



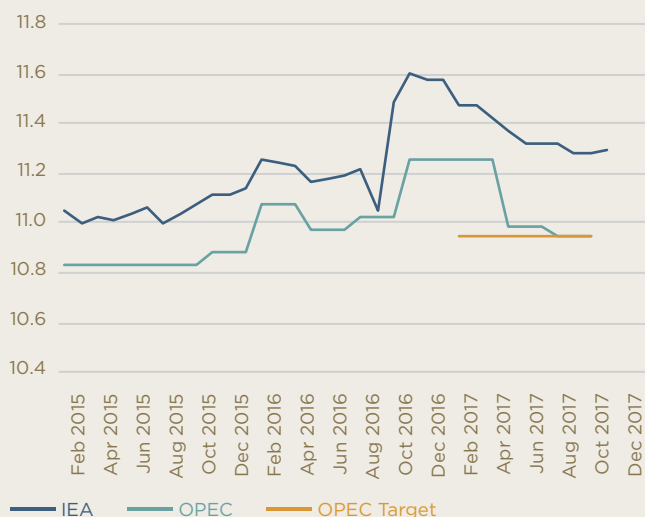
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Expert energy opinion and insight

Russian oil and gas: more growth to come

Despite years of sanctions and the recent extension of the OPEC agreement, Russia remains in an oil and gas expansion phase that has been underway, with some brief dips, since the early 2000s. Upstream activity is brisk; new fields are being brought on stream; pipelines and LNG facilities are under construction; and the country's exports are rising. Any pause in oil-output growth, if it continues in 2018, will be temporary: output may rise from 11.3m b/d in Q3 2017 to close to 12m b/d by 2020. In gas, Gazprom, Novatek and Rosneft all plan significant growth in export capacity. Total Russian output was under 600bn cubic metres in 2016, but held back by consumer demand. This ever-rising upstream power will be a feature of Russian energy and petro-diplomacy for the foreseeable future.

FIGURE 01: **RUSSIAN OIL OUTPUT ESTIMATES
VERSUS CUT TARGET**

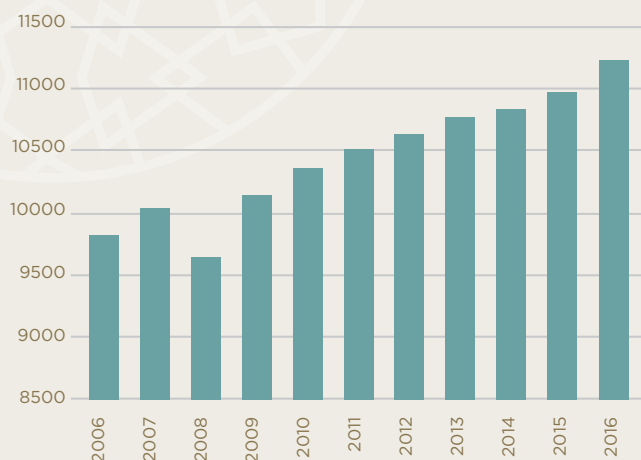


Note: IEA numbers include NGLs; OPEC numbers calculated quarterly
Source: IEA, OPEC

Despite some hesitancy, Russia re-committed to its oil pact with OPEC on 30 November, pledging to continue cutting 300,000 b/d of supply. Russia's involvement was critical and Saudi Arabia invested considerable diplomacy to secure it. But Russian energy minister Alexander Novak secured a key caveat in the deal: the cuts will be reviewed in June. At that stage, once the reaction of tight oil and other non-OPEC suppliers to recent oil-price strength is clear, Russia may have reasons to abandon its participation.

Russia's cuts in 2017 have, in any case, flattered to deceive: clarity has been scant. At the announcement of the pact in Vienna in December 2016, Novak said his country would cut gradually, over six months, and reduce oil output to 10.947m b/d (OPEC later recorded the commitment as being 10.98m b/d). Yet according to the International Energy Agency (IEA), Russia's monthly output since January 2017, when the deal came into effect, has not fallen below 11.28m b/d (including NGLs). By the IEA numbers, Russia has cut 300,000 b/d from a high of 11.6m b/d in October 2016. But that peak was anomalous: the product of a temporary and convenient pre-deal surge in production (see Figure 01). Only OPEC's numbers (excluding NGLs and recorded on a quarterly basis) show Russia in full compliance. Exports have not fallen.

Russia will have more difficulty complying with the cuts in 2018. Restraint would mean a genuine halt to output growth, ending a nine-year streak of production increases (see Figure 02). Russian producers will have to delay upstream development, and this may be painful, both in opportunity-cost terms and because of the expense of idling crews and operations in the far north. An array of greenfield projects — favoured over mature developments by Russia's tax regime — are in advanced development or ready to ramp higher (see Figure 03). Furthermore, a corporate shift has been underway in Russia. Another phase of state-led consolidation is one of its features (exemplified by state-controlled Rosneft's takeover of state-controlled Bashneft in a "privatisation" last year). But even more significant, in overall production terms, is the performance of smaller producers, typically at newer fields. Hence, while

FIGURE 02: RUSSIAN OIL OUTPUT 2006-16 ('000 B/D)


Source: BP

Rosneft, Lukoil and Surgutneftegaz have in recent years struggled to maintain output (largely in maturing Western Siberian legacy plays), smaller oil producers like Gazprom Neft, Novatek, Bashneft and a host of independent firms have accounted for much of the growth. Novatek, for example, brought on stream the Yarudeyskoe field at the end of 2015, adding 70,000 b/d of output in the year after — one of several new developments in northern Western Siberia that helped lift the company's output by 70% between 2015 and 2016.

Over the coming years, production growth in Russia will rely on two key physical factors, and two fiscal ones. The physical factors are the mitigation of declines in brownfields and the pace of development of greenfields: net increases depend on both. The brownfields last year accounted for about 60% of total output, and the big producers have succeeded recently in keeping the decline rate to just 2%. At Yuganskneftegaz, the unit operating Rosneft's workhorse field in Western Siberia, decline actually reversed into growth in 2016.

The fiscal factors are Russia's taxation system and the value of the ruble. The ruble's depreciation since 2014 has, in effect, halved the services costs for Russian producers in dollar terms. Some economists argue that the ruble-oil-price correlation has weakened in the past year. But assuming it maintains some relationship, any price appreciation now will also lift the ruble and thus the dollar-cost of services. Understanding this is crucial to understanding Russian producers' ambivalence about the OPEC effort to stabilise prices at a higher level. Oil-price appreciation is not the immediate win for Russian oil producers that it is for American tight oil firms or Saudi Arabia (where the riyal is pegged to the dollar).

A similar dynamic affects Russia's tax system. Royalties on production (in the form of the Mineral Extraction Tax, or MET) and an export tax on sales made to countries outside the Eurasian Customs Union are the two most significant forms of government rents (other taxes account for less than 10% of the total). Allowances in the MET encourage far-eastern greenfield development and enhanced oil recovery; and recent changes, the so-called "big tax manoeuvre" of 2015, have shifted the tax burden more towards the MET than the export tax.

Nonetheless, the fiscal thrust is the same: the taxes increase as the oil price rises. This means the government is more exposed to an oil-price drop than producers, and corporates more exposed as the price appreciates. This too explains Russian producers' resistance to the cuts agreed with OPEC, as opposed to the Kremlin's support for the pact. The effect of the tax regime, according to consultants EY, is that upstream profit for companies will rise as the oil price increases from, say, \$40 to \$60 a barrel — but falls steeply with oil-price rises above \$60/b. Indeed, EY calculated that in 2015, producers would have profited by about R1,700 (\$29) more per tonne with oil trading internationally for \$50/b than at \$95/b. The Kremlin is well aware of the dynamic. A tax overhaul to the companies' benefit may be in store after the Russian presidential election in March 2018: a way of rewarding the producers for keeping to the Kremlin's pact with OPEC.

Growth path

Either way, activity levels during 2017 suggest Russian producers remain on a growth trajectory. Analysts from Credit Suisse think companies have amassed 650,000 b/d of spare capacity over the past two years. Recent drilling activity explains how. In the first nine months of 2017, for example, Rosneft increased total crude oil and NGL output to 4.585m b/d, 11.4% more than in the first six months of 2016. Its capex increased 33% "consistent with strategic goals". Development drilling increased by 26% and commissioning of new wells by 19%, including a 34% leap in horizontal wells completion. Rosneft also agreed new tax incentives with the Russian government, to come into effect from the start of January 2018, at the Samotlor field. It currently produces 382,000 b/d, but Rosneft says it will drill 2,100 new oil wells to allow for production growth of 50m tonnes of extra production over the next 10 years.

Lukoil, Russia's second-biggest oil producer, seems equally bullish on its oil outlook. It hopes soon to proceed with new projects in the Caspian and Baltic seas and will increase its drilling in Western Siberia by 10-15% to reduce decline rates. At the Filanovsky field, in the Caspian, it plans to add a second ice-resistant production platform and pipelines in 2018; a third wellhead platform will follow in 2019. Production more than quadrupled in the first year of operation to reach 98,000 b/d in Q3 2017. Phase three in 2019 envisages an output rise to 6m tonnes (120,000 b/d). Its Yaregskoe and Pyakyakhinskoe fields are also ramping up; as has production drilling in mature Western Siberian fields (up 27% in the first half of 2017). In its mature areas, Lukoil believes it can eke out another 100,000 b/d by spending \$1bn over the next three years.

Gazprom Neft has been similarly active. Its total hydrocarbons output in the first nine months of 2017 rose by about 6%, year-on-year. Exports increased by almost 50%. All this upstream activity is visible also in the data from Eurasia Drilling, Russia's largest services firm. By the end of October, Eurasia had drilled 4.766m metres — when the full year results are in, the number will be well above 2016's 4.883m metres. The same is true of its total number of wells drilled in the first 10 months. The number of metres drilled horizontally had already exceeded last year's total by end-October.

FIGURE 03: RUSSIA'S MAJOR GREENFIELD OIL ASSETS

Fields	Companies	Peak Output (kbpd)	Launch Date
Vankor	Rosneft/ONGC/Indian consortium	440	2009
Verkhnechonsk	Rosneft/Beijing Enterprises	175	2008
Yurubcheno-Tokhomskoye	Rosneft	100	2017
Russkoye	Rosneft	130	2018
Naulskoye	Rosneft	20	2017
Lodochnoye	Rosneft	40	2019
Labaganskoye	Rosneft	23	2016
Kuyumba	Rosneft/Gazprom Neft	65	2019
Messoyakha Group	Rosneft/Gazprom Neft	130	2016
Suzun	Rosneft	90	2016
Tagul	Rosneft	100	2016
Filanovskoye	Lukoil	120	2016
Imilorskoye	Lukoil	100	2015
Pyakiyakhinskoye	Lukoil	50	2016
Prirazlomnoye	Gazprom Neft	110	2014
Novy Port	Gazprom Neft	170	2014
Trebs/Titov	Bashneft/Lukoil	100	2016
Yarudeyskoye	Novatek	70	2016
Taas Yuriakh (phase 2)	Rosneft/BP/Indian consortium	100	2018

Source: OIES, Sberbank, company reports

All told, the consensus among analysts is that Russian oil output will grow annually by about 1% for the next few years. From the 11.3m b/d liquids baseline used by the IEA, this implies growth to 12m b/d by 2023. In the very short term, Russkoe, Yurubcheno-Takhomskoe and Kuyumbinskoe on their own could add 100,000 b/d of growth in 2018, and more later. In total, greenfield net additions could amount to 400,000 b/d next year, according to the Russian Academy of Sciences.

For the international market, the impact of this would be twofold. First, the absolute volume of the increase will be significant. Second, exports may rise disproportionately, depending on the Russian economy. Consumption of oil products in Russia is closely correlated with GDP growth, so economic weakness means more oil is available for export. Moreover, Russia's refineries are nearing the end of a modernisation programme, the upshot of which will be about 200,000 b/d less demand from the country's refiners.

In the longer term, Russia is also well positioned to cultivate more prospective, harder-to-exploit plays. These include Eastern Siberian, Arctic offshore, Black Sea, and other conventional deposits; but also shale oil resources such as those in the Bazhenov, a play that has been little exploited to date but holds resources larger than those in the Permian. Hydraulic fracturing (a technique already extensively used in Russia) and longer lateral wells (increasingly deployed) will be essential, and so the pace of development may partly depend on Russia's access to the kind of Western technology currently prohibited by US sanctions.

But Rosneft, as the country's upstream champion, is keen. It said in June that it would spend \$8.4bn developing such deposits, more than half of which would be devoted to the Arctic offshore. Rosneft believes the region will account for as much as 30% of Russia's output by 2030. In the meantime, oil development costs across Russia's producing resources remain low, at under \$20/b. In short, for all the talk of American shale oil's resilience to low oil prices, Russia's oil sector has withstood both the market's fall and the impact of sanctions.

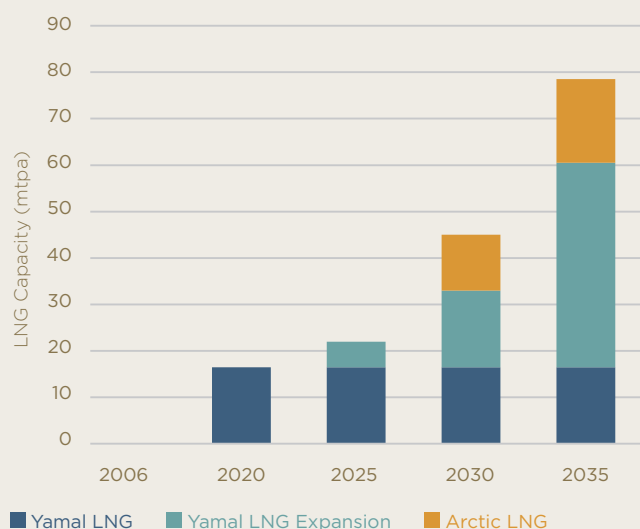
Natural gas expansion

The natural gas outlook is also one of expansion, although the underlying drivers are different. Russia does not have much gas storage, so production reflects demand. This was seen in recent years, as European and domestic consumption faltered. Thus, total Russian output stood at 579bn cubic metres in 2016, according to BP, down from 2011's high of more than 600bn cm. BP expects output to rise to 734bn cm/y by 2035 — but that is a forecast largely based on the expected pull from customers, not upstream deliverability, where the potential is almost infinite. In the meantime, Gazprom says it can lift output quickly by 150bn cm/y, if needed.

LNG production is somewhat different. Output is currently just 10m tonnes a year from one plant (Sakhalin II) and existing plans will only take it to 25m t/y or so by 2020, as Novatek's Yamal LNG plant comes on stream and production ramps up. Further ahead, the project schedule is speculative — although rival producers should not ignore them. Gazprom's Baltic LNG project would have capacity

of 5m-10m t/y, but not until the mid-2020s. Novatek may decide to add a second phase to its project, doubling capacity, and plans a new plant also in the Arctic (see Figure 04). Gazprom would like to expand Sakhalin II, but Rosneft and its own speculative LNG plans in eastern Russia stand in the way.

FIGURE 04: POTENTIAL GROWTH IN NOVATEK LNG OUTPUT



Source: OIES

Gazprom continues to dominate the upstream — and its production has been rising steadily, reflecting in part the renewed pull on its gas from Europe. Output in 2017 will reach about 470bn cm, and its exports have reached a record high of about 190bn cm.

For future growth, much depends on its export-infrastructure programme — and securing customers at the other end of the new pipes. Gazprom's flagship project is Nord Stream 2, a doubling of capacity, to 110bn cm/y, on the existing route through the Baltic Sea to Germany. It should make progress in 2018, notwithstanding political opposition in Europe and the US. As an alternative route into Europe, Gazprom's Turk Stream will start up two pipelines in 2019, with total capacity of 31bn cm/y.

The more important project, at least geopolitically, is Power of Siberia, the 3,000km pipeline to carry 38bn cm/y to China. Construction should be completed by end-2019. But Gazprom believes this will only be the cornerstone of a massive surge in exports to its east — part of the "pivot to Asia". The proposed 30bn cm/y Altai pipeline would connect Western Siberia and western China. All told, Russian gas exports to Asia could conceivably reach 100bn cm/y within the next decade, increasing competition with other exporters targeting the continent.

Of the upstream capacity to supply all this there are no doubts. Gazprom lists 15 major developments underway (some already producing), including the Yamal mega project, that will ramp up over the next decade and beyond to more than 330bn cm/y of capacity.

The less certain matter for Russia's gas upstream is the mounting threat to Gazprom's pipeline-export monopoly. Permission for Novatek's LNG development has already broken the state-controlled firm's grip on all exports. But Rosneft is now biting at Gazprom's pipeline heels too. The oil giant produced 67bn cm of natural gas last year, but has announced a target of 100bn cm/y. It wants to take a 20% share of the domestic market, but its main focus is exports.

Russia's Far East may be the testing ground for Rosneft's export ambitions. Although Rosneft has talked of building the Pechora LNG plant, in Nenets, and developing LNG facilities in the north too, it is on Sakhalin Island where it can conceivably first muscle in on Gazprom's monopoly. Gazprom wants Sakhalin I's gas for use at a third LNG plant on Sakhalin; but for now Rosneft says it will use this to develop its own 5m t/y LNG plant. It may strike a deal instead: Rosneft sending gas to Gazprom, in exchange for capacity on Gazprom's Asian pipelines.

The prospect of Rosneft breaking Gazprom's pipeline export monopoly may be uncomfortable for the gas giant, but it will only enhance the potential supply growth from the upstream. Alongside this development is Novatek's startling rise. The success of its Yamal LNG project — developed alongside foreign partners, on time, and on budget, having eschewed a partnership with Gazprom — has marked its entry. It seems unlikely that Novatek will stop at phase one of Yamal LNG, and indeed a final investment decision on phase two may arrive in 2018. Beyond that, it also talks of developing a second plant, across the Ob river, on the Gydan Peninsula, Arctic LNG-2.

Conclusion

Russia's oil-output growth since the turn of the century has defied predictions of steady decline, and come hand-in-hand with a distinctly Russian model of state-led corporatism. In oil, the management of Western Siberian decline rates, the fiscal prioritisation of hard-to-extract resources that has encouraged greenfield development, and local factors such as the weak ruble have all spurred growth. Notwithstanding any pause from the extension of the OPEC cuts, this growth will continue. Russian production will rise towards 12m b/d in the early 2020s. Exports will rise too.

In gas, Gazprom's domination of the upstream has been under threat for several years; now its monopoly on pipeline exports is as well. The opening of new export routes to Turkey and especially China, and its expansion of Nord Stream 2 will give Russia the capacity to respond to any demand growth in consumer countries. Low production costs — around \$0.84/mBtu, according to Gazprom — and known reserves of more than 32 trillion cm, all supported by extensive infrastructure, leave the country well positioned to take advantage of rising global demand. LNG output may be minimal now, and the past decade has been characterised by delays and project abandonments, but its potential should also not be discounted. Novatek's success and Rosneft's strategic shift to gas suggest the coming decade in Russian LNG will be more fruitful than the last. All told, Russia is ready to maintain steady oil and gas growth: a fact that will further enhance its geopolitical strength and growing clout on international markets.