

Analysis

How Sustainable Is Russia's Energy Power?

By Philip Hanson, London

Abstract

Russia has extensive resources, but will it be able to continue production at current levels and maintain its rapid growth? This article points to several trends that raise concern.

Russia's Resource-Rich Economy

The Russian Federation owes much of its recent growth and much of its rediscovered influence in the world to oil. What are the prospects of its hydrocarbon reserves continuing to support that growth and that influence in the longer run?

Those resources are not about to melt away. Russia's proved reserves of natural gas were 26.3 percent of the world total at the end of 2006, and are the largest held by any country. Its proved oil reserves, at 6.6 percent of the global aggregate, are less striking, but still put Russia in seventh position among oil producers (BP 2007). If there is any doubt at all about the continuing role of those ample resources, it stems from two sources. Will Russia's oil and gas producers be able to continue to increase – or even to maintain – production levels during the next decade or so? And, even if they can, is a Russia that continues to rely heavily on oil and gas exports likely to continue to grow fast?

These are the questions to which this article is addressed. The next section is a description of the nature and scale of current Russian "energy dependence." Then we consider the prospects for future output and export levels. After that we review the main risks attending future Russian growth.

The main conclusions are that hydrocarbons output growth is not secure over the next decade and will at best be slow; that gas export volumes, in particular, could well stagnate; that symptoms of the so-called "Dutch disease" can already be seen; and that Russian policy-makers are dangerously complacent both about future world oil prices and about the prospects of a state-led "innovation" strategy for diversifying the economy.

Russia's Dependence on Oil and Gas

Oil and gas are greatly important to the Russian economy, as Graph 1 (on p. 11) shows. Revenues from the hydrocarbons sector contributed around half of the income of the federal budget in 2006. The oil price is important to this relationship because the resource-tax and export-duty rates rise with the world oil price.

Oil, oil products and gas contribute about three-fifths of aggregate export earnings (59 percent in 2007 – www.customs.ru/ru/stats/stats/trfgoods/popup.php?id286=376). If coal and metals are added, the overall natural resource share of exports in recent years has been on the order of four-fifths. Within hydrocarbons exports, crude oil makes up somewhat over a half by value, oil products about a quarter and natural gas only a fifth.

Russian gas exports are nonetheless newsworthy because of the nature of the gas market. Russian gas is supplied almost entirely by pipeline. Liquefied natural gas (LNG) supplies from Sakhalin to Asia-Pacific markets are only just beginning. Pipelines entail segmented markets, potential transit problems and, in general, little flexibility, so that any disruption in supplies from producer A affects customer B and is not diffused across a wider gas "market." In most places, indeed, there is no such thing as a gas market. Gas supplies are dominated by long-term bilateral contracts.

Thus Russian gas exports are far less important financially to Russia than the trade in its oil, but they are a more sensitive issue for the countries that receive them.

The contribution of oil and gas to GDP is around 25–30 percent at present, if value added in hydrocarbons and GDP are compared at current (ruble) prices. (see Graph 1 on p. 11)

Russia is not a typical petro-state. The oil and gas sector employs less than 2 percent of the workforce. This share is less than the proportion employed on the railways. Nor do oil and gas extraction and processing contribute greatly to demands on the output of other sectors (Nakamura 2006). This disconnect does not mean that Russia is immune to the complications associated with the so-called natural resource curse. But it does mean that there is a lot of activity in the economy that is not directly tied to oil and gas.

When commentators describe recent Russian economic growth as "oil-fuelled," however, they are quite right. When oil prices (and hence oil-product and gas

prices) rise, Russian export earnings rise and this wealth feeds into business profits, government revenue and personal income, in turn fuelling investment, government spending and household consumption, raising demand for the output of the rest of the Russian economy (and for imports), and thus indirectly boosting production as a whole.

Therefore Russian GDP is sensitive to the international price of oil. A sustained fall in the oil price would slow and even, if large enough, reverse Russian economic growth. The Institute of the Economy in Transition estimated that a fall to \$25/barrel in the Brent oil price between 2005 and 2009 would generate a fall in GDP in 2009 (Gaidar 2007, p. 255). A more recent exercise by Merrill Lynch analysts concludes that a fall to \$50/barrel would (other things equal, and against the background of 8.1 percent growth in 2007) lower Russian GDP growth to 5.3 percent (*Vedomosti* 3 March 2008).

Lately oil prices have been in a historically high range, and rising. This increase has masked the fact that Russian oil production and export volume have slowed markedly from 2004. Oil output growth was 11 percent year on year in 2003, and has since fallen steadily to 2.1 percent in 2007 (Rosstat data). The number of new fields opened has fallen alongside this deceleration of output (Kryukov and Borkova 2008). Export volume growth has slowed in a similar fashion, as Graph 2 (on p. 11) illustrates. Therefore recent earnings growth has come mainly from price rises whereas in 2000–04 it was driven by both price rises and volume growth.

Can Russia Maintain Oil and Gas Export Growth?

So far as geology is concerned, Russian exports of oil and gas could grow quite strongly for a long time to come. So far as practical possibilities in the next ten years are concerned, prospects are less rosy. Gas output growth, dominated by the state-controlled near-monopoly, Gazprom, has been sluggish for decades. Oil output growth, as has just been noted, slowed more recently as state influence on the industry was re-asserted, with high officials using administrative pressure to acquire previously private assets, while the government increased the tax burden.

The Russian government's draft energy strategy to 2030 accepts that slow growth will continue. Its more optimistic (of two) scenarios has gas production growing at an average annual rate of 0.9 percent, 2005–2030, and oil production growing at only 0.8 percent p.a. (Minpromenergo 2007). These projections at no point show output falling, across any of the five-year periods for which the projections are shown. Both

the favorable and the “conservative” scenario also show total exports (including re-exported Central Asian gas) growing, albeit slowly. It is nonetheless striking that the Russian authorities apparently accept that the recent slow growth will continue – indeed, that it will become even more sluggish. World hydrocarbon demand is widely expected to grow over this period at more than 1 percent a year.

The draft strategy makes two key assumptions about the future: the authors expect everyone else's hydrocarbons output to stagnate, and they expect high prices to continue. The Russian planners project the average Urals price in 2030 at either \$60/b (conservative scenario) or \$70/b (favorable scenario). This looks dangerously complacent.

Gas exports rise, in the favorable scenario, from 203 billion cubic meters (bcm) in 2005 to 275 bcm in 2030. This expansion is made possible, despite the slow growth of output, by

- Increasing the import and re-export of Central Asian gas;
- Extensive substitution of nuclear and coal for gas in Russian power stations, releasing more gas for export;
- Increased domestic energy efficiency through large increases in domestic electricity and gas prices (initially to business users and then to households), thereby also releasing more gas for export.

For all of this to happen, Russian control of a large share of Central Asian gas needs to be maintained, a considerable number of nuclear power stations need to be built rather fast, fields in Yamal need to be brought on stream soon, the offshore Shtokman field has to be producing in 2014, the East Siberian Kovykta field needs to do likewise, and gas prices to industrial users need to be raised about three-fold in 2011.

For gas exports to Europe, in particular, to be maintained requires more than this. The Eastern Gas Program of the same ministry (www.minprom.gov.ru/activity/energy/news/329) envisages gas exports to the Asia-Pacific region at 78 bcm in 2030. That implies a drop in the total of gas exports to other CIS countries, Turkey and Europe between 2005 and 2030 – even if all the output and total export targets are met. It is probably unfair to assume that any ministry anywhere does joined-up planning; but at the very least the basis for maintaining gas export levels to Europe looks flimsy.

Will Oil and Gas Keep Russia Growing Fast?

These worries about Russian export capability in the medium and long term could (just about) be misplaced. Even if they are, the question remains whether Russia's oil-fuelled economy can continue to grow fast.

There are several grounds for skepticism so far as Russia is concerned, over the next few years.

The oil price might, despite conventional wisdom to the contrary, fall significantly and for a substantial period. Slowdown or recession in the West is one likely influence. More speculatively, and looking further ahead, it may be noted that it is precisely when everyone expects the oil price to stay high long-term that there is an incentive for business to invest in energy-saving equipment.

The Russian non-oil, non-gas, non-metals economy is vulnerable to the continuing rise in the real effective exchange rate of the ruble, reducing its competitiveness. This “Dutch disease” effect is one element in the natural resource curse. Already there is evidence that, product-group by product-group, imports have been rising faster than domestic production (Ollus and Barisitz 2007).

The spare capacity that assisted recovery growth after the big drop in output in 1989–99 has been used up.

The working-age population began to fall in 2007.

The pre-requisites for Russia to develop successfully as a knowledge economy (which is what the government is aiming at) are weaker than is widely believed (Cooper 2006). Therefore economic diversification will

probably be harder than the Russian leadership claims to believe.

Conclusions

Those Russian policy wonks who do national economic projections in the Ministry of Economic Development and Trade see Russian growth as slowing if the country continues to rely on oil and gas (Elvira Naibullina interview, *Vremya novostei*, 29 February 2008). Those who plan developments in the oil and gas sector project very slow growth in that sector. They show exports of gas increasing long-term, but only under a number of heroic assumptions. Even then they appear to be projecting, implicitly, a fall in gas exports westwards over the next 22 years.

The Russian economy is probably not about to implode, but the basis on which it has enjoyed rapid growth for the past nine years does not look secure over the next decade. Europe’s problem with Russia as an energy supplier, particularly of gas, is not that “Moscow” will “turn off the tap” for the sake of some political gain or other. Short of a near-war situation, that is very unlikely. Russia needs the money. It is not Russian political will that is in doubt; it is Russia’s ability to maintain supplies.

About the author

Professor Philip Hanson is an Associate Fellow in the Russia and Eurasia Programme at The Royal Institute of International Affairs (Chatham House).

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