The Future of Russian Oil Production and Exports

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Russia holds the world’s largest hydrocarbon resource base and its importance is magnified by the sensitive geo-politics of many other large producing countries.

**Proved Reserves By Country**

- Russia is the largest holder of oil and gas reserves in the world and the second largest oil producer.
- Its importance is magnified by the fact that many of the other large resource holders are in politically sensitive areas or do not welcome IOC investment.
- As a result, Russia is becoming an increased focus of international attention as a potential global energy hub and as a country where international technology can combine with domestic NOC access to resources.
With one exception, Russian oil output has grown in every year since 1998

Following its post-Soviet collapse, Russian oil production has rebounded from its low of 5.8mmbpd to the current level of 10.3mmbpd

Output is expected to grow by a further 1-2% in 2012 as new field developments and continuing brownfield recovery compensate for mature field declines.
Crude oil exports have stagnated, but product exports have been encouraged by tax incentives.

- Crude exports in particular have flattened out as demand growth in Europe and North America has slowed, with Asia becoming an increasingly important destination.

- Oil product exports have continued to grow, mainly thanks to sales of surplus fuel oil driven by export tax incentives that have also contributed to the decline in crude exports.

- Domestic demand growth for higher quality products has replaced oil export growth, with margins for product sales often being higher than for crude exports.
The Russian economy remains heavily dependent on the oil sector

Oil exports make a vital contribution to the Russian economy

The country’s financial strength is closely tied to the oil price

- Oil and product exports account for more than half of Russia’s export revenues
- The oil sector also contributes over 40% of federal budget revenues
- The rise in Russia’s financial strength can be very closely correlated with the global oil price
- The Russian federal authorities have a difficult balancing act to manage – tax revenues versus fiscal incentives for oil companies
The Russian Energy Strategy sees growth in oil production but a decline in total exports

- The Russian Energy Strategy is out of date (2009) but is the only official view of future of oil production and exports.

- Output is forecast to rise to 10.6 mmbpd but exports are set to decline as domestic demand grows.

Note: Phases 1-3 are shown as a range.
Russia’s brownfield miracle is stalling

- Russia’s brownfield miracle saw international technology brought to bear on Soviet-era fields
- The initial results were spectacular, with the examples of Yukos and Sibneft being followed by Rosneft, LUKOIL and the rest of the sector
- However, the low hanging fruit has now been claimed and brownfield production is in decline
- LUKOIL is particularly pessimistic about the possible outlook without tax breaks
Improving recovery from existing fields can still reap huge benefits

- In fact the potential for further gains from enhanced recovery is large
- Secondary and tertiary methods of reservoir management and development have yet to be widely applied and could significantly increase recovery rates
- Average Russian field recovery rate is 30-35% compared to 45-70% targets for international fields
- Each 1% improvement in recovery could add c.5-6bn barrels to proved reserves

Average reserve replacement in Russia since 2000 has been 103%

Russia also has significant upside potential from further enhanced recovery

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Russia also has significant upside potential from further enhanced recovery
Russia’s relevance to the global energy economy will be enhanced by the growth potential in its existing fields and its prospective resources.

Russia’s Prospective Oil & Gas Resources

- South Kara Sea – 136bnboe
- Yenisey Khatanga – 31bnboe
- South Barents Sea – 38bnboe
- European Russia – 8bnboe
- West Siberia – 67bnboe
- East Siberia – 70bnboe
- Black Sea – 30bnboe*
- Caspian region – 14bnboe
- Sakhalin – 9bnboe
- Other Arctic – 85bnboe
- East Siberia – 70bnboe

• Russia also offers significant exploration opportunities across its broad geography

• Much of the resource is located in the existing basins, but in more remote parts (e.g. the offshore Arctic section of West Siberia)

• A key question will be the split of oil and gas discoveries, particularly offshore
The Upstream Tax Regime has been focused on brownfield recovery rather than new investment

Upstream economics in Russia

Current marginal upstream oil tax in Russia

- Upstream costs are dominated by tax, in particular MET and Export Tax
- Above an oil price of $25/barrel, the marginal tax rate has been as high as 90%, but has recently been reduced thanks to a cut in the top rate of export tax
- Nevertheless, the current tax regime continues to provide little incentive for new developments or higher cost secondary and tertiary field exploitation

Source: SFAS 69 data from company financials
However, a shift in the burden from upstream oil to downstream and gas is occurring.

- The upstream tax burden is starting to be reduced via a rebalancing with downstream and gas.
- The new “60/66” oil export tax regime has seen the highest rate of oil export tax reduced to 60%.
- This could fall further to 55% as negotiations with the ROCs continue, although Ministry of Finance concerned about revenues to Budget.
- In addition, the tax burden on the gas sector is set to increase.
- A sharp increase in gas MET could offset future reductions in the oil sector.
In the Arctic tax incentives are being offered to encourage development of a commercially and politically important area

*Proposed offshore tax breaks that prompted recent IOC JVs with Rosneft*

<table>
<thead>
<tr>
<th>Group</th>
<th>Location</th>
<th>IRR target*, %</th>
<th>Royalty, % of sales price (replacement of Mineral Extraction Tax)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Baltic/Azov Seas</td>
<td>16.5%</td>
<td>30%</td>
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<td>2</td>
<td>shallow waters of the Black Sea, Pechora and White Sea, southern part of the Okhotsk Sea, offshore Sakhalin</td>
<td>18.5%</td>
<td>15%</td>
</tr>
<tr>
<td>3</td>
<td>deep waters of the Black Sea, the northern part of the Okhotsk Sea, southern part of the Barents Sea</td>
<td>20.5%</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>offshore projects in the Arctic (includes Kara Sea), the northern part of the Barents Sea, the Eastern Arctic</td>
<td>22%</td>
<td>5%</td>
</tr>
</tbody>
</table>

- Russian government clearly sees development of huge Arctic resources as a political and commercial priority
- ExxonMobil JV with Rosneft has catalysed the first introduction of a more profit-based system for offshore field development in Russia
- However, although positive for IOCs offshore, this new system is unlikely to become prevalent across onshore Russia any time soon
- Impact of Arctic exploration also likely to be very long-term (beyond 2025), but important politically for Russia to be seen to be active in the region
Rosneft’s dominance has made it the obvious choice for IOC partnership, but could be a limiting factor

- Following its announced acquisition of TNK-BP, Rosneft has become a proxy for the Russian oil industry
- It controls 40% of Russia’s oil production and has preferential access to acreage across the country
- It has become the leader in partnership with IOCs – this could bring long-term benefits, but the concentration of these partnerships with one company may be a limiting factor
Given the long-term nature of Arctic exploration, development of unconventional onshore reserves may be more interesting in the short term.

- President Putin keen to encourage the further development of “difficult to recover” reserves, which include high viscosity and low permeability resources.
- The Bazhenov layer is one new example, which could contain 20-150 billion barrels of oil resources.
- A sliding scale of MET according to reservoir difficulty and oil quality has been proposed by Ministry of Finance, although this skews incentives towards more difficult resources.
- Discounts will range from 20% to 100%, with the new laws likely to be approved in 2013.
- Realistic production from the Bazhenov could reach 300-500kbpd by 2020.  
  - Exxon-led drilling to start in 2013, after which potential will become clearer.
Russia is also using tax breaks to encourage a shift East in its development programme

- Russia is increasingly looking to Asia as a source of demand growth for oil (and gas) exports
- Export tax exemptions and MET reductions have been used to incentivise specific fields, with target IRRs of 15%
- However, the somewhat ad hoc nature of the tax breaks has limited their success
- Nevertheless, the initial expansion of the ESPO to 1mmbpd will encourage increased oil flows to eastern markets, including oil products from a planned eastern refinery

Development of ESPO encouraging East Siberian developments

Potential oil output in East Siberia could reach 1.6mmbpd
Increasing condensate output can also be a driver of increased liquids output

- The increasing prevalence of wet gas will see condensate production jump over the next decade
- Gazprom has been the larger producer to date, but Novatek and a number of other “Independents” will be developing new deep gas condensate fields
- Processing and transport infrastructure is an issue, but the economics of deep gas condensate fields are compelling
- West Siberia alone could see 700-1000kbpd of condensate output within 10 years
The final outcome will depend upon politics as much as corporate decision-making, with tax the key catalyst

The Russian government has been quite successful at balancing oil production levels and tax receipts over the past decade.

The resources to keep Russian output at 10-11mmbpd are certainly available.

Ad hoc adjustments to the tax system for onshore fields are likely over the next few years as and when concern over production levels is felt, but this may lead to distorted incentives.

The key risk is that top-down political decision-makers get the balance wrong.
Demand outlook is also a key question mark. Increasing vehicle ownership versus declining population

Oil exports will to an extent depend upon Russian domestic oil consumption, which has been rising by c.1.4%p.a.

Vehicle ownership remains relatively low but the population is declining and vehicle efficiency will continue to improve

Russian energy strategy sees 1%p.a. growth to 2030, but this figure could easily be a generic over-estimate
Domestic demand and refinery upgrades are likely to change the mix and volume of Russian product exports

- Putin has essentially insisted that oil companies undertake widespread refinery upgrading
- Tax incentives have been provided, but could be removed if capex is not spent
- If upgrading plans are met in full then Russia will shift from being a fuel oil exporter to being a major diesel exporter
- Over time increasing domestic demand for higher quality products will likely reduce export sales
Conclusions

- Russia exports 6-7mmbpd of crude oil and oil products, equivalent to c.12% of global oil trade

- The main threat to these exports is a decline in Russian oil output as existing fields become increasingly mature

- However, Russia has vast greenfield resources across its geography as well as unconventional resources in existing areas which are now starting to be exploited

- International partners are being brought in to help with more complex developments, largely marshalled by Rosneft

- Ad hoc tax incentives do not offer a stable commercial environment, but to date have been enough to keep production growing

- Exports are likely to remain flat or go into gradual decline as domestic demand rises, and the split of oil product exports will shift towards diesel

- Asia will become an increasing focus as the ESPO is expanded and East Siberia is developed