companies, have seen their share of the Russian gas market increase from 16 per cent in 2006 to 22 per cent in 2010. Total output from this emerging source exceeded 140bcm in 2010 (see figure 3), and although it is still dwarfed by Gazprom's output of c.510bcm the growth potential of the non-Gazprom producers has led to ever-growing demands for liberalisation of the domestic gas sector. Gazprom is gradually being encouraged to allow greater access to the trunk pipeline system for independent producers, who are also increasingly competing for end-user customers in the industrial and power sectors. Although the export market is still a *de jure* monopoly controlled

Figure 3: Russian gas production 2000-2010 (bcma)



by Gazprom, higher domestic prices and market freedom are also providing the incentive for growing international company interest in the domestic gas sector. Total has recently purchased an equity stake in Novatek, Eni now shares a joint venture with Novatek and GazpromNeft, Wintershall has agreed to extend its partnership with Gazprom and a number of overseas players are in discussion with Novatek concerning participation in its Yamal LNG project (in which Total has already agreed to take a 20 per cent stake).

As a result of this 3rd party activity Gazprom is facing growing competition from an independent gas sector that can produce relatively low-cost gas, the commerciality of which is often enhanced by joint production of gas liquids from deeper reservoirs. As a largely “dry gas” company with an asset portfolio that will become higher-cost as its new more remote fields are developed, Gazprom faces the threat of seeing its dominant position further eroded in its core western markets with the result that the attraction of eastern opportunities is growing in the gas, as well as the oil, sector. Negotiations over exports to China have been ongoing for the past decade, but a successful outcome became a more realistic prospect in 2009 when Gazprom and CNPC signed a framework agreement on the principle of a two pipeline export plan using gas from West Siberia via an Altai pipeline into western China and gas from East Siberia via a pipe into north-east China. Disagreement over the priority of the western or eastern routes has subsequently delayed a final agreement, but Gazprom’s recent purchase of the Kovykta gas field in Irkutsk, following the bankruptcy of field operator Rusia Petroleum, may be the final ingredient needed to catalyse an export deal. The key issue to date has been price, with neither side able to find a level that can balance Gazprom’s expectations for European netback parity for exports from West Siberia with China’s desire to access competitive prices for its domestic market. Kovykta, being much closer to the Chinese market than any West Siberian asset, may provide the key to unlock the impasse, although once again Russian government support in the form of tax breaks may also be needed. Gazprom has recently requested a broad range of tax exemptions for its eastern projects in order to underpin the economics of fields that, as in the oil sector, will require high capital expenditure in remote areas with little existing infrastructure<sup>9</sup>. As a result the Russian Administration may again need to find a balance between achieving the long-term strategic goal of sustaining the country’s hydrocarbon output and the short-term needs of the federal budget.

Overall, then, while it is clear that Russia has the reserves and future resources to sustain its position as the world’s largest hydrocarbon producer and that its assets are of increasing interest to the international companies with the technology and experience that can assist in their development, the key issue of

providing the appropriate economic incentive remains. A tax system that has been relevant for brownfield production during a period of high oil prices is unlikely to encourage significant investment in high cost greenfield developments with long lead times to first production. The experience of the oil sector in East Siberia, where the use of export tax holidays has not yet provided the legislative stability to catalyse significant new field development, suggests that a fundamental restructuring of the tax system to a more profit-based model (in particular for greenfield projects) is likely to be required if the production plans outlined in Russia’s Energy Strategy are to be achieved. **E**

1 *BP Statistical Review of World Energy, 2010.*

2 *“Circum Arctic Resource Appraisal: Estimates of Undiscovered Oil & Gas North of the Arctic Circle”, USGS, 2008.*

3 *Russian Energy Strategy to 2030, published 2009.*

4 *Interfax, 4 May 2011, “Finance Ministry hopes to enact Project 60/66 oil export duties in July”, Moscow.*

5 *Interfax, 15 January 2011, “BP’s Gulf of Mexico experience on reason for Russia deal”, Moscow.*

6 *Rosneft press release, 27 January 2011.*

7 *Interfax, 14 January 2011, “Rosneft, BP form global alliance, plan \$8 billion share swap”, Moscow.*

8 *Interfax, 23 May 2011, “Energy Ministry ready to delay parity gas prices until economy ready”, Moscow.*

9 *Interfax, 7 April 2011, “Gazprom requests tax breaks for Eastern Russia gas projects”, Moscow.*

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*Photo: Gazprom*

