SUSTAINABLE TECHNOLOGICAL DEVELOPMENT OF ROSNEFT. INTEGRATED APPROACH TO METHANE EMISSIONS REDUCTION

BUSINESS RESPONSIBILITY IS ONE OF THE COMPANY'S CORE VALUES

"As a responsible producer and a participant of the global energy market, Rosneft is focused on the efficient use of natural resources. In addition to systematic work to implement circular economy principles, restore natural resources and protect ecosystems, the Company is pursuing initiatives that set trends in the green agenda".

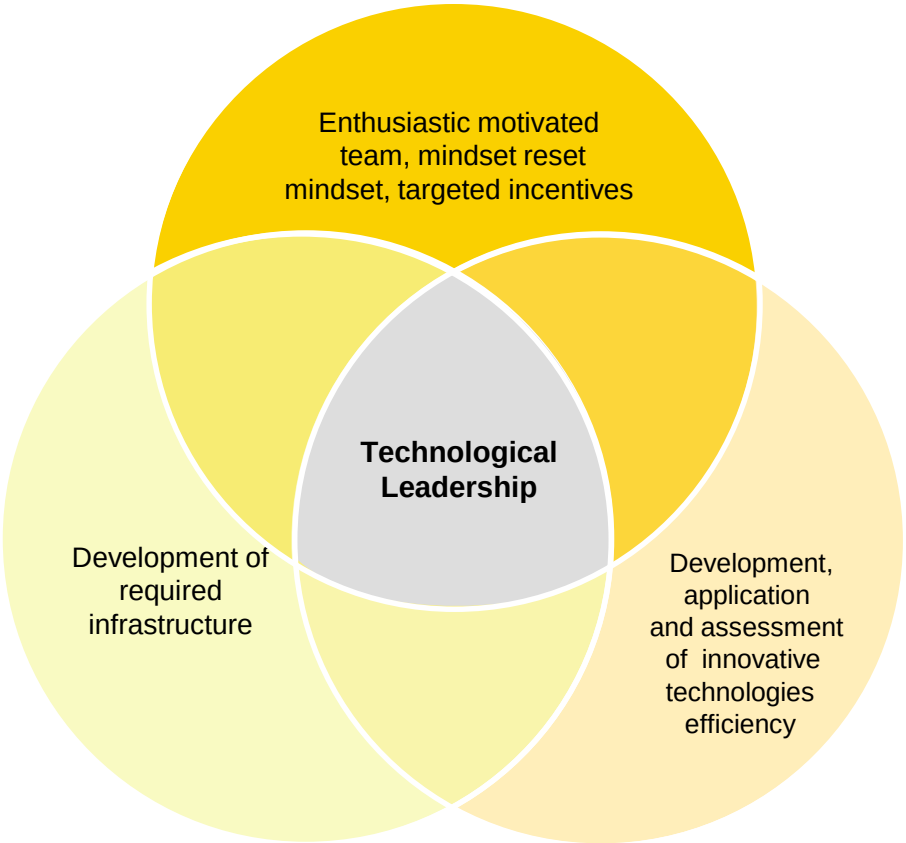
Igor Ivanovich Sechin
Chairman of the Management Board,
Chief Executive Officer
Rosneft Oil Company

TECHNOLOGICAL LEADERSHIP IS AN ESSENTIAL PREREQUISITE FOR SUSTAINABLE DEVELOPMENT

Strategic Vision of Rosneft: **to remain a reliable producer of hydrocarbons while minimizing climate and environmental impacts.**

Ensuring competitiveness in the oil market and meeting decarbonization objectives through the development of technological potential and introduction of innovations are the key elements of the Rosneft-2030: Reliable Energy and Global Energy Transition Strategy. They are consistent with the main provisions of Decree of the Russian President No. 231 of April 25, 2022, declaring the years 2022-2031 the Decade of Science and Technology.

In his keynote speech at the Energy Panel held during the 23rd St. Petersburg International Economic Forum, Igor Sechin, Chief Executive Officer of Rosneft, noted that *«… petroleum technologies are currently at the peak of their development, they have no equals in technical and economic efficiency…».*



THE PRIORITY IS TO CREATE VALUE FOR SHAREHOLDERS AND SOCIETY AS A WHOLE BASED ON TECHNOLOGICAL LEADERSHIP

The Company takes an integrated approach to establishing and maintaining technological leadership, based on nurturing educated and creative generations, with many of their representatives joining the Rosneft team. The combination of experience, maturity and innovation of young people creates an enthusiastic motivated team and stimulates a "reset" of traditional way of thinking.

The Innovative Development Program sets the key objectives included in the Company's business plan as technical and economic indicators, and also included in the key performance indicators of the top management. The required infrastructure for consistent technological development is provided by Rosneft's research and design complex, and by means of cooperation with leading Russian and foreign universities.

The Company has put in place a process for assessing the efficiency of innovative technologies and making decisions about their further application.

ENTHUSIASTIC MOTIVATED TEAM, MINDSET RESET, TARGETED INCENTIVES

The transition to a low-carbon economy creates new opportunities for training and development. The Company contributes to the sustainable development of the economy, its technical modernization, creation of new production facilities and high-performance jobs. **Training programs are aligned with the Company's current and strategic objectives.**

A corporate system of continuous education **"School-College/University-Enterprise"** was established in 2005 in order to create an external talent pool and to ensure a constant inflow of highly educated young specialists to Rosneft. With the Company's support, **more than 2.4 thousand schoolchildren** study in Rosneft Classes **in 21 regions of Russia**. The Rosneft Classes Program aims to provide schoolchildren with high-quality general secondary education, with in-depth study of mathematics, physics, chemistry and information and computer science.

Every year, Rosneft conducts the IT competition – Hackathon - for robotic programmers, in which experts from different areas of software development are asked to solve a problem against the clock, thus, boosting young people's interest in modern technology.

1.3 million man-courses – training and development of the Company's personnel in 2023.

In 2023, 400 million rubles was allocated to R&D activities with the aim to reduce the carbon footprint.

DEVELOPMENT, APPLICATION AND ASSESSMENT OF INNOVATIVE TECHNOLOGIES EFFICIENCY

Rosneft is the only company in Russia that successfully creates the software covering all key processes of oil production. Ensuring the Company's information and technological independence is one of the key tasks of the Company's Corporate Research and Design Complex.

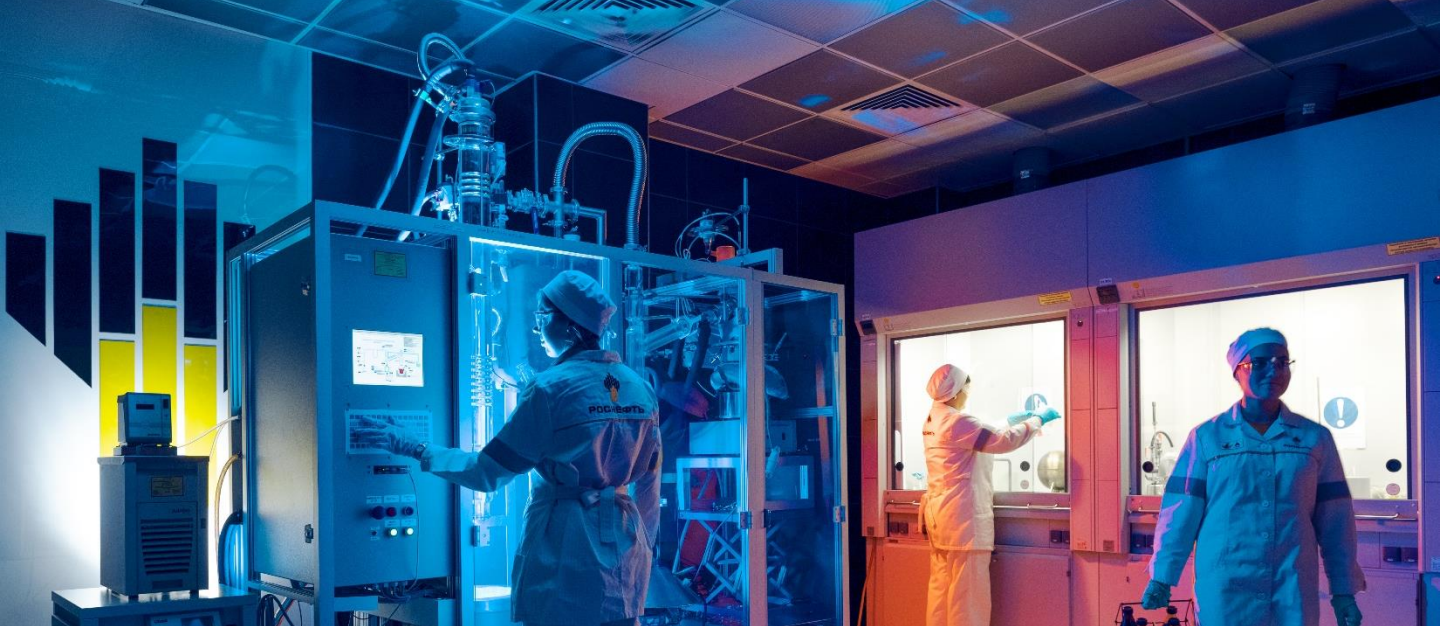
Rosneft received a patent for the unique technology to monitor energy consumption of oil and gas production equipment (creating a digital twin of downhole equipment). **The economic effect of the innovation implementation at the Company's artificial lift well stock will exceed 10.7 billion rubles over 5 years.**

A drilling waste treatment line was built at Vankor Field (part of Vostok Oil Project) - Russia's first drill cuttings treatment facility based on the principle of recycling technologies, and safe for the environment.

The Company has been developing and keeping up-to-date **a unified database of low-carbon solutions, technologies and decarbonization methods.**

Rosneft has been a member of the UN Global Compact for more than 10 years, and annually reaffirms its commitment to the 17 UN Sustainable Development Goals. Since 2019, Rosneft has been a member of the Methane Guiding Principles - the initiative of leading international oil and gas companies to reduce methane emissions across the natural gas value chain. **The Company contributes to the development of the Ecology National Project of the Russian Federation.** Rosneft is implementing a long-term program to reduce methane and green-house gas (GHG) emissions.

**The Ecology National Project of the Russian Federation.*



DEVELOPMENT OF REQUIRED INFRASTRUCTURE

Rosneft Research and Design Complex is the largest oil and gas research unit in Europe, which includes 30 design and research institutes, 40 competence centers with a total of over 18,500 employees.

Sibintek, Rosneft's internal IT integrator, is implementing a project to create a state-of-the-art Information Storage and Processing Center in Krasnoyarsk as part of the Company's strategy for digital transformation of production processes.

Investments in innovative initiatives related to low-carbon development amounted to more than 1.5 billion rubles over 3 years.*

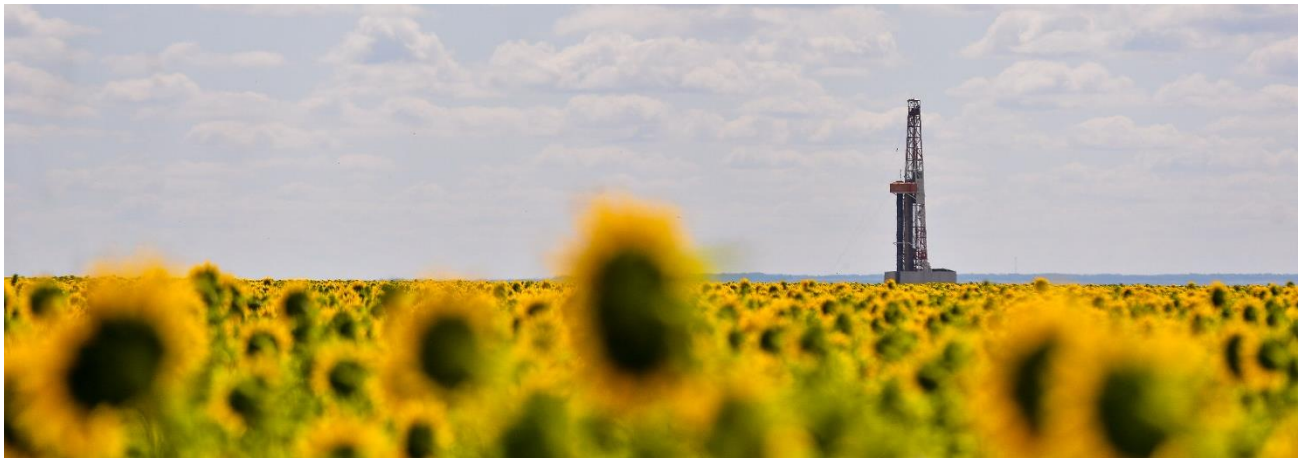
** Projects in the area of carbon management and ecology (including development of environmentally friendly fuels, CO_2 capture and storage solutions), projects to create new technologies to increase the level of associated petroleum gas (APG) utilization.*

Rosneft is implementing a large-scale Gas Investment Program for the beneficial use of associated petroleum gas. In 2023, the Company launched 12 new facilities, including gas injection, power generation, gas treatment and utilization facilities, and gas transportation infrastructure.

METHODS AND TECHNOLOGIES TO REDUCE METHANE EMISSIONS IN ROSNEFT. APG UTILIZATION

The Company implements infrastructure projects for APG utilization in the following areas:

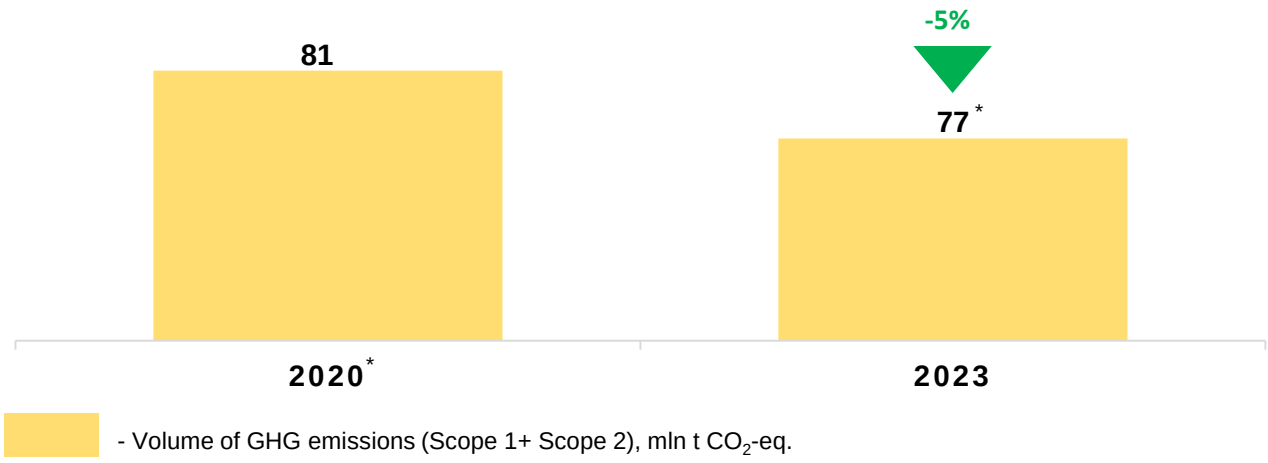
- gas supply to the unified gas transportation system and gas processing plants;
- gas reinjection;
- use of gas at generation facilities to produce electric power and heat;
- gas utilization for own process needs during oil and gas treatment.



In 2013-2023, Rosneft's capital investment in APG utilization projects amounted to about 225 billion rubles.

The reliability of the Company's greenhouse gas emissions data for 2023 was confirmed by an independent auditor.

5% - EMISSIONS REDUCTION IN 2023



The positive trends in the performance, despite incremental production capacity, is achieved due to the implementation of measures to reduce greenhouse gas emissions, the Energy saving program, and the launch of a gas and condensate treatment unit at one of the Company's core assets.

**2020 is the baseline year for carbon footprint reduction target of the Rosneft-2030: Reliable Energy and Global Energy Transition Strategy.*

In 2023, Rosneft rolled out the Program for the comprehensive methane leak monitoring using unmanned aerial vehicles (UAVs) and ground surveys. When the aerial monitoring is planned, the focus is placed on surveys of infrastructure facilities - where the continued use of ground crews is difficult.

UAV APPLICATION FOR DETECTION OF FUGITIVE METHANE EMISSIONS

Identifying sources of methane emissions helps maintain the integrity of infrastructure of the Company's production facilities.

Due to significant length of pipelines, difficult access and lack of acceptable alternatives, it is reasonable to use UAV surveys for linear facilities to search for sources of methane emissions.

The specifics of the applied technology, and the presence of natural factors (wind velocity and direction) make it impossible to accurately locate the source of methane emission using UAVs, and, therefore, to confirm and determine the location of methane emission it is necessary to carry out ground inspection using highly sensitive equipment for leak detection and containment (OGI (optical gas imaging) cameras, laser methane detectors).

In 2023, UAV monitoring was performed in 13 Group Subsidiaries at 94 site facilities and at linear gas pipelines with a length of 2,503 km.

** UAV – unmanned aerial vehicles*

Ground surveys are conducted with the use of laser and ultrasonic detectors, and OGI multispectral infrared cameras utilizing cryotechnology, as part of the comprehensive methane emission monitoring program.

APPLICATION OF GROUND SURVEY EQUIPMENT FOR DETECTION OF FUGITIVE METHANE EMISSIONS

The conducted studies have shown a high efficiency of laser and thermal imaging devices for developing the system of timely detection and elimination of fugitive methane emissions into the atmosphere, and enhancing the monitoring of the integrity of the Company's facilities infrastructure.

The leak detection and repair system is integrated into the existing equipment repair and maintenance processes.

Advanced technologies for methane leaks detection

Handheld lasers

IR camera
(with optical gas imaging)

Ultrasonic detectors

The Company utilizes the best available technologies to minimize its environmental footprint. The equipment in use has proven to be effective, as the devices can detect emission sources which cannot be detected by standard methods and means (including gas analyzers).

In 2023, the surveys were carried out by means of ground monitoring with the use of portable leak detection systems in 25 Group Subsidiaries.
A total of 846 infrastructure facilities were inspected.

METHANE EMISSIONS REDUCTION IS THE KEY TO MINIMIZING THE CARBON FOOTPRINT: BASHNEFT-DOBYCHA

In 2023, Bashneft-Dobycha engineers performed measurements using **ground monitoring equipment at 131 production sites.** A complex of high-tech equipment fitted with laser, ultrasonic and thermal imaging sensors enables specialists to identify and eliminate sources of greenhouse gas emissions at production facilities.

Over three years (2021 - 2023), a total of 184 production facilities were surveyed using domestic unmanned aerial vehicles equipped with laser gas analyzers, high-resolution photo and video cameras.

Based on the track record and the obtained results, the optimal program to monitor methane emission sources was developed for 2024.

Implementation of ground-based monitoring activities in addition to the use of UAVs to search for sources of fugitive methane emissions contributes to minimizing the carbon footprint.

METHANE EMISSIONS REDUCTION IS THE KEY TO MINIMIZING THE CARBON FOOTPRINT: RN-YUGANSKNEFTEGAZ

The program to search for and eliminate sources of fugitive methane emissions using UAV surveys and portable ground monitoring equipment is implemented at RN-Yugansknefteqaz facilities. In 2023, 1,308 km of line pipelines, were surveyed with the use of UAVs. **The use of UAVs enables the continuous environmental monitoring of the integrity of production facilities infrastructure.**

A total of 86 site facilities were surveyed on the ground using the best available technologies that had proven to be effective.