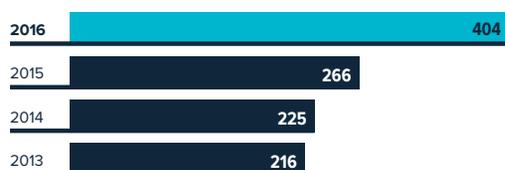


DOWNSTREAM DIVISION

DEVELOPMENT OF CAPACITY AT POWER GENERATION FACILITIES (MW)

Source: Company data



The Upstream Division implemented a programme to improve reliability and modernise its electrical equipment and grids during the reporting year. The programme involved the capital construction of power supply facilities, the modernisation of power grids and substations, the introduction of high-speed automatic transfer switch and automated information systems as well as enhanced storm stability and lightning protection of power grids. As a result of the programme, oil shortfalls during emergency power shutoffs declined by 1.5% compared with 2015.

Taking into account the oil production targets, the Company actively developed the capacity of power generation facilities by building new and expanding existing autonomous power plants. Five new power generation facilities were commissioned last year.

The decrease in electricity consumption is the result of a reduction in the volume of fluid produced. The increase in thermal energy consumed for oil production processes was due to changes in the ambient air temperature.

¹ This index allows for a quantitative comparison of the energy efficiency of a specific oil refinery with another refinery that is similar in terms of production units and work conditions. The smaller an enterprise's EII value is, the better its energy efficiency level is.

The key energy efficiency indicator for oil refining enterprises is the energy intensity index (EII) calculated using the methodology of Solomon¹.

ENERGY INTENSITY INDEX OF THE COMPANY'S OIL REFINERIES

Enterprise	2012	2013	2014	2015	2016
Omsk Oil Refinery	126	123	117	114	110
Moscow Oil Refinery	124	123	122	114	113
YANOS	110	110	108	109	107
NIS	–	–	126	122	118

The specific energy consumption indicator is the most convenient for operational control.

Indicator	2012	2013	2014	2015	2016
Specific consumption, kg OE/t	134.2	131.0	134.6	131.5	136.8

Since 2011, the Downstream Division has employed an Energy Conservation and Energy Efficiency Programme, which is the main tool used to implement the Company's Energy and Technical Policy in energy efficiency – a strategic priority for the Company's development – and sets the goals and objectives of the Downstream Division's enterprises in this area for the medium-term. The programme is drafted by the Downstream Division's Energy Department for a three-year period with subsequent annual updates.

Under the Programme, the main focuses of the Division's energy conservation and energy efficiency activities are:

- > to improve work efficiency and optimise the processing behaviour of energy and technological equipment,
- > to reduce the fuel and energy intensity of technological processes;
- > to reduce losses of fuel and energy resources;
- > to increase the proportion of steam condensate returned by process units;
- > to increase the efficiency of heat exchange processes and the generation and use of thermal energy in core and auxiliary processes;
- > to improve the infrastructure level of core and auxiliary production processes at enterprises with metering devices;
- > to introduce the energy management system.

The Division's main energy conservation and energy efficiency measures in the reporting year included:

- > replacing and modernising process furnaces to increase their efficiency;
- > optimising the recuperation system and using secondary energy resources in technological processes (using heat from product flows to heat raw materials as well as water and heat flows);
- > increasing the efficiency of fuel use in process furnaces by utilising modern technologies (ceramic coating of heating surfaces, ultra-thin thermal insulation coating and improved burner devices);
- > optimising condensate collection and return systems;
- > optimising the operation of compressor equipment;
- > increasing the efficiency of heat and steam supply systems;
- > modernising lighting systems;
- > replacing turbo drives and steam pumps with electric drives.

The Division's energy conservation activities in 2016 resulted in savings of 2,369.9 TJ of energy and fuel, specifically: 258,700 Gcal of heat energy, 25,000 TOE of fuel and 16.2 million kWh of electricity. Spending on energy resources decreased by RUB 528.9 million. The growth in energy intensity associated with the commissioning of new process units declined by 1.6%, or 7% higher than the 2015 indicators.



2,369.9
TJ

energy and fuel saved by the energy conservation activities of the Downstream Division in 2016

In 2016, the Division drafted a Downstream Division Energy Conservation Programme for 2017-2019. It will include two new enterprises: Gazpromneft-Aero and Gazpromneft – Bitumen Materials starting in 2017. The projected economic effect from the programme's implementation is RUB 1.784 billion.

Gazprom Neft in 2016 also updated a comprehensive programme to improve the reliability of power supplies to oil refining enterprises in 2017-2019. The programme is the main tool for implementing the Downstream Division's Technical Policy in the reliability of power supplies and specifies the mechanisms for establishing, monitoring, achieving and updating the goals and objectives of the Division's oil refining enterprises in this regard.

COMPANY'S SPECIALISTS

Employees from the Downstream Division's Energy Department are involved in drafting and discussing the target programmes and strategies of the Russian Federation as well as creating the legislative, regulatory and technical framework in energy conservation and efficiency. The Company's specialists are members of the Council of Chief Power Engineers of Oil Refining and Petrochemical Enterprises of Russia and the CIS of the Association of Oil and Petroleum Refiners.

CONSUMPTION OF PURCHASED ENERGY BY THE DOWNSTREAM DIVISION

Indicator	2012	2013	2014	2015	2016
Purchased electricity (minus electricity transferred to third parties), MWh	3,121,124	3,322,147	3,262,669	3,340,550	3,400,210
Change vs. previous period	–	6.4	(1.8)	2.4	1.8
Purchased thermal energy (minus electricity transferred to third parties), GJ	16,854,981	17,373,245	16,581,709	16,081,895	15,186,997
Change vs. previous period	–	3.1	(4.6)	(3.0)	(5.6)

A total of 63 measures with investment of RUB 667 million were implemented in 2016. The main areas of activities included: eliminating power equipment failure, increasing the stability of power supply systems, improving the technical infrastructure level as well as the training and advanced training of personnel.

As a result of the programme's implementation, positive trends were seen in target performance indicators versus the 2015 levels:

- > the total number of failures decreased by 15%;
- > the total number of technology downtime hours due to power supply disruptions decreased by 49%;
- > the overall level of resistance to external power supply disruptions increased by 30%.

Downstream Division specialists actively work to exchange experience within the Company and with other enterprises in the industry in order to improve the effectiveness of energy efficiency and energy conservation work. Gazprom Neft has created the 'Power' Centre of Excellence, which includes the 'Energy Efficiency' networking group in which Company specialists identify and exchange best practices in this area.

The work performed by the 'Power' Centre of Excellence during the reporting year resulted in an economic effect of RUB 330 million due to the implementation of best practices proposed by experts from the Centre.

In 2016, representatives of Gazprom Neft and Lukoil held a joint meeting as part of the 'Power' Centre of Excellence attended by specialists from the energy divisions of the companies' corporate centres, electrical supervisor staffs and Lukoil specialised scientific and technical centre as well as energy managers from the ten largest oil refineries in the industry.

DEVELOPMENT OF RENEWABLE ENERGY SOURCES

NIS, a European subsidiary of Gazprom Neft, since 2011 has been undergoing a transformation from an oil and gas company into an energy holding with a focus on the development of renewable energy resources. The energy development strategy of NIS today involves using geothermal water, wind, coal and oil shale as an energy source. The company currently uses the energy of thermal waters for heating with 8 geothermal systems built at 11 wells and another 20 wells pending. The development of wind generation also helps NIS to ensure a reduction in CO2 emissions. In 2016, the Company finished setting up a site for the construction of its own wind farm in Plandiste consisting of 40 wind turbines with capacity of 100 MW. The wind farm is set to launch operations in 2018.

The work performed by the 'Power' Centre of Excellence during the reporting year resulted in an economic effect of RUB 330 million due to the implementation of best practices proposed by experts from the Centre.



The energy conservation programme and the 'Energy Efficiency' networking group within the 'Power' Centre of Excellence are effective tools that enable the Division to systematically improve its performance in this area. In 2017, we plan to develop interaction with domestic and foreign oil refining companies in order to exchange and replicate advanced expertise and best practices in energy conservation, which will help us to achieve even greater success in this regard.

Vladimir Andreyev
Head of the Energy Department
of the Gazprom Neft Downstream Division