

DEVELOPMENT OF THE OIL SECTOR: POSSIBILITIES AND LIMITATIONS¹

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Russian oil sector has achieved maximum levels of production and exports. Oil extraction is at the highest point since 1990 and oil exports are at the all-time maximum. Meanwhile, prospects for the development of the oil sector are determined by deterioration of the oil extraction conditions owing to the depletion of producing deposits located in the developed regions and considerably higher costs required for the development of new oilfields and tight oil deposits. Sectoral technological sanctions imposed on Russia and the low world oil prices hamper the development of the oil sector.

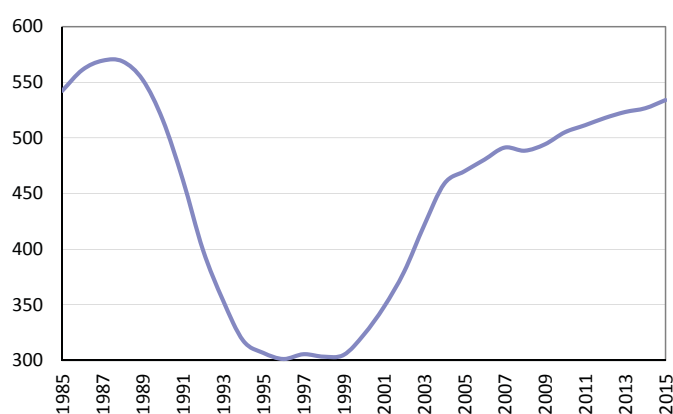
Table 1

RATIO BETWEEN PRODUCTION, CONSUMPTION, AND EXPORT OF OIL IN RUSSIA

	2000	2005	2010	2011	2012	2013	2014	2015
Oil								
Production, mn tons	323.2	470.0	505.1	511.4	518.0	523.3	526.7	534.0
Exports, mn tones	144.5	252.5	250.4	244.6	239.9	236.6	223.4	244.5
Net exports, mn tons	138.7	250.1	249.3	243.5	239.1	235.8	222.6	241.6
Domestic consumption, млн т	123.0	123.1	125.9	140.7	142.1	137.5	141.3	122.2
Net export in % to production	42.9	53.2	49.4	47.6	46.2	45.1	42.3	45.2
Petroleum products								
Exports, mn tons	61.9	97.0	132.2	130.6	138.1	151.4	164.8	171.5
Net exports, mn tons	61.5	96.8	129.9	127.2	136.8	150.0	162.8	170.2
Oil and petroleum products								
Net exports of oil and petroleum products, mn tons	200.2	346.9	379.2	370.7	375.9	385.8	385.4	411.8
Net exports of oil and petroleum products in % to oil production	61.9	73.8	75.1	72.5	72.6	73.7	73.2	77.1

Sources: Rosstat, Ministry of Energy of Russia, FCS of Russia, own calculations.

In 2015, the Russian oil industry made two records: crude oil extraction reached 534 mn tons, which is the highest level since 1990, and the Russian oil exports (exports of crude oil and petroleum products in volume terms) hit 416 mn tones, which is an all-time high (Table 1, Fig. 1). The share of net exports of crude oil and petroleum products in the oil production amounted to 77%. Growth of exports was due to both extraction increase and decline of domestic oil consumption owing to the economic recession.



Sources: Rosstat, Ministry of Energy of Russia.

Fig. 1. Oil production in Russia, mn tones

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Growth of crude oil exports allowed Russia not only to preserve but somewhat increase its share on the world markets. According to our calculations, in 2015, Russia's share in the European countries' oil imports increased from 26.1% to 26.9% and in Chinese oil imports – from 9.5% to 10.5% (Table 2).

Table 2

REGIONAL PATTERN OF RUSSIAN OIL EXPORTS, %

	2014	2015
European countries	62.1	61.7
Asian countries	26.3	27.3
CIS member states	10.8	9.7
Other countries	0.8	1.3
Russian share in oil imports of European countries	26.1	26.9
Russian share in Chinese oil imports	9.5	10.5

Sources: FCS of Russia, OECD/IEA, ITC, own calculations.

At present, Russian oil-producing industry is at the peak of its production capacity. Significant part of the producing oilfields is in declining production and the new deposits in the majority of cases are of inferior mining-and-geological and regional parameters. Their development requires higher capital investment, operating and transport costs. At the same time, despite high level of depletion on many oilfields and significantly higher costs on the development of new deposits, there are feasible possibilities to sustain achieved levels of oil production and exports.

Russia boasts of significant oil reserves, which allow maintaining high levels of production in the course of many years. There is a strong potential for oil production both due to the development of non-producing reserves in developed regions and deposits in the new production regions. At the same time, additional extraction is feasible on producing deposits owing to their deeper exploitation. Oil recovery index in Russia amounts only to 28%, which is significantly below average world level. In the US this coefficient stays in the range of 35–43% and in Norway is comes to 46%.

According to HIS Inc. calculations, Russia is among those countries, which can obtain the highest increment in oil production due to horizontal drilling and hydraulic fracturing at "old" low production traditional deposits. Potential for additional oil production in the country at the expense of implementation of new technologies comes to 12 billion barrels. According to this indicator, Russia is second (after Iran) among most promising in this regard countries outside of the United States. Moreover, exceptionally high is potential of undeveloped non-traditional deposits. According to the YS Energy Information Administration, regarding technically recoverable shale oil Russia takes the first place in the world (USA is second).

Russia's oil refining potential is rather significant. However, it lags behind in terms of technological development from the level of advanced economies. At present, the refining depth in Russia stands only at 74%. Meanwhile, in advanced economies it reaches 90–95%. Raising refining depth will allow to satisfy domestic demand in gasoline with lesser volumes of oil consumption.

In the long view, the global demand for crude oil will be growing, which allows Russia to preserve and even to increase current volumes of oil export. Herewith, owing to demographic trends and rising energy efficiency one should expect a reduction of oil demand in Europe, which is the main export market for Russia. Meanwhile, one can forecast a significant growth of oil

demand in Asia, first of all, in China. In this regard, it is necessary to change regional pattern of Russian export of oil by expanding infrastructure potential for oil supplies to the East.

The development of the Russian oil industry will significantly depend on global oil prices. In recent years, conditions of the oil market are characterized by predominance of factors, which will contribute to the retention of relatively low oil prices. Major driver for the world oil prices growth was fast increase of shale oil production in the US thanks to use of state-of-art technologies and high oil prices during previous years. Despite the oil price fall OPEC refused to cut the oil production moving over to retention of their market share. As a result in 2015, average price on Russian oil on the world market dropped from \$51 per barrel, which was half the price during three preceding years and during the first months of the current year fell to \$30–40 per barrel.

Situation on the world oil market is characterized by predominance of factors, which will contribute to the retention of relatively low oil prices. Among major factors are significant shale oil resources in the US, which will be quickly developed and increase supply with global oil prices above \$60 per barrel, slowdown of economic growth in China, decline of discipline in the OPEC as well as growth of shipments from Iran due to lifting of sanctions. In this context, most feasible range of world oil prices around \$40–60 per barrel. According to the latest forecasts made by leading foreign organizations, the bottom of the oil prices will be navigated this year. In the future their gradual increase is expected, which however will be rather slow. According to IMF projection, average world price of oil in 2017 will constitute \$41.0 per barrel, and in 2018 – \$44.5 per barrel. According to the US Energy Information Administration, oil price for Brent in 2017 will come to \$40.1 per barrel.

In Russia, in the wake of low oil prices, potential for the development of new oilfields and nontraditional resources will be significantly limited because investments in the most cost-intensive projects will be economically inefficient. First of all, the Arctic Shelf projects will be economically inefficient.

Financial and technological sanctions imposed on Russia will limit the development of the oil sector. Besides financial sanctions, which restrict access of Russian companies to foreign sources of financing, a number of advanced countries (US, EU, Norway and Australia) imposed a ban on deliveries to Russia of equipment and technologies for deep-water drilling, development of deposits of the Arctic Shelf and extraction of shale oil. It should be taken into account that technologies used for the development of shale oil deposits (horizontal drilling and hydraulic fracturing) are also used for the development of conventional oil reserves, first of all on the oilfields with high depletion of reserves. That is why restrictions for deliveries of equipment for horizontal drilling and hydraulic fracturing can also lead to early closing of producing oilfields as due to inability for deeper drilling.

In the context of low global crude oil prices and effect of sectoral technological sanctions, the traditional crude oil reserves should become the basis for further development of the Russian oil sector. This being said, deeper recovery on the producing oilfields and increased oil recovery rate will be very important. It is necessary to both actively use of free of sanctions foreign equipment applied in this sphere and accelerated development of import substitution technologies required to increase oil recovery rate. Potential for

the oil production maintenance will to a greater extent depend on the technological progress in this sector.

Creation of conditions for the operation of small and medium companies will be important for further development of the oil sector. The activity of major oil companies, as a rule, focuses on the implementation of large-scale and highly profitable projects and small and less profitable projects turn out to be beyond their interests. This creates potential for expanded activity of small and medium companies in the oil producing business. They can be rather efficient in such spheres as deeper recovery on the producing fields, development of small deposits and tight oil resources, geological exploration works and provision of services

At present, the sector of small and medium oil producing enterprises is exceptionally weak in Russia. The structure of Russian oil industry is characterized by predominance of major vertically integrated companies. At the same time, the share of five major oil companies account for 80% of total oil extraction in the country.

The US provide a good example of efficiency small and medium companies in the oil industry. Precisely these companies played the major role in the 'shale revolution'. Companies with production volume of up to 2.5 nm tones of oil per year (to 50,000 barrels per day) account for 46% of oil production in the US, and in Russia merely 3%.

Development of small and medium oil producing companies requires the creation of corresponding organizational and legal regime including significant reduction of the administrative barriers in granting the use of subsoil areas

Implementation of these measures will contribute to oil production maintenance in the country and to more rational use of the oil resources. ●