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- Top natural gas producing countries
- Russia's share in the world natural gas production
- The share of LNG in the world gas trade
- Russia and other countries in world exports of natural gas
- Russia's largest natural gas fields: reserves
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- Natural gas in Russia: production, consumption and exports
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- Natural gas consumption in the top natural gas consuming countries
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- Russia's share in the world coal production
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- Coal production in Russia by main basin
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- Production of petrochemical feedstocks in Russia
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- Installed capacity in Russia
- Additional power capacity in UES of Russia in 2014: total and by the Capacity Delivery Agreement (CDA)
- Investments in generation, transmission and distribution of electricity in Russia
- Change in investments in electricity in fixed capital of Russia
- Average electricity price by consumers (nominal prices)
- Electricity price for households exceeds the price for industry
- Electricity consumption growth in the UES of Russia
- Industrial Production Index in Russia and federal districts
Global economic growth decelerated in 2015 because of a slowdown in big emerging economies but that gives a hope for stabilization or even reduction of greenhouse gas emissions.
Economic growth in the leading economies of the world

2005-2015, % ch. y/y

In 2015 the global economy faced the new slowdown: its growth equaled rate only of 3.1%. That was the worst result since 2002, except the crisis of 2008-2009. Growth rates in emerging economies are going down for the fifth consecutive year, while developed countries demonstrated in 2015 the most rapid upturn for the last 5 years.

The dynamics of developing countries was supported by India: for the first time in the XXI century India overcame China in terms of economic growth indicators, and that relation between the two economies will (most probably) remain stable, due to Chinese structural economic downturn. Brazil and Russia as commodity-dependent economies sharply stopped in 2015.

Source: IMF
Economic growth in Russia and leading world economies (quarterly data)
2013–2015, % ch. q/q, seasonally adjusted data

Economic growth in China in each quarter of 2015 was slightly less than in the same quarter of 2014. But there were no instant drops. Consequently annual growth went under 7%. Planned targets for 2016 are also set around this level.

Low energy prices partially helped to maintain sustainable growth in the USA (2.4% as in the previous year) and in the EU (almost 2%, in 2014 it was 1.4%) but their influence was ambiguous: they had a negative impact on investments, so that the slowdown in US in late 2015 is partially attributed to that effect. In addition, low energy prices strengthened the deflationary pressure, which constrained economic activity in the developed countries. Moreover, the acceleration of the economic growth in the EU was due to the weakness of euro in 2015.

The Russian economy went through a hard landing in early 2015 but in the second half of the year the situation stabilized. GDP fell by 3.7% in 2015. The crisis was especially sharp in manufacturing (−5.1% of value added compared to 2014), construction (−7.4%) and trade (−10%), while mining (+1.1%) and agriculture (+3.1%) increased their value added in real terms.

Sources: World Bank, Eurostat
Monthly dynamics of industrial production in Russia and leading industrial economies of the world
2013–2015, Dec. 2012 = 100, seasonally adjusted data

According to World Bank, the growth of global industrial production in 2015 was at its bottom rate since the crisis of 2008-2009.

The strength of the dollar in 2015 negatively affected the US industry. An additional issue was considered to be of problems was the tough situation in oil and gas production.

Russian industry faced a collapse in early 2015 with the easement in the second half of the year. Textile & clothing industry and machinery manufacturing were among the worst performers: they experienced an essential drop in production by reached about 10% in 2015. Food and chemicals industries, on the contrary, significantly grew (+2.0% and +6.3% respectively).

The growth of industrial production in China was uneven in the context of the slowdown of external demand and internal investments. Ultimately it considerably fell: from 8.2% in 2014 to 6.2% in 2015.

Main commodity prices (IMF indices)
2013–2015, Jan. 2013 = 100

In 2015 commodity prices plunged under the influence of global economic slowdown. The most significant losses were spotted in the energy sector: IMF energy commodities index plummeted by 39% during 2015. Coal demonstrated slightly better performance than other energy carriers: it lost only 15-30% of price on different markets.

The decrease in food prices reached 15% by the end of 2015 in comparison to the beginning of the year. The sharpest decline was spotted on the markets for meat (beef, pork, lamb cheapened by approximately 30%) and certain grains (prices for wheat and soybean meal also fell by 30%). World prices for sugar and fruits remained generally stable. Tea became more expensive (by more than 40%) because of a poor harvest in Kenya, which is considered to be key global supplier.

Metal prices dropped too: IMF metals index fell dramatically by almost 30% during 2015. Aluminum and lead kept stronger positions (prices fell only by 10-20%), while the most considerable decrease in prices took place on the markets for nickel and iron ore (~−40-45%). The latest developments contributed to a collapse of steel prices at LME and to a more or less strong price drops in markets for different kinds of rolled products.

Source: IMF
After the rally of US dollar in the second half of 2014, its exchange rate remained generally stable and relatively high in 2015 amid the absence of sharp movements in the Fed policies and the presence of low commodity prices.

The exchange rate of Russian ruble followed oil prices, as expected. It strengthened in mid-2015 and fell again afterwards. Nevertheless, despite even more significant fall of oil prices in 2015, the exchange rate was kept at a level not weaker than 70 rubles per 1 USD.

Source: Thomson Reuters
Change in investments in fixed capital of Russia

2015 to 2014 (without small enterprises and statistically unobservable investments)

The crisis of 2015 heavily damaged the investment climate in Russia: the decline was obvious already in 2014 but in 2015 its scope at least doubled. Unlike in 2014, decrease in investments strongly affected energy industries, especially power sector, which suffers from excess capacities.

Power sector and transports (including pipeline transportation) made the greatest contribution to the drop in investments in the Russian economy (real estate and manufacturing — to a lesser degree).

Extraction of energy resources demonstrated the rise in investments due to oil and LNG industries.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Absolute change to 2014 (bln rubles, constant prices)</th>
<th>Per cent change to 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction of energy resources</td>
<td>218,3</td>
<td>10,7</td>
</tr>
<tr>
<td>Oil refining</td>
<td>-70,3</td>
<td>-13,2</td>
</tr>
<tr>
<td>Electricity, gas and heat</td>
<td>-341,2</td>
<td>-29,1</td>
</tr>
<tr>
<td>Pipeline transportation</td>
<td>-87,0</td>
<td>-11,4</td>
</tr>
<tr>
<td><strong>Total (the whole economy)</strong></td>
<td><strong>-1167,3</strong></td>
<td><strong>-10,2</strong></td>
</tr>
</tbody>
</table>

Source: Rosstat

Structure of Russian federal budget incomes and non-oil-and-gas federal budget deficit

2014-2015, trln rubles

- Oil and gas incomes
- Non-oil and gas incomes
- Non-oil deficit

Sharp decline of oil prices in 2015 inevitably led to the decrease in Russian federal budget incomes by 850 bln rubles. Non-oil-and-gas incomes grew thanks to VAT (because of a higher inflation rate) and receipts from public assets (because of ruble devaluation and consequent growth of foreign assets in terms of rubles).

The increase of non-oil-and-gas incomes gave an opportunity to raise budget expenses in 2015 by more than 770 bln rubles without any aggravation of non-oil-and-gas deficit.

Source: The Ministry of Finance of Russia

External trade of Russia: exports and imports of goods, trade balance

2005-2015, bln USD

Further downsurge of energy prices in 2015 put Russian exports under pressure, while the opportunities of import substitution were restricted, and partially they were activated already in 2014. Consequently, the worsening of trade balance was inevitable in 2015. The situation especially aggravated in the second half of the year, following the new drop in commodity prices.

Source: World Bank
Energy intensity of Russian GDP according to different estimates
2005-2015, toe / th. USD-2011 (PPP)

Different estimates simultaneously give evidence of the improvement of energy efficiency in Russia in 2011-2013 by almost 5%. There is some controversy in later data. Nevertheless, the crisis in 2014-2015, most probably, torpedoed the development of energy efficiency in Russia.

Sources: IEA, BP, Rosstat

CO₂ emissions in Russia and other countries
2005-2015, bln t

In 2015 global CO₂ emissions might be very close to their all-time peak. The growth of CO₂ emissions was only 0.1%. The slowdown of the Chinese economy and the second consecutive year of coal consumption decline in China became significant factors this result. According to BP, growth of CO₂ emissions in China stopped in 2014, and in 2015 it became negative. It was still insufficient to provide global CO₂ emissions decrease but the progress is far more far more obvious.

Source: BP
Increase in crude oil and petroleum products exports in Russia was accompanied by primary crude oil refining reduction.
Countries with largest oil reserves

In 2010-2015 the split of the proven oil reserves didn’t change much. Venezuela still held the leadership after multiplying its four times investigated reserves since 2000 thanks to heavy and extra heavy oil of Orinoco oil belt.

Source: BP

Russia’s share in the world oil reserves
Crude oil and condensate production in Russia continues to increase, by 8.2 Mt (+3.6%), indicating a continuous growth in liquid hydrocarbon production in the country since 2009 (on average by 1.3% per year).

Nevertheless, oil production growth rates in Russia are decreasing driven by gradual entering oil production plateau and increase in tight oil production share.

Crude oil production in Ural Federal District continues to decrease (by 0.4 Mt in 2015) but it still provides more than half of total Russian crude oil production (56.2%). However, crude oil production decline rate stabilized at 1% per year.

Crude oil production drop on mature fields in Ural Federal District is compensated by rise in production in Volga Federal District (stable growth throughout the whole reporting period due to tax breaks and the application of enhanced oil recovery methods) and by expansion of greenfields exploration in Siberian (by 1.7 Mt) and Far Eastern Federal Districts (by 3 Mt).

Source: Rosstat
Top oil producing countries
2005–2015, Mt

In 2015, the world’s oil supply grew by 2.8%. The Russia’s share in the global oil production continued to decrease despite the growth of the overall production. In 2015, the USA fostered its leadership in oil production, despite the fall of global market prices. Among the OPEC member states, it was Iraq which came up with the highest increase in oil production.

Source: IEA
Three of seven leading Russian oil-producing companies decline in output: Rosneft (−1.7 Mt), RussNeft (−1.2 Mt) and LUKOIL (−0.9 Mt). The rest of the companies increased oil production with the largest absolute increase in Bashneft (+2 Mt).

Source: CDU TEK
Top oil consuming countries
2005–2015, Mt

In 2015, the overall global of oil consumption increased by 2%, which was mainly made possible thanks to the plunging prices. The consumption growth in developed countries was 1%, whereas in developing countries it was considerably higher — 2.3% (mostly on the strength of the consumption growth in the Asian market). Russia’s share in the world oil consumption decreased for the first time since 2009.

Russia’s share in the world oil consumption
2005–2015, %

Source: IEA
The rate of associated gas utilisation in 2015 reached 88.2% (+3 p.p. as compared with 2015) and exceeded all-time high of 1995 by 7.2 p.p. despite the continuous growth in crude oil production. Resulting from legislative changes which encouraged investment in associated gas utilization and processing).

Far Eastern Federal District demonstrated the highest rate of utilization (96.7%) while the lowest rate was recorded in Northwestern Federal District (62.2%).

Siberian Federal District is the leading region in terms of associated gas flaring volume (38.8% of total Russian volume) passed ahead of the former leader — Ural Federal District (27.4%) — in 2012. This shift is attributed to changes in geographical structure of crude oil production (greenfields output growth with no prepared infrastructure for utilization) and higher rate arrangements in mature oil-producing regions.
Countries with largest refining capacities
2005–2015, Mt

In the years 2010–2014 the world’s refining capacities continued to grow by 1–2% per year. The major sources of this growth are in the Middle East and Asia. Russia’s share in the global refining capacities continued as well. At the same time in the EU refining industry experienced a durable reduction of capacities.
Crude oil refining in Russia in 2015 recorded 287.2 Mt, which is 7.2 Mt lower than in the previous year (~2.4%). The largest absolute decrease was recorded in Volga Federal District — by 9.9 Mt (8.7%). Nevertheless it is still the leading crude oil refining region (35.9% of total Russia crude oil refining volume). The largest absolute increase was recorded in Southern (+1.8 Mt) and Ural (+1.7 Mt) Federal Districts.

Average refining depth in Russia in 2015 reached 74.1% (+0.7 p. p. versus 2014) and exceeded all-time high of 2008 by 2 p. p. due to Russian refineries modernisation which is scheduled to be completed by 2020.
Basic petroleum products output in Russia in 2015 decreased by 7 Mt (–3.6%). The fall was mostly driven by heating oil output reduction — 6.8 Mt (–8.7%). Diesel output declined by 1 Mt (1.3%) while that of gasoline increased by 1 Mt. The share of RON-95 gasoline continues to grow (+12.7 p.p. during last five years). The share of Euro-5 motor fuels has shown considerable rise: up to 84.4% for gasoline and 73.2% for diesel.

Motor fuel output by emission standarts in Russia
2011–2015, %

Gasoline output structure in Russia
2010–2015, %

Source: Ministry of Energy
Source: Rosstat
## Petroleum products shipment in Russian regions

**2015, kt**

<table>
<thead>
<tr>
<th>Share of Federal District in total Russia output</th>
<th>Individual regions performance</th>
<th>Gasoline shipment</th>
<th>Diesel shipment</th>
<th>Heating oil shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center</td>
<td>Moscow Oblast</td>
<td>3815</td>
<td>2350</td>
<td>176</td>
</tr>
<tr>
<td></td>
<td>Yaroslavl Oblast</td>
<td>187</td>
<td>565</td>
<td>231</td>
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<tr>
<td></td>
<td>Moscow</td>
<td>1525</td>
<td>1163</td>
<td>289</td>
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<tr>
<td>North West</td>
<td>Komi Republic</td>
<td>148</td>
<td>562</td>
<td>98</td>
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<td></td>
<td>Leningrad Oblast</td>
<td>1318</td>
<td>881</td>
<td>4410</td>
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<td>Murmansk Oblast</td>
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<td>St. Petersburg</td>
<td>1115</td>
<td>987</td>
<td>679</td>
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<td>South</td>
<td>Krasnodar Krai</td>
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<td>3832</td>
<td>6996</td>
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<td>Volgograd Oblast</td>
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<tr>
<td></td>
<td>Rostov Oblast</td>
<td>1008</td>
<td>573</td>
<td>360</td>
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<td>North Caucasus</td>
<td>Republic of Dagestan</td>
<td>238</td>
<td>18</td>
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<td></td>
<td>Republic of North Ossetia-Alania</td>
<td>80</td>
<td>36</td>
<td>0</td>
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<tr>
<td></td>
<td>Stavropol Krai</td>
<td>593</td>
<td>212</td>
<td>0</td>
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<tr>
<td>Volga</td>
<td>Republic of Bashkortostan</td>
<td>1334</td>
<td>814</td>
<td>413</td>
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<td>Republic of Tatarstan</td>
<td>1081</td>
<td>1453</td>
<td>336</td>
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<tr>
<td></td>
<td>Nizhny Novgorod Oblast</td>
<td>927</td>
<td>562</td>
<td>73</td>
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<td></td>
<td>Samara Oblast</td>
<td>1677</td>
<td>1603</td>
<td>165</td>
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<tr>
<td>Ural</td>
<td>Sverdlovsk Oblast</td>
<td>1096</td>
<td>646</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Tyumen (exclusive of autonomous okrugs)</td>
<td>581</td>
<td>1526</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Chelyabinsk Oblast</td>
<td>728</td>
<td>521</td>
<td>19</td>
</tr>
<tr>
<td>Siberia</td>
<td>Krasnoyarsk Krai</td>
<td>795</td>
<td>869</td>
<td>227</td>
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<tr>
<td></td>
<td>Irkutsk Oblast</td>
<td>654</td>
<td>980</td>
<td>363</td>
</tr>
<tr>
<td></td>
<td>Kemerovo Oblast</td>
<td>618</td>
<td>1256</td>
<td>300</td>
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<td></td>
<td>Novosibirsk Oblast</td>
<td>769</td>
<td>434</td>
<td>35</td>
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<tr>
<td></td>
<td>Omsk Oblast</td>
<td>458</td>
<td>505</td>
<td>111</td>
</tr>
<tr>
<td>Far East</td>
<td>Primorsk Krai</td>
<td>467</td>
<td>516</td>
<td>2448</td>
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<tr>
<td></td>
<td>Khabarovsk Krai</td>
<td>736</td>
<td>1201</td>
<td>1286</td>
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<tr>
<td>Crimea</td>
<td>Republic of Crimea</td>
<td>316</td>
<td>99</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Rosstat

**Russian Energy — 2015. Oil**
Russian crude oil and petroleum products exports

2000–2015, Mt

Russian crude oil exports oil exports recorded the first growth since 2009 and amounted to 244.5 Mt (+21.1 Mt versus 2014). Exports of petroleum products also increased by 6.7 Mt and amounted to 171.5 Mt. Crude oil (90.6%) and petroleum products (95.2%) from Russia almost entirely went to far-abroad countries.

- Far-abroad countries
- CIS countries

Russian crude oil exports

Russian petroleum products exports

In 2015, the export of oil to the OECD countries increased again. The growth was supported by the demand for motor gasoline, diesel oil and fuel oil, whereas the naphtha shipment to OECD countries fell.

Russian petroleum products exports to OECD countries

2005–2015, Mt

In 2015, the export of oil to the OECD countries increased again. The growth was supported by the demand for motor gasoline, diesel oil and fuel oil, whereas the naphtha shipment to OECD countries fell.

Source: Rosstat

Source: IEA

Russia's share in OECD countries imports of petroleum products 2000–2015, %
In 2015, the increasing oversupply in the global oil market brought down prices more than by half. Fearful of the loss of their market share, the OPEC member states refused to reduce their production, although by doing that, they could have maintained higher global prices. Meanwhile, the oil producers in the USA, Canada and some other countries proved to be more resilient, than expected, towards low prices.

Gasoline prices increased in January 2016 on average by 1.6 rubles (year-on-year) or by 4.7%. RON-95 gasoline showed the highest price growth — by 1.65 rubles. Diesel prices increased by 1.07 ruble (+3.1%).

In 2015 SPIMEX demonstrated the first annual drop in petroleum products exchange trading performance since its launch in 2008. Turnover and trading volumes amounted to 496 mln rubles (–25 mln rubles versus 2014) and 15.9 Mt (–1.5 Mt) respectively, while the number of contracts recorded 101,500 units. This results from the stagnation of domestic motor fuels market and ruble devaluation. The leading exchange market participants include Rosneft (33.3% of total sales), Gazprom Neft (16.2%), LUKOIL (12.3%) Gazprom (11.3%) and Surgutneftegaz (10.2%). RON-92 gasoline, summer diesel and RON-95 gasoline account for substantial volumes of exchange trading in petroleum products — 29.7%, 18.2% and 12.4% respectively.
Average gasoline (RON-92) prices in Russia by region
2015, rubles/l

Refining Capacity

<table>
<thead>
<tr>
<th>Capacity (mtpy)</th>
<th>City/Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Omsk</td>
</tr>
<tr>
<td>2</td>
<td>Kirishi</td>
</tr>
<tr>
<td>3</td>
<td>Ryazan</td>
</tr>
<tr>
<td>4</td>
<td>Kstovo</td>
</tr>
<tr>
<td>5</td>
<td>Yaroslavl</td>
</tr>
<tr>
<td>6</td>
<td>Moscow</td>
</tr>
<tr>
<td>7</td>
<td>Perm</td>
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<tr>
<td>8</td>
<td>Volgograd</td>
</tr>
<tr>
<td>9</td>
<td>Angarsk</td>
</tr>
<tr>
<td>10, 14, 18</td>
<td>Ufa</td>
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<tr>
<td>11</td>
<td>Syzran</td>
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<tr>
<td>12</td>
<td>Novokuybyshievsk</td>
</tr>
<tr>
<td>13</td>
<td>Komsomolsk-on-Amur</td>
</tr>
<tr>
<td>15</td>
<td>Tyumen</td>
</tr>
<tr>
<td>16</td>
<td>Salavat</td>
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<td>17</td>
<td>Achinsk</td>
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<tr>
<td>19</td>
<td>Nizhnekamsk</td>
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<tr>
<td>20</td>
<td>Samara</td>
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<tr>
<td>21</td>
<td>Saratov</td>
</tr>
<tr>
<td>22</td>
<td>Orsk</td>
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<tr>
<td>23</td>
<td>Khabarovsk</td>
</tr>
<tr>
<td>24</td>
<td>Tuapse</td>
</tr>
<tr>
<td>25</td>
<td>Ukhta</td>
</tr>
<tr>
<td>26</td>
<td>Krasnodar</td>
</tr>
<tr>
<td>27</td>
<td>Novoshakhtinsk</td>
</tr>
</tbody>
</table>

Source: Rosstat
Refining Capacity

1. Omsk
2. Kirishi
3. Ryazan
4. Kstovo
5. Yaroslavl
6. Moscow
7. Perm
8. Volgograd
9. Angarsk
10, 14, 18. Ufa
11. Syzran
12. Novokuqtybyshevsk
13. Komsomolsk-on-Amur
15. Tyumen
16. Salavat
17. Achinsk
19. Nizhneamask
20. Samara
21. Saratov
22. Orsk
23. Khabarovsk
24. Tuapse
25. Ukhta
26. Krasnodar
27. Novoshakhtinsk

Gasoline (RON-92) price change in Russia by region
January 2015 – January 2016, %

Source: Rosstat
Investment in Russian oil sector in 2015 exceeded the level of 2014, but the growth was fueled only by crude oil production (+342.1 bln rubles), while investment in petroleum products output and pipeline transportation of crude oil decreased by 8.8 and 14.9 bln rubles respectively. This results mostly from significant ruble devaluation: drop in ruble costs of crude oil production and rise in dollar costs of imported equipment needed for refineries modernization.
NATURAL GAS

Russia in 2015: decrease in production and domestic consumption and increase in exports
Countries with the largest natural gas reserves

As new gas fields had been discovered in Iran, Turkmenistan and USA, Russia’s share in the world gas reserves has significantly shrank in 2005-2015, although it slowly went up from 2011 to 2015.

Source: BP
Russia’s share in global gas production fell due to the increase in gas production in the USA, Qatar and Iran. In 2012, it lost its lead in gas production to the USA, where the increase was provided thanks to the shale gas. China has also increased its annual gas production, having overtaken Norway in 2013. Iran overtook Qatar in gas production in 2014.

Source: BP
The share of LNG in the world gas trade
2005-2014, %

Russia and other countries in world exports of natural gas
2005-2014, bcm

Source: IEA
In 2015 Russia’s natural gas reserves amount to 50.2 tcm, which is one percent more than in 2014. The largest gas fields are located in Western Siberia oil and gas bearing province. The growth in gas reserves was provided by gas fields in the Yamal Peninsula (Bovanenkovo, Kharasaveyskoye, Yuzhno-Tambeyskoye), Eastern Siberia (Kovyktinskoye), Russian Far East (Chayandinskoye) and on the Arctic Shelf (Shtokman, Kruzenshternskoye). In European Russia the main gas reserves are concentrated in Astrakhan field and Orenburg field.

Source: Ministry of Natural Resources and Environment of the Russian Federation
About 80% of Russia’s natural gas production is carried out in the Nadym-Pur-Taz region, Yamalo-Nenets AO. In 2014, three gas fields — Zapolyarnoye, Urengoy, Yamburg — accounted for more than 40% of country’s gas production.

In 2012, gas production was started at the Bovanenkovo field (Yamal Peninsula), and it accounted 42.8 bcm in 2014. It is expected that to 2020 Bovanenkovo will be the largest gas producing field in Russia. Positive production dynamics also featured on Yurkharovskoye field and Beregovoye field.

### Major producing gas fields in Russia

#### 2013-2014, bcm

<table>
<thead>
<tr>
<th>Field</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zapolyarnoye</td>
<td>97.9</td>
<td>117.5</td>
</tr>
<tr>
<td>Urengoy</td>
<td>85.5</td>
<td>90.6</td>
</tr>
<tr>
<td>Yamburg</td>
<td>62.8</td>
<td>75.3</td>
</tr>
<tr>
<td>Bovanenkovo</td>
<td>42.8</td>
<td>75.3</td>
</tr>
<tr>
<td>Yurkharovskoye</td>
<td>39.0</td>
<td>38.4</td>
</tr>
<tr>
<td>Yuzhno-Russkoye</td>
<td>25.0</td>
<td>25.1</td>
</tr>
<tr>
<td>Lunskoye</td>
<td>16.6</td>
<td>16.4</td>
</tr>
<tr>
<td>Orenburg</td>
<td>16.3</td>
<td>16.9</td>
</tr>
<tr>
<td>Beregovoye</td>
<td>11.2</td>
<td>10.8</td>
</tr>
<tr>
<td>Astrakhan</td>
<td>11.1</td>
<td>11.7</td>
</tr>
<tr>
<td>Medvezhye</td>
<td>10.4</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Source: Ministry of Natural Resources and Environment of the Russian Federation
In 2015, Russia’s natural gas and associated petroleum gas production amounted to 633.4 bcm, which is 0.9% less than in 2014. The decrease was caused by significant reduction of natural gas consumption in Russia. In 2010-2015, the gas supply to the domestic market decreased by 24.8 bcm, or by 5.3%.

In 2015, Russia’s natural gas exports increased by 7.1% year on year to 200 bcm. Natural gas imports of the major importers of Russian gas remained relatively stable. A significant decrease was recorded in supplies to the Ukraine.

Source: Rosstat, Ministry of Energy of the Russian Federation

In 2015, 79.2% of natural gas production in Russia was provided by Yamalo-Nenets AO, which is 1.1 pp lower than in 2014. In 2010-2014, YNAO share in Russia’s gas production was 80-83%. In 2015 to 2014 gas production significantly increased in Krasnoyarsk region and Sakha. The largest drop was observed in YNAO (~2%, or ~11.6 bcm).

Source: Rosstat
**Russia’s natural gas production by company**

2014-2015, bcm

Russia’s largest natural gas producer is Gazprom, which provided 64.1% of the country’s gas production in 2015, and 67.5% in 2014. There is a tendency for an increase in the share of independent gas producers in Russia: from 16% in 2007 to 36% in 2015.

Independent gas producers increased production volumes. Leaders are Rosneft and Arktikgaz.

**Source:** Ministry of Energy of the Russian Federation

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2014-2015, bcm

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**Source:** Ministry of Energy of the Russian Federation

**Independent gas producers in Russia**

Production, 2012-2015, bcm

**Source:** Ministry of Natural Resources and Environment of the Russian Federation, CDU TEK
In 2014, the production of electricity and heat energy provided 48.3% of Russia’s natural gas consumption, which is 3.5 pp less than in 2013. Gas consumption decreased by 6.4% in these two sectors, by 2.2% in industry and increased by 0.1% in residential sector.

In 2015, investments for Russian regions gasification decreased by 4%, and Russia’s gasification level increased by 0.3 pp compared with 2014 and reached 65.7%. The main reason is the increase in gas debts.

Over the last decade, the demand for gas in Russia increased at a slower rate in comparison with the global one. In the USA, the increase of consumption of shale gas has squeezed the coal out of the domestic market into the global one, which has led to the shrinking shares of other gas suppliers elsewhere. In 2015, overall demand for gas in the European Union exceeded Russia’s domestic gas consumption.
LNG production and exports in Russia
2009-2015, bcm

Russia’s LNG production and exports is carried out on single plant on Sakhalin Island, with a capacity of 9.6 mtpa. LNG is exported by sea to the Asia-Pacific countries, mainly to Japan.

There are LNG plants projects in Russia. The plant on the Yamal Peninsula is under construction, with an installed capacity of 16.5 mtpa, start at 2017-2018. It is also planned to implement projects in Vladivostok and the Baltic Sea (Gazprom) and Sakhalin Island (Rosneft).

In 2015, Russia’s share in the global LNG market was 4%.

CNG consumption in road transport
2008-2015, bcm

Russia’s CNG consumption is 450 mcm, or about one percent of the world total. The natural gas consumption in transport is a priority of Russia’s gas industry development. State subsidies for regions are aimed to stimulate the growth of CNG consumption. Gazprom plays the main role in development of the Russian NGV market. Other participants are Rosneft and Novatek.

The world prices of natural gas
2005-2015, $/1000 cubic meters

In 2015, the gas price in the major markets fell by 30-40% compared to the previous year. The causes for the falling gas prices were decreasing oil prices, warm winters in the USA and Europe and fierce competition inside the industry — with other gas producers, as well as competition with producers of other energy resources, such as coal and renewable ones.
In recent years, Russia’s gas exports by regions has not changed significantly: European countries were the main customers. In 2009, Russia started to export LNG to Asia-Pacific, mainly to Japan. In 2015, LNG exports was about 7% of total Russian gas exports.

Source: Federal Customs Service of Russia, Sakhalin Energy
COAL

Amid worsening export conditions coal production in Russia was supported by a slight growth of domestic demand
Countries with largest coal reserves
2015, bln t

Russia holds the second place in coal reserves in the world (after US). It possesses around 18% of world reserves.

<table>
<thead>
<tr>
<th>Country</th>
<th>Reserve, bln t</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>237.3</td>
</tr>
<tr>
<td>Russia</td>
<td>157.0</td>
</tr>
<tr>
<td>China</td>
<td>114.5</td>
</tr>
<tr>
<td>Australia</td>
<td>76.4</td>
</tr>
<tr>
<td>India</td>
<td>60.6</td>
</tr>
<tr>
<td>Germany</td>
<td>40.5</td>
</tr>
<tr>
<td>Ukraine</td>
<td>33.9</td>
</tr>
</tbody>
</table>

Source: BP

Top coal producing countries
2005-2014, mln t

In 2014 for the first time since the beginning of the century world production of coal decreased (by less than 1%). Considerable reduction of coal production took place in China. China is optimising its coal industry which leads to large-scale closure of coal mines. India actively expanded coal production with the focus on domestic market (energy poverty reduction) and Australia with the focus on external market (expansion of market share).

Source: IEA
There are 22 coal basins and 129 coal deposits in Russia. The geographic distribution of coal reserves is unequal. Over two thirds of proven reserves are concentrated within two basins: Kansk-Achinsk basin in Krasnoyarsk Krai and Kemerovo Oblast (brown coal) and Kuznetsk basin in Kemerovo Oblast (hard coal). In 2014 explored coal reserves in Russia increased by 0.5%.

<table>
<thead>
<tr>
<th>Basin</th>
<th>Reserves (bln t)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansk-Achinsk</td>
<td>79.3</td>
<td>40.7%</td>
</tr>
<tr>
<td>Kuznetsk</td>
<td>53.4</td>
<td>27.4%</td>
</tr>
<tr>
<td>Irkutsk</td>
<td>7.6</td>
<td>3.9%</td>
</tr>
<tr>
<td>Pechora</td>
<td>7.2</td>
<td>3.7%</td>
</tr>
<tr>
<td>Donets</td>
<td>6.5</td>
<td>3.3%</td>
</tr>
<tr>
<td>South Yakutia</td>
<td>5.0</td>
<td>2.6%</td>
</tr>
<tr>
<td>Minusinsk</td>
<td>4.5</td>
<td>2.3%</td>
</tr>
<tr>
<td>Other</td>
<td>31.5</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

In 2015 coal production in Russia reached 373 mln t, which is 4% higher than in 2014. 72% of coal was produced at open-pit mines (in the last few years this share was quite stable).

The rise of coal production was observed in all largest basins (Kuznetsk basin [+2%], Kansk-Achinsk basin [+6%], Pechora basin [+11%]) with the exception of Donets basin [−11%]. Kuznetsk coal basin remains the center of Russian coal production (58% of total).

Source: Ministry of Natural Resources and Ecology of the Russian Federation
Coal production in Russia by region

2010-2015, %

Coal production in Russia is concentrated in Siberian Federal District (84% of the total). The largest coal producing federal subjects of the Russian Federation are situated there: Kemerovo Oblast (58% of the total), Krasnoyarsk Krai (11%) and Zabaykalsky Krai (5%). In the Far East coal production is notable in Sakha (Yakutia) Republic (4% of the total) and in the North-West in Komi Republic (4%).

Russia produces predominantly hard coal (over 80% of the total in 2015). A share of coking coal in total production made up 23%. Almost all coking coal in Russia is upgraded, upgrading level of steam coal is only 28%. Still in 2015 the latter grew (+5.9 mln t) while the former fell slightly (–0.3 mln t). Total volume of coal processing in Russia (including mechanical sorting) reached 178.3 mln t (+3%).

Coal production and upgrading (at plants) in Russia by type

2005-2015, mln t

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* with import

Source: Ministry of Energy of the Russian Federation

Source: Ugol Magazine
Investment in Russian coal industry goes predominantly to hard coal (up to 95% of the total). In 2015 it decreased again — to 70.1 bln rubles. From 2012 to 2015 investment to coal industry fell by almost 45%. Financial restrictions continued to constrain realization of investment programs of Russian companies. Still the decline rate slowed to 6%.

Russian coal industry is dominated by large coal mining and iron and steel holding companies. Top-10 companies contributed to around 58% of total industry production. Almost all of them managed to increase production in 2015 with the exception of industry leaders. Largest producer of thermal coal JSC «SUEK» and largest producer of metallurgical coal «Evraz» decreased production slightly.

Source: Federal State Statistics Service

Source: Ugol Magazine
Coal remains the second largest energy source in the world (after oil). Its share in total primary energy consumption amounts to 30%. In 2014 consumption of coal in the world fell (by approximately 1%) breaking upward trend since 2000. It was the result of lower demand for steam coal alongside with higher demand for coking coal (but the share of the latter in total coal consumption was only 13%).

China (49% of coal consumption in the world) made the largest contribution to negative demand dynamics. Coal demand contraction in China was influenced by several factors: economic slowdown, structural transformation, lowering energy intensity of GDP, energy balance diversification and climate policy developments. With active spread of coal generation India in 2014 surpassed US and became the second largest coal consumer in the world. Coal prospects in US are constrained by shale revolution and strengthening of climate policy.

Russia continued to rank 5th among top coal consuming countries with a share of 2.5% of world total.

Source: IEA
In 2015 coal consumption in Russia demonstrated a slight growth — up to 197.5 mln t (+1.3% as compared with 2014). Russian companies increased coal supplies to domestic market up to 174.6 mln t (+3%) so that it accounted for 54% of total supplies of Russian coal. Russian coal imports (mainly from Kazakhstan — 96%) fell by 9%. Imports contribution to coal consumption continued to decrease as well. In 2015 it didn’t exceed 12%. Electricity power industry is the largest consumer of coal in Russia. It supported consumption growth: power stations expanded purchases of coal by 7%. Among other large consumers are coking plants (~9% of demand) and population (demand unchanged).

In 2015 average domestic coal prices in Russia grew (on the background of ruble depreciation to US dollar). Steam coal prices increased by 4% and coking coal prices — by 31%.

* Iron and Steel Industry, Cement Industry, Russian Railways, etc.

Source: CDU TEK

Source: Federal State Statistics Service
Structure of Russia’s coal exports by destination
2014-2015, mln t, total [hard coal (98% of the total) and brown coal (2%)]

Structure of Russian coal exports was significantly affected by the contraction of purchases from China. In 2014 China used to be the principal destination. In 2015 export of coal from Russia to China fell by almost 40%. UK, the second principal destination (in terms of volume) in 2014, cut purchases as well (~29%). It was partially compensated by increased supplies to South Korea (+26%) which made this country the principal destination of Russian coal exports in 2015. Besides Russia increased coal exports to Japan (+8%) and Netherlands (+33%).

Russian export of coal is dominated by steam coal (87% of the total).

Source: Federal Customs Service of Russia
In 2014 international coal trade continued to grow though with a slower pace (less than 1%). Indonesia maintained its position as the largest exporter of coal in the world (in terms of physical tonnes) with a share of 30%. At the same time in terms of energy content it was overtaken by Australia.

The drop of coal prices observed from 2011 continued in 2015. Excess supply and China’s weakening demand put downward pressure on coal prices in the world. For example, coal prices in Japan (either for coking or for steam coal) lost 18% in 2015. Regional coal prices almost converged in 2014 so that «Asian premium» diminished. In 2015 marker coal prices in Asia, Europe and Northern America fell correspondingly by 19%, 25% and 22%.

**World coal prices**

2005-2015, $/t

**Russia’s share in the world coal exports**

2005-2014, %

Russia held the 3rd position among top coal exporting countries with a share of 11% of world total.
PETROCHEMICALS

In 2015 there was increase in production and decline in imports of basic polymers in Russia.
Production of petrochemical feedstocks in Russia

2011-2015, mln t

Production and refining of petrochemical feedstocks in Russia grew in 2015, especially naphta.

- LPG production
- Naptha production
- Ethane production

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### Petrochemical feedstocks refining

2011-2015, mln t

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### Synthetic rubber production in Russia

2010-2015, mln t

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After previous year decrease synthetic rubber production grew 9% in 2015, although not achieving 2013 level. Such stagnation is caused by international rubber market fierce competition and decline in Russian automobile industry.
Plastics production in primary forms in Russia

2010-2015, mln t

Plastics in primary forms production in Russia demonstrated a 13% growth in 2015. The highest increase (23%) appeared in polypropylene production (also showed significant export growth). This is due to the positive impact of ruble devaluation and a few big projects implemented in the industry lately.

Average annual producers prices of some petrochemical products

2012-2015, thousand rubles/t

Prices of petrochemical products grew 15-30% in 2015, which is also due to export reorientation and domestic supply decrease.
International trade volumes of some petrochemical products
2007-2014, bin USD

International trade of polymers of ethylene growth continued in 2014 — 4% to 87 bin USD, while other main traded petrochemical products showed decline or stagnation.

Source: UNCTAD

Russian investments in petrochemical industry
2010-2015, bin rubles

In 2015 investment in Russian petrochemical industry increased by 22% as compared with 2014 and totaled 169 bin rubles.

Source: Ministry of Energy of the Russian Federation
In Russian petrochemical industry a trend of import substitution is evolving. In 2015 Russia continued to reduce imports of large-tonnage polymers and to raise their exports (with the exception of polyethylene and polystyrene). Nevertheless import dependence for certain items is still considerable. Synthetic Rubber production stays most export-oriented.

Source: Federal State Statistics Service of the Russian Federation, Federal Customs Service of Russia
Total electricity consumption in Russia decreased by 0.4% in 2015.
Net additional capacity in the UES of Russia amounted to 2.9 GW in 2015 (growth of 1% to 2014), from 2008 to 2015 -24.7 GW (11.7%). Compared to previous years, the rate of capacity growth is slowed down.

The installed capacity of power plants of UES of Russia in 2015 grew mainly due to fuel power by the Capacity Delivery Agreement (62% of all entries), the rest of the growth was provided by nuclear power (0.9 GW) other fuel power, hydropower and RES.

Source: Rosstat, SO-UPS
Investments in generation, transmission and distribution of electricity in Russia**
2010-2015, bln rubles

Change in investments in electricity in fixed capital of Russia
2015 in comparison to 2014*

<table>
<thead>
<tr>
<th>Investment Type</th>
<th>2015-2014, bln rubles</th>
<th>2015/2014, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation, transmission and distribution of electricity</td>
<td>-228</td>
<td>-25,2</td>
</tr>
<tr>
<td>Generation</td>
<td>-124</td>
<td>-23</td>
</tr>
<tr>
<td>Transmission</td>
<td>-95</td>
<td>-32</td>
</tr>
<tr>
<td>Distribution and trade</td>
<td>-24</td>
<td>-12</td>
</tr>
</tbody>
</table>

Noticably decrease in investment in electricity: in addition to the economic crisis, the decline in investment can be explained by a decrease of the intensity of CDA program. Also the excess supply of capacity impacted on dynamics of investments.

* 2010-2013 — data does not include Crimean FD, 2014-2015 — included Crimean FD
** Investments in fixed capital without small enterprises and statistically unobservable investments
Source: Rosstat
Average electricity price by consumers (nominal prices)

2010-2015, rubles/kWh

<table>
<thead>
<tr>
<th>Industry</th>
<th>Agriculture</th>
<th>Services</th>
<th>Transport</th>
<th>Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>11%</td>
<td>13%</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>1,2</td>
<td>1,4</td>
<td>1,3</td>
<td>1,0</td>
<td>2,3</td>
</tr>
</tbody>
</table>

Source: Rosstat

Electricity price for households exceeds the price for industry

2004-2015, year by year, %

Price ratio (industry/households), ratio

Source: Rosstat
Electricity consumption growth in the UES of Russia
2008-2015, year by year, %

Total electricity consumption in Russia in 2015 has decreased. The main reasons of that are economic crisis and electricity consumption decline in industrial regions.

Source: SO-UPS

Industrial Production Index in Russia and federal districts
2008-2015, year by year, %

Source: Rosstat