

Energy efficiency

The 2018 Power Conservation and Energy Efficiency Improvement Program was developed in December 2017.¹

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

- Implementation of "Lean production" policy based on introduction of measures with 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 pressure maintenance in the Upstream segment, raw materials refining in the Downstream segment and decrease of annual power resources consumption in the segment of Service and other assets;
- Engagement of all personnel of enterprises in the process of power resources conservation;
- Engagement of secondary power resources and production waste (APG, spent oil waste etc.) in the production process.

This program is an extension of the Power conservation and Energy Efficiency Improvement Program successfully implemented in Zarubezhneft JSC Group of Companies for 2017. The main goal of developing and implementing a program for 2018 - is decreasing the self-cost of commercial products in production business-segments of the Group of companies and as a consequence - increase of competitive ability at domestic and world markets.

The program contemplates decrease of specific power resources costs for production of oil-containing fluid (OCF) volume in the oil producing subsidiaries

of the Russian segment by 4% compared to the level of 2015. JV "Vietsovpetro" and oil refining enterprises of the foreign segment also participated in implementing the Zarubezhneft JSC Group of Companies' program: Brod Refinery A.D. and Modriča Motor Oil A.D.. The target milestones of the 2018 Energy Conservation Program include the development and integration of new measures (along with the operation of the measures integrated in 2015-2017) accounting for the peculiarities of the segmental activities division, the organizational structure and the specifics of the Zarubezhneft Group of Companies' as a whole.

The energy resource saving activities and program measures introduced in all Zarubezhneft Group's subsidiaries during the year under review made it possible to reduce specific energy consumption for floating oil production to the level of 2015 in the Upstream segment, to stabilize specific energy consumption for refining in the Downstream segment, and, thus, to increase energy saving indicators of each company separately and of the entire Group.

In 2018, eighty three measures were introduced, three measures were withdrawn from implementation due to production necessity (reconstruction of the building of the subsidiary company VNIlneft JSC), one measure is currently ongoing.

Cumulative economic benefit from the energy saving program implemented in 2017 in Zarubezhneft Group of Companies was equal to 1,132 MM RUB or 36 168 MTOE, including:

- saving in the Russian segment was equal to 942.6 MM RUB (27 472 MTOE);

- JV "Vietsovpetro" – 99.1 MM RUB (4 815 MTOE);
- Brod Oil Refinery A.D. and Modriča Motor Oil Plant A.D. – 90.1 MM RUB (3 881 MTOE).

MAIN ENERGY SAVING MEASURES PERFORMED IN 2018

LLC "JC "RUSVIETPETRO"

- boiler-house shutdown and arrangement of heat supply from Energy Center 2 at the Central Production Facility during whole 2018;
- oil-fueled operation of the power station at the Oil Acceptance Station "Musyurshor";
- construction of a low-pressure compressor station at the Central Production Facility "North-Khosedayu".
- implementation of the program of generation equipment (gas-turbine plant, gas piston generator unit, diesel generator unit) capital repairs.

Zarubezhneft-Dobycha Kharyaga LLC

- power supply of well clusters at Kharyaga field from system to external power supply throughout 2018;
- optimization of technological furnaces operation;
- company energy audit with the development of a five-year energy efficiency retrofit.

JV "Vietsovpetro"

- installation and use of the fuel usage and power generation accounting system at the jack-up;
- vessels power supply from the electricity system while docked at a port.

¹ Order No 415 dated December 22, 2017.

Modriča Motor Oil Plant A.D.

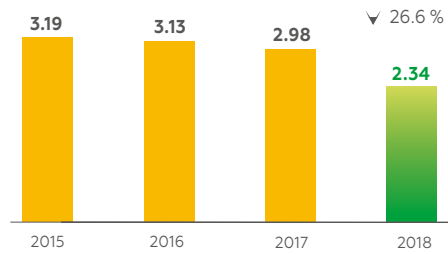
- using the spent oil for heat production during the whole 2018;
- organization of the return of steam condensate and its accounting throughout the year of 2018;
- Insulation of 9 base oil tanks.

Brod Refinery A.D.

- cleaning and replacement of heat-exchange facilities;
- company energy audit with the development of a five-year energy efficiency retrofit.

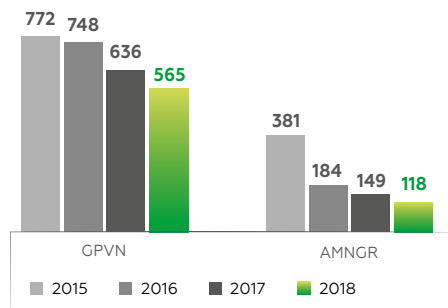
In general, the activities carried out in 2018 contributed to the decrease of power consumption at the enterprises and further development of energy saving and improvement of Zarubezhneft Group of Companies' energy efficiency.

Changes in specific energy consumption for oil-containing fluid production at Zarubezhneft oil production operations, tons of reference fuel / thous. m³ (Russian segment)



In the reporting year, reduction of specific energy consumption for oil-containing fluid production at the Russian segment oil production operations achieved 26.6% comparing with the level of 2015.

Actual energy consumption in 2015-2017 in tons of reference fuel, Service and Other Asset segment



Energy resources consumption indicators' decrease of the Service and other assets segment's companies was 2% compared to 2017

36,168
TONS OF
REFERENCE FUEL

economic effect from implementation of the Program for energy conservation in Zarubezhneft Group of Companies in 2018

