

R E S E A R C H

D e m o v e r s i o n

RUSSIAN FUEL AND ENERGY COMPLEX

Results of 2018 and Trends for 2019

iINFO *Line*

информационное агентство

information agency

- FEC Branches Performance Indicators
- FEC Branches Highlights
- 9 Company Ratings
- 130 Major Investment Projects
- 8 Biggest Company Profiles

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Branch Ministries, Departments, Associations

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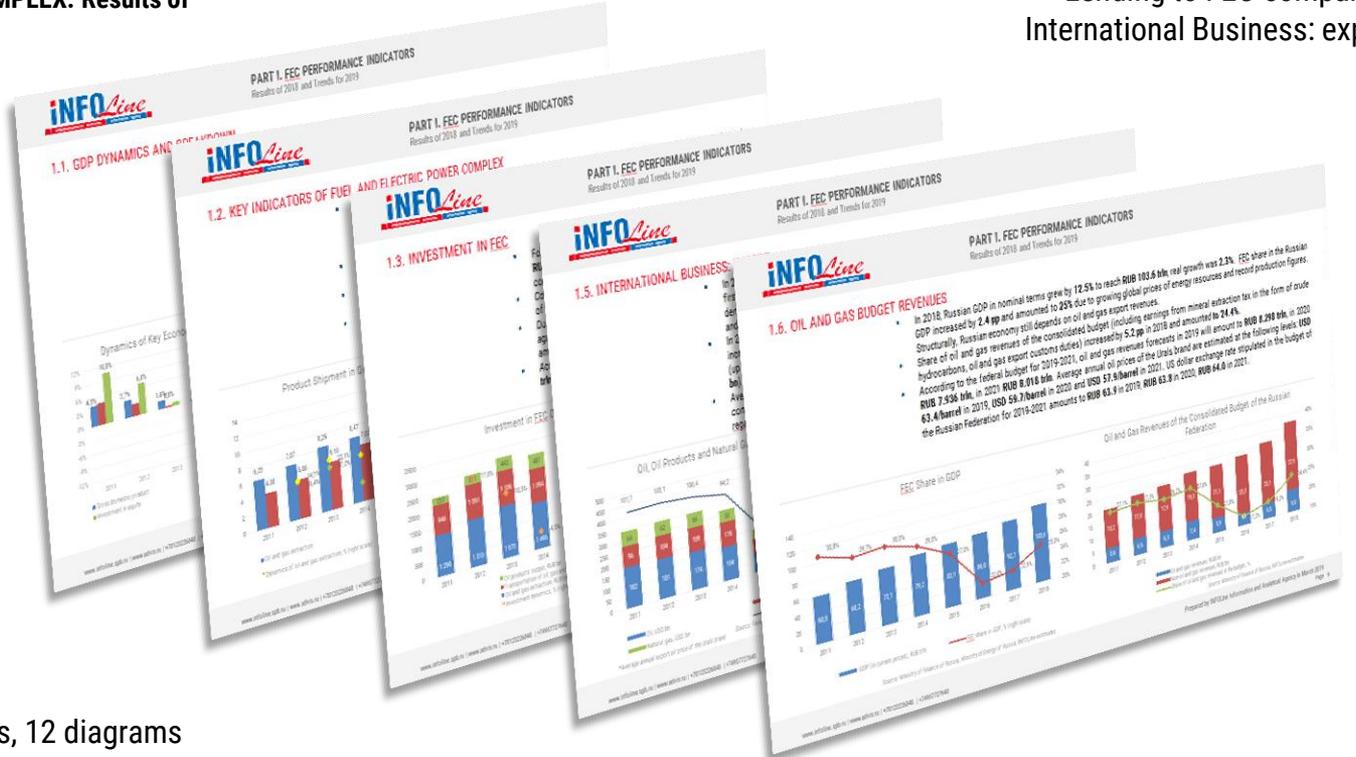
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Part I. FEC Performance Indicators

Full version of Research
«**RUSSIAN FUEL AND ENERGY COMPLEX. Results of 2018 and Trends for 2019**»:

Investment in FEC
Lending to FEC-companies
International Business: export

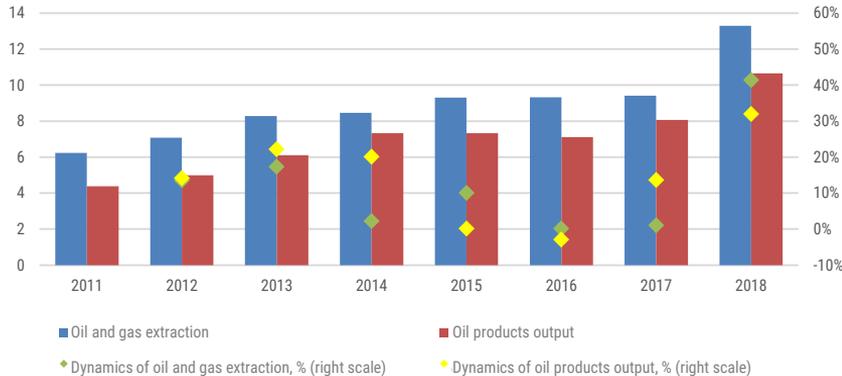


Full version contains 6 slides, 12 diagrams

1.2. KEY INDICATORS OF FUEL AND ELECTRIC POWER COMPLEX

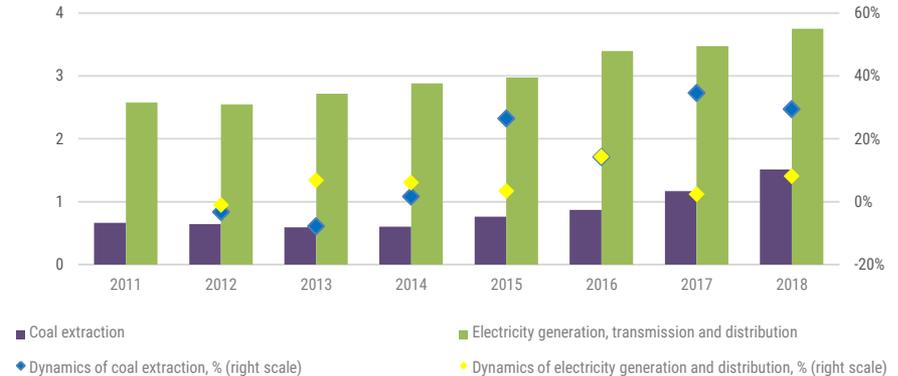
- Following the results of 2018 the volume of shipped own products of oil and gas industry (excluding transportation) grew by **37.0%** compared to 2017 and amounted to RUB **23.9** trln due to increase of global oil prices and record oil and gas extraction volumes. Growth of shipped volumes is observed both in extraction (**41.3%**) and processing (**31.9%**) compared to the figures of 2017.
- According to the estimates of the Ministry of Energy of Russia, the share of FEC in the Russian GDP increased in 2018 by 3 pp and amounted to **25%**.
- Growth of global coal prices and increase of production volumes were the main reasons for increase of shipped volumes in the coal industry in monetary terms in 2018. The shipped volumes reached the level of **RUB 1.5 trln (+29.3%** compared to 2017).
- In 2018, the volume of shipped own products in the electric power industry went up by **8.0%** if compared to 2017 and reached **RUB 3.75 trln**. Increase of electricity generation was due to cold weather in February, March and December as well as industrial growth.

Product Shipment in Oil and Gas Industry, RUB trln



Source: FSSS, INFOLine estimates

Product Shipment in Electric Power Industry and Coal Industry, RUB trln

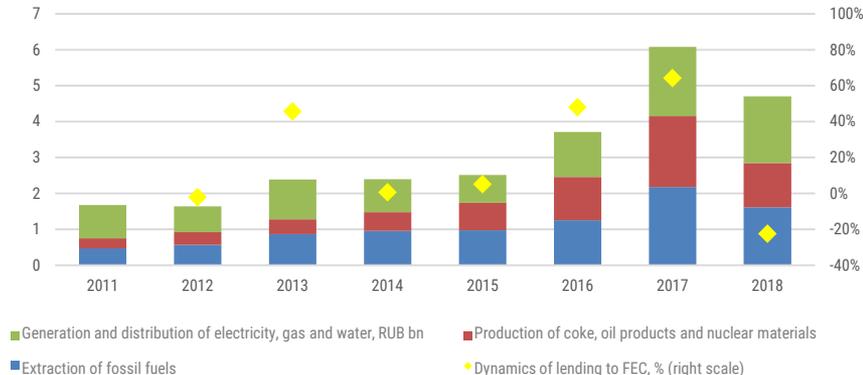


Source: FSSS, INFOLine estimates

1.4. LENDING TO FEC COMPANIES

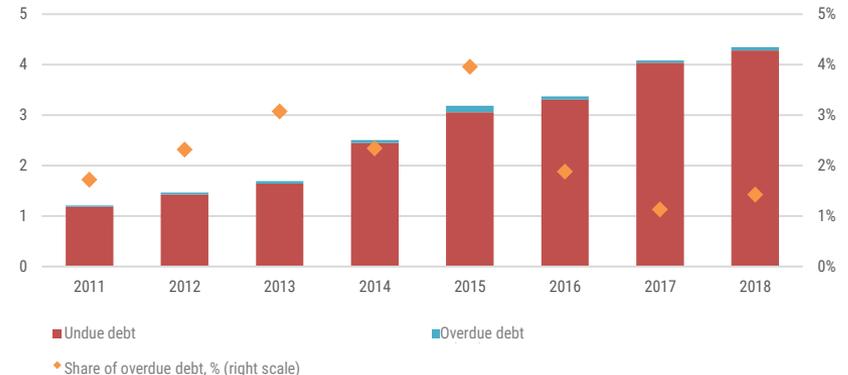
- In 2018, FEC companies reduced the volumes of leveraged financing: so, for example, loans were obtained for the total amount of **RUB 4.7 trln**, that is **22.6%** less than in 2017. Volume of loans granted to companies engaged in fossil fuels extraction went down by **26.1%**, companies producing coke, oil products and nuclear materials – by **37.6%**, companies generating and distributing electricity, gas and water – by **3.4%**.
- Share of foreign exchange indebtedness during the year decreased by **1.9 pp** and as of the end of 2018 amounted to **26.9%** (**RUB 1.17 trln**). In 2018, FEC companies received loans in RUB for the total amount of **RUB 4.49 trln** (**-20.4%** compared to 2017) and loans in currencies for the total amount of **RUB 0.21 trln**, that is **51.1%** less than in 2017.
- Amount of indebtedness of FEC companies as of January 01, 2019 reached its historic high of **RUB 4.3 trln**, that is **6.3%** higher than the figure at the end of December 2017.
- As of the end of 2018 share of overdue debt grew by **0.3 pp** and amounted to **1.4%**.

Loans to FEC Companies Granted in Foreign Currencies and Rubles, RUB trln



Source: Central Bank of Russia, INFOLine estimates

Loan Debt in FEC, RUB trln

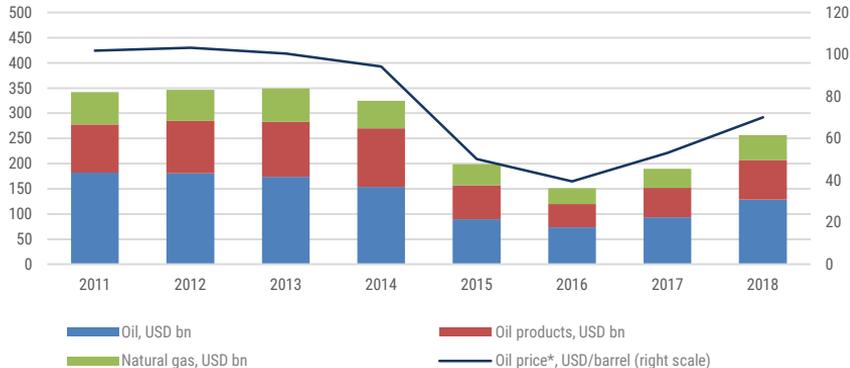


Source: Central Bank of Russia, INFOLine estimates

1.5. INTERNATIONAL BUSINESS: EXPORT

- In 2018, average oil price of the Urals brand grew by 32% and amounted to **USD 70.01 per barrel**. Oil prices grew steadily during first 10 months of 2018 and reached their peak of **USD 85 per barrel** in October. This increase was supported by growing global demand and OPEC+ agreement on the oil production cut. However, starting from October drop in prices replaced the growth and by the end of the year prices were at the level of **USD 53.8 per barrel**.
- In 2018, total export in FEC branches in monetary terms grew by **35.0%** compared to 2017 and reached **USD 279.4 bn**. Oil export increased by **38.3%** (up to **USD 129.0 bn**), export of oil products went up by **34.1%** (up to **USD 78.1 bn**), natural gas by **28.8%** (up to **USD 49.1 bn**), coal by **25.9%** (up to **USD 17.0 bn**), LNG by **66.7%** (up to **USD 5.2 bn**), electricity by **26.6%** (up to **USD 0.8 bn**).
- Average annual export prices of natural gas and liquefied natural gas (LNG) in 2018 were **USD 222.8/thousand cub. m** (+22.8% compared to 2017) and **USD 142.6/cub. m** (+9.7%), respectively. Estimated export cost of regasified LNG (without cost of regasification) was **USD 227/thousand cub. m**.

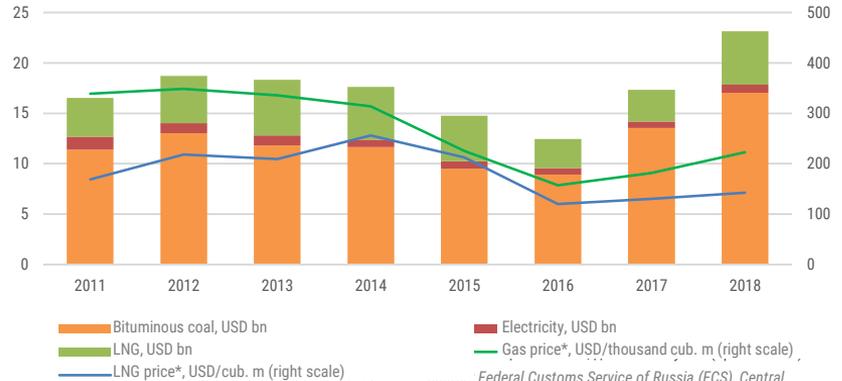
Oil, Oil Products and Natural Gas Export, Oil Export Price



*Average annual export oil price of the Urals brand

Source: Federal Customs Service of Russia (FCS), Central Bank of Russia, INFOLine estimates

Coal, LNG and Electricity Export, Gas Export Price



*Average annual export price

Source: Federal Customs Service of Russia (FCS), Central Bank of Russia, INFOLine estimates

Part II. FEC Milestones

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«**RUSSIAN FUEL AND ENERGY COMPLEX. Results of 2018 and Trends for 2019**»:

Government Regulation
M&A Deals
Resignations and Appointments



Full version contains 25 slides

2.1. GOVERNMENT REGULATION



MINISTRY OF ENERGY OF
THE RUSSIAN FEDERATION

- By **Order of the Ministry of Energy of the Russian Federation No. 121 dated July 28, 2018 "Scheme and Program of Development of the Unified Energy System of Russia for 2018-2024"** ([text of document](#)) is approved. The Scheme and Program facilitate the development of grid infrastructure and generating capacities. Main tasks of the Scheme and Program are ensuring reliable performance of the UES of Russia in the long-term, coordinated planning of construction and commissioning (de-commissioning) of grid facilities and generating capacities as well as information support of activities of the state authorities when developing state energy policy.



- By **Regulation of the Government of the Russian Federation No. 298-8 dated March 17, 2018 "On Amendments to State Program of the Russian Federation "Development of Nuclear Power Generation Complex"** ([text of document](#)) financing parameters of the state program are brought in compliance with the Federal Law "On Federal Budget for 2018 and Planning Period of 2019-2022". Priorities and targets are also updated, expected results of the state program implementation are amended. The program is supplemented with "Advanced Development of Priority Territories" and "Participation of Constituent Entities of the Russian Federation in the Program Implementation" sections. To expand electricity generation capacities of the Russian nuclear power plants new nuclear units will be erected. 6 new units will be commissioned in 2012-2020.



- By **Regulation of the Government of the Russian Federation No. 937 dated August 13, 2018 (as amended on December 08, 2018) "On Approval of Regulations of Technological Performance of Electric Power Systems and on Amendments to Certain Legislative Acts of the Government of the Russian Federation"** ([text of document](#)) technological framework is established for reliable performance and development of the Unified Energy System of Russia and technologically isolated systems. The document gives a comprehensive view of principal rules, performance characteristics and operating parameters as well as requirements to the power system stability and safety. A list is compiled which includes 35 legal acts necessary for development and approval by Ministry of Energy of Russia for further regulation of technological activities.

2.2. LARGEST M&A DEALS

Deal participants		Asset	Value, RUB bn	Closing date	Deal format and description
 РОССИЙСКИЙ ФОНД ПРЯМЫХ ИНВЕСТИЦИЙ Russian Direct Investment Fund	 ГАЗПРОМ НЕФТЬ Gazprom Neft PJSC	49% of authorized capital of Gazpromneft-Vostok LLC	22	July 2018	In July 2018 Board of Directors of Gazpromneft PJSC approved sale of 49% shares of Gazpromneft-Vostok LLC to the consortium consisting of Russian Direct Investment Fund and UAE sovereign wealth fund Mubadala. The target company operates 12 matures fields located in Parabelsky and Kargasovsky districts of Tomsk Region as well as in Tarsky district of Omsk Region. Proven and probable reserves of hydrocarbons in the fields of Gazpromneft-Vostok amount to 40 mln t of crude oil equivalent according to PRMS classification or about 300 mln barrels.
 MUBADALA Mubadala Investment Fund					
 СУЭК Siberian Coal-Energy Company JSC	 СИБИРСКАЯ ГЕНЕРИРУЮЩАЯ КОМПАНИЯ Siberian Generating Company LLC	99.94% of authorized capital of <u>Siberian Generating Company LLC</u>	21.3	August 2018	In August 2018 SUEK (Siberian Coal Energy Company) JSC increased its share in Siberian Generating Company (SGC) LLC from RUB 10,000 to RUB 21.398 bn. Since 2018 SGC has been under direct control of SUEK.
 ИНТЕР РАО ЭЭС Inter RAO Capital JSC	 РусГидро RusHydro Group companies	4.915% shares of <u>Inter RAO PJSC</u>	17.2	August 2018	In August 2018 Inter RAO Capital JSC (subsidiary of Inter RAO PJSC) and companies of RusHydro Group signed SPA for 4.915% shares of Inter RAO PJSC. Total amount of transactions is RUB 17.2 bn. According to the Group Development Strategy till 2020 shares of Inter RAO PJSC held by Inter RAO Capital JSC may be used for sale to a major international strategic investor with potential increase of number of free floating shares.
 QIA QATAR INVESTMENT AUTHORITY Qatar Investment Authority (QIA)	GLENCORE Glencore	14.16% shares of <u>Oil Company Rosneft PJSC</u>	590*	September 2018	In September 2018 consortium of Qatar sovereign wealth fund Qatar Investment Authority (QIA) and Swiss trader Glencore completed sale of 14.16% shares of Rosneft to the QIA entity. Upon the deal the consortium was dissolved and now direct shareholding of Glencore in Rosneft is 0.57%, while QIA holds 18.93%.

*According to INFOLine estimates

2.3. RESIGNATIONS AND APPOINTMENTS



- In January 2018 **Andrey Valeryevich Ryumin** was appointed General Director of **Lenenergo PJSC**. Earlier he was a member of Board of Directors of Mosenergo PJSC and was employed by United Energy Company.



- In January 2018 **Alexey Myltsyn** was appointed General Director of **Rosneft-Komsomolsky Refinery LLC**. Earlier Myltsyn was the First Deputy General Director – Technical Director of Ryazanskaya Refining Company.



- In February 2018 **Pavel Livinsky** was elected Chairman of Board of Directors of **Lenenergo PJSC**. New membership of the Board of Directors of Lenenergo PJSC was elected at the extraordinary meeting of shareholders.



- In February 2018 **Mikhail Karisalov** was appointed General Director and Chairman of Management Board of **Sibur LLC**. His previous position was Chief Operating Officer of the company.



- In February 2018 **Yury Ezhov** was appointed General Director of **LUKOIL-Nizhnevoldzhsknefteprodukt LLC**. He earlier was employed in the position of Deputy General Director in charge of commercial issues. Former CEO Andrey Spirin became General Manager of LUKOIL-Bunker LLC.



- In February 2018 **Aydar Gabdulkhakov** was appointed General Director of **Rosneft-Purneftegaz LLC**. This position was previously held by Denis Khudyakov.



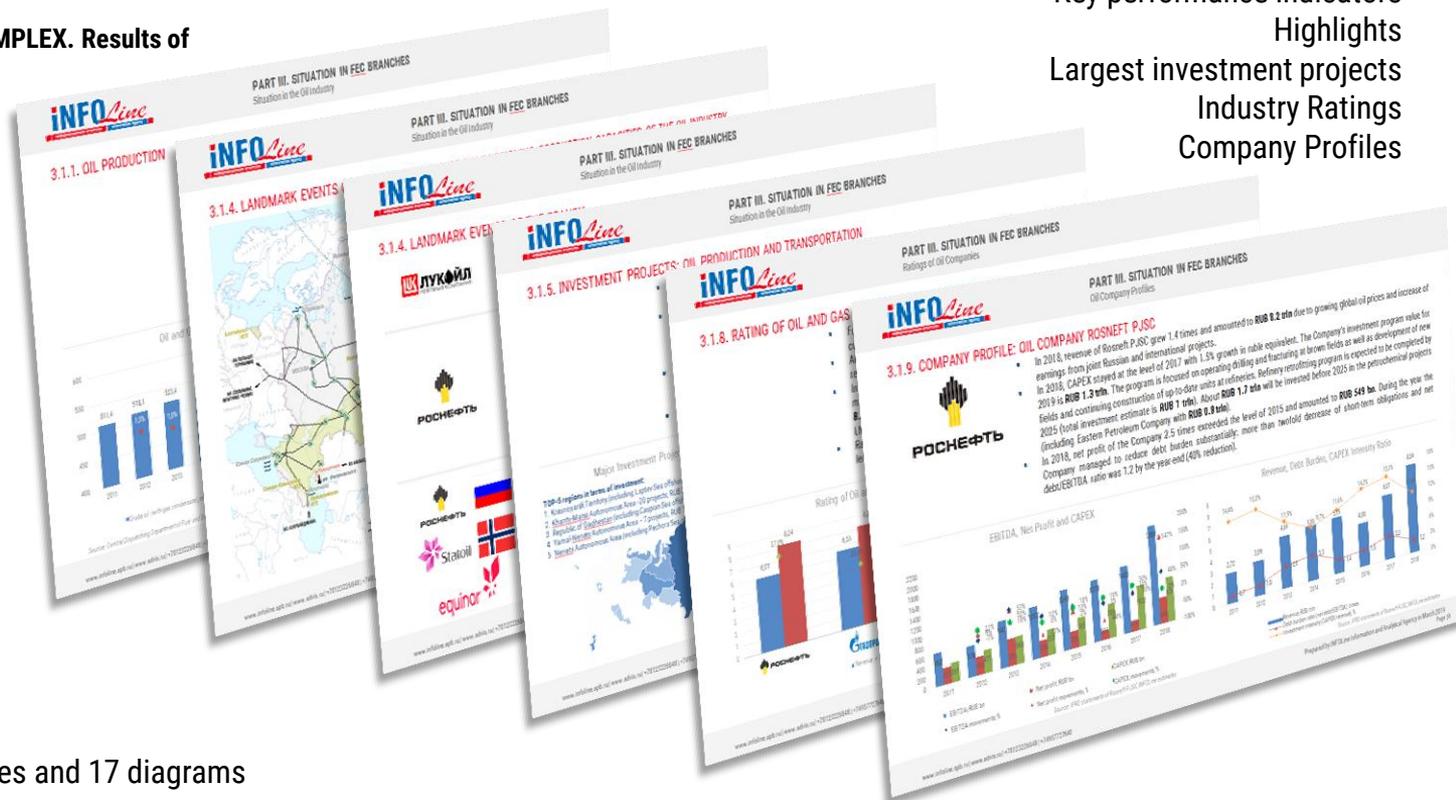
- In February 2018 **Denis Khudyakov** was appointed General Director of **Orenburgneft PJSC**.



- In February 2018 Minister of Energy of the Russian Federation **Alexander Novak** was elected Chairman of Board of Directors of **Transneft PJSC**.

Part III. Situation in FEC Branches: Oil Industry

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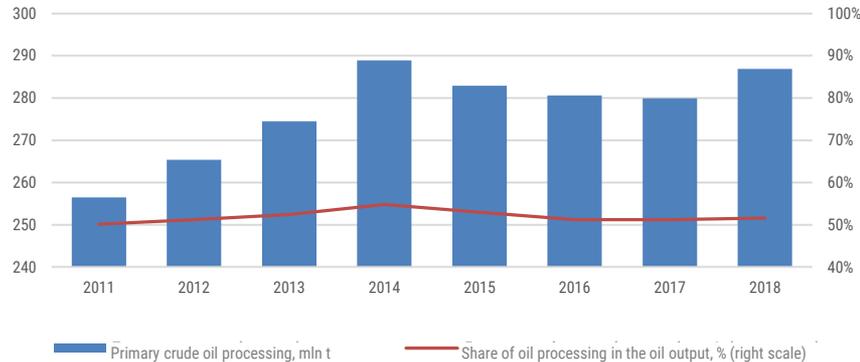
Key performance indicators
 Highlights
 Largest investment projects
 Industry Ratings
 Company Profiles

Full version contains 27 slides and 17 diagrams

3.1.2. OIL PROCESSING AND EXPORT

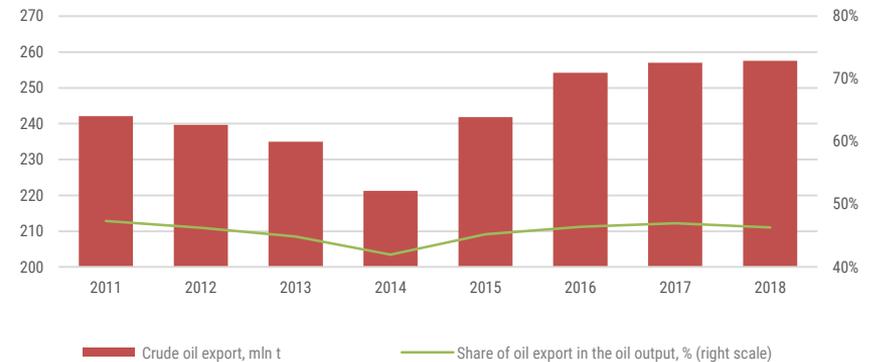
- Primary crude oil processing in Russia showed **2.5%** growth in 2018 after three-year decline and amounted to **286.9 mln t**. Main causes of the increase were completion of repair works and commissioning of new refining units at the largest refineries: Omsky Refinery and Moskovsky Refinery (Gazprom Neft PJSC); Ryazansky, Syzransky and Saratovsky Refineries (Oil Company Rosneft PJSC) and TANEKO (Tatneft PJSC).
- Upon introduction of new US sanctions in August 2018 which for the first time prohibit export of technologies for Russian oil refining industry, some projects of refinery retrofitting which use foreign technologies now face certain risks.
- Following the results of 2018 oil refining efficiency in Russia grew by **2.1 pp** and reached **83.4%**.
- In 2018, Russia exported **257.5 mln t** of oil that is **0.2%** higher if compared to 2017. Export beyond CIS amounted to **239.6 mln t (+0.3%)**, export to the CIS countries amounted to **18 mln t (-0.2%)**.
- Starting from October 2018 crude oil export duty was increased by USD 7.5 – from USD **130** to **137.5** per ton.

Primary Crude Oil Processing



Source: CDD FEC, Ministry of Energy of Russia, INFOLine estimates

Oil Export



Source: FCS of Russia, Ministry of Energy of Russia, INFOLine estimates

3.1.5. INVESTMENT PROJECTS: OIL PRODUCTION AND TRANSPORTATION

- **Over 80** significant investment projects concerning oil extraction and transportation are announced and being implemented with investment amounts of at least **RUB 3 bn** and aggregate investment of **RUB 22.6 trln**.
- 5 investment projects for the total amount of **RUB 5.2 trln** in the Krasnoyarsk Territory (including Laptev Sea offshore) account for the maximum investment in the oil production segment. They cover the following fields: Vankor cluster of fields and Khatangsky plot, Yurubcheno-Tokhomskoye and Kuyumbinskoye oil-gas condensate fields operated by Rosneft PJSC and Payakhskoye cluster of fields operated by Neftegazholding JSC (former Independent Oil Company (NNK)).
- The largest number of major investment projects is concentrated in Khanty-Mansi Autonomous Area (**20 projects**) including Erginsky cluster, Samotlorskoye and Sorovskoye fields (Oil Company Rosneft PJSC), Imilorskoye field (LUKOIL PSC), Panlorsky 4th license area of Surgutneftegas PJSC.
- LUKOIL PJSC produces oil in the Caspian Sea region within the following major deposits: Tsentralnoye and Rakushechnoye oil and gas condensate field, Yu. Korchagin and V. Filanovskiy oil fields.

Major Investment Project in Oil Production in 2019-2021

TOP-5 regions in terms of investment:

1. Krasnoyarsk Territory (including Laptev Sea offshore) – 5 projects, RUB 5,206 bn
2. Khanty-Mansi Autonomous Area - 20 projects, RUB 3,274 bn
3. Republic of Dagestan (including Caspian Sea offshore) – 5 projects, RUB 3,128 bn
4. Yamal-Nenets Autonomous Area – 7 projects, RUB 1,825 bn
5. Nenets Autonomous Area (including Pechora Sea offshore) – 5 projects, RUB 880 bn



Largest investor in terms of construction of oil production facilities

COMPANY	INVESTMENT PROGRAM	
Oil Company Rosneft PJSC	RUB 1.2 trln (as of 2019)	
MANAGERS	Igor Ivanovich Sechin , Chief Executive Officer, Chairman of the Management Board Gerhard Schroeder , Chairman of the Board of Directors	
MAJOR CONSTRUCTION PROJECTS	Vankor group of fields Krasnoyarsk Territory (RUB 3.0 trln) Messoyakhskaya group of fields Khanty-Mansi Autonomous Area (RUB 1.3 trln)	

Source: INFOLine "Major Investment Projects in Oil and Gas Production and Transportation in the Russian Federation in 2019-2021"

3.1.5. OIL PRODUCTION: MAJOR COMPLETED PROJECTS

Investor	Project	Project start	Project finish	Investment, RUB bn	Project description
 Oil Company Rosneft PJSC	Tagulskoye field in the Krasnoyarsk Territory	2009	2022	1500*	In December 2018 Tagulskoye field was put into operation. Construction and installation works on the 1st commissioning and start-up complex of the oil processing unit with 2.3 mln t/year design capacity and other field facilities (multi-well pads, oil pipelines, etc.) are in progress. Oil rate plateau of 4.5 mln t/year is expected to be reached after 2022. Recoverable oil reserves of ABC1 and C2 categories under Russian classification are estimated at more than 524 mln t of oil equivalent (o.e.).
	Russkoye field in the Yamal-Nenets Autonomous Area	2016	2022	270	In December 2018 Russkoye field was brought into operation. Construction of power supply package and testing of delivery line CPF Russkoye – PAC Zapolyarnoye are completed, construction and installation works and preparation of main facilities to the process start-up are carried out according to the schedule. Oil rate plateau of 6.5 mln t/year is expected to be reached after 2022.
	Kuyumbinskoye field in the Krasnoyarsk Territory	2010	2021	180	In December 2018 the first start-up complex of Kuyumbinskoye field was brought into operation. Central production facility (CPF) was launched, 34 km of internal pipelines and field camp are ready for operation. It is expected to reach oil rate plateau over 1.5 mln t/year after 2021. According to PRMS classification, proven hydrocarbon reserves are 7.7 mln t o.e.
 Gazprom Neft PJSC, NOVATEK PJSC	Oil zone of Yaro-Yakhinskoye field in the Yamal-Nenets Autonomous Area	2015	N/A	N/A	In December 2018 Arcticgas JSC started developing the oil zone of Yaro-Yakhinskoye field. Estimated oil yield is 1.2 mln t per year. Extraction of gas and gas condensate started in April 2015. Reserves of Yaro-Yakhinskoye field according to Russian classification as of the beginning of 2018 amounted to 206 bn cub. m of gas and 32 mln t of liquid hydrocarbons.
 Oil Company Rosneft PJSC	Srednebotuobinskoye field in Yakutia	2015	2021	40	In December 2018 at Srednebotuobinskoye field the 2nd stage facilities were put into operation (oil pipeline, central production facility, acceptance transfer unit) which ensure oil preparation and delivery up to 5 mln t/year. Oil rate plateau of about 5 mln t/year is expected to be reached by 2021.

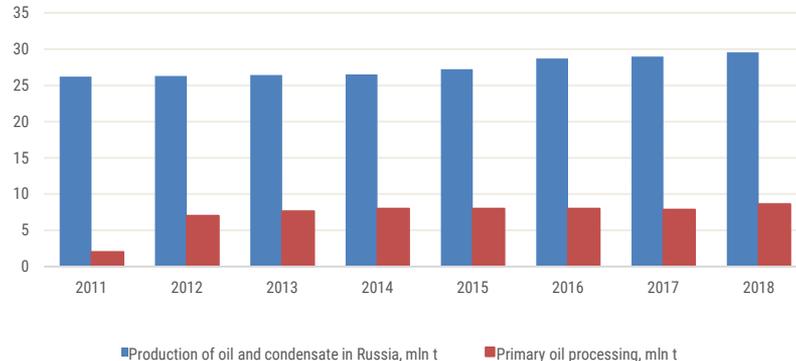
* Investment to development of Vankor cluster which includes Tagulskoye field

3.1.9. COMPANY PROFILE: TATNEFT PJSC



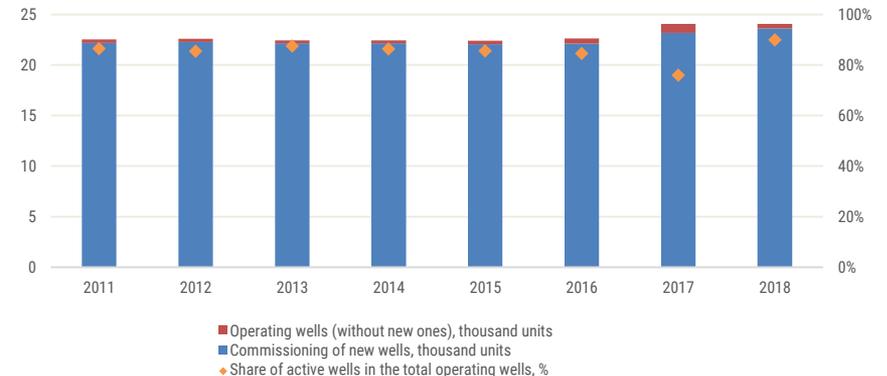
- The structure of Tatneft PJSC includes 40 oil producing, oil processing, petrochemical and sales companies in Russia and the CIS countries as well as 20 other enterprises. As of January 01, 2018 proved reserves are estimated at **866.5 bn t**. Addition to reserves in 2018 was 30.9 mln t. Distribution network of the Company consists of **685 fuel filling stations** in Russia, Belarus and Ukraine.
- In 2018, Tatneft PJSC slightly increased its oil output to **29.5 mln t (+2.1%** compared to 2017). Output rates slowed down due to participation of the Russian Federation in the OPEC agreement.
- Upon the results of 2018 number of operating wells of the Company went up by **1.8%** to 23,629 units.
- In 2018, TANEKO JSC processed **8.6 mln t** of oil. In February after commissioning of catalytic reforming unit the Company commenced to produce high quality commercial gasoline. Design capacity of the unit exceeds 1.1 mln t per year. Upgrade of the TANEKO facilities allowed to increase oil refining efficiency to 99%, output of light oil products to 83.64%.

Oil Production and Processing



Source: CDD FEC, Tatneft PJSC, INFOline estimates

Operating Wells in the Russian Federation



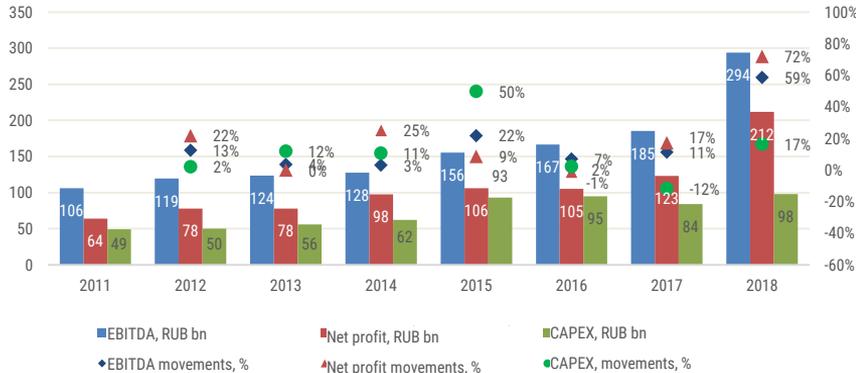
Source: CDD FEC, Tatneft PJSC, INFOline estimates

3.1.9. COMPANY PROFILE: TATNEFT PJSC



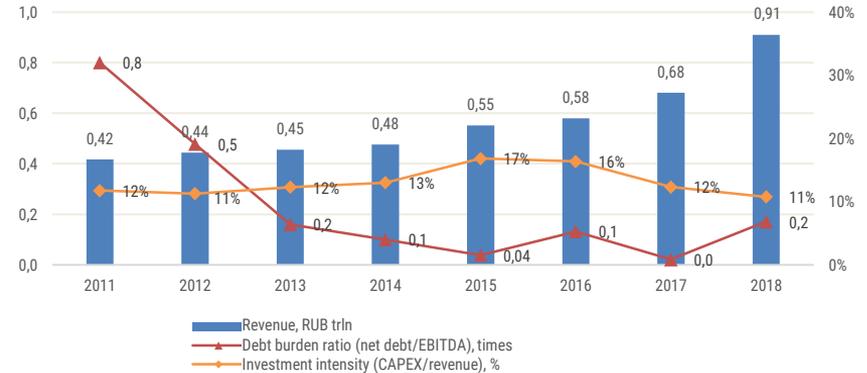
- Following the results of 2018 Tatneft PJSC showed record-breaking performance: revenue of the Company grew by **33.7%** to **RUB 910.5 bn**, EBITDA by **58.7%** to **RUB 294 bn**, net profit by **72%** to **RUB 211.8 bn**. Debt burden ratio also went up from historic minimum value of 0.02 to **0.2**.
- Tatneft PJSC CAPEX in 2018 increased by **16.5%** to reach **RUB 98 bn**.
- In 2019, the Company is going to implement an investment program for the amount of **RUB 127.3** including RUB 38.2 bn for the development of TANEKO Refinery, RUB 27.5 bn for exploration and development of oil in Tatarstan, RUB 22 bn for production of super-viscous oil.
- In February 2019 international rating agency Moody's upgraded long-term rating of Tatneft PJSC from Baa3 to Baa2. The rating outlook was changed from positive to stable.

EBITDA, Net Profit and CAPEX



Source: Tatneft PJSC, INFOLine estimates

Revenue, Debt Burden, CAPEX Intensity Ratio



Source: Tatneft PJSC, INFOLine estimates

Part III. Situation in FEC Branches: Gas Industry

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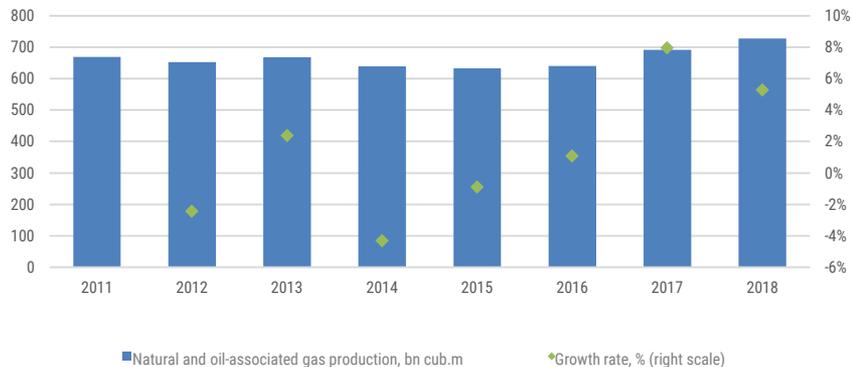


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3.2.1. GAS PRODUCTION AND CONSUMPTION

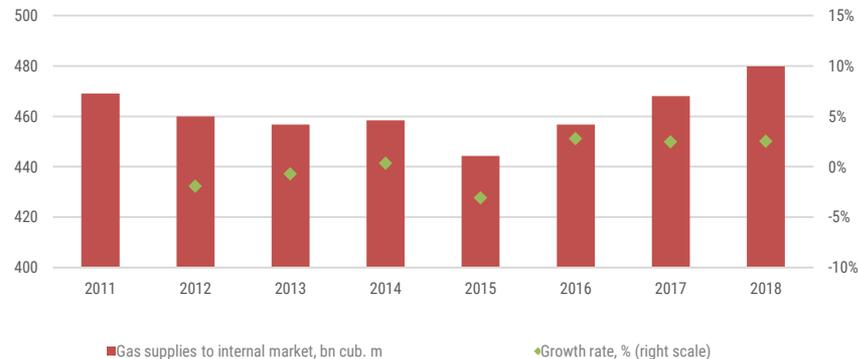
- In 2018, gas output in Russia exceeded the level of 2017 by **5.3%** and amounted to **727.6 bn cub. m**. This is a record-breaking result for Russia for the last 18 years. This dynamics is primarily associated with increase of export supplies of natural gas to Europe caused by growing consumption and decrease of gas output at the largest European gas field Groningen (Holland).
- Upon commissioning at the end of 2018 of the third gas field Bovanenkovskoye deposit achieved it design capacity 115 bn cub. m/year, that is more than a quarter of the current annual output of Gazprom PJSC (**497.6 bn cub. m** in 2018).
- Energy Strategy of Russia for the period till 2035 envisages growth of gas output in Russia up to **821-885 bn cub. m**.
- Following the results of 2018 gas supplies to the internal market grew by 2.5% and amounted to **479.8 bn cub. m**.
- In 2018, under the regional gasification program of Russia more than 200 settlements were provided with gas, gasification level grew by **0.4 pp** and now is **68.5%**.

Natural and Oil-Associated Gas Production



Source: CDD FEC, INFOline estimates

Gas Supplies to Internal Market



Source: Ministry of Energy of Russia, INFOline estimates

3.2.4. LANDMARK EVENTS OF THE BRANCH



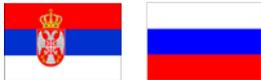
- In January 2018 Gazprom Marketing & Trading, subsidiary of Gazprom PJSC, and Gail (India) confirmed the term of commencement of LNG supplies to India in 2018. According to the initial contract terms Gazprom undertook to supply Gail 2.5 mln/t of LNG over 20 years. However, in June 2014 the parties extended the contract term to 25 years and increased the supply volume to 3 to 3.5 mln t/year with the possibility of further increase. According to the contract LNG price will be based upon formula pegged to oil price at Indian terminals.



- In February 2018 Oil Company Rosneft PJSC announced development of oil-associated gas treatment technology using equipment based on microporous membranes. This membrane-based technology for oil-associated gas was developed by Rosneft PJSC together with Lomonosov Moscow State University with participation of Non-state Development Institute Innopraktika. The developed technology will be applied in the current Rosneft program aimed at increase of oil-associated gas usage efficiency.



- In February 2018 Stockholm Arbitration Court obliged Gazprom PJSC to make an additional payment to Naftogaz of Ukraine **NJSC USD 4.63 bn for shortfall of agreed gas supplies for transit**. However, given the amount under supply contract previously awarded to Gazprom PJSC arbitrators made an offset of counter claims which resulted in the obligation of Gazprom PJSC to pay USD 2.56 bn to Naftogaz of Ukraine.



- In March 2018 Russia and Serbia agreed to exclude from the intergovernmental agreement on supplies of Russian gas the clause stipulating usage of the acquired gas solely in the internal market. The respective Regulation of the Government of Russia No. 2807-r was signed on December 14, 2017. The clause stipulating that natural gas supplied to Serbia under the agreement was intended solely for consumption in the Serbian market is now declared ineffective. Thus, Gazprom PJSC started to fulfill its obligations towards the European Commission concerning reexport of its products. Earlier the Company promised to ensure free gas flows in the European market.

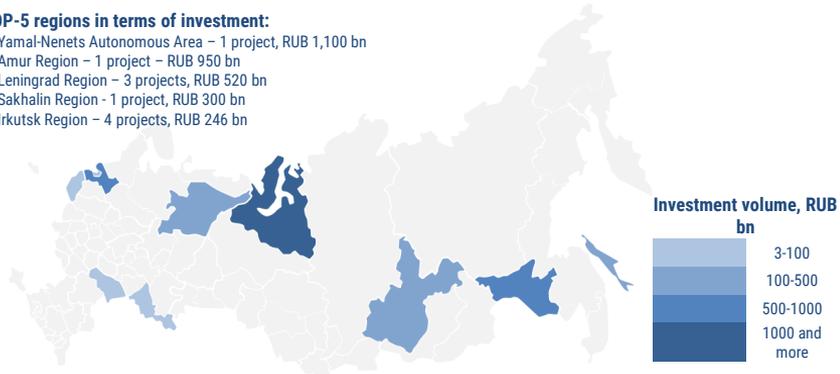
3.2.6. INVESTMENT PROJECTS: GAS PROCESSING INDUSTRY

- In the gas processing segment **20** significant investment projects are announced and being implemented with the investment amount starting from **RUB 3 bn**. Total investment amount of all projects reaches **RUB 3.2 trln**.
- Yamal-Nenets Autonomous Area ranks the first in terms of investment to significant projects of gas processing industry (**RUB 1.1 trln**). In the Area NOVATEK PJSC makes preparations for construction of Arctic LNG-2. The Amur Region ranks the second due to implementation of the project relating to Amursky gas processing plant (Gazprom PJSC) (RUB 950 bn). The third position is occupied by the Leningrad Region (**RUB 520 bn**) where the following facilities are being constructed: second stage of LNG plant Cryogas Vysotsk (NOVATEK PJSC and Gazprombank PJSC), LNG production, storage and shipment complex near Portovaya compressor station (Gazprom PJSC) and gas chemical complex near Ust-Luga (Gazprom PJSC).
- In 2019 investment decisions are expected on several LNG plant construction projects, namely Pechora LNG (Nenets Autonomous Area) and Far Eastern LNG (Khabarovsk Territory).

Major Investment Projects in Gas Processing in 2019-2021

TOP-5 regions in terms of investment:

1. Yamal-Nenets Autonomous Area – 1 project, RUB 1,100 bn
2. Amur Region – 1 project – RUB 950 bn
3. Leningrad Region – 3 projects, RUB 520 bn
2. Sakhalin Region - 1 project, RUB 300 bn
5. Irkutsk Region – 4 projects, RUB 246 bn



Largest Investor in Terms of Construction of Gas Processing Facilities

COMPANY
NOVATEK PJSC

INVESTMENT PROGRAM
RUB 185 bn (as of 2019)



MANAGERS

Alexander Egorovich Natalenko, Chairman of the Board of Directors
Leonid Viktorovich Mikhelson, Chairman of the Management Board

MAJOR CONSTRUCTION
PROJECTS

Arctic LNG-2 plant, Yamal-Nenets Autonomous Area (RUB 1.1 trln)
Cryogas Vysotsk LNG plant, Leningrad Region (RUB 68 bn)

Source: INFOLine "Major Investment Projects in Oil and Gas Processing in the Russian Federation in 2019-2021"

3.2.6. GAS PROCESSING: INVESTMENT PLANS

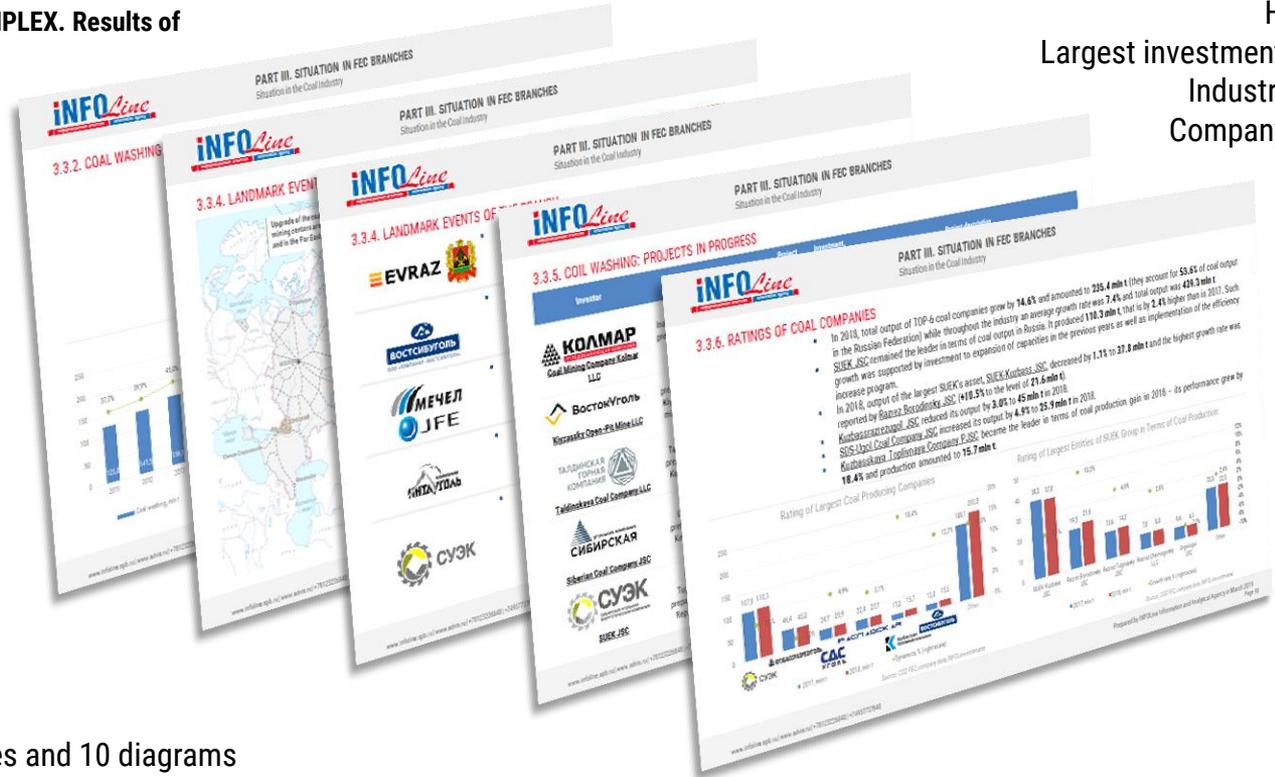
Investor	Project	Project start	Project finish	Investment, RUB bn	Project description
 <p>НОВАТЭК NOVATEK PJSC</p>	Arctic LNG-2 plant in the Yamal-Nenets Autonomous Area	2019	2023	1,100*	The Arctic LNG-2 Project envisages three phases of LNG production of 6.6 mln t/year each on the gravity-based structures. The project is being implemented on the basis of Utrenneye field resource base. Arctic LNG-2 LLC holds a license for LNG export.
 <p>Газпром Gazprom PJSC РусГазДобыча Rusgazdobycha JSC</p>	Gas chemical complex near Ust-Luga in Leningrad Region	N/A	N/A	700*	In March 2019 Gazprom PJSC and Rusgazdobycha JSC took the decision on final configuration of the Ust-Luga complex for ethane-containing gas processing and LNG production. The project provides for construction of facilities having annual processing capacity of 45 bn cub. m of gas, production and shipment capacity of 13 mln t of LNG, up to 4 mln t of ethane and over 2.2 mln t of liquefied hydrocarbon gases. The enterprise will use ethane-containing natural gas extracted by Gazprom PJSC from Achimovskiy and Valanginian deposits in Nadym-Pur-Tazovsky District.
 <p>ЛУКОЙЛ ЛУКОЙЛ ПНЕФТЯНАЯ КОМПАНИЯ LUKOIL PJSC</p>	Gas chemical complex in Buddyonovsk (Stavropol Territory)	N/A	N/A	120*	In February 2018 LUKOIL took an investment decision on construction of gas chemical plant in the town of Buddyonovsk. Main specialization areas of the new plant will be chemicals (carbamide, first phase), polyethylene and polypropylene (second phase). The plant will process gas from Caspian deposits Rakushechnoye and Kuykyin. Total capacity of the complex is expected within the range of 1-3 bn cub. m of gas every year.
<p>Russian Direct Investment Fund (RDIF), Marubeni Corporation, AEON Corporation</p>	Methanol plant in Volgograd	N/A	N/A	78*	In May 2018 Russian Direct Investment Fund (RDIF), Marubeni Corporation and AEON Corporation agreed upon cooperation in erecting methanol plant and organizing chemical cluster. Future plant capacity will be within the range of 600,000 to 1 mln t of methanol per year. The project implementation will take 3.5 years. It is expected that the products will be exported to Turkey and Western Europe.
 <p>РУСХИМКОМ RusKhimCom LLC</p>	Methanol plant in Leningrad Region	2020	2023	70*	In January 2019 RusKhimCom LLC announced its plans to construct a complex for processing of gas to methanol with estimated capacity of 1.75 mln t per year in 2023. The project envisages construction of methanol production plant in the territory of Alexeyevskaya industrial zone, a product pipeline of 48 km long and shipping terminal in Ust-Luga sea port.

* According to INFOLine estimates

Part III. Situation in FEC Branches: Coal Industry

Full version of Research
«**RUSSIAN FUEL AND ENERGY COMPLEX. Results of 2018 and Trends for 2019**»:

Key performance indicators
Highlights
Largest investment projects
Industry Ratings
Company Profiles

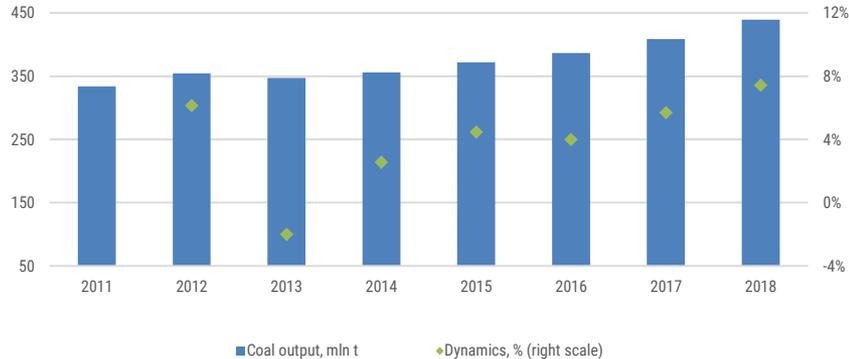


Full version contains 16 slides and 10 diagrams

3.3.1. COAL PRODUCTION

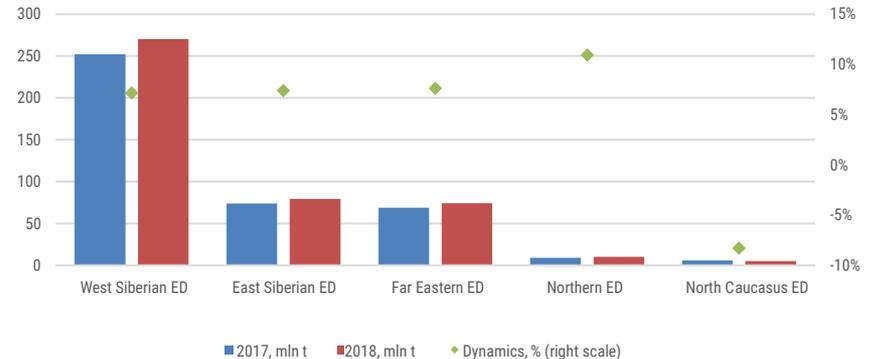
- Following the results of 2018 the coal industry showed a record coal production for the whole history of the Russian Federation and Soviet Union, that is **439.3 mln t**. If compared to 2017, the growth is **7.4%**. The Soviet record coal output was registered in 1988 and amounted to 425.5 mln t.
- Coal output growth was traditionally supported by increase of production in Kuznetsk Basin in the West Siberian Economic District (**+7.2%** or **12.0 mln t** compared to 2017). Coal output in the East Siberian and Far Eastern Economic Districts also showed growth of **7.4%** (**5.4 mln t**) and **7.6%** (**5.2 mln t**), respectively.
- In 2018, volumes of deep mining grew by **2.8%** to reach **108.3 mln t**, while open-pit mining went up by **9%** to **330.9 mln t**. As a result, the share of deep mining in the coal output structure in the Russian Federation reduced by **1.1 pp** to **24.7%**, while the share of open-pit mining grew and is now **75.3%**.

Coal Output



Source: CDD FEC, Ministry of Energy of Russia, INFOLine estimates

Coal Output Breakdown by Economic Districts



Source: CDD FEC, INFOLine estimates

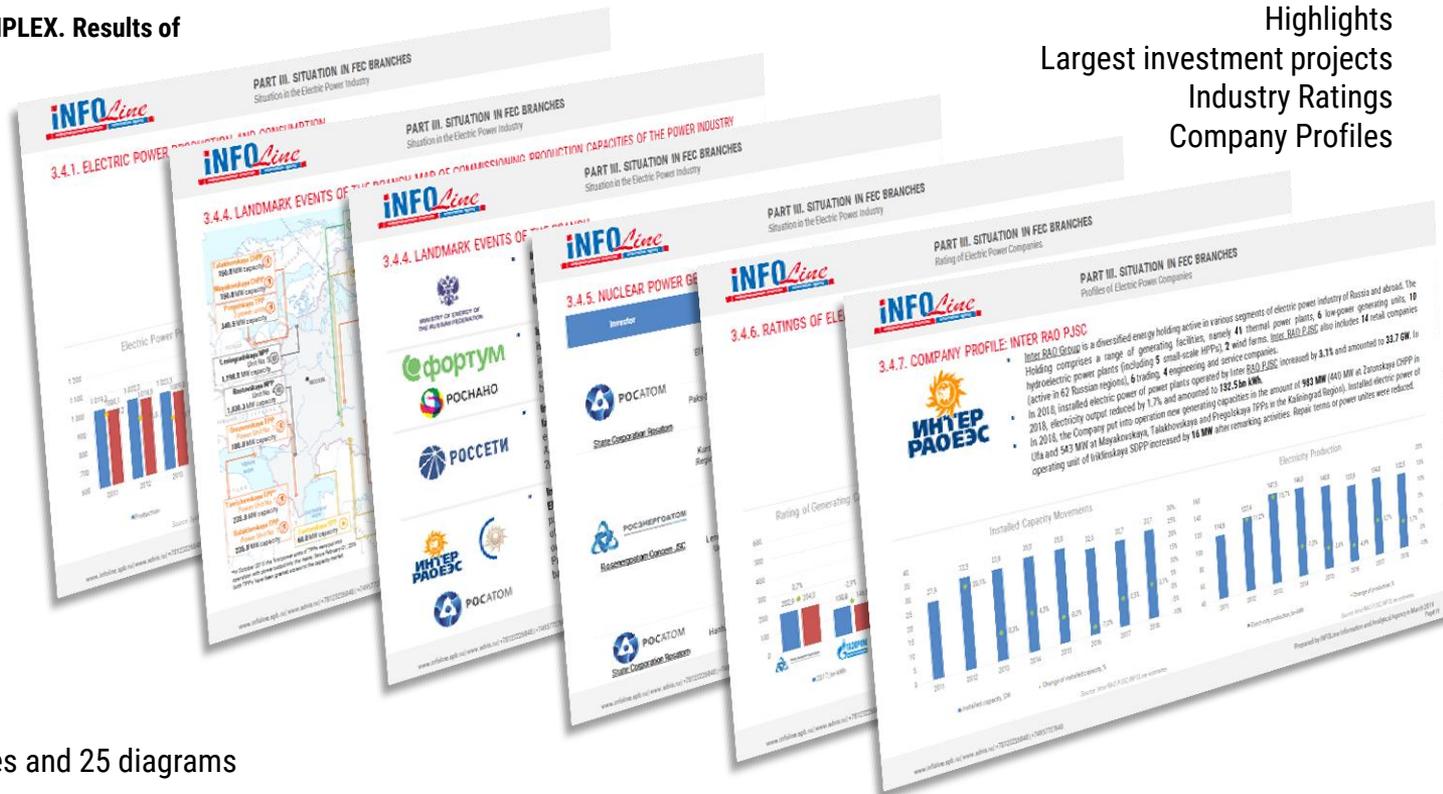
3.3.5. COIL WASHING: INVESTMENT PLANS

Investor	Project	Project start	Project finish	Investment, RUB bn	Project description
 КУЗБАССРАЗРЕЗУГОЛЬ Kuzbassrazrezugol Coal Company JSC	Taldinskaya-Energeticheskaya coal preparation plant in Kemerovo Region	2019	2020	8	Kuzbassrazrezugol Coal Company JSC (a member of UMMC Holding LLC) plans to construct a new coal preparation plant Taldinskaya-Energeticheskaya having capacity of 6 mln t of coal per year at Taldinsky open-pit mine.
 БЕРИНГ ПРОМ УГОЛЬ Beringpromugol LLC	Coal preparation plant in Chukotka Autonomous Area	2019	2020	6.5	Construction process is expected to start in 2019 and the complex launch - by 2020. By 2024 the Company will reach the production level of 2 mln t. At the same period Beringovskiy port being the hub for coal export to the Asia Pacific will be retrofitted.
 НЛМК NLMK PJSC	Mining and processing plant Zhernovskiy in Kemerovo Region	2019	2022	4	The Company plans to start construction of mining and processing plant Zhernovskiy in 2019. The plant project envisages output of 3 mln t of coal and complete preparation thereof. Together with this, branch railway line, loading station and roads are to be built.
 ПМХ PMH-Ugol LLC	Coal preparation plant at S.D. Tikhov mine in Kemerovo Region	N/A	2020	1	Industrial and Metallurgical Holding (PMH) intends to construct a coal preparation plant at S.D. Tikhov mine in the Kemerovo Region by 2020 with the capacity of approximately 3 mln t per year.
 СУЭК СИБИРСКАЯ УГОЛЬНАЯ ЭНЕРГЕТИЧЕСКАЯ КОМПАНИЯ Arkticheskiye Razrabotki LLC	Apsatskaya coal preparation plant in the framework of development of Apsatskoye coal deposit in Trans-Baikal Territory	N/A	2025	0.6	Arkticheskiye Razrabotki LLC is engaged in development of Apsatskoye coal deposit located in Kalarsky District of the Trans-Baikal Territory. The deposit is 36 km north from Baikal-Amur Mainline and district center, settlement of Chara. Development of Apsatskoye open-pit mine envisages construction of coal preparation plant Apsatskaya with processing capacity of 1.5 mln t per year.

Part III. Situation in FEC Branches: Electric Power Industry

Full version of Research
«RUSSIAN FUEL AND ENERGY COMPLEX. Results of 2018 and Trends for 2019»:

Key performance indicators
 Highlights
 Largest investment projects
 Industry Ratings
 Company Profiles



Full version contains 27 slides and 25 diagrams

3.4.1. ELECTRIC POWER PRODUCTION AND CONSUMPTION

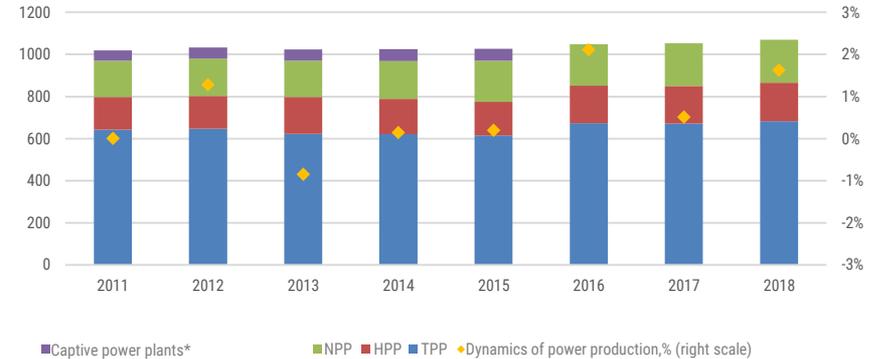
- In 2018, generation of electrical energy in the Russian Federation went up by **1.6%** and amounted to **1,070.9 bn kWh**.
- Energy consumption grew by **1.5%** to **1,055.6 bn kWh**. Such growth was supported by outdoor temperatures: in February, March and December 2018 the electric power system showed a substantial decrease of an average outdoor temperature compared to the same figure of 2017.
- In 2018, NPP production went up by **0.7%** to **204.3 bn kWh**, while HPP production increased by **2.7%** to **183.8 bn kWh**, TPP by **0.7%** to **681.8 bn kWh**, WPP by **66.3%** to **0.2 bn kWh**, SPP by **34.7%** to **0.7 bn kWh**.
- In 2018, capacities of 4.5 GW were put into operation including 2.2 GW providing by new NPP units (Leningradskaya NPP put into operation unit No. 1 (1,200 MW) and Rostovskaya NPP put into operation unit No. 4 (1,030 MW)) and 2.2 GW providing by thermal power plants.

Electric Power Production and Consumption, bn kWh



Source: System Operator of the Unified Energy System (SO UES), INFOLine estimates

Power Production by Generation Types, bn kWh



* Since 2016 have been included into figures broken down by generation types

Source: SO UES, INFOLine estimates

3.4.5. RENEWABLE POWER GENERATION: INVESTMENT PLANS

Deal participants	Project	Project start	Project finish	Investment, RUB bn	Project description
 РусГидро RusHydro PJSC	Zagorskaya PSPP-2 in Moscow Region	Q3 2019	2024	114	RusHydro PJSC was engaged in construction of Zagorskaya pumped storage power plant (PSPP-2) having capacity of 840 MW on the Kunya River in the Moscow Region under a capacity supply agreement. In 2013, the project was suspended due to site flooding. In April 2018 the Market Council suspended commissioning of PSPP to January 2024. In 2019, a tender was announced concerning aligning of the plant main building. Results will be announced in Q2 2019 and upon the contract signing a contractor shall perform the works in 32 months.
 Enel Russia PJSC	Wind farm near settlement of Teriberka of Murmansk Region	Q2 2019	Q4 2021	20.2	Enel Rus Wind Kola LLC (a subsidiary of Enel Russia) plans to arrange a wind farm of 201 MW capacity in the Murmansk Region along the motorway Murmansk-Tumann settlement – Teriberka settlement. The Wind Farm will consist of 67 turbines (3 MW each). Siemens Gamesa will act as the technology partner of the project.
 Фортум Fortum PJSC	Wind farms in Stavropol Territory	2019*	2020	20*	Fortum PJSC plans to build wind power plants of aggregate capacity of 200 MW in the Stavropol Territory. At present the Company is considering and negotiating appropriate sites.
	Wind farm in the Ordinsky District of the Perm Territory	Q4 2019	Q4 2020*	9.9	In the Ordinsky District of the Perm Territory a wind farm having capacity of 100 MW is planned. Engineering survey works are performed by Management Company DonGIS LLC. Design documentation is expected by fall 2019. At the end of 2019 construction of the wind farm is to be commenced.
 RIM Group	Adygeyskaya HPP	Q4 2019*	2021	9.7	At the beginning of 2019 Ministry of Industry and Trade of the Chechen Republic and Rim Group Holding signed an agreement according to which the Company will erect 80 MW HPP in the Republic of Adygeya on the Kuban River within the system of existing hydrounits of the Krasnodar water reservoir. The Company will also supply equipment. As of Q1 2019 site surveying is taking place.
 ВЕТРОПАРК Windpark LLC	Wind farm in Leningrad Region	Q4 2019	Q4 2020	6.8	Windpark LLC intends to erect a wind farm of 68.4 MW capacity near settlement of Sviritsa in the Leningrad Region on the area of 1,200 ha. At present design works are in progress. The Company expects obtaining of the construction permit in the nearest future.

* According to INFOLine estimates

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Major Investment Projects of Oil and Gas Processing in the Russian Federation in 2019-2022

Major Investment Projects of Oil and Gas Production and Transportation in the Russian Federation in 2019-2022

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