



MINISTRY OF ENERGY
OF THE RUSSIAN FEDERATION

Russian Energy: investment opportunities

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2017



MACRO

- FX stabilization
- Recovering economy
- Decelerating inflation
- Decreasing interest rates



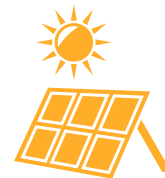
RUSSIAN OIL

- Low cost oil & large reserves
- Flexible taxation
- Cheap valuation
- High dividends and healthy leverage



RUSSIAN GAS

- Vast monetizable reserves
- Most competitive supplier to Europe
- Emerging supplier to Asia
- Significant LNG potential



RUSSIAN RENEWABLE ENERGY

- Favorable RES regulation
- Own advanced technologies
- Potential for technological cooperation
- Russia signed Paris agreement in 2016



Economic growth is back

After recession in 2015 Russian economy has adapted to new reality and is set to grow: After a 2.8% decline in 2015 the economy is currently recovering, with GDP growth - 0.2% in 2016 and expected +2% in 2017



Stabilizing FX

Consistent monetary policy and oil price recovery helps to stabilize FX and improves predictability. Predictable central bank policy, slowing inflation and improving commodity markets are making the rouble more stable



Inflation is low

Inflation reached historical lows. Determined policy from the government stabilizing markets brought inflation down to 5,4% y/y in December. (CBR target of 4%)

Russian energy sector is well positioned to help the world overcome future energy challenges



KEY TRENDS



Economic growth significantly increases energy demand in developing countries



Gas is aggressively substituting coal in global fuel mix



Global warming concerns affect energy policy

RUSSIA'S STRATEGIC POSITIONING

Russia is geographically well positioned towards markets that will drive energy demand in the future

Russia has the **largest commercial reserves of natural gas** (~20 trillion m³)

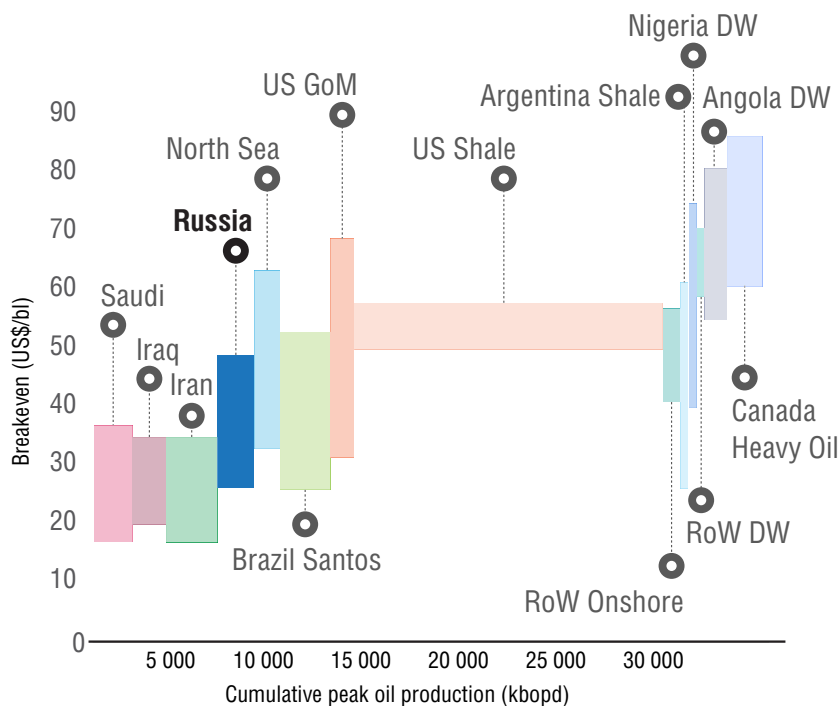
Russia's energy mix is among the «greenest» among the world's top economies with the share of gas and renewables standing at over 50% and 20% respectively

Russian oil breakeven price is one of the lowest in the world

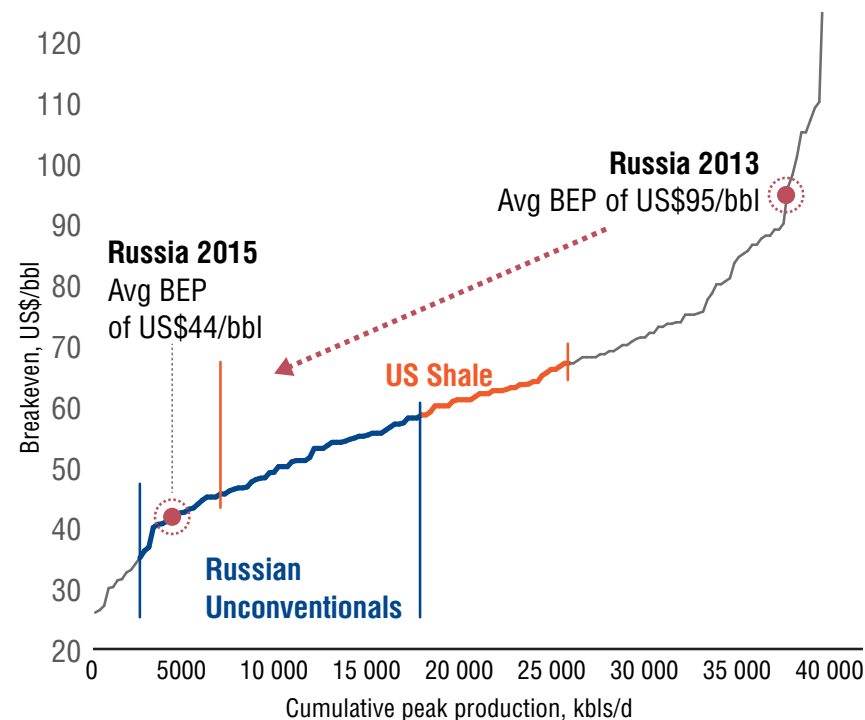


- Low oil price breakeven enables Russian producers to generate positive FCF even in the current oil price environment
- Breakeven of unconventional oil fell significantly over the past few years making Russia one of the most competitive oil producer in the World

Russian breakeven price (BEP) remains among the lowest in the world



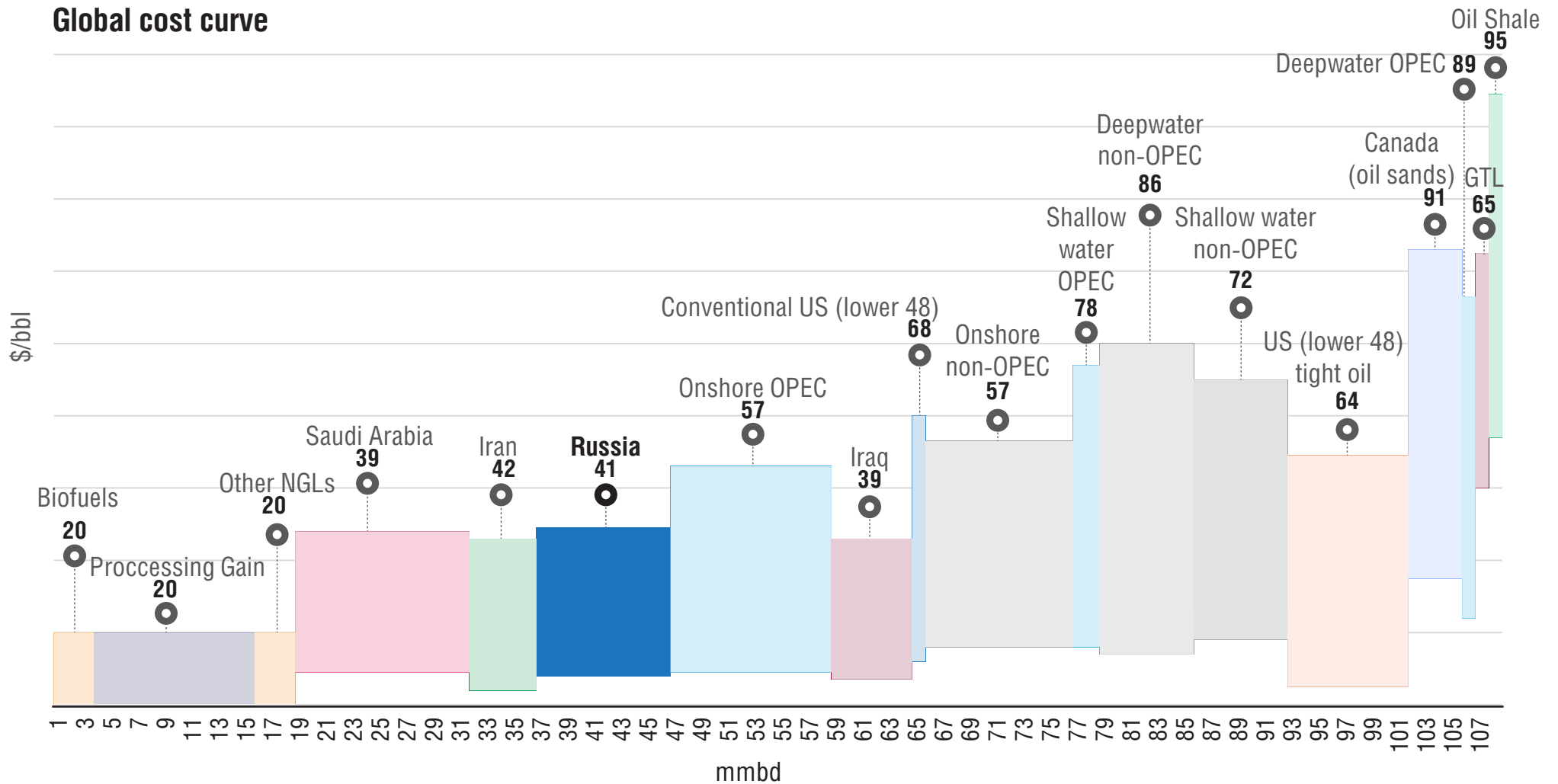
Unconventional oil in Russia remains attractive



Russia enjoys attractive positioning on the global cost curve



Global cost curve

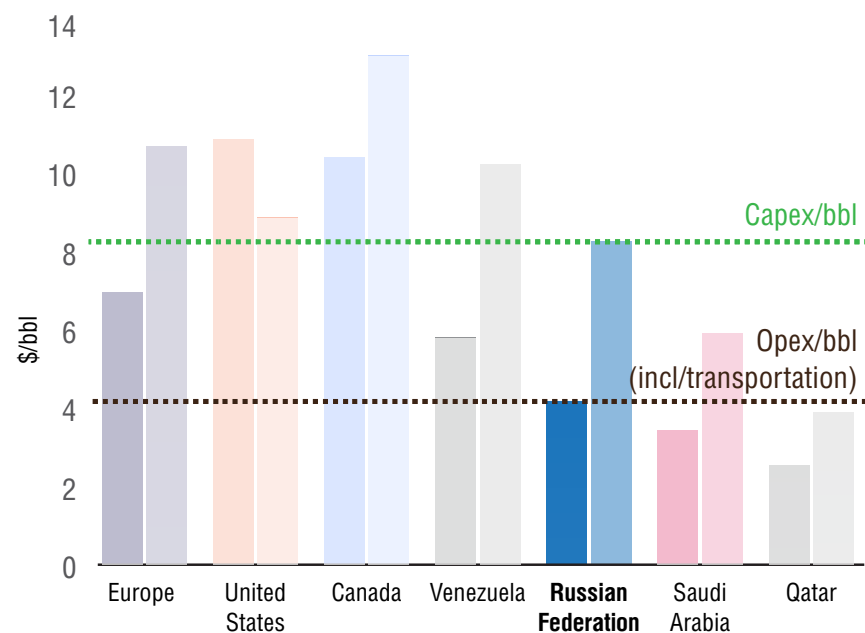


Russian upstream profitability is supported by low and stable production costs

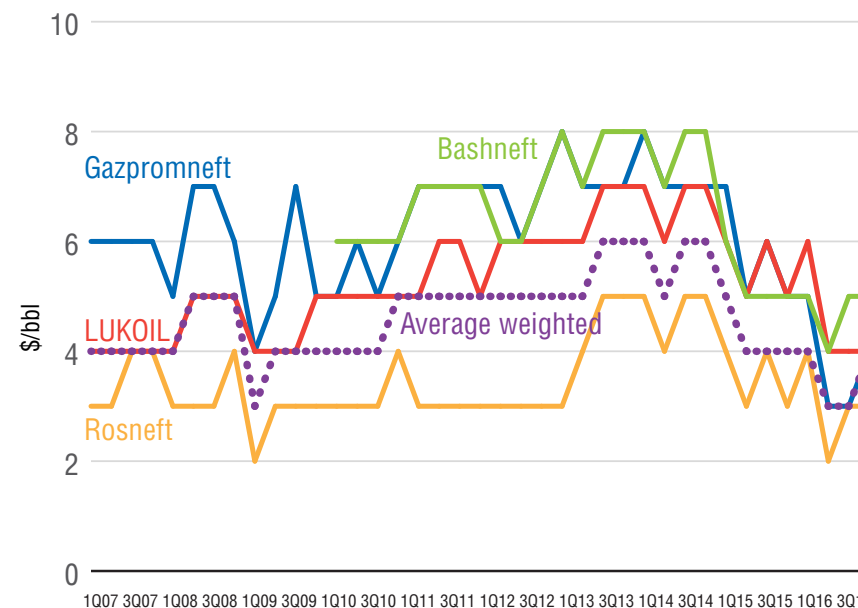


- Russian oil industry enjoys low production costs compared to other oil producers, not accounting for the Middle East producers
- Lifting costs were stable during the last decade pointing to the efficiency of Russian oil companies

Finding and development costs by region

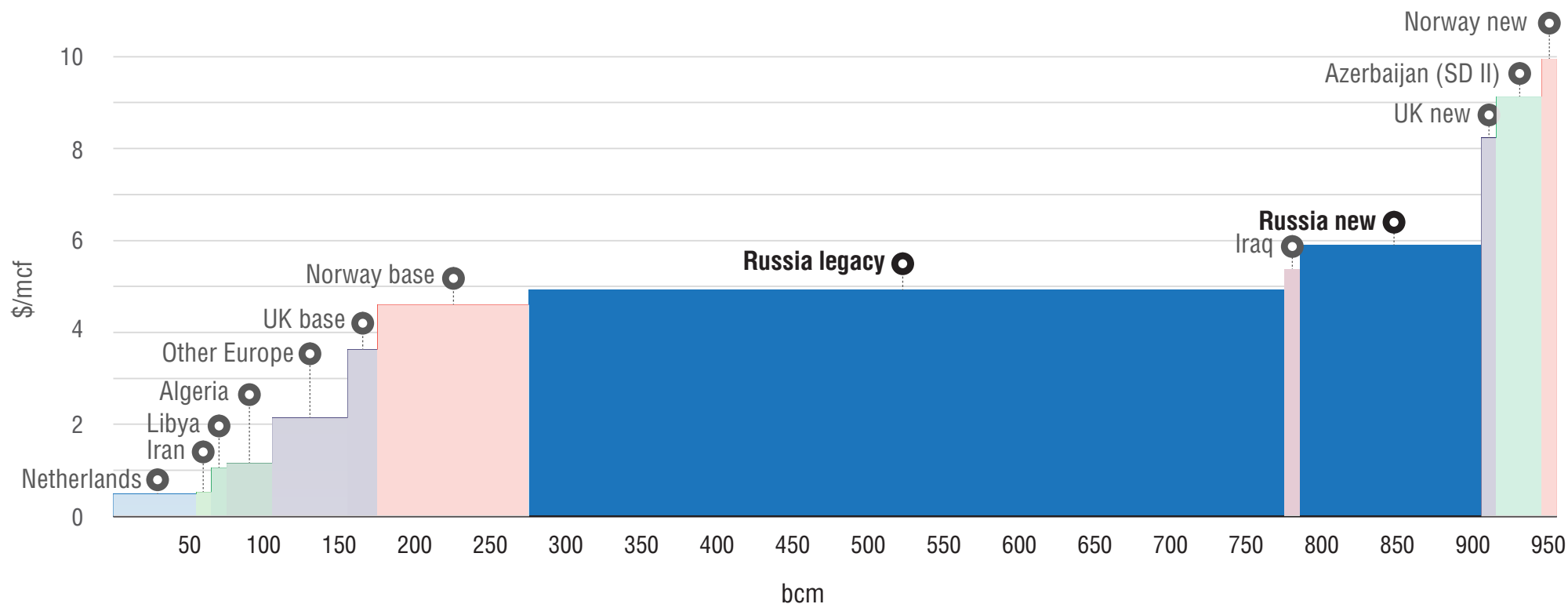


Russian lifting cost progression supported by localization and currency devaluation



- In a weak growing demand environment, gain of market share of one importer means a loss of market share by someone else
- Gazprom has the spare capacity and low cost base to compete for market share

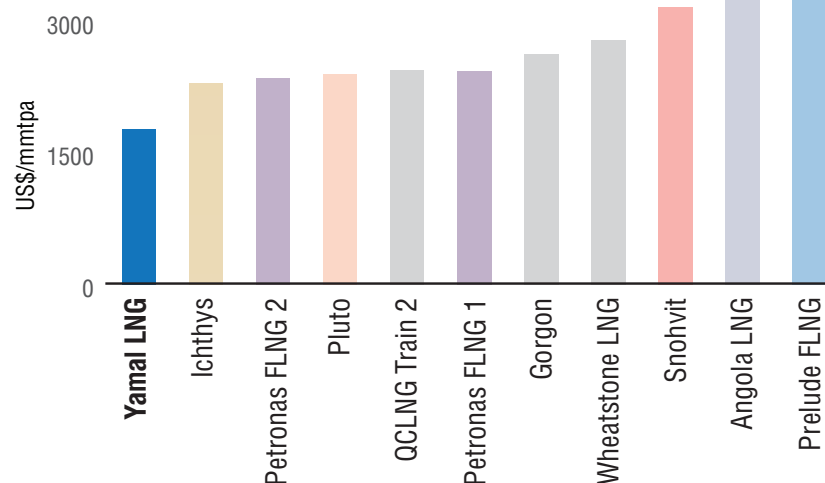
Full-cycle commercial breakeven cost curve



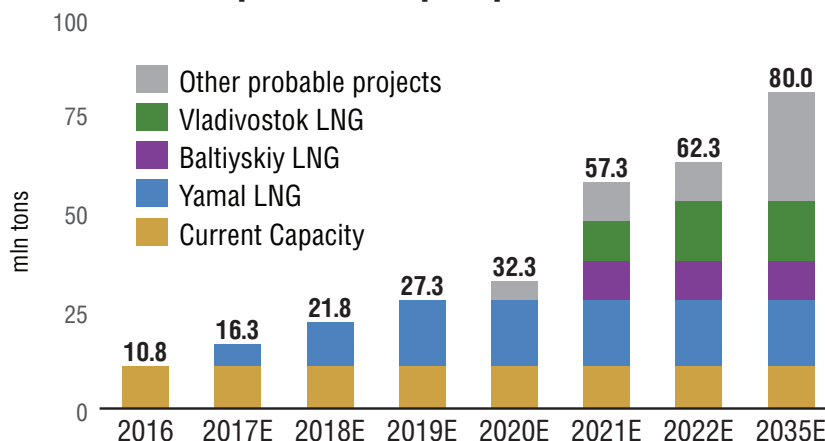


- The Sakhalin-2 project is the first onstream LNG project in Russia with total capacity of 10,8 mln t
- Yamal LNG (Novatek) is well on track and the first train should be launched in October this year
- The Project consists of construction of three trains with an output capacity of around 16.5 mln tons per year
- The two giant gas condensate fields in the remote Gydan peninsula, Salmanovskoye and Geofizicheskoye should be the next potential source of LNG production for Arctic LNG

LNG project implementation costs to first gas



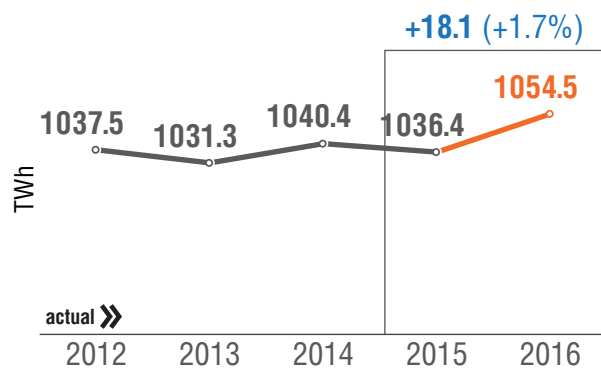
Russian LNG production prospects



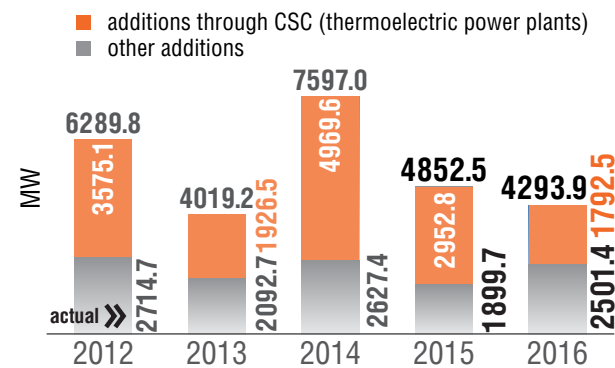


- Electricity consumption and production in Russia has grown by 1.7% and 2.1% respectively in 2016
- During next twenty years electricity production is expected to grow by another 30-38% driven by internal consumption and export opportunities
- Capacity supply contracts (CSC) introduced by Russian government have proved themselves as an effective investment support measure providing investors with a stable return and leading to new capacities being installed every year that in its turn creates room for decommissioning obsolete ones

Electricity consumption

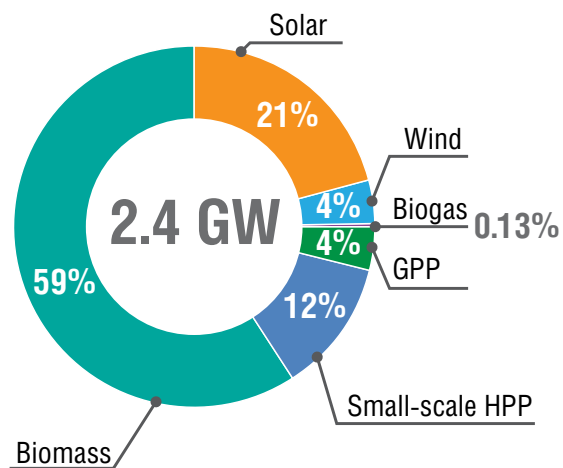


Capacity additions

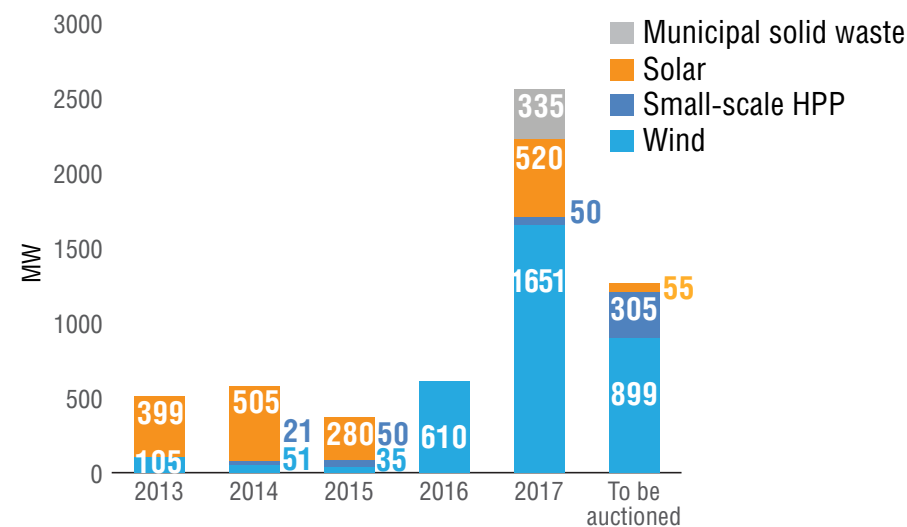


- Share of renewables will increase in power balance up to 2,5% by 2024 from less than 1% in 2016
- Additional 5.9 GW of renewable capacity are being selected through auctions during the same period
- 899 MW of wind, 55 MW of solar and 305 MW of small-scale HPP capacities are to be auctioned in the coming years

Installed renewable capacity in 2016



Renewable capacity selected for construction through auctions

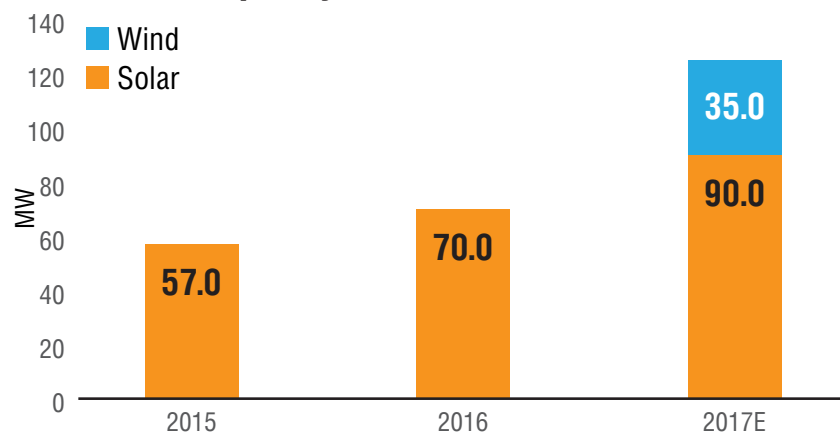




Effective regulatory and financial framework:

- Wholesale electricity power market capacity supply contracts (CSC) which have proved themselves effective in conventional generation guarantee stable ROI for investors in renewables
- Regulated tariffs at retail electricity markets provide for renewable electricity trade at special prices in isolated areas

Renewable capacity additions



Examples of Success:

- Nearly 130 MW of solar power capacity have been installed during 2015-2016
- 125 MW of renewable power capacity – 90 MW from solar and 35 MW from wind – expected to be installed this year
- Hevel Solar company in 2017 have modernized its solar cell factory on the basis of its own developed heterojunction technology that provides for 22-24% cell efficiency and raised factory cell production capacity from 100 to 160 MW a year with a potential of further increase up to 470 MW a year
- During 2016-2017 major players such as Rosatom, Rosnano, Fortum and Enel entered the wind power sector using CSC with strategies aimed at equipment manufacturing setup in Russia

KEY PRIORITIES FOR TECHNOLOGICAL DEVELOPMENT OF RUSSIAN ENERGY SECTOR

OIL AND GAS



- Increase in oil recovery ratio
- Technological solutions for tight oil and offshore oil production
- LNG production and transportation
- Technological concepts «smart oil well» and «smart oil field»
- Petrochemical segment development

COAL



- New technological solutions for underground mining method
- New technological solutions for coal upgrading
- Production of hydrophobic peat bricks with high value added

ELECTRIC ENERGY



- Smart grids
- «Energynet» concept
- Computerized protection and management systems for electric power substation
- New technological solutions for electric and electronic machinery
- New technological solutions for construction materials, including composite
- New technological solutions for cable manufacturing
- High temperature superconductivity

RENEWABLE ENERGY



- New technological solutions for small scale distributed generation based on renewable energy
- New technological solutions for photoelectric transducer
- New technological solutions for network storage
- Hydrogen energetics

Russia already enjoys considerable interest from foreign long term investors



PROJECT	INVESTORS	DESCRIPTION
Gas pipelines: Nord Stream 1&2	NS 1 Russian: Gazprom Foreign: BASF/Wintershall, E.ON, Gasuine, ENGIE	An offshore natural gas pipeline from Vyborg (Russia) to Greifswald (Germany) since 2011 Yearly capacity — 55 bln m ³
	NS 2 Russian: Gazprom Foreign: E.ON, Shell, BASF/Wintershall, OMV, ENGIE	Expansion of Nord Stream, from Ust-Luga (Russia) to Greifswald (Germany), yearly capacity— 55 bln m ³ Operations are planned to start in 2019
LNG projects: Sakhalin 2 Yamal LNG	Sakhalin 2 Russian: Gazprom Foreign: Shell, Mitsui, Mitsubishi	Oil and gas development in Sakhalin Island since 1994 Output capacity — 9,6 mln t per year, 5 mln additional capacity is planned to run in 2018
	Yamal LNG Russian: Novatek Foreign: Total, CNPC, Silk Road Fund	Located on the Yamal Peninsula, above the Arctic Circle Output capacity — 16.5 million t of LNG Operations are planned to start in 2017
Oil development: Investment projects	Investment projects Foreign: Shell, BP, Total, Exxon Mobil, ONCG Videsh	BP has several projects in Russia with Rosneft Total with Zarubezhneft operate Kharyaga field and also other oil projects in Russia ONCG Videsh owns Vankorneft company (also owned by Rosneft)
Power generation: Huadian Teninskaya plant Investment projects	HT Plant Russian: TGC-2 Foreign: China Huadian Corporation	Gas-steam combined cycle plant located in Yaroslavl Planned capacity – 450 MWh
	Investment projects Foreign: Enel, Uniper, Fortum	Enel owns 56% of Enel Russia which manages 9,4 GW of power capacity in Russia Uniper owns 82% of Unipro (11,2 GW in Russia) Fortum owns 29,5% of TGC-1 (4,2 GW of power, 10,1 heat capacity in Russia)

In particular, a number of successful projects with Italian investors



PROJECT	INVESTORS	DESCRIPTION
Enel Russia electricity plants and renewable energy	Foreign: Enel (market capitalization - 48 bln, revenue – 75 bln euro)	<ul style="list-style-type: none"> ● Enel owns 56% of Enel Russia which manages 9,4 GW of power capacity, 2,4 GW of heat capacity in Russia ● Enel Russia is also constructing wind turbines with a capacity of 291 MW, which should start operations in 2020-2021 (with investments of 400 mln euro)
Plants: Transneft Oil Pumps Russian Electric Motors	TOP Russian: Transneft, Konar Foreign: Termomecanica Pompe	<ul style="list-style-type: none"> ● Transneft Oil Pumps was established in 2016 for the purpose of localization of production of horizontal and vertical pumps and units located in Chelyabinsk ● Planned production consists of 180 pumps per year
Gas pipelines: Blue Stream North Stream	REM Russian: Transneft, Konar Foreign: Nidec ASI	<ul style="list-style-type: none"> ● Operations are planned to start in 2018 ● Planned output of electric motors is 300, capacity of each motor can reach 8000 kW
Gas pipelines: Blue Stream North Stream	BS Russian: Gazprom Foreign: Eni	<ul style="list-style-type: none"> ● Gas pipeline between Russia and Turkey (396 km) since 2003
Gas pipelines: Blue Stream North Stream	NS Russian: Gazprom Foreign: Saipem Energy Services	<ul style="list-style-type: none"> ● An offshore natural gas pipeline from Vyborg (Russia) to Greifswald (Germany) since 2011 ● Yearly capacity – 55 bln m³
Oil projects	Russian: Rosneft Foreign: Eni	<ul style="list-style-type: none"> ● Eni has several projects with Rosneft, in particular, offshore fields in Russia
HeliVert JV	Russian: Rosneft, Russian Helicopters Foreign: Leonardo-Finmeccanica	<ul style="list-style-type: none"> ● Agreement involves delivery of 150 copters from HeliVert to Rosneft until 2025 ● Localization level of production in Russia is planned to reach 70%

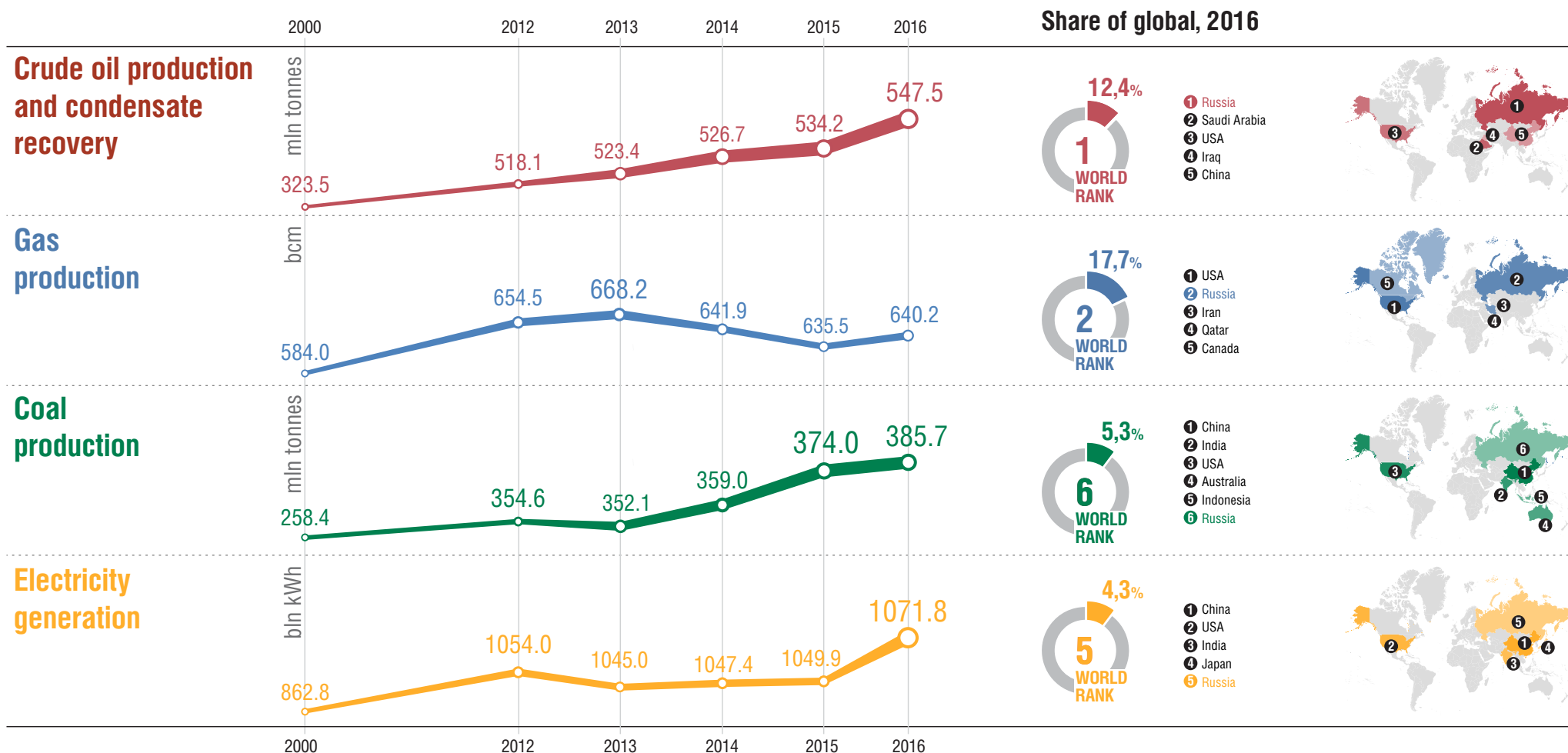


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THANK YOU
FOR YOUR ATTENTION!

APPENDIX

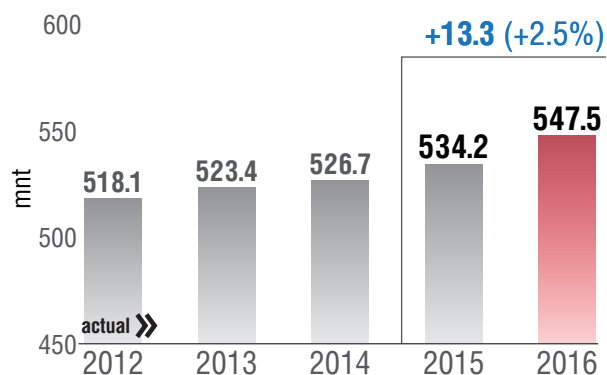
Russia demonstrates steady growth in liquids, gas, coal and energy production



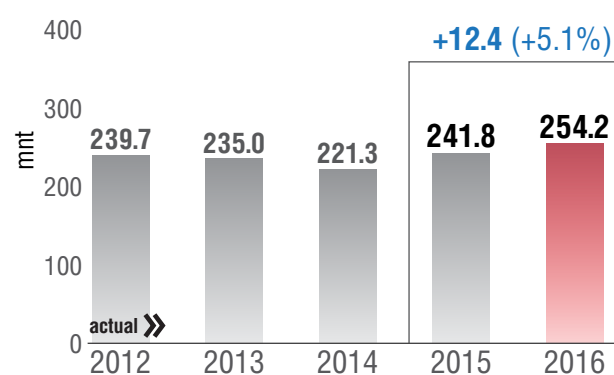
Oil and gas condensate production is growing, as well as oil exports, drilling activity and upstream investments



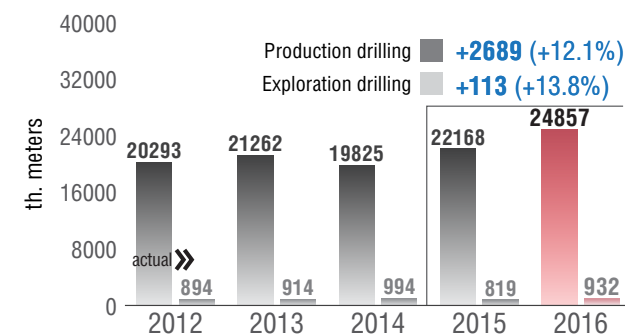
Oil and gas condensate production



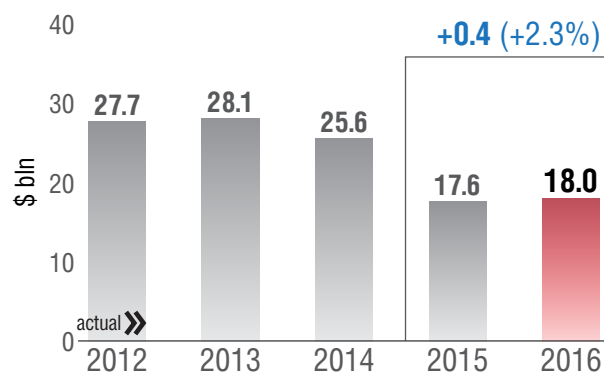
Liquids exports



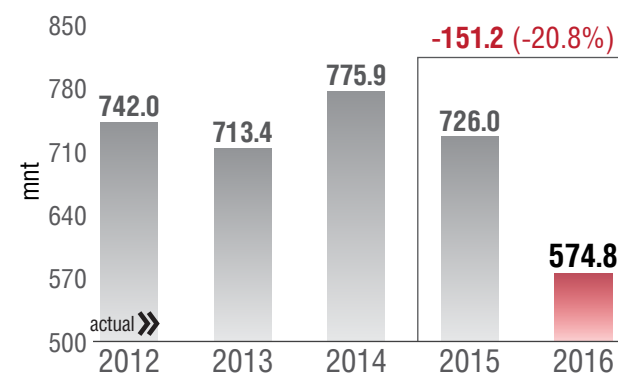
Drilling



Upstream capital expenditures of oil majors



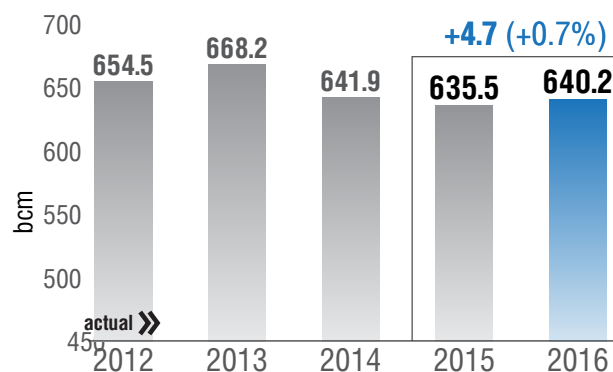
Growth in oil reserves



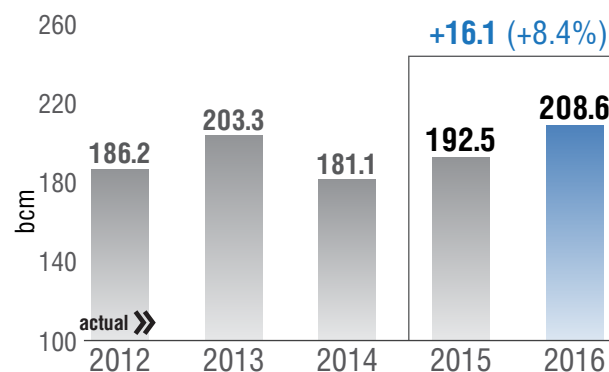
Russian gas production keeps stable while gas exports is growing



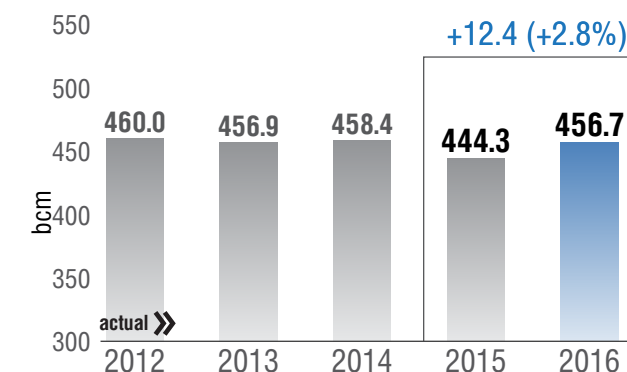
Gas production



Gas exports (incl. LNG)

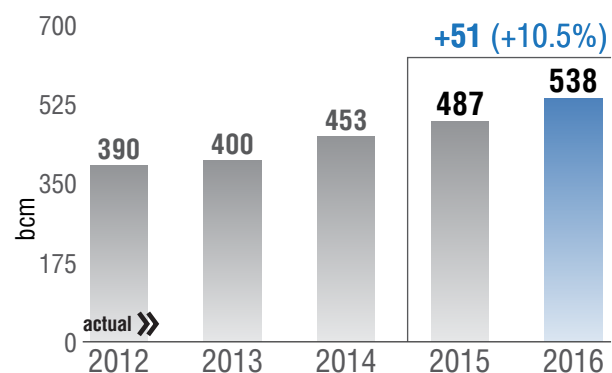


Domestic gas supplies*



* Including extraction (injection) from (to) underground storages

Gas consumption as motor fuel



Russian territory covered by infrastructure for gas supply

