

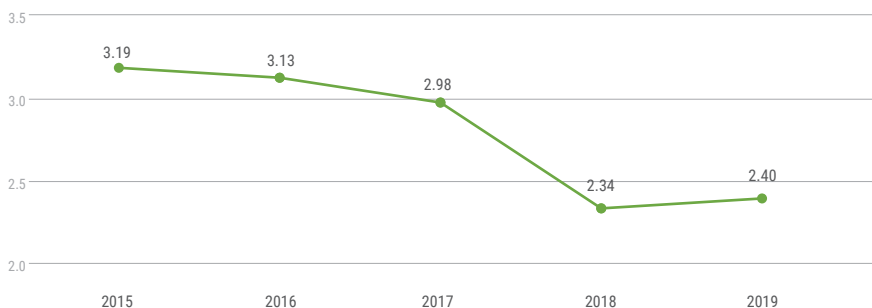
# ENERGY EFFICIENCY

THE ENERGY SAVING AND ENERGY PERFORMANCE IMPROVEMENT PROGRAM FOR 2019 WAS DEVELOPED IN DECEMBER 2018<sup>1</sup>.



**Changes in the specific power resources costs for the development of oil-containing fluid for the oil producing enterprises of Zarubezhneft JSC, ref.fuel t/thous. m<sup>3</sup> (Russian segment)**

**-25 %**



In the fiscal year, reduction of unit costs for oil-containing fluid production by the oil production enterprises of the Russian segment equaled 24.8% as compared to 2015.

The following main principles were applied in the development of the program:

- implementation of a lean production policy based on introduction of measures with a payoff period of 3-5 years;
- development of measures intended to decrease specific energy costs per unit of production, oil containing fluid treatment and formation of the FPM in the Exploration and Production segment, raw materials refining in the Oil Refining and Sales segment and decrease of annual power resources consumption in the Service and Other Assets segment;
- engagement of all personnel of the enterprises in the power resources saving process;
- inclusion of secondary power resources and production waste (APG, spent oil waste, etc.) in the production process.

This program is a continuation of the Power Saving and Energy Performance Improvement Program that was implemented in Zarubezhneft Group in 2018. The main goal of developing and implementing the program for 2019 is to decrease production costs in the manufacturing (operational) business segments of Zarubezhneft JSC, and consequently enhance competitiveness within the domestic and global markets.

The program provides for a decrease in unit costs for production of oil-containing fluid (OCF) in the oil-producing assets of the Russian segment by at least 4.0% as compared to 2015. The target milestones of the 2019 Energy Saving Program include development and introduction of new measures (along with the measures introduced in 2016-2018) with due regard to the peculiarities of the segmented activity, organizational structure, and the specifics of Zarubezhneft Group's activity as a whole.

<sup>1</sup> Order dated December 18, 2018, No. 424.

The energy resource-saving activities and the program measures introduced in all Zarubezhneft JSC subsidiaries in the fiscal year made it possible to reduce OCF production specific energy consumption costs to the level of 2015 in the Exploration and Production segment, and consequently to increase the energy efficiency indicators of each individual subsidiary and of Zarubezhneft Group as a whole.

In 2019, 61 measures were introduced. Due to the shutdown of plants of Modriča Motor Oil Plant A.D. and Brod Refinery A.D. for repairs and due to the lack of raw materials, only organizational measures were implemented in 2019.

The overall economic benefit due to the Energy Saving Program implemented by Zarubezhneft Group in 2019 in was equal to 1,908 MM RUB, or 57,983 tons of oil equivalent (toe), including:

- savings in the Russian segment were 1,377 MM RUB (46,692 toe);
- JV Vietsovpetro – 72.2 MM RUB (2,116 toe);
- Brod Refinery A.D. and Modriča Motor Oil Plant A.D. – 18.5 MM RUB (772 t.o.e).

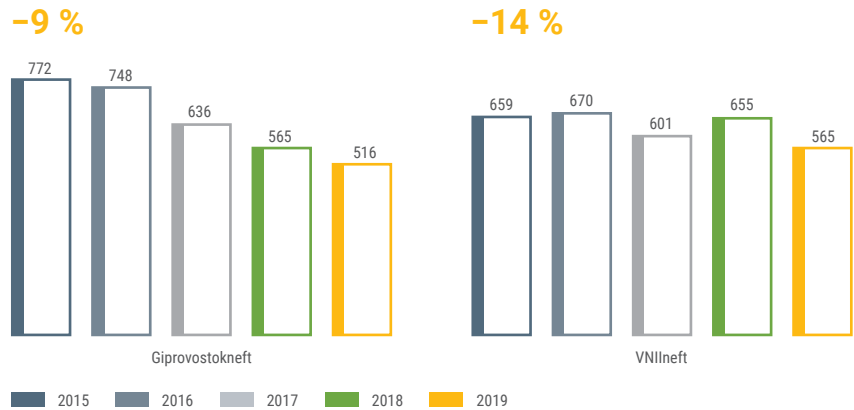
## MAIN ENERGY EFFICIENCY MEASURES IMPLEMENTED IN 2019

### JC RUSVIETPETRO LLC:

- Industrial implementation of the EPOGE AIS (Energy Performance of Oil and Gas Enterprise analytical information system);
- commissioning of low-pressure compressor station at the Central Production Facility (CPF) "Severnoye Khosedayu" to use additional gas for power generation;

### Actual values of power resources consumption in 2015–2019,

reference fuel tons, "Service and other assets" segment



The decrease in energy resources consumption of the enterprises in the Service and Other Assets segment equaled 6% year-to-year, including: Giprovostokneft JSC = -9%, VNIIneft JSC = -14%. In the fiscal year, reduction of unit costs for oil-containing fluid production by the oil production enterprises of the Russian segment equaled 24.8% as compared to 2015.

- implementation of generator equipment overhaul repairs (gas-turbine plant, gas piston generator unit, diesel generator unit), transition of gas piston generator unit to operate on purified gas.

### ZARUBEZHNEFT-Dobycha

#### Kharyaga LLC:

- construction of a 6 kV overhead line for a new shift camp with a view to arranging the electrical heating of buildings when gas is supplied to the boiler room;
- optimization of the operating mode of pumping equipment control stations (ground-based electrical equipment (GEE));
- deployment of the EPOGE AIS at the process facilities of the enterprise.

#### JV Vietsovpetro:

- Installation and use of the fuel flow and power generation metering system at the jack-up rig;

- power supply of vessels moored sidewise from the electrical power supply system while docked at a port;
- connection of Tam Dao-1 jack-up to the unified centralized power system.

In general, the activities carried out in 2019 contributed to the stabilization of the enterprises' energy costs and the further development of energy conservation and the improvement of energy performance within Zarubezhneft Group.