

Investments in renewable energy



Target 7.2.

By 2030, increase substantially the share of renewable energy in the global energy mix



“Today, LUKOIL is a standard bearer for oil industry enterprises in the Volgograd Region when it comes to resolving environmental issues.”

A. BOCHAROV,

Volgograd Region Governor

For more than 10 years we have been developing state-of-the-art generation technology based on renewable energy sources (RES). Our projects promote reduced consumption of non-renewable types of fuel, thereby decreasing the level of greenhouse gas emissions. We analyze previously gained experience and widen its application in countries that support such projects at a national level.

The LUKOIL Group’s RES goals are:

- business diversification through implementing projects using the state support system for renewable energy in Russia (a mechanism for concluding capacity supply agreements with a guaranteed return on investment¹)
- preventing greenhouse gas emissions from power generation facilities
- keeping up with global RES trends

In line with its RES policy, LUKOIL commissioned a 10-MW photovoltaic power station (“solar park”) in January 2018 at the oil refinery in Volgograd, which resulted in a doubling of the installed capacity of the Company’s solar power facilities.

The Industry Program for Developing the Power Engineering Business Sector for 2018-2027 includes proposals on the construction of new solar parks on unused sites at oil refineries in Saratov and Volgograd. Wind farm construction projects may also be considered in the future. The appearance of localized facilities for the production of major equipment in Russia will enable us to play a more active role in RES projects.

In 2017, in terms of the development of hydroelectric power, measures have been taken to repair and upgrade

equipment, optimize operating practices, and improve the reliability of LUKOIL-Ekoenergo power facilities. One of the most important projects in this regard is the refurbishment of the Belorechensk Hydroelectric Station. The complete replacement of hydroelectric units No. 1 and No. 3, with a rise in installed capacity from 16- to 24-MW each, will make it possible to extend the service life of the hydroelectric station by at least 40 years and to improve the cost-efficiency and reliability indicators of electricity generation.

To develop alternative energy sources in Russia, and to ensure that the industry can benefit from human resources with the required level of qualifications, LUKOIL assisted in setting up a specialized renewable energy sources department at Gubkin Russian State Oil & Gas University.

TOTAL VOLUME AND SHARE OF ELECTRICITY GENERATED FROM RENEWABLE SOURCES, million kWh

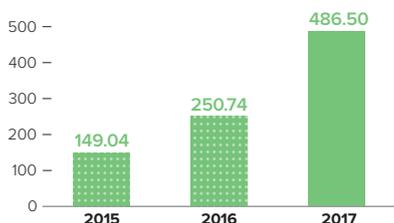
	2015	2016	2017
Total electricity generated from RES, including:	651.7	977.1	1,053.2
Wind power	0	200.8	228.5
Solar power	12.7	11.5	12.0
Hydroelectric power	639.0	764.8	812.8
Total electricity generation by LUKOIL Group commercial power generation facilities (regardless of supply power generation)	17,775.6	18,315.2	17,551.9
Share of electricity generated from RES in total electricity generated (regardless of supply power generation)	3.7	5.3	6.0

Note. Data on electricity generated through wind power in 2015 were not considered, as the wind farm was part of the LUKERG Renew JV.

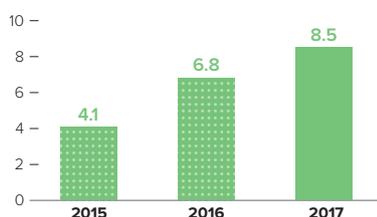
In 2017 we changed our approach to calculating the share of electricity generated from the RES indicator. The total amount of electricity generated by all commercial generating facilities of LUKOIL Group, net of supply power generation, serves as the basis for the calculation of the indicator.

¹ In 2013 the Russian Federation introduced a support mechanism for RES projects through the conclusion of capacity supply agreements (CSA RES), which offer a special rate for capacity, provided that obligations on the construction of the facilities are met. Requirements related to the localisation level of RES project equipment were approved: solar parks – 70%, wind farms – 65%, small hydro power plants – 65%.

INVESTMENTS IN RES DEVELOPMENT¹, RUB million



SHARE OF INCOME RECEIVED FROM THE SALE OF ELECTRICITY FROM RES IN THE TOTAL INCOME RECEIVED FROM THE SALE OF ELECTRICITY GENERATED BY LUKOIL GROUP POWER GENERATION FACILITIES, %



¹ Data for 2017 relate to LUKOIL-Ekoenergo and LUKOIL-Volgogradenergo.

Energy efficiency and energy conservation

Increasing energy efficiency, including through lowering fuel and energy resource consumption, is a key component of our overall efforts to improve operating efficiency and a critical factor in the maintenance of the Company's competitive edge in our rapidly changing world.

LUKOIL Group organizations have adopted an energy management system based on international standard ISO 50001:2011, and are elaborating and implementing measures to boost energy efficiency and energy conservation. In 2017 the energy management systems of 26 LUKOIL Group organizations had certificates on the ISO 50001 standard.



Target 9.4.

By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

TOTAL ENERGY CONSUMPTION OF LUKOIL GROUP SUBSIDIARIES

	2015	2016	2017
Industrial electricity consumption, billion kWh	20.2	20.8	20.9
Industrial heat consumption, million Gcal	16.4	20.7	23.5
Industrial consumption of boiler and furnace fuels, million tonnes of reference fuel	7.7	8.3	9.5
Industrial energy consumption of LUKOIL Group subsidiaries (total energy consumption within the organization) ² , million tonnes of reference fuel	13.9	14.5	15.6

² Total energy consumption within the organization = consumption of non-renewable types of fuel + electricity and heat purchased for consumption. The consumption of non-renewable types of fuel = consumption of boiler-furnace fuels (takes into account fuel consumption for electricity generation and domestic heat). Electricity and heat sold to external consumers are not included in productive consumption and are taken into account separately.

Energy conservation program

The energy conservation program of LUKOIL Group subsidiaries in Russia for 2018 and 2019-2020³ is intended to boost the energy efficiency of the industrial activity. The goals of energy

conservation measures include a reduction and/or containment of growth in the share of energy costs in total production costs, as well as a reduction and/or containment of

the specific consumption of energy resources in production, oil refining, and petrochemistry, as well as in the sale of petroleum products and electricity and heat generation.

³ The energy conservation program of LUKOIL Group subsidiaries covers Russian oil and gas production, oil and gas refining, petrochemical, power engineering, petroleum product marketing and distribution and transportation subsidiaries. The energy conservation programs of foreign assets are not included in the corporate program. The energy efficiency of foreign assets is monitored as part of the assessment and approval of investment projects.