Gazprom Environmental Report 2022

Gazprom Environmental Report 2022

Contents

Contents

Contents

Message by Mr. Aksyutin

Dear readers!

Oleg E. Aksyutin
Deputy Chairman of the Management Committee – Head of Department, Head of PJSC Gazprom's Coordination Committee for Sustainable Resource Management

I am delighted to welcome you to the pages of our annual Environmental Report.

The year 2022 became particularly prominent for us, as it saw establishment of a new Irkutsk gas production center marked by commissioning of the largest East Siberian Kovyktinskoye field and the line part of the Power of Siberia gas trunkline – "Kovykta – Chayanda". Currently, the Power of Siberia gas trunkline is operated along its whole length – over threethousand kilometers. It opens up opportunities for supply of large natural gas volumes to the world's most dynamic and fast growing Chinese market, thus hugely contributing into response to global environmental challenges.

Russia has the largest natural gas reserves – green, reliable and accessible energy source that is the best mean to address long-term sustainable development goals of the global economy.

The Gazprom Group is consistently advancing its environmental performance. Over the last five years, the Company invested RUB 358 billions into environmental protection to implement an extensive list of nature conservation activities and introduce the best available techniques and innovations aimed at mitigation of negative impact on all components of the environment. During that period, the Company reduced water consumption by 17%, pollutant emissions – by 26%, greenhouse gas emissions – by 11%, waste generation – by 27%. All set Corporate Environmental Goals were achieved in 2022.

We initiated and carried out over 13 thousand of voluntary nature conservation measures in the regions of Russia, planted over 750 thousand of seedlings and bushes, released over 220 millions of fish of different spices, including highly valued ones. Gazprom lays special emphasis on environmental safety in the Arctic. We constantly monitor permafrost and take measures to ensure structures reliability and stability. Therefore, our considerable efforts to preserve environment are comprehensive through the years and are prioritized in the Company's long-term programs.

In 2022, system-based energy efficiency improvement work saved over 4 billion cubic meters of natural gas for own process needs and 400 millions kWh of electric power.

Gazprom's activities in gas infrastructure development and conversion of vehicles to natural gas support significant reduction in pollutant and greenhouse gas emissions. The year 2022 evidenced again overachievement of the goals of gas infrastructure expansion in the regions of Russia. As a result: the more people use natural gas, the cleaner is the air.

Keeping the guard over energy security and environmental safety, Gazprom carries on its mission and successfully pursues its Environmental Policy.

Introduction

The present Environmental Report (thereinafter – the Report) has been prepared in accordance with PJSC Gazprom's Management Committee Resolution on Organization and Holding of the annual General Shareholders Meeting of Gazprom.

The Report uses annual statistical reporting data on environmental protection (EP) and energy efficiency collected by the corporate information & management system (IMS) along with other content from the reports on environmental activities of PJSC Gazprom's subsidiaries and organizations, corporate websites, Russian and international publications by the Group's companies.

The Report highlights EP and energy efficiency activities of the Gazprom Group companies in 2022, including actual impact on air, water and land resources, waste management, greenhouse gas (GHG) emissions, and measures undertaken to mitigate such an impact. The Report specifies EP management and financing arrangements, research and technical improvement of the industrial complex that are aimed at enhancing environmental safety of the Gazprom Group's facilities.

Data are provided for the Gazprom Group in general, PJSC Gazprom (including five-year retrospective data) and for some companies from the Group that significantly contribute to reviewed issues of activities.

The terms "PJSC Gazprom" and "the Company" used in the Report refer to the parent company of the Gazprom Group – Public Joint Stock Company Gazprom and its 100% owned subsidiaries and organizations involved in hydrocarbons exploration, production, transmission, underground storage, processing and maintenance of the Unified Gas Supply System (UGSS):

OOO Gazprom dobycha Astrakhan
OOO Gazprom dobycha Irkutsk
OOO Gazprom dobycha Krasnodar
OOO Gazprom dobycha Kuznetsk
OOO Gazprom dobycha Nadym
OOO Gazprom dobycha Noyabrsk
OOO Gazprom dobycha Orenburg
OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk
OOO Gazprom dobycha Urengoy
OOO Gazprom dobycha Yamburg
OOO Gazprom nedra
OOO Gazprom transgaz Ekaterinburg
OOO Gazprom transgaz Grozny
OOO Gazprom transgaz Kazan
OOO Gazprom transgaz Krasnodar
OOO Gazprom transgaz Makhachkala
OOO Gazprom transgaz Moscow
OOO Gazprom transgaz Nizhny Novgorod
OOO Gazprom transgaz Saint-Petersburg
OOO Gazprom transgaz Samara
OOO Gazprom transgaz Saratov
OOO Gazprom transgaz Stavropol
OOO Gazprom transgaz Surgut
OOO Gazprom transgaz Tchaikovsky
OOO Gazprom transgaz Tomsk
OOO Gazprom transgaz Ufa
OOO Gazprom transgaz Ukhta
OOO Gazprom transgaz Volgograd
OOO Gazprom transgaz Yugorsk
OOO Gazprom UGS
OOO Gazprom pererabotka
OOO Gazprom pererabotka Blagoveschensk
OOO Gazprom LNG Portovaya
OOO Gazprom NGHK
OOO Gazprom energo
OOO Gazprom geotekhnologii
OOO Gazprom gazomotornoye toplivo
OOO Gazprom avia Aviation Company
OOO Gazpromtrans
OOO Gazprom flot
OOO Gazprom invest
OOO Gazprom sotsinvest
AO Gazprom trubinvest

The terms “Gazprom Neft Group” and “Gazprom Neft” refer to PAO Gazprom Neft and its subsidiaries.

The term “Gazprom neftekhim Salavat” refers to OOO Gazprom neftekhim Salavat and its subsidiaries.

The term “Gazprom energoholding” refers to OOO Gazprom energoholding and its subsidiaries (PAO Mosenergo, PAO MOEK, PAO OGK-2, PAO TGK-1, AO Gazprom teploenergo).

The Gazprom Group, Gazprom or the Group stand for PJSC Gazprom (with all listed above 100% owned subsidiaries and organizations) and the following companies:

Gazprom Neft Group
Gazprom energoholding
Gazprom neftekhim Salavat
Vostokgazprom Group
OOO Gazprom mezhregiongaz
AO Daltransgaz
OOO Sakhalinskaya Energia
OAO Severneftegazprom
ZAO Purgaz

as well as PJSC Gazprom’s subsidiaries operating abroad:
OAO Gazprom transgaz Belarus
ZAO Gazprom Armenia
OsOO Gazprom Kyrgyzstan
MKOOO Gazprom International Limited

The Gazprom Group’s gas business companies comprise PJSC Gazprom (and all its 100% owned subsidiaries and organizations involved in hydrocarbons production, transmission, underground storage and processing as well as UGSS maintenance), OOO Gazprom mezhregiongaz, Vostokgazprom Group (AO Gazprom dobycha Tomsk), AO Daltransgaz, OOO Sakhalinskaya Energia, OAO Severneftegazprom, ZAO Purgaz.

The environmental impact indicators, ecological and economic indicators are given for the Gazprom Group operations in the Russian Federation. Environmental performance abroad is reviewed separately.

Environmental management system

PJSC Gazprom adheres to the principles of sustainable development, which means a balanced and socially acceptable combination of economic growth and preservation of favorable environment for future generations.

PJSC Gazprom's Environmental Policy approved by PJSC Gazprom Management Committee's Decree No. 21 as of 25 May 2015 is a fundamental document of the Environmental Management System (EMS).

In 1995, PJSC Gazprom adopted its Environmental Policy and became the first Russian oil and gas company to declare voluntary environmental responsibility.

The Company's Environmental Policy features current trends in environmental protection, energy efficiency and climate impact mitigation. The Environmental Policy stipulates obligations and instruments for ensuring environmental safety including those during development of hydrocarbon fields on the continental shelf and in the Arctic zone of the Russian Federation, and for mitigating negative environmental impact risks including highly vulnerable natural sites and sites of primary protection and preservation concern. Internal staff and external stakeholders, first of all contractors and outside suppliers, are informed on PJSC Gazprom's Environmental Policy provisions.

Since 2011, PJSC Gazprom has adopted a certified EMS designed to implement the Environmental Policy, set and pursue environmental goals, manage PJSC Gazprom's environmental aspects, fulfill assumed obligations, and address risks and opportunities.

Independent audit conducted in 2022 acknowledged PJSC Gazprom's EMS conformance to ISO 14001:2015 and the national standard of the Russian Federation GOST R ISO 14001-2016.

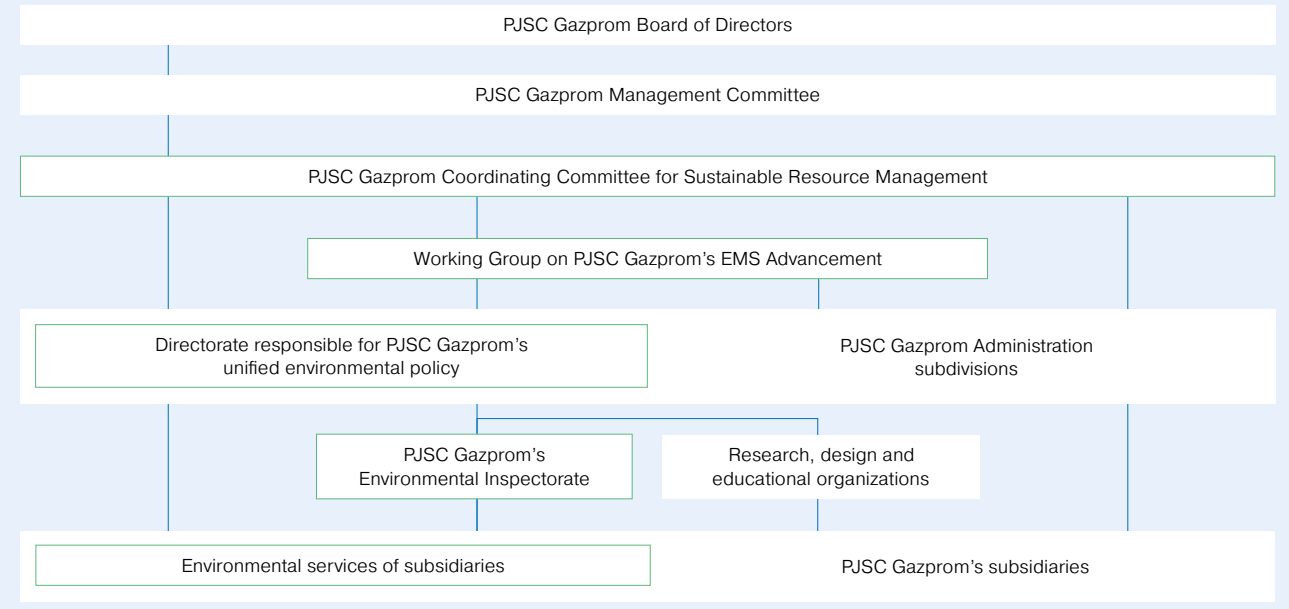
The Gazprom Management Committee is the top governing body of the Environmental Management System.

PJSC Gazprom established the Coordinating Committee for Sustainable Resource Management to secure multifaceted approach in rational use of natural resources energy efficiency and environmental protection by PJSC Gazprom and its subsidiaries. The Committee comprises the majority of the Management Committee members and the heads of PJSC Gazprom's Administration subdivisions.

Teamwork of PJSC Gazprom's subsidiaries and organizations on EP activities, implementation of Coordinating Committee's and PJSC Gazprom's executive resolutions is arranged by the Directorate that is in charge of the unified environmental policy and arrangements aimed at energy efficiency improvement.

A permanent Working Group on PJSC Gazprom's EMS Advancement has been established to administer comprehensive approach and coordinate the work of PJSC Gazprom's divisions on environmental management.

The structure of PJSC Gazprom's Environmental Management System



In 2022, updated versions of regulatory and methodical documents for PJSC Gazprom's EMS were brought into force, namely:

- **STO Gazprom 12-1.1-027-2022 Environmental protection regulatory documents. Environmental management system. Requirements and application guidelines.**
- **STO Gazprom 12-1.1-028-2022 Environmental protection regulatory documents. Environmental management system. Internal audit planning procedure and execution.**

Scope of PJSC Gazprom's EMS application is applied to management of subsidiaries that perform key activities, including:

- Natural gas and gas condensate production, including on the continental shelf.
- Natural gas and gas condensate processing.
- Natural gas and gas condensate transportation.
- Underground gas storage.
- Exploration.
- Geophysical works.
- Well construction, stimulation and repair, particularly offshore.
- Construction and operation of offshore drilling rigs, dedicated fleet and other floating equipment.
- Development and operation of offshore fields, onshore supply bases and port infrastructure.
- Power and water supply and operation of UGSS power equipment.
- Investment project management for PJSC Gazprom's facilities construction.

PJSC Gazprom's EMS scope applies to subdivisions of the Administration, 37 subsidiaries with 100% ownership involved in main businesses, the Corporate R&D Center for Environmental Safety and Energy Efficiency of OOO Gazprom VNIIGAZ, and PJSC Gazprom's Environmental Inspectorate.

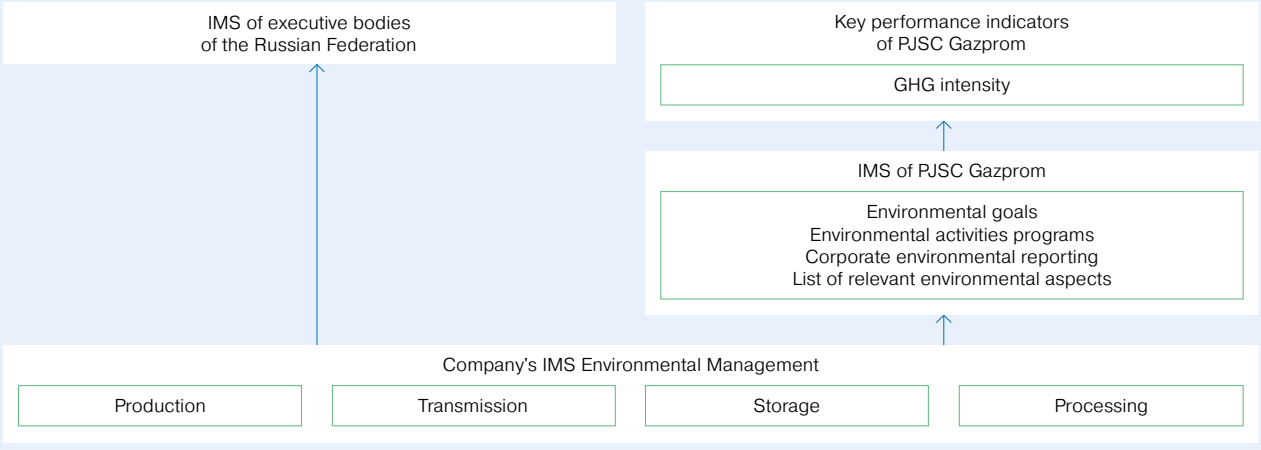
The Gazprom Group companies outside the boundaries of EMS scope have successfully adopted and put into operation individual EMSs, the majority of which is certified for conformance to ISO 14001:2015 requirements. Unique EMSs of those companies take into account specific features of their business.

PJSC Gazprom environmental and energy efficiency review as well as environmental control (audit) are effectively employed at PJSC Gazprom as voluntary environmental responsibility instruments. Environmentally-oriented studies, design and survey works performed by R&D and design organizations by the order of Gazprom are an integral part of the management system.

For the first time ever in Russia, PJSC Gazprom developed the single software suit to introduce automation into environmental protection activities of a vertically integrated company. The software developed on the basis of the Russian 1C platform provides a single digital information ecosystem within the Company and considers geography of its production branches.

In 2022, the Company's information & management system (IMS) Environmental Management was operated by 22 subsidiaries of PJSC Gazprom in charge of production, transmission, underground storage and processing of natural gas. This measure allowed for streamlining costs for collection, processing and storage of data, securing the operation of EMS, speeding up reporting and monitoring of PJSC Gazprom's environmental key performance indicators. The IMS Environmental Management will be introduced in another 33 subsidiaries in 2023.

PJSC Gazprom Information & Management System (IMS) Environmental Management



Environmental training

Continuous advancement of environmental knowledge and culture of employees are prerequisites for strong environmental management.

Since 1995, Gazprom Corporate Institute has been the leading educational establishment for Signature Continuous Professional Education System of PJSC Gazprom's Personnel largely contributing into the Company's development. A multi-level corporate training system of the Institute encompasses all groups of personnel from young professionals to top management pool.

In 2022, the Institute carried out several educational projects to advance environmental education.

New managers and employees of PJSC Gazprom obtained basic knowledge on the EMS and corporate environmental policy during the introductory training.

Managers and staff of environmental services at subsidiaries completed training under the following programs:

- Development and implementation of the environmental management system based on ISO 14001:2015 requirements at gas industry enterprises, internal audit.
- Relevant requirements and environmental safety issues for the Gazprom Group companies.
- Environmental Review under "Expert review of projects in the gas industry" professional development program.
- Specialized work in the system "Ecology. 1 C-KSU. Environmental protection".

Professional development programs comprised the following EP courses:

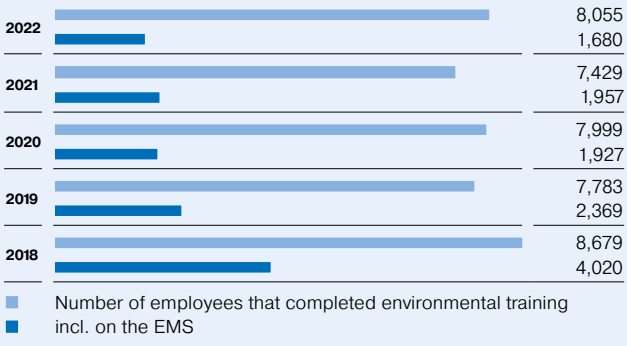
- Environmental Management at PJSC Gazprom under "PJSC Gazprom – the large industrial and financial complex" professional development program.
- Environmental Management System at PJSC Gazprom Facilities. Environmental Policy of PJSC Gazprom under "Corporate culture and management at PJSC Gazprom" professional development program.

Throughout the year, a considerable number of the Gazprom Group employees have completed the following training courses by virtue of the remote educational technologies:

- Environmental Protection at PJSC Gazprom within online teaching package "E-learning – advancing corporate competences".
- Environmental Protection within online teaching package "Corporate culture at PJSC Gazprom".

In 2022, different educational institutions provided environmental training and skill upgrade for 8,055 employees of Gazprom (1,680 of them – on the EMS): 5,309 – at PJSC Gazprom and its subsidiaries (1,594 of them – on the EMS), 1,127 – at Gazprom Neft Group (30 of them – on the EMS), and 518 – at Gazprom energoholding (10 of them – on the EMS).

Environmental training of the Gazprom Group personnel, 2018–2022, prs.



39,945 employees completed environmental training at the Gazprom Group in 2018–2022.

Contest of environmental services and ecologists of PJSC Gazprom subsidiaries

Every year, PJSC Gazprom holds a Contest among environmental services and ecologists of its subsidiaries.

In 2022, OOO Gazprom transgaz Belarus (S.N. Ganysh, head of the Department) won the Contest among environmental services as The Best Environmental Service in 2021.

The following specialists were declared winners of the Best Gazprom Ecologist Contest:

- Andrey V. Volosatov – deputy head of the EP and energy-saving department at the administration of OOO Gazprom transgaz Belarus.
- Ekaterina N. Davydova – 1st category engineer at the EP and energy-saving department at the administration of OOO Gazprom transgaz Chaikovsky.
- Fanis Z. Sakhautdinov – head of the EP department at the branch office Oil and Gas Production Directorate of OOO Gazprom dobycha Yamburg.

Environmental goals and programs

The EMS of PJSC Gazprom sets its environmental goals, develops and implements environmental action plans based on annually estimated crucial environmental aspects.

The following environmental aspects have been recognized as relevant and crucial for PJSC Gazprom: methane emissions during repairs of gas trunklines (GTL), nitrogen oxides emissions during operation of compressor stations (CS), wastewater discharges and waste disposal as well as environmental aspects related to implementation of investment projects.

The year 2022 saw achievement of all target values envisaged by PJSC Gazprom's Corporate Environmental Goals for 2020–2022 under implementation of the 2020–2022 Comprehensive Environmental Program.

PJSC Gazprom Corporate Environmental Goals for 2020–2022 achieved in 2022

No.	Corporate environmental goal	Organizations under EMS scope	Benchmark value (2018)	2022 value	Progress
1.	Reduction in GHG emissions during natural gas transmission, t CO_2e/bln m^3·km	All natural gas transmission subsidiaries	55.30	44.80	Achieved
2.	Reduction in nitrogen oxides emissions during natural gas transmission, t/mln m^3	All natural gas transmission subsidiaries	4.23	4.03	Achieved
3.	Reduction in limit-exceeding discharge of pollutants into surface water bodies, %	All subsidiaries	5.29	0.01	Achieved
4.	Reduction in landfill against the total of circulating waste, %	All subsidiaries	38.28	13.44	Achieved
5.	Reduction in subsidiaries that surpassed 5% payment for limit-exceeding environmental impact, %	All subsidiaries	35	5.41	Achieved

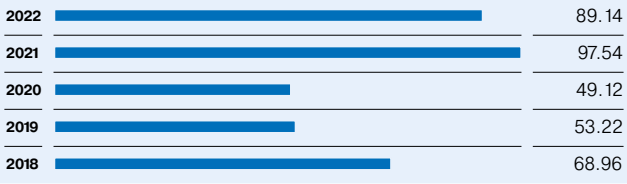
In 2022, PJSC Gazprom established Corporate Environmental Goals for 2023–2025 to proceed with further mitigation of negative environmental impact and improvement of PJSC Gazprom's EMS. The values as of 2018 were taken as a benchmark.

Environmental financing

In 2022, total expenditures of the Gazprom Group for environmental protection in the Russian Federation decreased by 8.6% against 2021 and amounted to RUB 89.14 bln. The cut was seen in fixed capital investments aimed at EP and rational use of natural resources.

The Gazprom Group's fixed capital investments for EP and rational use of natural resources totaled RUB 47.97 bln. Reduction in 20.7% against 2021 is related to completion of works covered by investment programs.

Dynamics of the Gazprom Group expenditures for EP, 2018–2022, bln RUB



In 2018–2022, the Gazprom Group allocated RUB 358 bln for EP.

Fixed capital investments in EP and rational use of natural resources, 2018–2022, mln RUB

	2018	2019	2020	2021	2022
The Gazprom Group	**29,188.61**	**20,421.32**	**13,987.15**	**60,529.57**	**47,971.71**
Gas business companies	5,612.57	5,732.34	3,607.24	16,245.96	13,996.60
incl. PJSC Gazprom	5,283.52	5,119.59	1,646.16	14,973.70	13,606.36
Gazprom Neft Group	19,028.63	13,015.56	7,796.72	39,700.79	32,415.26
Gazprom energoholding	1,374.55	305.69	729.41	3,766.70	1,029.79
Gazprom neftekhim Salavat	3,172.86	1,367.73	1,853.78	816.12	530.06

Gazprom Neft Group's investments in 2022 amounted to RUB 32.42 bln and were mainly made into the Gas Program targeted at atmospheric air protection (RUB 22.40 bln). Over RUB 9.15 bln, or 28.2% of fixed capital investments were channeled into protection and rational use of water resources, specifically into construction of wastewater treatment stations.

In 2022, investments of gas business companies decreased by 13.8%, particularly due to completion of construction and commissioning of the shipping and storage terminal for propane-butane mixture in the vicinity of the city of Kuibyshev, Novosibirsk Region. It was developed under the APG utilization program. This 9.1% reduction of PJSC Gazprom's investments is due to actual accomplishment of construction works and equipment installation in accordance with the construction schedule including under the project "Engineering landslide protection of the Psekhako ridge northern slope". PJSC Gazprom channeled over 94.6% of investments in protection and rational use of lands and waters.

In 2022, the Gazprom Group made investments into

- protection and rational use of water resources – RUB 16,110.85 mln, incl. RUB 9,569.98 mln for construction of wastewater treatment facilities and circulation water systems;
- air protection – RUB 23,145.42 mln, incl. RUB 19,994.65 mln for construction of gas compression unit at OOO Gazpromneft Yamal;
- protection and rational use of lands – RUB 7,219.64 mln, incl. RUB 899.01 mln for land remediation; and
- other environmental issues – RUB 1,495.80 mln, incl. RUB 242.30 mln for fishery protection and reproduction, RUB 513.13 mln for waste recycling, treatment and disposal facilities and sites, RUB 186.70 mln for protection and rational use of forests, others – RUB 553.67 mln.

In 2018–2022, the Gazprom Group invested RUB 172.1 bln into EP and rational use of natural resources.

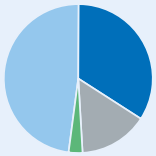
In the reporting year, the Gazprom Group commissioned: 82 wastewater treatment facilities and structures with a total capacity of 66.98 thousand m^3/day; 4 units for waste neutralization and treatment – 224.50 thousand t/year; 2 units for entrapment and neutralization of off-gases contaminants – 0.06 thousand m^3/hour, and 2 circulation water systems – 14.42 thousand m^3/day.

In 2022, current EP expenditures of the Gazprom Group

increased by 11.3% against 2021 and amounted to RUB 40,419.70 mln. The reason for this was the increase in EP operational expenditures, escalation of nature conservation service charges related to protection and reclamation of lands, surface and ground waters, collection and treatment of wastewaters, and air protection as well as prevention of climate change thanks to increase in expenditures for gas pumping by mobile compressor stations (MCS) to reduce pollutant emissions.

Increased expenses were observed simultaneously for all businesses (gas, oil, power), which had an overall effect for the total values of the Gazprom Group.

Structure of the Gazprom Group investments in EP and rational use of natural resources, 2022, %



Air protection	48
Protection and rational use of water resources	34
Protection and rational use of lands	15
Protection and rational use of forests, fishery protection and reproduction, facilities and sites for waste treatment, neutralization and disposal, etc.	3

Current EP expenditures, 2018–2022, mln RUB

	2018	2019	2020	2021	2022
The Gazprom Group	**39,154.34**	**32,180.11**	**34,440.66**	**36,303.25**	**40,419.70**
Gas business companies	21,124.78	19,909.65	21,899.51	23,362.21	24,805.79
incl. PJSC Gazprom	16,137.67	16,300.29	18,303.85	19,562.22	20,506.15
Gazprom Neft Group	6,080.42	8,053.81	8,655.44	8,877.77	11,276.12
Gazprom energoholding	2,132.36	2,486.13	2,329.58	2,412.42	2,720.36
Gazprom neftekhim Salavat	9,816.77	1,730.52	1,556.13	1,650.85	1,617.43
Including current (operating) EP expenditures					
The Gazprom Group	**22,638.04**	**14,964.57**	**13,979.38**	**14,765.66**	**16,313.71**
Gas business companies	10,527.75	10,431.86	10,472.04	10,935.10	12,259.02
incl. PJSC Gazprom	10,104.97	9,933.54	9,906.52	10,321.74	11,357.38
Gazprom Neft Group	2,527.70	3,088.78	2,262.02	2,596.30	2,793.15
Gazprom energoholding	613.87	656.20	633.56	573.04	607.50
Gazprom neftekhim Salavat	8,968.72	787.73	611.76	661.22	654.04
Including current expenditures for EP services					
The Gazprom Group	**14,584.14**	**15,601.86**	**18,980.31**	**20,079.41**	**22,540.71**
Gas business companies	9,226.03	8,530.24	10,701.90	11,810.24	11,809.58
incl. PJSC Gazprom	4,662.63	5,420.37	7,678.02	8,700.84	8,468.38
Gazprom Neft Group	3,225.50	4,673.04	5,984.36	5,764.75	7,908.13
Gazprom energoholding	1,378.41	1,606.82	1,508.39	1,715.75	1,970.62
Gazprom neftekhim Salavat	754.20	791.76	785.66	788.67	852.38
Including current expenditures for overhaul repair of environmental basic production assets					
The Gazprom Group	**1,932.16**	**1,613.68**	**1,480.97**	**1,458.18**	**1,565.28**
Gas business companies	1,371.01	947.55	725.57	616.85	737.19
incl. PJSC Gazprom	1,370.07	946.38	719.31	539.65	680.39
Gazprom Neft Group	327.22	291.99	409.06	516.72	574.84
Gazprom energoholding	140.08	223.11	187.63	123.64	142.24
Gazprom neftekhim Salavat	93.85	151.03	158.71	200.97	111.01

Dynamics of current EP expenditures at the Gazprom Group, 2018–2022, bln RUB

Gas business

	Gas business companies	including PJSC Gazprom
2022	24.81	20.51
2021	23.36	19.56
2020	21.90	18.30
2019	19.91	16.30
2018	21.12	16.14

Gazprom energoholding

2022	2.72
2021	2.41
2020	2.33
2019	2.49
2018	2.13

Gazprom Neft Group

2022	11.28
2021	8.88
2020	8.66
2019	8.05
2018	6.08

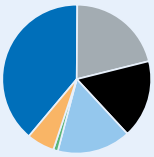
Gazprom neftekhim Salavat

2022	1.62
2021	1.65
2020	1.56
2019	1.73
2018	9.82

Wastewater collection and treatment costs routinely prevail in the structure of the Gazprom Group current expenditures. In 2022, these costs amounted to RUB 15.62 bln, or 38.7%. The Gazprom Group spent RUB 8.61 bln on protection and reclamation of lands, surface and ground waters; RUB 6.81 bln on waste treatment, RUB 6.38 bln on air protection and prevention of climate change; RUB 0.58 bln on conservation of biodiversity and protection of natural areas. Expenditures on other environmental issues such as protection against noise, vibration and other physical impacts, radiation safety, R&D activities aimed at mitigation of negative impact on the environment, etc. totaled RUB 2.41 bln.

Structure of the Gazprom Group EP expenditures, 2022, %

Wastewater collection and treatment	39
Protection and reclamation of lands, surface and ground waters	21
Waste management	17
Air protection and prevention of climate change	16
Conservation of biodiversity	1
Other environmental protection measures	6



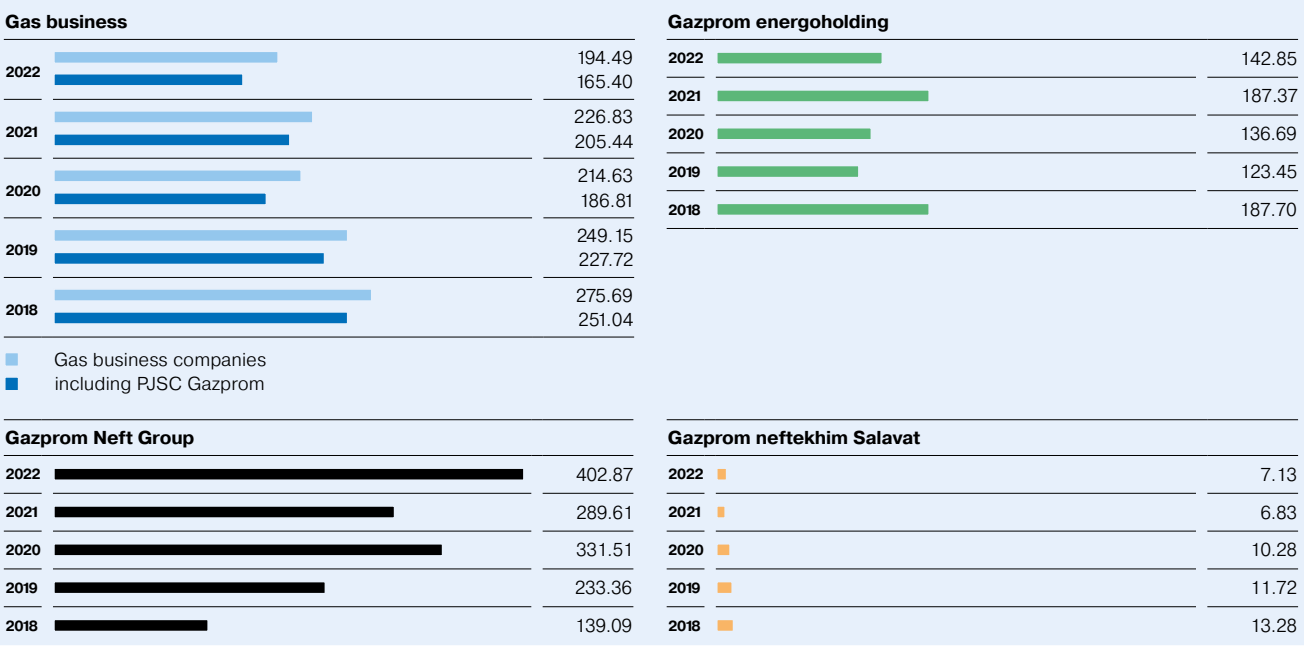
Environmental impact fee

In 2022, the Gazprom Group paid RUB 747.34 mln in environmental impact fee to budgets of different levels.

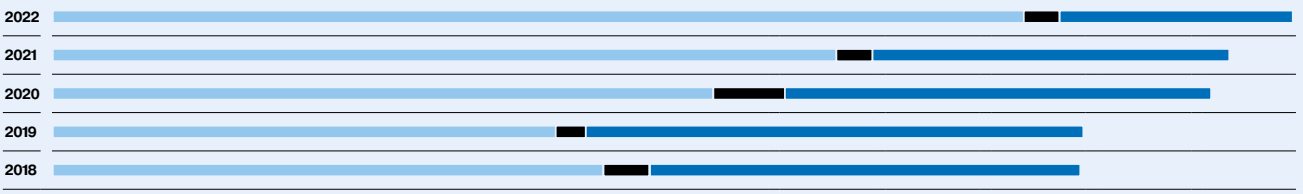
Environmental impact fee, 2018–2022, mln RUB

	2018	2019	2020	2021	2022
Gazprom Group	**615.76**	**617.68**	**693.11**	**710.64**	**747.34**
Gas business companies	275.69	249.15	214.63	226.83	194.49
incl. PJSC Gazprom	251.04	227.72	186.81	205.44	165.40
Gazprom Neft Group	139.09	233.36	331.51	289.61	402.87
Gazprom energoholding	187.70	123.45	136.69	187.37	142.85
Gazprom neftekhim Salavat	13.28	11.72	10.28	6.83	7.13

Environmental impact fee dynamics, the Gazprom Group, 2018–2022, mln RUB



Dynamics of the Gazprom Group's environmental fees by types of negative impact on the environment, 2018–2022, mln RUB



	2018	2019	2020	2021	2022
Emissions of pollutants into the atmosphere	356.94	318.78	419.35	505.28	624.68
Discharge of pollutants in water bodies	35.36	22.49	46.58	33.65	28.47
Industrial and consumption waste disposal	223.46	276.41	227.18	171.71	94.19

Fees for pollutant emissions (84%), and for disposal of industrial and consumption waste (13%) prevailed in the structure of environmental impact fees in 2022.

Environmental limit-exceeding impact fee for the Gazprom Group in total amounted to 63.2%, PJSC Gazprom – 5.4%, Gazprom Neft Group – 92.1%, Gazprom energoholding – 59.9%, Gazprom neftekhim Salavat – 0.4%.

Increase in environmental fees and share of limit-exceeding fees in the total is mainly due to increase in associated petroleum gas (APG) flaring at newly commissioned Gazprom Neft Group's facilities as well as lack of permits and approvals at Gazprom energoholding caused by changes in categorizing the facilities, which exert negative impact on the environment, because of the changes in the criteria for assigning objects to categories I-IV.

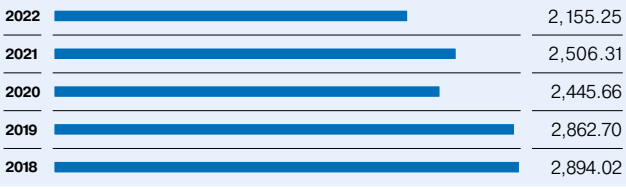
Environmental impact indicators

Atmosphere impact

In 2022, the gross pollutant emissions from stationary sources of the Gazprom Group companies totaled 2,155.25 thousand tons that was 14% lower than in 2021.

In 2022, pollutant emissions were reduced due to effective implementation of the Energy Saving Program, including cut down of fuel gas consumption, and due to changes in the fuel balance, namely reduction in the share of coal and increase in the natural gas share at Gazprom energoholding facilities.

Dynamics of gross pollutant emissions of the Gazprom Group, 2018–2022, thousand tons



In 2018–2022, pollutant emissions of the Gazprom Group decreased by 26%.

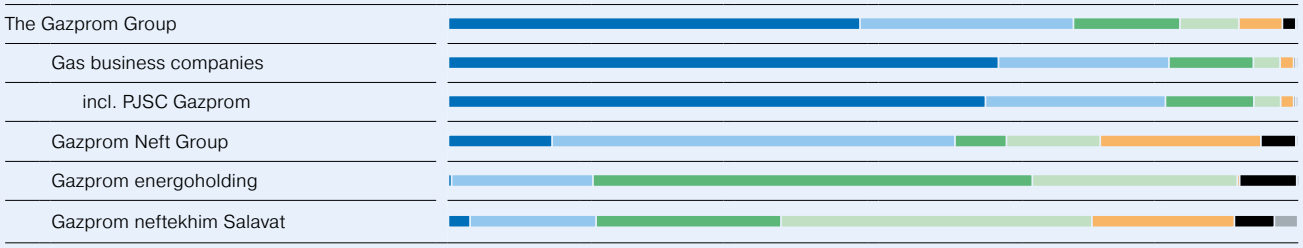
Off-gas decontamination units captured and neutralized 450.99 thousand tons of pollutants. Gazprom energoholding captured and neutralized 352.99 thousand tons of pollutants, PJSC Gazprom– 89.04 thousand tons, other companies of the Group – 8.96 thousand tons.

Solid particles, predominantly solid fuel ash of power facilities, constitute 99.5% of the total mass of captured and neutralized pollutants, while 0.5% goes for gaseous and liquid substances (of which 85% is sulfur dioxide).

Share of the Gazprom Group companies in generation of gross emissions, 2022, %

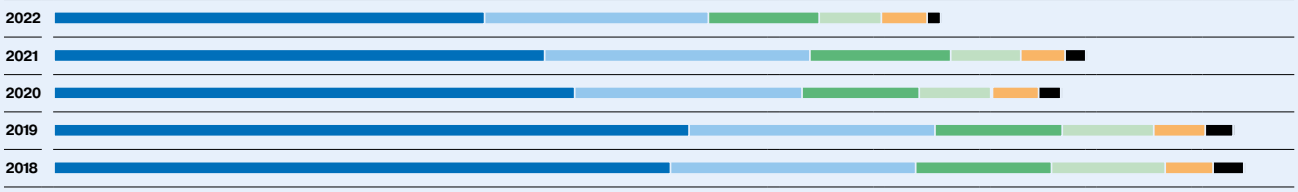
The structure of the Gazprom Group emissions is determined by specifics of the production activities of PJSC Gazprom and other gas business companies. Main pollutants of the Group's gross emissions comprise hydrocarbons (including methane), carbon oxide, nitrogen oxides, and sulfur dioxide. Emissions of solid particles come mostly from for Gazprom's power sector, while emissions of volatile organic compounds (VOCs) are mostly associated with companies of Gazprom Neft Group and gas business companies.

Component structure of pollutant emissions at the Gazprom Group, 2022, thousand tons, %



	The Gazprom Group	Gas business companies	Including PJSC Gazprom	Gazprom Neft Group	Gazprom energoholding	Gazprom neftekhim Salavat
Hydrocarbons (incl. methane)	1,048.24	994.60	875.66	52.27	0.27	1.10
Carbon oxide	540.64	307.27	291.85	200.24	27.26	5.87
Nitrogen oxides	270.02	152.46	143.54	25.72	83.22	8.62
Sulphur dioxide	150.45	50.02	49.98	46.97	38.89	14.57
Volatile organic compounds	109.90	23.70	16.77	79.38	0.28	6.55
Solid particles	34.16	3.59	2.75	17.60	11.10	1.87
Other gaseous and liquid substances	1.84	0.60	0.38	0.19	0.02	1.03

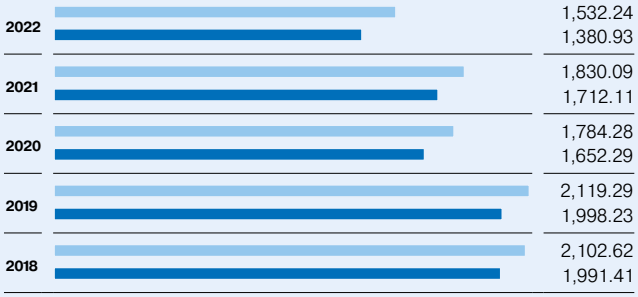
Dynamics of the main pollutant emissions from stationary sources of the Gazprom Group, 2018–2022, thousand tons



	2018	2019	2020	2021	2022
Hydrocarbons (incl. methane)	1,497.78	1,542.64	1,266.42	1,193.49	1,048.24
Carbon oxide	594.10	596.42	550.66	642.07	540.64
Nitrogen oxides	328.62	307.71	284.22	341.60	270.02
Sulphur dioxide	276.16	221.46	171.97	169.72	150.45
Volatile organic compounds	116.23	124.76	117.22	107.82	109.90
Solid particles	75.00	67.47	53.57	50.05	34.16
Other gaseous and liquid substances	6.13	2.24	1.60	1.56	1.84

Dynamics of gross pollutant emissions at the Gazprom Group companies, 2018–2022, thousand tons

Gas business



Gazprom energoholding

Gazprom Neft Group

Gazprom neftekhim Salavat

Pollutant emissions from stationary sources of the Group's gas business companies totaled 1,532.24 thousand tons, which is 16% lower than in 2021. The PJSC Gazprom's share in the total gas business emissions volume is 90% and determines the overall prevailing trend.

The total gross emissions of PJSC Gazprom against 2021 decreased by 331.18 thousand tons, or 19.3%, which is due to both reduction in production volume and implementation of a set of energy saving measures.

Gross emissions at Gazprom energoholding decreased by 32% and amounted to 161.04 thousand tons. Such reduction is due to a change in the fuel balance, namely decrease in the share of coal and increase in the share of natural gas.

A 4% increase in gross emissions at Gazprom Neft Group, as compared to the last reporting period, is due to increase in APG flaring and commissioning of new facilities at the Pestsovoye oil, natural gas and gas condensate field (OGCF).

Gross emissions by the type of PJSC Gazprom main activities, 2018–2022, thousand tons

	2018	2019	2020	2021	2022
PJSC Gazprom	**1,991.41**	**1,998.23**	**1,652.29**	**1,712.11**	**1,380.93**
Production	135.35	146.58	150.56	172.43	175.76
Transmission	1,683.16	1,677.52	1,334.96	1,377.75	1,048.76
Underground gas storage	23.69	21.17	21.92	27.83	21.30
Processing	141.45	144.62	136.97	124.96	125.53
Other activities	7.76	8.34	7.88	9.14	9.58

Every year the subsidiaries of PJSC Gazprom execute many measures aimed at reduction of pollutant emissions. Energy saving projects based on the cutting-edge technologies targeted at prevention of natural gas leaks during repairs of linear sections of gas trunklines (LSs of GTLs) make significant contribution into emissions reduction. MCS are among the most effective modern technologies that in 2022 helped to prevent relief of 870.75 mln m^3 of natural gas into atmosphere. In the reporting year, a special purpose company OOO Gazprom MCS implemented MCS project at full design capacity and used 12 MCSs.

Gas producing subsidiaries carry out well logging without releasing natural gas into the atmosphere thanks to telemetry systems, concentric tubing for the wells and multi-component surfactants that improve conditions for removing formation fluid from a bottom hole, thus reducing natural gas emissions.

Utilization of associated petroleum gas

Gazprom activities aimed at reduction (stop) of APG flaring play significant role in decreasing emissions of pollutants and GHG as well as efficient use of resources.

Prevention of APG flaring is a burning issue for the oil and gas industry in the context of global trends of economy switching to low-carbon and energy efficient development scenario with due regard of economic losses and environmental risks. APG investment projects are aimed at achievement of minimum 95% APG used at the Gazprom Group fields according to the requirements of the Russian Government Decree No. 1148 as of 8 November 2012.

In 2022, the APG effective use factor at the fields of PJSC Gazprom gas producing subsidiaries (including AO Gazprom dobycha Tomsk) totaled 98.4%.

In 2022, APG effective use factor for the Gazprom Group reached 94.2%.

Gazprom Neft Group demonstrated 94.02% APG effective use level for the subsidiaries on the territory of the Russian Federation considering consolidation of production volumes of the current assets developed as per long-term risky operator contracts with the exception of joint ventures. Actual increase in APG utilization totaled 3.5 bln m^3 or 15.1%.

In order to increase APG utilization, in 2022 Gazprom Neft launched the following projects:

- CS with the gas treatment unit at the Pestsovoye OGCF with design capacity of 4 bln m^3/year. The station is designed to receive, process and transmit the natural gas and APG into the UGSS. The condensate stabilization unit is treating the condensate transferred to the central gathering facility of the Pestsovoye OGCF as well as natural gas liquids transferred to the Condensate Treatment Plant of OOO Gazprom pererabotka.
- First stage of CS at the Chayandinskoye OGCF with design capacity of 2 bln m^3/year. This facility is designed to receive and transmit APG along 51 km gas pipeline to the gathering station No. 2 of the Chayandinskoye OGCF, wherefrom the gas is transmitted to the Power of Siberia gas trunkline.
- Central processing facility of the Novoportovskoye OGCF has reached the design capacity of 10.5 bln m^3/year of APG and 5.3 bln m^3/year of natural gas. Treated gas is transmitted into UGSS via the gas pipeline laid under the Gulf of Ob.

Completed investment projects facilitate development of different means of gas utilization by Gazprom Neft. These means comprise transmission and delivery of APG to gas processing plants (GPP) and the UGSS, processing, generation of heat and electricity for own needs, injection into the gas cap to maintain formation pressure.

Over the last five years, Gazprom Neft Group's portfolio of gas program projects resulted in the 15.7 percentage point increase in APG effective use. Key factors that stand behind this growth are successful management of material flows and equipment, and commissioning of new infrastructure facilities of Gazprom Neft.

APG utilization dynamics at the Gazprom Group companies, 2018–2022, %

Water use

The Gazprom Group companies are committed to mitigate negative water impact by reducing water consumption for production needs and wastewater discharge to surface water bodies.

In 2022, water intake of the Gazprom Group companies totaled 3,716.01 mln m³ for supply purposes that is 4.7% lower than in 2021.

Sewage disposal in 2022 reduced by 8.3% and amounted to 3,060.35 mln m³.

Water discharge to surface water bodies decreased by 8.9% against 2021 and amounted to 2,937.95 mln m³.

Water discharge to sewage farms and absorption fields made 9.48 mln m³, 0.61 mln m³ was diverted to holding basins, 26.87 mln m³ – to underground horizons, including 10.57 mln m³ to maintain formation pressure. Discharge to municipal and other systems totaled 85.44 mln m³.

Power generation drop at Gazprom energoholding in 2022 resulted in reduced water intake. With regard to the fact that the majority of power plants use direct flow service water systems, the reduction in water intake resulted in decline of discharge.

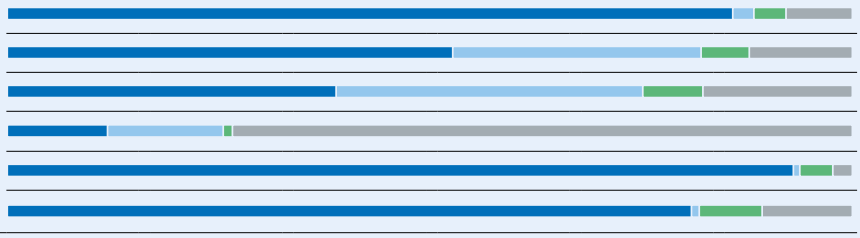
Water recycling systems used 11,888.10 mln m³.

Water use rates at the Gazprom Group, 2018–2022, mln m³

	2018	2019	2020	2021	2022
Total water intake	**4,280.21**	**3,921.41**	**3,236.63**	**3,898.24**	**3,716.01**
incl. water from natural sources	4,065.34	3,571.28	2,905.78	3,520.59	3,285.27
Used for own needs	**4,180.89**	**3,863.11**	**3,175.81**	**3,836.75**	**3,648.06**
incl. production needs	3,947.36	3,678.12	3,008.63	3,518.42	3,274.92
Water disposal to surface water bodies	**3,658.44**	**3,241.79**	**2,610.78**	**3,225.44**	**2,937.95**
incl. clean and treated as per standards	3,579.48	3,152.71	2,533.70	3,125.43	2,837.53

In 2018–2022, the Gazprom Group reduced:
- **water consumption for production needs by 17%,**
- **water intake from natural sources by 19%.**

The Gazprom Group water consumption structure by source types, 2022, mln m³, %



	The Gazprom Group	Gas business companies	Including PJSC Gazprom	Gazprom Neft Group	Gazprom energoholding	Gazprom neftekhim Salavat
Surface sources	3,193.42	54.27	26.44	32.17	3,070.49	36.49
Underground sources	91.85	30.24	24.68	37.02	24.17	0.42
Domestic water supply facilities	142.46	5.89	4.81	3.01	130.21	3.35
Other water supply facilities	288.28	12.47	11.98	198.34	72.69	4.78

The share of natural sources in the Group's water intake is 88%, of which surface water bodies account for 97%, underground – 3%. The structure of water consumption by types of sources in the Group depends on operation activities specifics and facilities location.

In 2018–2022, the Gazprom Group discharged 20% less wastewaters to surface water bodies. Clean without treatment as per standards wastewaters and treated as per standards wastewaters accounted for 97% in the total volume of the Group's discharge.

Discharge to surface water bodies at the Gazprom Group, 2018–2022, mln m³

	2018	2019	2020	2021	2022
The Gazprom Group	**3,658.44**	**3,241.79**	**2,610.78**	**3,225.44**	**2,937.95**
Gas business companies	31.80	41.83	45.90	44.09	41.34
incl. PJSC Gazprom	9.78	18.89	23.08	21.43	18.31
Gazprom Neft Group	0.11	0.09	0.07	0.11	0.13
Gazprom energoholding	3,587.15	3,161.88	2,525.10	3,144.20	2,872.82
Gazprom neftekhim Salavat	39.38	37.99	39.71	37.04	23.66

Gazprom energoholding covers 88.7% of the total water consumption and 97.8% of the total water discharge to surface water bodies of the Gazprom Group. The Gazprom Group's gas business share in the overall water discharge to surface water bodies is not very high and amounts to 1.4%, including 0.6% – by PJSC Gazprom.

In 2018–2022, the Gazprom Group reduced wastewater discharge to surface water bodies by 20%.

Discharge to surface water bodies at PJSC Gazprom by type of activity, 2018–2022, mln m³

	2018	2019	2020	2021	2022
PJSC Gazprom	**9.78**	**18.89**	**23.08**	**21.43**	**18.31**
Production	0.59	1.35	3.22	4.81	0.36
Transmission	5.53	5.47	5.20	5.33	5.07
Underground gas storage	0.14	0.11	0.10	0.11	0.11
Processing	0.24	0.23	0.24	0.23	0.35
Other activities	3.28	11.73	14.32	10.95	12.42

Decrease in wastewater discharge to surface water bodies by PJSC Gazprom companies by 15% is mainly associated with construction of wells on the shelf of the Kara Sea in 2022 by contractors obliged to consume and discharge water, perform industrial environmental control and monitoring, and submit statutory reporting.

In 2022, the Gazprom Group executed out more than 340 environmental measures aimed at improving the efficiency of water use for industrial and household needs as well as at increasing the treatment level of discharged wastewaters. The Group put into operation two circulation water systems with a capacity of 14.42 thousand m³/day, 82 wastewater treatment facilities with a total capacity of 66.98 thousand m³/day (45 facilities at gas business companies and 37 facilities at Gazprom Neft companies). Of the total number of wastewater treatment facilities commissioned in 2022, PJSC Gazprom put into service 44 facilities with a capacity of 44.88 thousand m³/day.

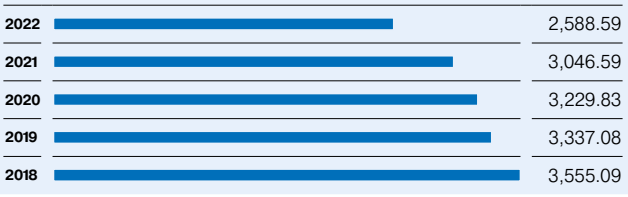
The Omsk refinery of Gazprom Neft commissioned the first stage of the "Biosphera" biological water treatment facilities for the primary mechanical water treatment to remove more than 80% of impurities. Construction works are underway: the entire complex is planned to be put into operation by the end of 2023. "Biosphera" innovative technologies will purify water by almost 100% to be further re-used in the production cycle of the Omsk refinery. The company's overall environmental footprint has already been reduced by 40%. By 2025, this value will be reduced by another 25%.

Waste management

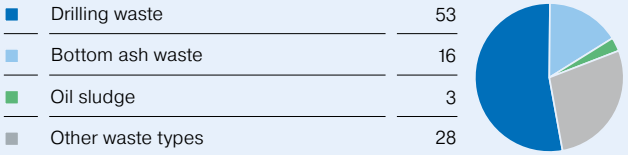
In 2022, the Gazprom Group companies generated 2,588.59 thousand tons of waste that is 15% less than in 2021 primarily thanks to 65% reduction in bottom ash waste generation at Gazprom energoholding as a result of increased natural gas share in the fuel balance.

The bulk of the Gazprom Group's waste is represented by drilling cuttings from Gazprom Neft, bottom ash waste from Gazprom energoholding (solid coal combustion by-products at heat power plants), and oil sludge generated mainly at oil and gas production and processing facilities.

Waste generation dynamics at the Gazprom Group, 2018–2022, thousand tons



The Gazprom Group waste structure by types, 2022, %



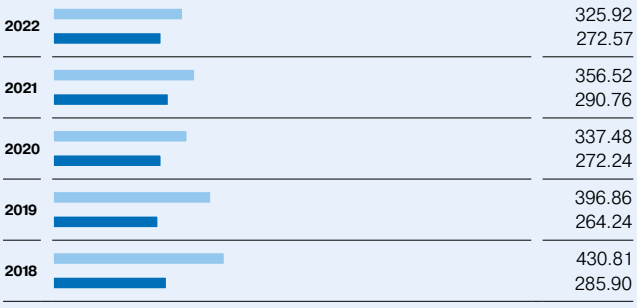
Most of the production waste (96%) of the Gazprom Group is categorized as low hazardous and almost nonhazardous (hazard classes IV, V) waste.

In 2018–2022, the Gazprom Group reduced waste generation by 27%.

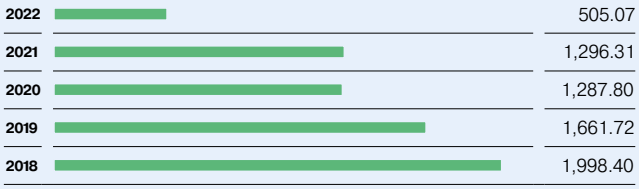
Share of the Gazprom Group companies in waste generation, 2022, %

Dynamics of waste generation at the Gazprom Group companies, 2018–2022, thousand tons

Gas business companies



Gazprom energoholding



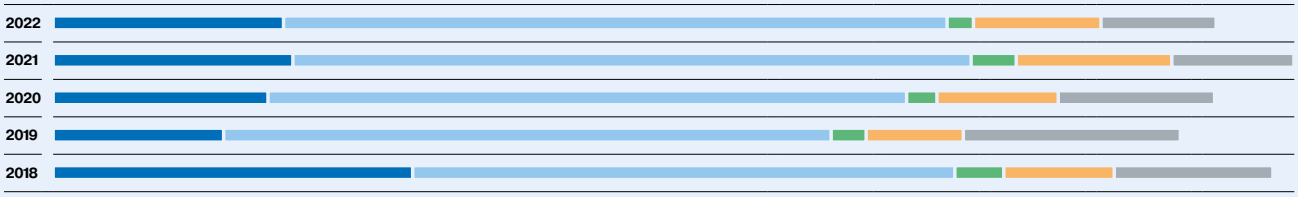
Gazprom Neft Group

Gazprom neftekhim Salavat

In 2022, the Gazprom Group operated 181 waste treatment and recovery units with a total capacity of 510.1 thousand tons per year.

PJSC Gazprom ensures efficient management of production and consumption waste using best available techniques (BAT).

Waste generation dynamics by PJSC Gazprom's types of activity, 2018–2022, thousand tons

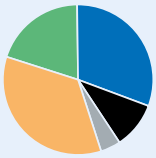


	2018	2019	2020	2021	2022
Production	84.27	39.97	50.26	56.27	53.98
Transmission	126.98	142.30	149.73	158.80	155.42
Underground gas storage	11.54	8.22	7.08	10.62	6.28
Processing	25.91	22.72	28.43	36.51	29.87
Other types of activities	37.20	51.03	36.74	28.56	27.02

In 2022, waste generated by PJSC Gazprom decreased by 6.3% against 2021 and amounted to 272.57 thousand tons. The reduction occurred in all business segments and was conditioned by decrease in the number of well construction sites and implementation of fixed asset repair programs, including repair works at GTLs.

Structure of production and consumption waste management at PJSC Gazprom, 2022, %

Managed, recovered and treated at the Company	20
Transferred to third-party organizations for management, recovery and treatment	31
Transferred to third-party organizations for storage and landfilling	10
Disposed at operated landfill sites	4
Waste remaining at the Company by the end of the reporting year, including storage sites	35



In 2022, 539.41 thousand tons of waste were managed at the PJSC Gazprom subsidiaries facilities (with the account of 156.07 thousand tons available at the beginning of the year, 272.57 thousand tons generated during the year, and 110.77 thousand tons that came from other companies).

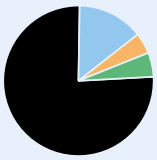
Of that volume, 273.74 thousand tons were managed, recovered and treated by in-house capacities and transferred to third-party organizations for management, recovery and treatment, 82.06 thousand tons were disposed at own sites or transferred to third-party organizations for safe disposal.

The Gazprom Group companies place high emphasis on environmentally secure management of oil-contaminated waste.

In the reporting year, the volume of oil-contaminated waste at the Group's facilities has decreased by 40.4% against 2021 and amounted to 84.71 thousand tons, of which 76.1% belongs to Gazprom Neft Group. This reduction is explained by completed dismantling of structures and equipment in 2021.

Share of the Gazprom Group companies in oil-contaminated waste generation, 2022, %

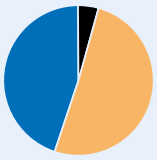
Gazprom Neft Group	76
Gas business companies	14
Gazprom neftekhim Salavat	5
Gazprom energoholding	5



In 2022, 166.50 thousand tons of oil-contaminated waste were managed at the Gazprom Group facilities (with account of 81.33 thousand tons available at the beginning of the year, 84.71 thousand tons generated during the year, and 0.46 thousand tons that came from other companies). Of that volume, 74.37 thousand tons were transferred to special organizations for recovery and treatment and 7.32 thousand tons – for safe disposal.

Structure of oil-contaminated waste management at the Gazprom Group, 2022, %

Transferred to third-party organizations for recovery and treatmen	45
Transferred to third-party organizations for disposal	4
Waste remaining at a company by the end of the reporting year, including storage sites	51

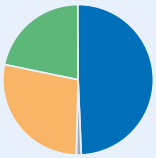


Environmentally safe recovery of drilling waste during well construction and operation is one of the main goals for the Group's oil and gas producing companies.

In 2022, a total of 1,750.28 thousand tons of drilling cuttings were subject to waste management (with account of 380.01 thousand tons available at the beginning of the year and 1,370.27 thousand tons generated during the year). Of that volume, 380.43 thousand tons were recovered at the company, 18.31 thousand tons were disposed at own landfill sites, 863.99 thousand tons were transferred to special licensed companies for recovery and treatment.

Structure of drilling waste management at the Gazprom Group, 2022, %

Recovered at a company	22
Transferred to third-party organizations for recovery and treatmen	49
Disposed at own landfill sites	1
Waste remaining at a company by the end of the reporting year, including storage sites	28



One of the main requirements for the well construction process is prevention of negative environmental impact of drilling waste especially under severe natural and climatic conditions of the Arctic zone of the Russian Federation. For this purpose, design solutions capable of miniming impact on ecosystems during drilling are being actively in practice. During well construction, green drilling mud formulae are being developed and used as well as pitless drilling. The practice of applying drilling waste recycling technologies with production of mineral construction materials for further use in field development is widely introduced.

To prevent negative impact on the environment, OOO Sakhalinskaya Energia allocates drilling wastes by pumping through special disposal wells into deep subsurface horizons with isolated beds. This provides total waste containment and safe disposal. This is a waste disposal BAT for oil and gas production (BREF ITS 17-2021).

Land use

Exploration, construction and repair works as well as operation of wells, pipelines and other facilities performed by the Gazprom Group result in impacts on vegetation and soil cover.

Gazprom pays constant attention to the practical solution of issues related to land protection and reclamation of disturbed lands. Technical and biological reclamation works aimed at recovery of productivity and economic value of disturbed land, conservation of landscape are carried out. The Gazprom Group implements comprehensive activities aimed at improving reliability of pipeline systems that have positive effect on the preservation of natural environment components.

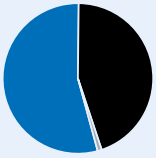
Indicators of land protection activities of the Gazprom Group, 2018–2022, ha

	2018	2019	2020	2021	2022
Disturbed lands within a year	25,786.97	22,885.37	23,837.88	19,809.45	35,597.15
incl. contaminated areas	111.26	73.16	79.41	65.79	75.94
Disturbed lands restored within a year	15,767.52	17,670.50	15,836.39	17,199.40	15,053.12
incl. contaminated areas	96.13	65.69	65.77	78.08	77.19

During the reporting year, the Group's companies disturbed 35.60 thousand ha of land, which is considerably higher than previous indicator. Of these, PJSC Gazprom is responsible for 19.36 thousand ha, Gazprom Neft – 15.92 thousand ha, and other Gazprom Group's companies – 0.32 thousand ha. The increase in the disturbed lands during 2022 is associated with an increase in field wide-azimuth seismic surveys, the actual volume of capital repairs and allocation of land for construction, expansion of production facilities and field development.

Share of the Gazprom Group companies in disturbed land indicators during the year, 2022, %

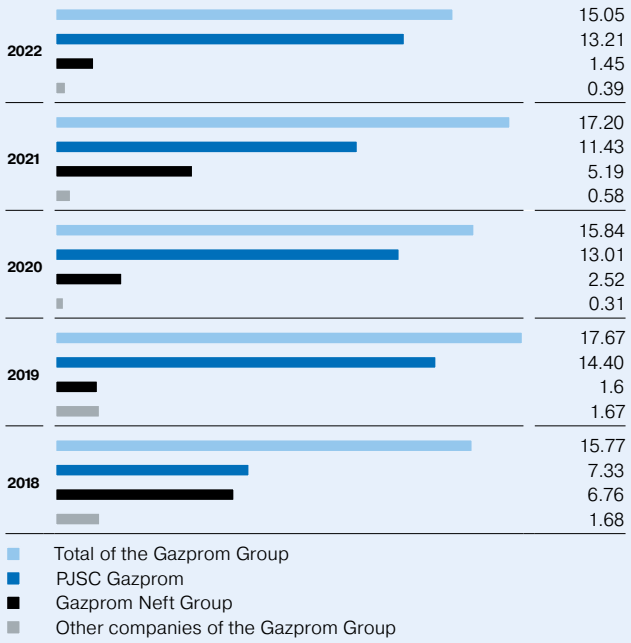
PJSC Gazprom	54
Gazprom Neft Group	45
Other companies of the Gazprom Group	1



Treatment and reclamation of land resources by the Group is carried out as needed in a timely manner. Lands, where work has been fully completed including lands disturbed and polluted during previous years, were reclaimed.
In 2022, 15.05 thousand ha of land were reclaimed, including PJSC Gazprom – 13.21 thousand ha, Gazprom Neft – 1.45 thousand ha, other companies of the Gazprom Group – 0.39 thousand ha.

The decrease by 12.5% of the reclaimed land in 2022 is due to the fact that reclamation and hand-over to land owner were not required for the allocated lands used for production facilities.

Dynamics of disturbed land reclamation at the Gazprom Group companies, 2018–2022, thousand ha



Applied methods of reclamation are aimed at preventing the development of negative erosion processes, contribute to stabilization of landscapes and restoring the soil and vegetation cover. Technologies use accessible materials, including secondary materials (for example, treated drilling waste), geotextile, plant growth stimulants. Specially selected strains of soil microorganisms allow for strengthening of the topsoil, including embankment slopes of structures, increasing the rate and intensity of root formation and growth of plants.

The Group's companies carry out the necessary works to prevent pollutants penetration into soil, surface and ground waters, and to avoid erosion and other types of soil degradation. Reclamation of disturbed lands is part of the work on technical and biological restoration. Efforts follow the design solutions. Within the framework of operational environmental control and monitoring, the activities on construction and upgrading of facilities in the Gazprom Group are accompanied with checks of reclaimed soils for compliance with environmental standards – soil, geobotanical, agrochemical and other surveys.

Disturbance of land resources did not result in considerable environmental problems. Land reclamation and compensational reforestation works are carried out within the necessary scope and in compliance with established timeline.

In 2022, OOO Gazprom invest on behalf of PJSC Gazprom ensured reforestation works on 469.8 ha of forest areas in eight constituent entities of the Russian Federation with the total cost of RUB 88.5 mln. In 2022, the Gazprom Group companies carried out the necessary works on restoring 77.19 ha of land disturbed during the reporting year to its original quality, 15.05 thousand ha of land were reclaimed.

Accidents

Every year, the Gazprom Group companies take measures to prevent accidents to increase equipment reliability and mitigate accident risks at the operated facilities of the Gazprom Group. They comprise technical diagnostics of pipelines, injection of corrosion inhibitors, timely repair and maintenance works, flood and erosion protection measures, regular inspections of plugged and abandoned wells, regular inspections of LSs of GTLs and offshoot pipelines to detect cracks and gas leaks, including the use of laser radars; supplying of necessary equipment and hydrocarbon spill response tools.

In 2022, seven accidents with environmental consequences were recorded at Gazprom Group's gas production and transmission facilities: two accidents at OOO Gazprom transgaz Saint Petersburg; one accident each – at OOO Gazprom dobycha Urengoy, OOO Gazprom transgaz Ekaterinburg, OOO Gazprom transgaz Tchaikovsky, OOO Gazprom transgaz Nizhny Novgorod, Gazprom Neft Group. The main causes of accidents at production facilities are propagation of stress corrosion cracks and mechanical impact to the pipeline caused by excavation equipment.

As a result of accidents, natural gas losses in the Gazprom Group amounted to 15.14 mln m^3, and the estimated amount of environmental damage is RUB 13.34 mln.

The reporting year witnessed 651 cases of oil pipeline rupture that occurred in Gazprom Neft Group. Reduction in the number of oil pipeline ruptures by 15% is thanks to the implementation of equipment integrity and reliability programs, aimed at stable trouble-free operation of pipelines. Internal corrosion defects caused by transmission of corrosive media at oil and gas fields are the main reason for these ruptures. The volume of spilled oil and petroleum products amounted to 51 tons, which is more than three times lower than in 2021, due to a reduction in the number of ruptures as well as improvement of responsiveness during localization of the accident.

There were no accidents with environmental consequences as well as ruptures of oil and condensate pipelines at the facilities of other Gazprom Group companies in the reporting year.

International activity

Republic of Armenia

ZAO Gazprom Armenia is a 100% subsidiary of PJSC Gazprom engaged in transportation, storage, processing, distribution and selling of natural gas, power generation and trade in the Republic of Armenia. In 2017, ZAO Gazprom Armenia successfully introduced the EMS that complies with ISO 14001:2015 requirements. ZAO Gazprom Armenia is included in PJSC Gazprom EMS application scope.

In 2022, gross pollutant emissions totaled 57.40 thousand tons that is slightly higher than 2021. GHG emissions from gas business and power facilities amounted to 1.38 mln tons of CO_2e. The increase in gross emissions and GHG emissions is due to an increase in the volume of natural gas injection at the Abovyan underground gas storage station.

Water discharge into surface water bodies amounted to 20.87 thousand m^3 in 2022. 100% of this volume are effluents treated to standard quality.

During the year, 0.11 thousand tons of waste were generated, 91% of which pertain to waste of hazard class IV.

The environment fee within the established rates amounted to RUB 0.72 mln. The increase is due to payment for the discharge of pollutants in the formed brine after the removal of water from gas wells at the Abovyan underground gas storage station. There was no limit-exceeding impact.

State environmental control (oversight) bodies did not conduct inspections during the reporting year.

ZAO Gazprom Armenia basic environmental indicators, 2018–2022

Indicators	2018	2019	2020	2021	2022
Gross emissions, thousand tons	69.48	62.36	46.27	56.01	57.40
GHG emissions, mln tons of CO_2e*	2.46	1.96	1.63	1.31	1.38
Water discharged into surface water bodies, thousand m^3	146.00	140.00	148.00	20.53	20.87
incl. clean and treated as per standards	146.00	140.00	148.00	20.53	20.87
Waste generated, thousand tons	0.12	0.12	0.22	0.11	0.11
Disturbed land by the end of the year, ha	0	0	0	0	0
Environmental fee, thousand RUB.	1,109.56	953.74	1,104.30	357.46	718.67
Share of payments within the established rates in the total amount of fee, %	100	100	100	100	100

* 2018-2021 GHG emissions were calculated in compliance with the Methodological Guidance on the Quantification of Greenhouse Gas Emissions by Entities Engaging in Business and other Activities in the Russian Federation, approved by Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation as of 30 June 2015. The 2022 calculation was made in accordance with the Methodology for Quantifying Greenhouse Gas Emissions, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022.

Republic of Belarus

OAO Gazprom transgaz Belarus is a 100% subsidiary of PJSC Gazprom engaged in transmission and underground storage of natural gas in the Republic of Belarus. The company is included in PJSC Gazprom EMS application scope.

Gross pollutant emissions amounted to 13.66 thousand tons that is 31% lower than in 2021 thanks to a reduction in the volume of gas transmitted through pipelines, and injected into and extracted from underground gas storages (UGS).

Water discharges into surface water bodies amounted to 119.43 thousand m^3 and were classified as treated to standard quality.

In 2022, 8.96 thousand tons of waste were generated at the facilities of OAO Gazprom transgaz Belarus, 93% of which pertain to waste of hazard class V.

The environment fee within the established rates amounted to RUB 1.83 mln. The decrease by more than 7 times is thanks to less gas compressor units (GCU) operation time and reduction in methane emissions during routine diagnosis and repair works on gas equipment. There was no limit-exceeding impact.

OAO Gazprom transgaz Belarus basic environmental indicators, 2018–2022

Indicators	2018	2019	2020	2021	2022
Gross emissions, thousand tons	23.17	22.11	25.14	19.80	13.66
GHG emissions, mln tons of CO_2e*	0.32	0.32	0.45	0.34	0.36
Water discharged into surface water bodies, thousand m^3	131.69	125.43	131.24	131.03	119.43
incl. clean and treated as per standards	131.69	125.43	131.24	131.03	119.43
Waste generated, thousand tons	4.92	5.61	12.34	20.33	8.96
Disturbed land by the end of the year, ha	0	0.87	0	0	0
Environmental fee, thousand RUB.	22,664.04	21,315.97	17,401.03	12,902.86	1,833.46
Share of payments within the established rates in the total amount of fee, %	100	100	100	100	100

* 2018-2021 GHG emissions were calculated in compliance with requirements of the Technical Code of Common Practice "Environmental protection and management of natural resources. Climate. Emissions and absorption of greenhouse gases. Rules for emissions calculation by means of energy-saving measures, renewable energy sources" approved by Decree of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus as of 5 September 2011 No. 13-T On approval and enforcement of technical statutory and regulatory enactments and making amendments in technical statutory and regulatory enactment.. The 2022 calculation was made in accordance with the Methodology for Quantifying Greenhouse Gas Emissions, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022.

In 2022, the regulatory bodies of the Republic of Belarus did not conduct inspections at the facilities of OAO Gazprom transgaz Belarus.

In December 2022, the Republican Unitary Enterprise "Belarusian State Institute of Metrology" as the certification body conducted a re-certification audit, which confirmed the compliance of the EMS of OAO Gazprom transgaz Belarus with the requirements of the state standard of the Republic of Belarus STB ISO 14001-2017.

Kyrgyz Republic

OsOO Gazprom Kyrgyzstan is a 100% owned subsidiary of PJSC Gazprom engaged in natural gas transmission, storage, distribution and trade in the Kyrgyz Republic.

OsOO Gazprom Kyrgyzstan applies the EMS that complies with ISO 14001:2015 requirements. OsOO Gazprom Kyrgyzstan is included in PJSC Gazprom EMS application scope.

In 2022, the gross pollutant emissions amounted to 1.47 thousand tons, GHG emissions – 0.04 mln tons of CO_2e. Decrease is thanks to the reduction of methane emissions during process operations and zero gas transportation to the Republic of Kazakhstan.

Waste generated amounted to 1.57 thousand tons in 2022, 77% of which is waste of soil and asphalt chemise from facilities under repair, sent for recycling.

The environment fee within the established rates amounted to RUB 151.25 thousand.

In 2022, the environmental regulatory bodies of the Kyrgyz Republic did not conduct inspections at the facilities of OsOO Gazprom Kyrgyzstan, and no penalties were imposed.

OsOO Gazprom Kyrgyzstan basic environmental indicators, 2018–2022

Indicators	2018	2019	2020	2021	2022
Gross emissions, thousand tons	3.82	2.93	1.66	2.02	1.47
GHG emissions, mln tons of CO_2e*	0.09	0.07	0.04	0.05	0.04
Water discharged into surface water bodies, thousand m^3	0	0	0	0	0
incl. clean and treated as per standards	0	0	0	0	0
Waste generated, thousand tons	0.18	1.78	0.27	0.33	1.57
Disturbed land by the end of the year, ha	0	0	0	0	0
Environmental fee, thousand RUB.	66.50	93.30	50.60	171.74	151.25
Share of payments within the established rates in the total amount of fee, %	100	100	100	100	100

* 2018-2021 GHG emissions were calculated in compliance with the Methodological Guidance on the Quantification of Greenhouse Gas Emissions by Entities Engaging in Business and other Activities in the Russian Federation, approved by Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation as of 30 June 2015. The 2022 calculation was made in accordance with the Methodology for Quantifying Greenhouse Gas Emissions, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022.

Preventing negative impact on the environment

Environmental assessment of projects

In compliance with requirements of the Russian and international legislation, the Gazprom Group companies perform environmental impact assessment of planned business operations at all investment project life-cycle stages from concept planning to commissioning.

On a proactive basis, PJSC Gazprom conducts corporate expert review of investment projects before submitting them for the state expert review and the state environmental expert review.

PJSC Gazprom's expert review comprises, in particular, comprehensive assessment of documentation conformance with the requirements of legislation of the Russian Federation, international norms and rules, and PJSC Gazprom's regulatory and methodology documents regarding EP and improvement of energy efficiency.

One of the main purposes of PJSC Gazprom's expert review is to improve the quality of documentation as it relates to making timely decisions with regards to environmental protection and energy efficiency aimed at mitigation of environmental risks during investment projects implementation.

In 2022, PJSC Gazprom finished expert EP and energy savings review for 645 facilities under construction or upgrading.

Reviewed design documentation included large-scale investment projects:

- Development of the Kovykta natural gas and condensate field. Construction stages 4, 5, 8.1, 8.2, 9, 10.1.1, 13.1.1.
- The Power of Siberia TGP. Section Kovykta–Chayanda. Stages 1-4, 6.1-6.9.1.
- Expansion of the UGSS to increase supplies to Turkey. Stage 2.
- Development of the Kamennomysskoye-Sea gas field. Stage 2. Onshore facilities for the development of a gas field. Stage 3. IRP "A" with communications for connecting BCS, Construction of observation well No. 4N of the field, Construction of absorbing wells No. 1P, 2P, 3P of the field.
- Development of the Kamennomysskoye-Sea gas field. Stage 1. Inter-field underwater communications.
- Ukhta–Torzhok TGP system. String III (Yamal) (Stages 1-6).
- Development of the Yuzhno-Kirinskoye field. Stages 1-21, 23, 31.
- UGSS upgarding in the North-West Region to provide transmission of ethane-containing gas to the Baltic Coast. Stages 2, 5, 6, 12, 14, 15.
- Justification of investments to increase gas production and processing at the fields of the Astrakhan dome fold.
- Connection of additional wells to the existing capacities of the I and II stages of the Astrakhan natural gas and condensate field.
- Expansion of the UGSS to increase gas supplies to Turkey to 19 bln m^3 per year (Stage 1). Stage 2. Construction of the GRU (gas regulating unit) in the vicinity of 354 km the Blue Stream TGP–"Russia–Turkey".
- Further development of the Cenomanian-Aptian deposits of the Bovanenkovo OGCF. Stage 3. BCS (phase 3). Gas field-3 of Bovanenkovo OGCF.
- Natural gas trunkline "Bovanenkovo–Ukhta". String III. Stage 3. Increasing gas transmission via the Bovanenkovo–Ukhta trunkline system in volume up to 148.3 bln m^3/year.
- Natural gas trunkline "Bovanenkovo–Ukhta". String III. Stage 2. Increasing gas transmission via the Bovanenkovo–Ukhta trunkline system in volume up to 135.0 bln m^3/year.

Control over adherence to engineering decisions and EP requirements is performed by the construction inspection service along with the designer's supervision over implementation of design solutions.

Public discussions, including in particular public awareness process, opening public reception rooms, organizing open access of the interested public to the documentation materials, are aimed at identifying the public opinion regarding planned activity and taking it into account in the environmental impact assessment.

To ensure the participation of local residents in public discussions including representatives of indigenous minorities of the North living in the inter-settlement territories of the Tazovskaya, Antipayutinskaya, Nakhodka and Gydan tundra of the Tazovsky district, travelling public reception rooms were created.
Public hearings were held with participation of representatives of the customer, the general designer, administrations of the Yamal, Nadym and Tazovsky districts, public organizations as well as local residents and representatives of the population leading a traditional way of life, such as the district public movement of the small indigenous minorities of the North "Yamal", the public movement "Association of Indigenous Minorities of the North of the Yamal-Nenets Autonomous District (YNAD) – "Yamal to descendants!", territorial-neighboring community of indigenous minorities of the North "Ya ERV", municipal reindeer herding enterprise "Yarsalinskoe".

In 2022, in order to take into account the interests of the public, open discussions on planned economic and other activities for the following projects were held:
- Development of the Kovyktinskoye natural gas and condensate field. Stage 4. Priority development facilities, stage 12. CGTP-1 facilities (including production wells).
- Further development of the Cenomanian-Aptian deposits of the Bovanenkovo OGCF. Stage 3. BCS (phase 3). GF-3 160MW (10x16MW).
- BCS at CGTP-N of the Medvezhye OGCF.
- Development the Cenomanian-Aptian deposits of the Kharsaveyskoye GCF. Pipeline for connection of Kharsaveyskoye GCF. Pipeline-bridge between connecting pipeline of Kharsaveyskoye GCF and connecting pipeline of GF-3 of Bovanenkovo OGCF.
- Development of Chayandinskoye OGCF. Stage 4.
- Development of Yuzhno-Kirinskoye field. Stages 22-31 (second stage of development), Stage 67 (seventh stage of development).
- Oil and Petroleum Product Spill Prevention and Response Plan for Gas condensate production wells of the Yuzhno-Kirinskoye field as part of the following projects: "Production drilling at fields. Development of Yuzhno-Kirinskoye field" and "Production drilling at fields. Development of Yuzhno-Kirinskoye field (stage 2)".
- Development of the Turonian deposit of the Polar OGCM for the period of pilot works.
- Development of the Kamennomysskoye-Sea gas field. Stage 2. Onshore facilities of the development of the Kamennomysskoye-Sea gas field, stage 3. Ice-resistant platform (IRP) "A" of the Kamennomysskoye-Sea gas field with process communications for BCS connection.

In 2022, at the St. Petersburg International Economic Forum, Gazprom Neft and the Federal Service for the Oversight over Natural Resources (aka Rosprirodnadzor) made an agreement on expert support and environmental consulting during implementation of investment projects. The pilot project of Gazprom Neft and Rosprirodnadzor will improve the quality of implemented EP technologies, design documentation and investment decisions.

Environmental risk insurance

Environmental insurance provides risk coverage for damage to the environment, life, health and property of third parties in the course of onshore and offshore exploration, drilling, production, transportation, processing, and storage of hydrocarbons, operation of hazardous facilities, construction and other related operations, including those performed on the Arctic shelf.

In 2022, PJSC Gazprom and AO SOGAZ signed a contract on liability insurance for damage to the environment (environmental risks), life, health and property of third parties in respect to activities of PJSC Gazprom and its subsidiaries. Extent and conditions of insurance coverage remained unchanged.

Insurance coverage territory is the Russian Federation and its continental shelf.

Insurance contract is voluntary and complements compulsory civil liability insurance contracts of the hazardous facility owner (according to Federal law No. 225-FZ as of 27 July 2010). Voluntary insurance contract covers liability that is not insured by the compulsory civil liability contracts for damage caused by accident at a hazardous facility as well as liability for damage exceeding liability limits under compulsory insurance contracts, and/or if liability limit under compulsory insurance contract is over.

In the reporting year, AO SOGAZ's payments under voluntary liability insurance contracts for environmental damage amounted to RUB 19.48 mln, including RUB 11.35 mln for damage of the previous years.

Operational environmental control and monitoring

All companies of the Gazprom Group have organized operational environmental control (OEC) at their facilities with the 1st to the 3rd class negative impact on the environment. OEC is carried out in order to ensure compliance with the requirements of environmental legislation, established environmental impact standards, ensuring the rational use of natural resources. OEC is implemented at all stages of business activities of PJSC Gazprom subsidiaries and organizations as well as contractors. It is a crucial system of measures intended to reduce negative impact on the environment.

At the corporate level, PJSC Gazprom has the Environmental Inspection Service, which, in addition to monitoring compliance of subsidiaries and contractors with requirements of EP legislation and corporate environmental and energy saving rules, performs internal EMS audits of PJSC Gazprom subsidiaries.

PJSC Gazprom is the only Russian oil and gas company with its own Environmental Inspection Service.

In 2022, the Environmental Inspection Service of PJSC Gazprom conducted 450 inspections on compliance with the requirements of environmental legislation. Due to the epidemiological situation, 5 inspections (1.1%) were undertaken off-site.

The Environmental Inspection Service conducted 231 scheduled inspections in 45 production subsidiaries and organizations of PJSC Gazprom, including 172 inspections as EMS audits. The specialists of the Environmental Inspection of PJSC Gazprom have checked 10 gas producing companies, 19 gas transmission companies (including OAO Gazprom transgaz Belarus, OOO Gazprom transgaz Grozny), 6 branches of OOO Gazprom UGS, 3 GPPs, 7 branches of OOO Gazprom energo as well as 13 other subsidiaries (ZAO Gazprom Armenia, OsOO Gazprom Kyrgyzstan, OOO Gazprom nedra, OOO Gazprom neftekhim Salavat, OOO Gazprom gazomotornoe toplivo, and others). The inspections plan was 100% completed.

37 inspections were carried out at the facilities under construction and upgrade to verify the compliance with the requirements of EP and rational use of natural resources legislation, current norms and rules during the activities of customers and general contracting organizations, such as OOO Gazprom invest, OOO Gazprom pererabotka Blagoveshchensk, AO Gazstroyprom, OOO Gazenergoservice, and others.

In 2022, the Environmental Inspection Service of PJSC Gazprom took part in the audit of the process condition of equipment and in monitoring implementation of instructions issued by oversight authorities, including compliance with the requirements of industrial, energy and environmental safety at hazardous gas supply facilities of the Southern Federal Region of Russia.

157 joint random inspections were conducted (due to the epidemiological situation, 2 (1.3%) of them were undertaken off-site) on “Verification of compliance with the requirements for the management of production and consumption waste that includes useful components and burial of which is prohibited in accordance with the Executive Order of the Government of the Russian Federation No. 1589-r as of 25 July 2017”. Control activities were carried out in 36 subsidiaries: 18 subsideries engaged in gas transmission, 10 – gas production as well as OOO Gazprom UGS, OOO Gazprom pererabotka, OOO Gazprom energo, OOO Gazprom neftekhim Salavat, OOO Gazprom NGHK, OOO Gazpromtrans, OOO Gazprom nedra, and Motor vehicle company of PJSC Gazprom.

The Environmental Inspection Service participated in 33 target inspections of OOO Gazprom dobycha Nadym, OOO Gazprom dobycha Urengoy, OOO Gazprom dobycha Yamburg and OOO Gazprom dobycha Noyabrsk on “The control over the functioning of the system for planning, detection, recording of results and reporting on methane emissions during operation and overhaul of gas equipment at the facilities of the branches of PJSC Gazprom producing companies”.

The outcomes of inspections with an analysis of results and recommendations for improving environmental protection activities were brought to attention of the management of audited organizations, and measures were identified to eliminate and prevent inconsistencies. The inconsistency elimination indicator during the prescribed period reached 98%.

Gazprom has developed and successfully operates the operational environmental monitoring (OEM) system that includes stationary and mobile eco-laboratories, meteorological and hydrological stations, automated pollutant emissions control stations, and observation wells. This enables to monitor pollutant emissions from controlled emission sources; quality of air in populated areas and at the border of sanitary protection zones of industrial facilities; noise impact; radiation background; quality of surface and ground waters, bottom sediments; quality of utility and drinking water supply sources; state of geological environment, soil and snow covers; solid waste and waste waters. The system monitors environmental parameters, analyzes obtained results and develops measures to mitigate negative impact on the environment.

The Company regularly implements methane emission monitoring system and carries out corporate control over gas leaks by the means of the Environmental Inspection Service of PJSC Gazprom.

Round-the-clock monitoring systems for detection of methane in the atmosphere and automatic alarm of its excessive concentration with the use of remote laser methane detectors are being introduced. The tasks of detecting methane at gas industry facilities are also solved using detectors mounted on helicopters or unmanned aerial vehicles (UAVs). The works on organization of advanced monitoring of GHG emissions, in particular methane, with the use of space satellites are underway.

The created OEM system provides quick acquisition of valid data on environmental conditions in the impact zones of Gazprom facilities, timely analysis of the current environmental situation during industrial and business operations, planning of EP measures, control of their implementation and making effective environment protection decisions.

OEC at production facilities widely uses mobile eco-laboratories (MEL) fitted with modern analytical equipment that controls atmospheric air, physical environmental factors, meteorological parameters, and industrial emissions from different sources. MELs are equipped with a work station for the UAV operator, which provides an opportunity for the operator to work on open air inside a MEL, using virtual reality glasses and a high resolution camera installed on board of the UAV. Photo and video materials obtained during visual surveys using UAVs significantly increased the effectiveness of control activities and helped to reduce the time spent on them as well as reduce involvement of vehicles that is highly important in harsh terrain.

At the Bovanenkovo field, regularly, OOO Gazprom dobycha Nadym conducts online air monitoring with the use of the automated environmental control station (AECS). AECS is equipped with a measuring complex that includes two functionally different sets of devices. The gas analytical complex measures the mass concentrations of nitrogen oxides, carbon monoxide, sulfur dioxide, methane, total of hydrocarbons with/without methane. The meteorological complex allows to measure wind speed and direction, temperature and relative humidity, atmospheric pressure and the amount of precipitation.

Under the import substitution policy, laboratory equipment is only Russia-manufactured.

In some cases, OEM systems of the Gazprom Group are integrated into regional environmental monitoring systems.

In 2003, OOO Gazprom dobycha Orenburg created and successfully operates an OEM system, including automatic gas pollution control stations (AGPCS) installed in 24 populated areas located in the affected zone of the facilities of OOO Gazprom dobycha Orenburg.

In 2022, AGPCSs and MEL performed over 3 mln measurements of pollutant concentrations in the atmosphere: hydrogen sulfide, hydrocarbons, sulfur dioxides, carbon oxides, nitrogen oxides and methane. Monitoring is carried out 24/7, the data is transmitted in real time to the Center for Gas and Environmental Safety of the paramilitary unit of OOO Gazprom dobycha Orenburg.

The results of monitoring help to efficiently regulate performance of works in relation to peak emissions depending on meteorological conditions: works will not be permitted, when the wind is blowing towards nearby populated areas.

Over 10 years, there has been a continuous dialog with the heads of municipal administrations and residents of the Orenburgsky and Perevolotsky districts of the Orenburg Region located in the affected zone of the Orenburg gas producing complex upon the following issues:

- Reporting to the Ministry of Natural Resources, Ecology and Property Relations of the Orenburg Region, territorial authorities of the Federal Service for the Oversight over Natural Resource (aka Rosprirodnadzor), and heads of municipality administrations on scheduled preventive and maintenance works at the facilities of OOO Gazprom dobycha Orenburg.
- Sending monthly information letters on concentrations of pollutants in the air as per the data from AGPCS to administrations of 24 populated areas, heads of the Orenburgsky and Perevolotsky districts of the Orenburg Region.
- Cooperating with heads of municipality administrations and authorized representatives of residents to immediate investigate claims and complaints on air pollution.

In 2022, following the agreement between Gazprom Neft, Rosprirodnadzor and the Ministry of Communications of Russia, the Omsk refinery was the first in the region to implement an automated air monitoring system (AAMS). The system covers five production installations of the enterprise and transmits all the information received about the environmental parameters of production directly to the oversight authorities. The mechanism for transmitting and receiving monitoring data was worked out jointly with

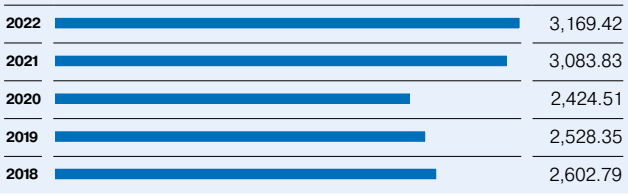
Rosprirodnadzor. The sensors are mounted directly on the installations and continuously monitor the environmental parameters of the production. Digital tools for environmental control will become a prototype for the development of industry standards and the creation of a comprehensive monitoring system within the framework of the Ecology national project.

By the end of 2024, the Omsk refinery plans to scale up the AAMS technology at its main production facilities. Development of the system is part of the environmental reequipment program of the Omsk refinery and is included in the plans of the "Clean Air" Russian federal project.

If specially protected natural areas (SPNAs) or special environmental status sites are located in business activities areas, the Gazprom Group includes monitoring over the status of such areas into respective OEM programs.

During 2018–2022, the Gazprom Group has allocated RUB 13.8 bln to ensure operational environmental monitoring and control.

The Gazprom Group expenditures on operational environmental monitoring and control, 2018–2022, mln RUB



Structure of expenditures for operational environmental monitoring and control at the Gazprom Group, 2022, %

State environmental oversight

In 2022, the state oversight authorities conducted 917 environmental compliance inspections at the facilities of the Gazprom Group, which revealed 604 violations as well as 611 inspections without violations.

During 2022, the number of inspections of the facilities of the Gazprom Group decreased nearly twofold that is explained by state support measures for business and compliance with the Resolution of the Government of the Russian Federation No. 336 On Specifics of Organization and Execution of State Control (Oversight) and Municipal Control as of 10 March 2022.

Out of the 604 violations identified, 43 violations (7%) have been canceled through legal proceedings, 36 violations (6%) are being appealed against in court, 264 violations (44%) have been corrected at a given time, and correction deadline for 203 violations has not expired in the reporting year. In total, 404 violations were corrected during the year, including 140 violations upon the results of inspections from previous years.

Of the detected violations, 487 (81%) did not entail any penalties for legal entities.

Penalties paid in the reporting year totaled RUB 13.71 mln, including RUB 4.91 mln as a result of inspections from previous years. Penalty payments were as follows: Gazprom Neft Group – RUB 7.81 mln, PJSC Gazprom – RUB 3.29 mln, Gazprom energoholding – RUB 1.83 mln, Gazprom neftekhim Salavat – RUB 0.48 mln, AO Gazprom dobycha Tomsk – RUB 0.15 mln, OOO Sakhalinskaya Energia – RUB 0.15 mln.

In 2022, the Gazprom Group paid RUB 129.29 mln as compensation for environmental damage (of these, PJSC Gazprom – RUB 66.51 mln), including RUB 79.71 mln as part of compensation for environmental damage caused in previous reporting periods (of these, PJSC Gazprom – RUB 58.56 mln).

Improving energy efficiency and energy saving

The role of energy saving in implementation of sustainable development principles and achievement of environmental goals

Delivering energy efficiency improvement strategy is one of the top priority tasks of PJSC Gazprom. Adhering to the husbandry of energy resources and successful energy performance principles, the Company is continuously developing energy efficiency improvement and resource saving solutions for its production facilities. PJSC Gazprom sets corporate goals and designs energy saving and energy efficiency improvement activities on the basis of Gazprom's Energy Efficiency and Energy Saving Policy approved by the Management Committee Decree No.39 as of 11 October 2018.

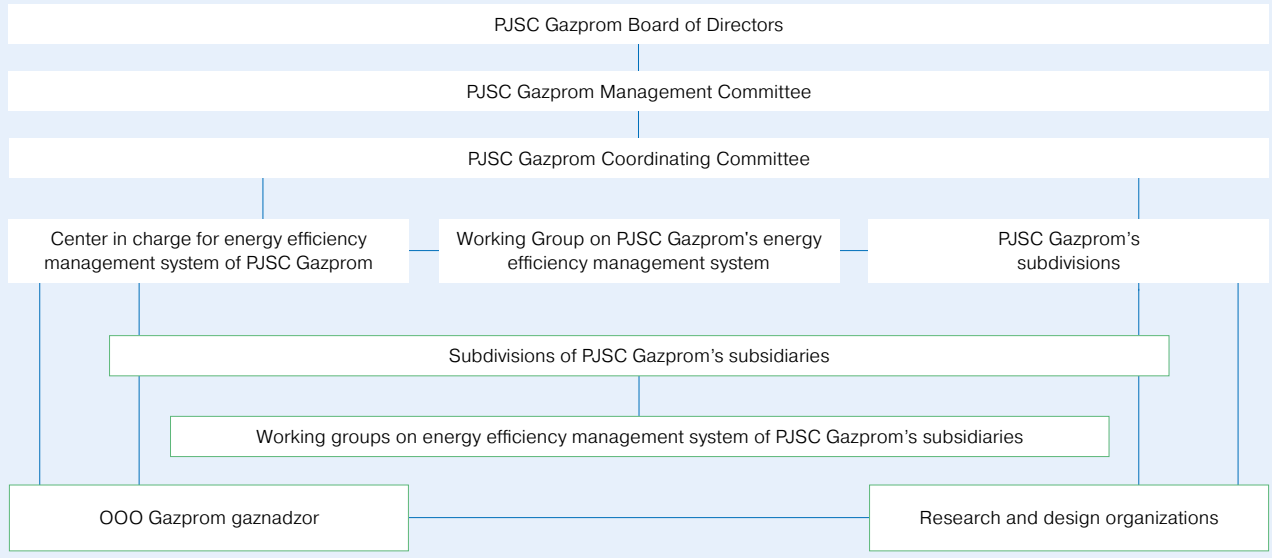
Energy efficiency and energy saving management

The Company applies energy efficiency management system integrated into the overall management practices and aimed at continuous improvement of energy performance, adequate use of energy and mitigation of GHG emissions. In 2020, the system was certified for compliance with ISO 50001:2018.

The scope of PJSC Gazprom's energy efficiency management system covers management of subsidiaries engaged in activities related to natural gas and gas condensate production and treatment, gas transmission, underground gas storage, energy, heat and water supply, operation of UGSS power equipment, hydrocarbon feedstock processing. In 2022, OAO Gazprom transgaz Belarus and the Company's hydrocarbon feedstock processing business were included into system's application scope.

Energy efficiency management system encompasses all levels of the Company's management structure and 28 subsidaries, combining them into a single mechanism for improving energy performance.

Chart of energy efficiency management system



The year 2022 pressed ahead the development plans of energy efficiency management system, including implementation and replication of new energy saving technologies, exchange of best practices between subdivisions, staff training and internal audits. On an annual basis, PJSC Gazprom performs energy performance analysis separately for its subdivisions and the Company in general, updates application areas that consume considerable energy volumes, and develops corporate target values on energy efficiency of power engineering processes, and on fuel and energy resources (FER) saving.

In 2022, an independent audit confirmed compliance of PJSC Gazprom's energy efficiency management system with ISO 50001:2018 requirements.

Energy efficiency and energy saving corporate goals

To maximize efficient use of FER and energy saving potential, the Company ensures

- continuous energy performance improvement of subsidiaries based on the competent management of process flows and utilization of innovative technologies and equipment;
- continuous cutting of unit costs by regulatory actions, rational use and saving of energy resources during business activities;
- continuous improvement of the energy efficiency and energy saving management system.

Reduction in specific FER consumption during business activities by at least 1.2% is the key energy performance indicator. In 2022, the planned FER saving values were the follows:

- Natural gas – 3,866.25 mln m^3
- Electrical power – 400.47 mln kWh
- Heat power – 239.63 thousand Gcal
- Combustibles and lubricants (C&L) and motor fuel – 19.25 thousand c.e.

Corporate energy goal	Benchmark / planned performance value 2018	2022 value	Progress
Reduction in specific FER consumption for own process needs of gas trunkline transmission as against benchmark value, %	100	–13.5	achieved
Natural gas savings, mln m^3	3,866.3	4,015.5	achieved
Electrical power saving, mln kWh	400.5	407.2	achieved

Energy efficiency

In 2022, the cumulative FER (natural gas and electrical power) consumption for the Company's own process needs totaled 48.3 mln tons c.e. that is 26% lower than 2021 values.

FER are mainly consumed by natural gas transmission (75%) and gas production (17%). In 2022, natural gas shared around 91%, and electrical power – 6.5% in the Company's FER consumption structure.

Reduction in FER consumption in 2022 is thanks to changes in business activity values and implementation of activities under energy saving and energy efficiency improvement programs.

In the reporting year, specific FER consumption for own production needs amounted to 24.1 kg c.e./mln m^3·km in gas transmission.

In 2022, PJSC Gazprom achieved the target value of the 2035 Energy Strategy of the Russian Federation set for PJSC Gazprom, namely reduction in specific FER consumption for own process needs of gas trunkline transmission by 12% up to 2024 as compared to the benchmark value of 2018. At 2022 year-end, specific FER consumption for own process needs of gas trunkline transmission was reduced by 13.5%.

Saving of fuel and energy resources

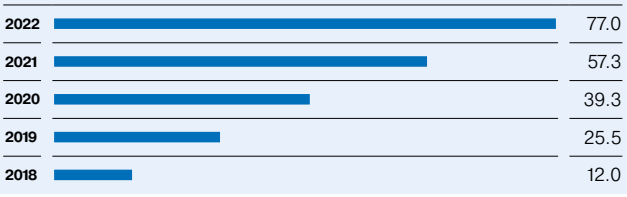
Results of implementation of the triennial Energy Saving and Energy Efficiency Improvement Program of PJSC Gazprom create significant impact on the volume of FER consumption.

In the reporting year, upon accomplishment of the Energy Saving and Energy Efficiency Improvement Program of PJSC Gazprom total FER savings amounted to 4,830.1 thousand tons c.e., including:

- Natural gas – 4,015.5 mln m^3
- Electrical power – 407.2 mln kWh
- Heat power – 227.9 thousand Gcal
- C&L and motor fuel – 19.4 thousand tons c.e.

The total economic benefit from the Energy Saving and Energy Efficiency Improvement Program in 2022 amounted to RUB 19.8 bln, which is the highest value over a five-year period.

Cumulative economic benefit, 2018–2022, bln RUB



With the planned 2022 FER saving for own process needs set at 4,654.5 thousand tons c.e., the actual value was 3.8% higher.

Consistent energy efficiency improvement at all PJSC Gazprom's management levels and in each business activities based on the planning and regular monitoring of the performance target values of the Energy Saving and Energy Efficiency Program of PJSC Gazprom stand behind these achievements.

Outcomes of PJSC Gazprom Energy Saving and Energy Efficiency Improvement Program, 2022

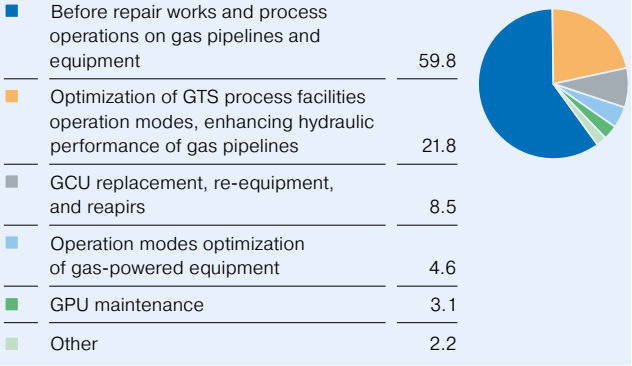
Types of activity	Natural gas, mln m^3	Electrical power, mln kWh	Heat power, thousand Gcal	C&L and motor fuel, thousand tons of c.e.	Total, thousand tons of c.e.
Gas trunkline transmission	3,398.2	311.7	120.0	18.9	4,067.7
Gas production	527.6	70.9	13.3	0.0	635.9
Gas and condensate processing	43.9	8.1	92.0	0.0	67.2
Gas distribution	26.4	5.8	0.8	0.5	33.0
Underground gas storage	17.6	1.3	0.0	0.0	20.7
Power, heat & water supply and operation of UGSS power equipment	1.8	9.4	1.8	0.0	5.6
Total	**4,015.5**	**407.2**	**227.9**	**19.4**	**4,830.1**

Natural gas is a leader in FER saving (96%) followed by electrical power (4%), heat power and other types of FER. The main share of FER savings falls on the gas trunkline transmission (over 84%) and gas production (over 13%).

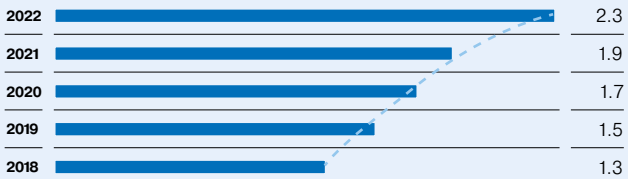
The major contribution into natural gas saving is made by the following activities:

- Gas saving before repair works and process operations on gas pipelines and equipment (use of MCS), use of gas distribution stations (GDS) for gas production for consumers, gas by-pass from repaired section to adjacent gas pipeline, well logging and operation without release of gas into atmosphere.
- Optimization of operation modes of gas transmission system (GTS) process facilities.
- Enhancing hydraulic performance of gas pipelines.

Natural gas saving breakdown, 2022, %

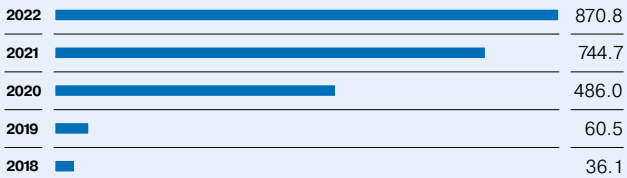


Natural gas saving at UGSS facilities, 2018–2022, bln m³



The utilization of MCS remains one of the most successful projects to prevent blowing of natural gas during GTL repair works. The year 2022 saw increase in the number of subsidiaries using MCS technology. Volume of saved natural gas totaled 870.8 mln m³.

Natural gas saved by MCS utilization, 2018–2022, mln m³



Electrical power saving breakdown

The major contribution into natural electrical power saving are made by the following activities:

- Optimization of operation modes of GTS process facilities and electrical equipment.
- Introduction of business process management automation systems.
- Improving efficiency of air cooling units (ACUs) for gas and oil.
- Improving efficiency of power-consuming equipment (replacement, repair and adjustment works, use of frequency-controlled drives and smooth start systems).
- Re-equipment of lighting system and introduction of light-emitting diods.

Implementation of key energy saving projects

Efficiency of the modern energy-saving solutions for subsequent scaling up at the energy facilities are being confirmed in practice by a few pilot projects that are funded by own and attracted sources of financing based on the mechanisms of the energy service contracts

- ejection technology to conserve gas when blowing it from the gas line hook-up of a compressor room (CR);
- introduction of gas-oil heat exchangers in GCU (heating of fuel gas by thermal energy of lubrication oil of the gas turbine engine and supercharger);
- installation of bundles in natural gas centrifugal supercharges;
- re-equipment of ACU for gas, including composite-based ones;
- independent power sources based on an electrochemical generator built on solid oxide fuel cells;
- re-equipment of lighting systems at production facilities – (installation of LED light sources (75% in the total lighting); introduction of automatic lighting control systems);
- waste-free purging of dust collectors at GDS (to prevent natural gas relief into the atmosphere both during periodic purges of gas purification units and, if necessary, during their dismantling, for example, in case of repair);
- power generation by expander generator (use of natural gas pressure drop to generate electrical power as part of low-temperature comprehensive gas treatment plants, GDS, and gas cooling stations);
- utilization of heat power from waste gases of GCU (power generation based on the organic Rankine cycle – a technical solution for GCU: 16 MW capacity allows to obtain 5 MW of electrical power); and
- air cooling at the inlet of a gas turbine engine (planned project efficiency after installation of an absorption lithium bromide refrigerating machine at the Kotelnikovskaya CS will reduce fuel gas consumption by 2%).

R&D, regulatory, methodological and information support of energy saving and energy efficiency improvement

The Company is continuously working on the development and implementation of innovative modern engineering solutions ensuring increased level of FER use efficiency based on scientific, research and development (R&D) works, including:

- Reduction in natural gas losses during operation, surveys and repair of wells on the fields of PJSC Gazprom.
- Reduction in FER consumption for gas transmission through pipelines with flow coating.
- Impact of LSs of GTLs repair works on FER consumption for gas compression.
- Development of an autonomous power supply system for a CR equipped with GCU-C-16 with inductor-type alternators driven by NC-16/76 centrifugal superchargers.

Development and updating of the Company's technical standards are underway, including:

- Energy saving and energy efficiency. General provisions.
- Energy efficiency requirements for equipment, machines and devices procured for the needs of the Gazprom Group subsidiaries.
- Estimation guidelines for natural gas consumption rates used for own needs and process losses of PJSC Gazprom's producing organizations.
- Estimation guidelines for fuel and energy resource saving volume during implementation of energy saving measures in subsidiaries.
- Design drafting requirements on application of energy saving technologies at gas transmission, production and underground storage facilities.

Training and internal audits

In 2022, 9 subsidiaries underwent planned internal audits within the scope of PJSC Gazprom's energy efficiency management system for compliance with ISO 50001:2018: OOO Gazprom energo, OAO Gazprom transgaz Belarus, OOO Gazprom transgaz Tchaikovsky, OOO Gazprom transgaz Stavropol, OOO Gazprom UGS, OOO Gazprom transgaz Volgograd, OOO Gazprom pererabotka, OOO Gazprom dobycha Orenburg, OOO Gazprom dobycha Nadym.

361 specialists from subsidiaries, that are involved in all business activities under the scope of PJSC Gazprom's energy efficiency management system, advanced their professional competences in accordance with the energy saving and energy efficiency improvement system.

Public energy saving activities

In 2022, subdivisions of the Company continued to take active part in various public events promoting energy saving and efficiency principles. As in 2021, subsidiary companies took part in the All-Russian Energy-Saving and Environmental Festival #TogetherBrighter held under the auspices of the Ministry of Science and Higher Education, the Ministry of Energy, the Ministry of Natural Resources and Environment of the Russian Federation, and public youth groups, attracting attention of employees and local residents to the energy saving issues.

The main provisions of the PJSC Gazprom energy efficiency and energy saving policy were presented to children within the Ecocamp project launched by PJSC Gazprom in Verkhnyaya Sysert township, Sverdlovsk Region. Adolescents (aged 15 to 17 years) of employees from 25 PJSC Gazprom's subsidiaries and organizations participated in this project.

PJSC Gazprom Neft

In 2022, the Energy saving and energy efficiency improvement program exceeded its target values. Energy saving for the reporting period amounted to 3.4 mln GJ.

The main FER saving activities focused on the following areas:

– Exploration and production: replacement of electric centrifugal pumps, use of AC electric motors, conversion of wells to short-term or periodic operation, introduction of horizontal centrifugal multistage sectional pumps, geological and technical activities to reduce produced water and pump it into reservoirs; introduction of energy-efficient pumping equipment.
– Processing: optimization of steam and heat supply systems of commercial production, implementation of a set of offset measures to involve excess steam in the production process, optimization of the vacuum system.

Applicability of IIoT (Industrial Internet of Things) technologies for monitoring of the condition of heat tracers and dead-end sections of refineries was analyzed to ensure specified temperature values of the return heating water, which is delivered back to external heat supply sources.

Gazprom energoholding

The company is the largest Russian owner of electrical and thermal generation assets. One of the top priority goals for Gazprom energoholding is to implement energy saving technologies, develop and apply methodologies based on the principles of rational use of energy resources.

All structural subdivisions of Gazprom energoholding have developed energy saving and energy efficiency improvement programs that consist of conservation measures for all used FER.

In 2022, energy saving and energy efficiency improvement programs resulted in savings of energy resources equivalent to RUB 4,926 mln in the following volume:

– Natural gas – 737.8 mln m^3
– Electrical power – 25.0 mln kWh
– Heat power – 76.1 thousand Gcal

One of the key activities included in the Energy Saving Program through 2019–2023 of PAO Mosenergo is the transfer of thermal loads of district and quarter (boiler) heat power stations to combined heat and power plants (CHPP) of PAO Mosenergo. Transfer of thermal loads from boiler stations to CHPP ensures an increase in the specific generation of electricity on thermal consumption and reduction in specific fuel equivalent consumption for electricity supply.

Considerable economic benefit was achieved after repair of the gas-air path section at P-59 boiler at the block station No. 1 of the PAO OGK-2 branch at the Ryazan state district power plant.

Other significant energy saving activities that yielded the highest economic benefit, include:

– Re-equiping the automation and dispatching system for power & heat facilities.
– Introducing frequency converters and smooth start devices on electric drives of pumping and draught equipment operating under variable loads.
– Restoring thermal insulation on pipelines.

Ongoing R&D works focus on the following areas:

– Development of a technology for efficient staged combustion of gas and fuel oil using direct-flow burners on the TGMP-314 boiler at the CHPP-23 of PAO Mosenergo.
– Development of a selecting procedure for optimal reactive power modes for turbo generators with an assessment of the effect of operating modes on the reliability of generating equipment.
– Study on the impact caused by transient recovery voltage on the interrupting capacity of 6-20 kV switching equipment.
– Re-equipment project for the cycle arrangement at the CHPP-9 of PAO Mosenergo branch for conversion of combined cycle plant into a block design with the possibility of power supply for own needs to stations and the power systems.
– Thermal insulation studies and investigating the possibility of using thermal vermiculite-based insulation materials and finished products to improve the performance and/or replace the insulation of pipelines and equipment at heating networks and heating stations.

Gazprom neftekhim Salavat

OOO Gazprom neftekhim Salavat is one of the leading companies in the Gazprom Group in charge of oil processing, petrochemistry and production of mineral fertilizers.

Activities of OOO Gazprom neftekhim Salavat rest on energy intensity minimization and development principles based on energy and resource conservation programs. In 2022, cumulative energy consumption of OOO Gazprom neftekhim Salavat amounted to 64.3 mln GJ. Natural gas and heat power are the main energy resources of the company (92% of the total FER consumed). Energy saving activities focus on the heat supply system and are aimed at improving the efficiency of the insulation coating on heating pipelines, optimizing the operation of heat-consuming equipment and heat supply networks.

Thermal energy savings based on identification of heat losses and subsequent restoration of worn-out thermal insulation of steam, steam condensate and heating water pipelines in 2022 amounted to 5,149.8 Gcal.

FER saving through implementation of innovative technologies and energy saving activities in 2023–2025 is planned as follows:

- Natural gas – 34,049.6 thousand m^3
- Electrical power – 4,246.2 thousand kWh
- Heat power – 104,351.5 Gcal

Low-carbon development

Role of natural gas in low-carbon development

Today, Gazprom's natural gas is an eco-fuel supplied to consumers with the use of green technologies (with low GHG and pollutants emissions) to improve the quality of people's life caring for nature simultaneously.

Environmental impact of gas infrastructure expansion

Diversification of gas use, gas infrastructure development of industries and fuel and energy complex facilities contribute to the quality of life and provide comfortable living conditions for the population. This work fosters social and economic development of regions and mitigation of harmful pollutant emissions.

Natural gas holds a key position in satisfying Russia's internal consumption needs in energy carriers. In 2022, the share of natural gas accounted for more than 50% of the total energy resources used for electricity generation. A significant share of natural gas in the structure of the Russia's energy balance facilitates reduction in the carbon intensity of the fuel and energy complex, confirming the fact that the economy of the Russian Federation is developing with a low level of GHG emissions.

Gazprom is carrying out full-scale work on accelerated gas infrastructure expansion of Russian regions, being a Single Operator for the Natural Gas Supplies to the Regions of the Russian Federation.

Gas supply and gas infrastructure development programs cover 72 constituent entities of the Russian Federation. More than 24 thousand settlements are participating in these programs.

The Russian Gas Infrastructure Expansion Program for 2021–2025: results in 2022

72 regions	Gas Infrastructure Expansion program participants
177	inter-settlement gas pipelines
350	boiler stations connected
RUB 66.0 bln	investments
81.7 thousand	households and apartments provided with gas service

In 2022, Gazprom signed gas supply and gas infrastructure expansion development programs through 2025 with the Kostroma, Sverdlovsk, Chelyabinsk Regions and the Republic of Tatarstan. Gas supply and gas expansion program of the Irkutsk Region through 2021–2025 has been updated. Addenda to the existing programs were signed with 13 constituent entities of the Russian Federation – the Amur, Vladimir, Kurgan, Novgorod, Novosibirsk, Oryol, Rostov, Sakhalin, Tomsk, Tambov, Yaroslavl Regions, the Mari El Republic, and the Perm Territory.

Special attention was paid to gas supply and infrastructure expansion of the Krasnoyarsk and Kamchatka Territory. Gazprom completed the adjustment of the Master Plan for gas supply and infrastructure expansion of the Krasnoyarsk Territory. The first 23 private houses in Krasnoyarsk were converted from coal heating to natural gas as part of the Clean Air program of the Ecology national project.

Gazprom continued construction of a gas pipeline branch from the GDS to the Razdolnoye settlement of the Yelizovsky district, the Kamchatka Territory. An inter-settlement gas pipeline from GDS to the settlement was constructed. Pipelines to supply natural gas to six more rural settlements of the Yelizovsky district are currently under design.

Since the beginning of 2022, Gazprom has built gas pipeline branches from the GDS in the Omsk, Sakhalin, Ivanovo Regions, and the Mari El Republic. Construction of 177 inter-settlement gas pipelines was completed. Ability to connect 81.7 thousand households and apartments and 350 boiler stations to gas networks in 423 rural settlements was provided.

Gas infrastructure expansion of the regions in 2022 reduced GHG emissions by 1.446 mln tons of CO_2e.

Switching transport sector to natural gas

PJSC Gazprom continues its comprehensive efforts in extending gas motor fuel (GMF) application scope for the transport sector of the Russian economy contributing to mitigation of emissions of climatically active substances.

The number of natural gas vehicles (NGVs) in Russian regions and large cities is increasing. In 2022, more than 165 thousand vehicles were converted to GMF.

In St. Petersburg 400 new compressed natural gas (CNG) buses started cruising the city streets in 2022. Out of 4 thousand buses currently operating on urban routes, approx. 3 thousand already use gas.

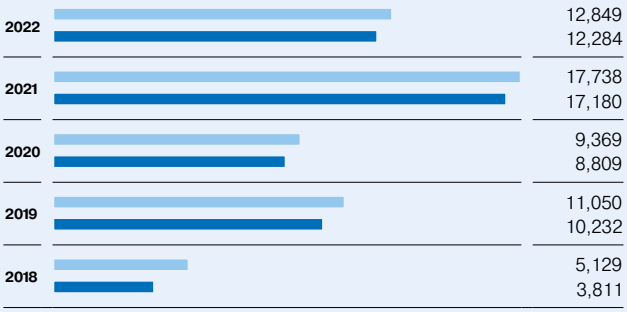
In the Sakhalin Region more than 600 cars were converted to gas by private car owners during the reporting year.

Gazprom continued to implement programs for the use of GMF on vehicles of its subsidiaries. OOO Gazprom gazomotornoye toplivo collects data on switching vehicles to GMF. The conversion is carried out on preferential terms under marketing programs in 64 regions of the country.

Gazprom extensively develops the gas filling infrastructure. At present, there are more than 700 gas filling facilities in Russia, of which 340 are operated by OOO Gazprom gazomotornoye toplivo.

In 2022, the Gazprom Group converted over 12,849 vehicles to GMF.

Dynamics of the conversion of vehicles to natural gas at the Gazprom Group, 2018–2022, units/year



The use of natural gas as GMF ensures preservation of people's health, reduces car owners' costs thanks to attractive pricing for refueling, reduces the negative impact on the environment as a result of using environmentally friendly gas fuel.

In 2022, Gazprom's gas filling facilities sold around 1 bln m^3 of CNG. By 2030, it is expected to increase CNG sales to 6.8 bln m^3.

Switching of vehicles to natural gas prevented approx. 530 thousand tons of CO_2e in GHG emissions in 2022.

Gazprom together with administrations of constituent entities of the Russian Federation continues projects for accelerated development of the gas filling network.

Saint-Petersburg is following the Concurrent Action Plan for the implementation of Saint-Petersburg's Gas Motor Fuel Market Development project through 2021–2023. In 2022, over 42 mln m^3 of GMF was sold in the city that is 17 mln m^3 more than in 2021.

In the Sakhalin Region, GMF sales amounted to 10 mln m^3, i.e. 140% higher than in 2021.

The Volga Federal Region has become the absolute leader in the use of natural gas as a GMF. GMF sales in 2022 exceeded 179 mln m^3, of which 74% was distributed by Gazprom filling stations. The use of natural gas as GMF ensured reduction in GHG emissions in the Region by 344 thousand tons, and pollutant emissions – by almost 6 thousand tons.

Gazprom has signed an agreement to expand the use of natural gas as GMF in the Republic of Tatarstan. This document is aimed at implementation of a set of activities to increase the use of GMF in road, water and railway transport. At present Gazprom operates 25 gas filling stations in the Republic of Tatarstan. Gazprom is considering plans for construction of new gas filling stations.

Gazprom pays great attention to GMF market development in the YNAD. Currently, Gazprom operates gas filling stations in the cities of Nadym, Novy Urengoy and the settlement of Yagelnoe. A new gas filling station in the city of Noyabrsk is close to commissioning. It will be capable to service up to 500 NGVs daily. City buses are going to be the primary consumers.

In 2022, Gazprom and the government of St. Petersburg signed a cooperation agreement for 2022–2028 aimed at extending the use of liquefied natural gas (LNG) as motor fuel providing for more intensive use of LNG by city buses.

In the reporting year, Gazprom, the Ministry of Industry and Trade of the Russian Federation, the government of St. Petersburg and the United Shipbuilding Corporation signed a cooperation agreement on expanding the use of LNG at urban water transport. LNG will power high-speed passenger vessels as well as tourist crafts on smaller rivers and canals.

In 2022, Gazprom Neft started the first LNG bunkering of civil marine transport. The first Russian LNG bunkering of a civil vessel was performed by the LNG carrier bunker barge "Dmitry Mendeleev" capable to carry up to 5.8 thousand m^3 of LNG, while its hull is designed to meet specific climatic conditions of the North-Western Federal Region.

OOO Gazpromneft Marine Bunker, PAO Gazprom Neft subsidiary, provided refueling of cargo container ships, tankers and icebreakers of a mining & metallurgical holding operating on the Northern Sea Route. One of the strategic business activities of OOO Gazpromneft Marine Bunker is decarbonization of marine transport along the Northern Sea Route.

The year 2022 saw start of the pilot operation of the first prototype shunting locomotive with two gas piston engines with a total capacity of 1,120 hp. It was created on the initiative of Gazprom and has no equivalents in Russia. The locomotive is equipped with an automatic engine operation control system. Digital control and diagnostic system controls approx. 1.5 thousand parameters of the locomotive operation. This shunting locomotive runs on LNG, which significantly reduces

the environmental impact compared to conventional use of diesel fuel. The gas fuel locomotive emits almost two times less of carbon oxide than a diesel fuel locomotive.

In the reporting year, Gazprom Neft had become a member of the Eurasian SAF Alliance, which will promote green aviation fuel on the Russian market. Use of sustainable aviation fuel (SAF) will reduce up to 80% of emissions as well as generated waste during flight.

PJSC Gazprom and the Air and Space Defense Corporation Almaz – Antey signed cooperation agreements during the St. Petersburg International Gas Forum 2022. Within the framework of such cooperation, the parties will work on the creation of cryogenic fuel tanks for LNG vehicles.

In 2022, Gazprom initiated establishment of a Gas Motor Fuel Market Development Coordination Center. The main tasks of the Center include monitoring of the market situation, expert reviews of promising and systemically significant projects, analysis of the regulatory and technical base and preparation of proposals for improvement thereof.

In 2022, PJSC Gazprom developed "The Environmental Impact Atlas for conversion of vehicles to gas motor fuel, hybrid vehicles (incl. hydrogen fuel cells), and e-cars in the regions of the Russian Federation". The Atlas defines the potential for reducing pollutant and GHG emissions when switching automotive transport in the regions and large cities of Russia to GMF, hybrid (incl. hydrogen fuel cells) and electric drives. The Atlas updates indicators defining environmental effect of converting motor vehicles to GMF in the Russian Federation, hybrid (incl. hydrogen fuel cells) and electric vehicles.

To provide unbiased evaluation of the GMF market development level in constituent entities of the Russian Federation, OOO Gazprom gazomotornoye toplivo compiled a Rating of Russian regions assessed by the parameter.

In 2022, the NGV Rally "Gas into engines" became the longest run in the history of this event. Rally participants drove 10 thousand km from Vladivostok to St. Petersburg through the territory of 25 constituent entities, including the Far Eastern, Siberian, Ural, Volga, Central and North-Western Federal Regions. KAMAZ-5490 NEO LNG-powered mainline trucks developed by the order of Gazprom made the whole route of the Rally.

Priority tasks outlined by Gazprom for 2023 include increase in the volume of sales of natural gas as a motor fuel that means a greater contribution to the country's economy and its environmental well-being, improvement of reliability and operation efficiency of the existing network of gas filling stations. Particular attention will be paid to cooperation with the Ministry of Industry and Trade of Russia and automakers to further expand the model range of NGVs and increase production output of factory-made methane vehicles.

Hydrogen economy

In the reporting year, in fulfilment of the order of the President of the Russian Federation and following the meeting of the Presidential Council for Strategic Development and National Projects No. Pr-1553 as of 1 September 2022, the 2030 Hydrogen Economy Development Roadmap was updated (approved by the minutes of the meeting of the interdepartmental working group on the hydrogen economy development in the Russian Federation No. 3 as of 28 December 2022).

On 16 January 2023, the Government of the Russian Federation and PJSC Gazprom signed an Agreement of intent to stimulate progress in technology intensive focus area "Expansion of the Hydrogen Economy". Joining and coordination of the Parties' efforts to foster technological development and leadership of the Russian Federation in the global hydrogen market is the subject of this Agreement.

In compliance with established distribution of duties, Alexander V. Novak, Deputy Chairman of the Government of the Russian Federation, was designated responsible for supervising (controlling) the development of the technology intensive focus area "Expansion of the Hydrogen Economy" and the Agreement implementation.

Interdepartmental working group on the hydrogen economy development in the Russian Federation is a responsible coordination body for development of the technology intensive focus area "Hydrogen Energy Development" in the Russian Federation.

Russian Ministry of Energy was defined as the federal executive body responsible for the development of the technology intensive focus area "Hydrogen Economy Development".

Oleg E. Aksyutin, PJSC Gazprom Deputy Chairman of the Management Committee and the Head of the Department, is the Company's official responsible for preparation and implementation of the Roadmap.

The Roadmap is deemed to provide conditions for establishment of hydrogen economy in Russia. Development of competitive national technologies, their scaling up and launch of pilot projects is prioritized. The scheduled measures are agreed with gas infrastructure expansion activities and gas supply of the energy facilities, GMF market development, carbon dioxide sequestration studies, including gas generated by industrial enterprises. The declared initiatives will result in achievement of the national social and economic development goals, providing for the reduction in GHG emissions by 2050.

Development of hydrogen technologies

Development of domestic equipment and materials for hydrogen economy is of primary concern given new sanction restrictions. In 2022, new foreign economic impact did not have any significant effect on hydrogen production in Russia. However development of domestic technologies is of essential importance, and first of all production of hydrogen from natural gas (steam and auto-thermal conversion, methane pyrolysis), the extraction of hydrogen from hydrogen-containing mixtures and its purification (amine, short-cycle adsorption) as well as development of domestic materials.

PJSC Gazprom undertakes advancement of priority disciplines of the hydrogen economy based on natural gas primarily as part of scientific, research, development, design and production works with the involvement of the Gazprom Group companies and scientific institutions. The focus of a specialized company OOO Gazprom Hydrogen is implementation of pilot projects aimed at development of comprehensive technical solutions and production prototypes for hydrogen economy based on natural gas. The leading scientific research center of PJSC Gazprom has a laboratory for hydrogen technologies; an expert group "Development of hydrogen economy and decarbonization of the industry and transport based on natural gas" was organized by Coordination Committee for Sustainable Resource Management.

Advantages of hydrogen based on natural gas are demonstrated through cooperation with domestic companies and projects implemented with participation of the Russian and foreign companies from friendly countries.

Development of technologies of hydrogen production from natural gas is supported by creation of a technological experimental and demonstration complex (TEDC) to validate and provide comprehensive introduction of hydrogen technologies. The TEDC work specification is ready, development of design documentation is close to its completion.

Created mobile plasma hydrogen generator prototype was delivered from the city of Tomsk to OOO Gazprom VNIIGAZ under the agreement between the Federal State Autonomous Educational Institution of Higher Education (FSAEI HE) "National Research Tomsk Polytechnic University", OOO Gazprom transgaz Tomsk and OOO Gazprom VNIIGAZ. This prototype is being prepared for the use in TEDC for further technology advancement and scaling-up.

A preliminary design (technical proposal) and work specification of a pilot hydrogen refueling station have been developed, analysis of domestic suppliers of equipment and components for further implementation of the pilot is currently underway, technical and other information is being collected from the possible (potential) manufacturers of hydrogen fuel cell vehicles.

R&D activities were initiated to develop technology for producing hydrogen from hydrogen sulfide, create a fuel cell based on molten carbonate, and develop scientific and technical proposals for production of hydrogen at the facilities of OOO Gazprom pererabotka, and its further use as a marketable product.

An analysis of hydrogen impact on the integrity and stability of the gas supply system was performed to assess the technical limitations of hydrogen supplies as part of a methane-hydrogen mixture using existing pipeline systems in compliance with clause 3 of the List of Orders No. Pr-2244 of the President of the Russian Federation Vladimir V. Putin as of 23 November 2021. The analysis showed adding even a small (5% by volume) amount of hydrogen to operating gas pipelines will lead to substantial risks of decreased reliability of natural gas supplies, increased accident rate and potential decrease the service life of the GTS due to negative effect of hydrogen on equipment, which is especially high at gas pipelines with operating pressure from 9.8 MPa, which is typical for the existing GTS.

The tests of hydrogenated pipe metal (with hydrogen saturation of pipe metal) for tensile strength with slow deformation rate are in progress. A procedure of crack resistance testing in accordance with the ASME B31.12-2019 Standart on Hydrogen Piping and Pipelines has been developed.

By the order of PJSC Gazprom, the Institute of High-Temperature Electrochemistry of the Ural Branch of Russian Academy of Sciences (RAS) and the Institute of Petrochemical Synthesis of RAS have developed a technology for disposal of flue gases (carbon dioxide) using electrochemical devices with their subsequent processing them into synthetic fuel. In December 2022, methanol was produced from synthesis gas obtained by high-temperature electrolysis of GCU flue gases during technology pilot tests at a CS.

Young specialists and students of the Lomonosov Moscow State University, Moscow Power Engineering Institute, Gubkin Russian State University of Oil and Gas, Peoples' Friendship University of Russia, and Saint Petersburg University of Economics completed internships. Four final projects and one PhD thesis were defended with active participation of scientific consultants. In order to encourage scientific and research activities related to the roadmap implementation, a scholarship program has been created with the participation of the Vernadsky Nongovernmental Ecological Foundation.

OOO Gazprom VNIIGAZ has developed an advanced training course "Hydrogen economy. Fundamentals and current status". This course is designed for managers and specialists of PJSC Gazprom, its subsidiaries and organizations. The course covers the study of hydrogen economy issues from production to application (including environmental aspects). The training focuses on the status of the environmental agenda, classification and certification of hydrogen energy sources and decarbonization of existing process flows.

The Technical Committee 029 "Hydrogen Technologies" (TC 029) and the Technical Committee for standardization 239 "Carbon Dioxide Capture, Transportation and Storage" (TC 239) are in charge for standardization issues.

Implementation of the roadmap for the development of technology intensive focus area "Hydrogen economy" through 2030 in terms of the sub-area "Development of hydrogen energy and decarbonization of industry and transport based on natural gas" is in progress in accordance with the established deadlines.

Low-carbon development: assessing risks and opportunities

Gazprom fulfills its voluntary environmental commitments stipulated by the Environmental Policy of PJSC Gazprom aimed at reducing GHG emissions.

Gazprom performs risk assessment for its activities to prevent environmental damage.

Gazprom evaluates climate and environment change impact on the Company as well as the impact of its business on climate and environment followed by development and implementation of appropriate measures to adapt and mitigate anthropogenic impact on the environment and climate.

The project "Development of 2050 PJSC Gazprom sustainable development scenarios, taking into account the low-carbon trend of the global economy" was completed in 2022. Following an expert review, forecasts, and scenario analysis based on economic and mathematical models, PJSC Gazprom's 2050 Climate Roadmap was developed. Carbon intensity targets, trends, reduction and offset measures for GHG emissions of the Company as well as efforts to adopt production activities to climate changes in the short, medium and long term have been identified.

In 2022, PJSC Gazprom reduced specific GHG emissions by 3.9% against a 2018 baseline (PJSC Gazprom's key performance indicator). One of the target values set by Gazprom's Corporate Environmental Goals for 2020–2022 is to reduce GHG emissions during natural gas transmission per commodity transport activity against a 2018 baseline value – 55.3 tons of CO_2e/bln m^3·km. In 2022, this goal was achieved with 44.8 tons of CO_2e/bln m^3·km.

Gazprom will proceed with further reduction of GHG emissions. The ongoing projects and activities strengthen Gazprom's leading position among global energy companies.

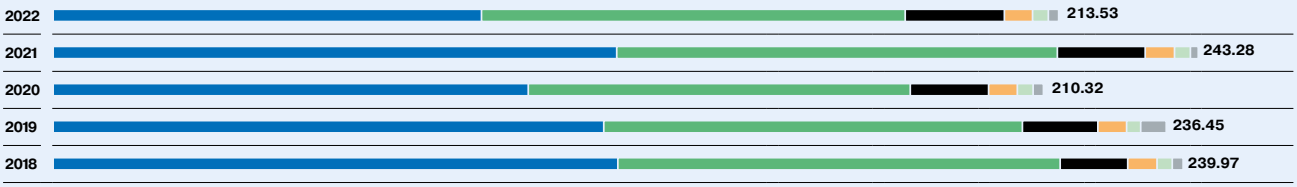
In 2022, PJSC Gazprom participated in Russian environment and climate efficiency ranking by Yu. A. Izrael Institute of Global Climate and Ecology, having achieved the best result among oil & gas companies.

Greenhouse gas emissions

A new Methodology for Quantifying Greenhouse Gas Emissions by Organizations Engaged in Economic and Other Activities in the Russian Federation, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022 has been applied in all Gazprom Group companies to quantify direct GHG emissions in 2022.

In 2022, GHG emissions (Scope 1) of the Gazprom Group totaled 213.53 mln tons of CO_2e.

Gazprom Group's GHG emissions, 2018–2022, mln tons of CO_2e



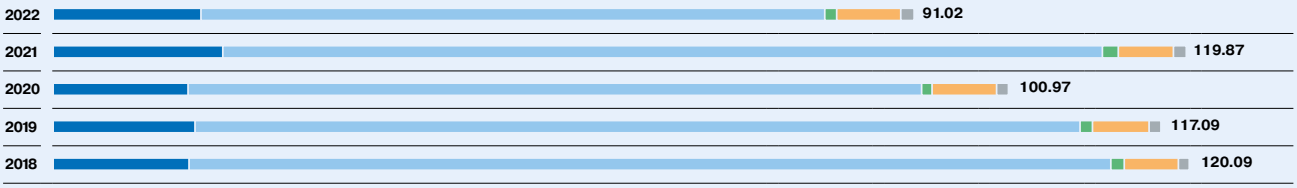
	2018	2019	2020	2021	2022
PJSC Gazprom	120.09	117.09	100.97	119.87	91.02
Gazprom energoholding	94.06	89.03	81.32	93.65	90.09
Gazprom Neft Group	14.33	16.04	16.65	18.73	21.08
Gazprom neftekhim Salavat	6.18	6.04	6.01	6.23	6.00
OOO Sakhalinskaya Energia	3.25	3.05	3.40	3.15	3.42
Other companies	2.06	5.20	1.97	1.65	1.92

The Gazprom Group companies monitor and analyze GHG emission indicators, adopt innovative projects and BATs, carry out efficiency assessment and analysis of GHG reduction activities, develop the update of climate goals and tasks for the future in adherence to the GHG emissions management system.

In 2022, a release of 37.8 mln tons of CO_2e was prevented during repair of GTL.

Reduction in GHG emissions is due to use of energy-saving measures, innovations, scaling up of resource-saving technologies as well as decrease in natural gas consumption for fuel needs and decrease in commodity transport activity as a result of gas supplies drop.

GHG emissions dynamics at PJSC Gazprom by types of activities, 2018–2022, mln tons of CO_2e



	2018	2019	2020	2021	2022
Production	14.39	15.01	14.27	17.95	15.63
Transmission	97.52	93.65	77.61	93.09	66.03
Underground gas storage	1.44	1.33	1.13	1.66	1.22
Processing	5.71	5.99	6.83	5.90	6.82
Other activities	1.03	1.11	1.13	1.27	1.32

In the reporting year, PJSC Gazprom reduced methane emissions by 171 thousand tons against 2021. Natural gas savings during repair works at LSs of GTLs made the main contribution into methane emissions reduction.

The MCS, which is one of the most effective gas saving technologies, prevented GHG emission of 14.3 million tons of CO_2e in 2022.

Gazprom is increasing its MCS fleet to minimize methane emissions and further reduce the carbon footprint of gas supplies to Russian and foreign consumers.

PJSC Gazprom is focused on continuous improvement of business activities, applying best methane emissions reduction practices. A set of measures with the effect of reducing methane emissions is being implemented within the framework of the Roadmap for Managing GHG Emissions in the Gazprom Group companies up to 2030, the 2050 Climate Roadmap of PJSC Gazprom, the 2025 Innovative Development Program, and the Energy Saving and Energy Efficiency Improvement Program for 2022.

PJSC Gazprom's business activities imply constant advancement, including application of best practices on methane emissions reduction. A set of actions aimed at methane emissions reduction is enforced through the GHG Emissions Management System Roadmap for the Gazprom Group Companies up to 2030, innovative development programs up to 2025, and energy saving and energy efficiency improvement programs 2022.

In 2022, GHG emissions from the facilities of PJSC Gazprom totaled 91.02 mln tons of CO_2e that is 24% less than in 2021. Methane share in the total GHG emissions amounted to 22%.

Dynamics of methane emissions* by types of PJSC Gazprom activities, 2018–2022, thousand tons

Type of activity	2018	2019	2020	2021	2022
Production	49.76	51.99	47.72	59.84	82.09
Transmission	1,229.48	1,242.82	952.65	897.34	706.11
Processing	1.21	1.19	1.25	1.10	2.84
Underground gas storage	18.86	15.97	16.63	19.98	14.95
Other activities	0.83	1.95	2.43	2.80	4.17
Total	**1,300.14**	**1,313.92**	**1,020.68**	**981.06**	**810.16**

* As contemplated in the Methodology for Quantifying Greenhouse Gas Emissions by Organizations Engaged in Economic and Other Activities in the Russian Federation, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022

In 2022, methane emissions made 0.03% of the produced gas, 0.17% of the transmitted gas, and 0.03% of the stored gas at PJSC Gazprom's natural gas production, transmission, and storage facilities, respectively.

PJSC Gazprom takes comprehensive measures to evaluate, account, and monitor atmospheric methane emissions. These measures are organized in view of the government regulations (EP regulatory actions, state environmental oversight, state accounting and reporting, methane environmental fees).

PJSC Gazprom strictly fulfills recommendations and requirements of the corporate standards on accounting, quantitative assessment and monitoring of methane emissions, including natural gas leaks. The inspection service of OOO Gazprom gaznadzor controls the fulfillment of legislative EP requirements, standards and guidelines

In 2022, an experiment to limit GHG emissions has been launched and will last until 31 December 2028 in the Sakhalin Region. OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk participates in the experiment and is a member of the relevant working group established within the regional government. In 2022, OOO Gazprom VNIIGAZ specialists studied GHG emissions at production facilities of OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk. The study of equipment and field facilities included more than 500 measurements of emissions on shut-off valves, main units and assemblies as well as fuel-powered equipment. The measurements showed that no threshold values were exceeded, and in some cases the emission volumes turned to be significantly lower than the industry averages per unit of marketable products.

PJSC Gazprom endeavors to improve the quality of data on methane emissions during natural gas operations along the whole process chain. Every year the Company gets an independent assurance report on methane emissions by the independent audit company.

In 2022, PJSC Gazprom continued to execute methane emissions monitoring and measurement project for the Company's main business activities with the use of aerospace technologies with the purpose of actual data reporting on methane emissions.

In the reporting year, the Transport and Waste categories were added to the list of emission categories required for accounting by subsidiaries and organizations of PJSC Gazprom in accordance with new adopted Methodology for Quantifying Greenhouse Gas Emissions by Organizations Engaged in Economic and Other Activities in the Russian Federation[1].

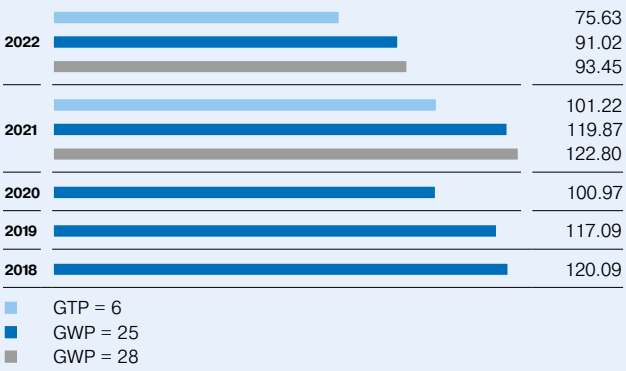
[1] Methodology for Quantifying Greenhouse Gas Emissions by Organizations Engaged in Economic and Other Activities in the Russian Federation, approved by Order No. 371 of the Ministry of Natural Resources and Environment of the Russian Federation as of 27 May 2022.

GHG emissions at PJSC Gazprom by emission source categories (Scope 1), 2022, mln tons of CO_2e

Emission category	Total	CO_2	CH_4
Total GHG emissions	**91.02**	**70.77**	**20.25**
Stationary fuel combustion	62.97	62.97	0.00
Flaring	2.70	2.59	0.11
Process operations	20.15	0.00	20.15
Other industrial processes	4.45	4.45	0.00
Transport	0.72	0.72	0.00
Solid waste treatment, combustion and disposal	0.03	0.03	0.00

Global Warming Potential (GWP) values are revised in a series of reports by the Intergovernmental Panel on Climate Change (IPCC). The IPCC's Sixth Assessment Report[2] recommends using the GWP value for methane over a 100-year period equal to 28.

GHG emissions dynamics at PJSC Gazprom, 2018–2022, mln tons of CO_2e



The use of the global temperature change potential (GTP) over a 100-year period in accordance with IPCC recommendations, and with the decision of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement[3] provides more credible data on GHG emissions impact on the climate system. Thereby, conversion factor 6 is used to evaluate methane (CH_4) emissions in CO_2e.

With due regard to the GTP, in 2022 GHG emissions of the Gazprom Group totaled 196.65 mln tons of CO_2e, and GHG emissions of PJSC Gazprom – 75.63 mln tons of CO_2e.

The most promising GHG emissions reduction is focused in projects, technologies and actions in the gas transmission subsidiaries of PJSC Gazprom. Technologies of natural gas supply to consumers via GDSs, bypass of gas from the repaired section to the operated gas pipeline, use of gas from process piping of a CR for own needs are providing the main share of methane emissions reduction. The MCS utilization project aimed at prevention of methane (as GHG) venting into the atmosphere during repair works on GTLs is one of the most significant project of today. The volume of natural gas saved in 2022 during repair works is estimated at 2.3 bln m^3.

In 2022, the environmental effect of the implementation of the natural gas saving project with the use of MCS during 2019-2020 was confirmed in accordance with ISO 14064-2:2019. The volume of prevented methane emissions for the specified period is estimated at 7.1 mln tons of CO_2e. The statements by OOO Gazprom MCS on the volumes of emissions prevented in 2019–2020 were verified and validated by the authorized international certification company Bureau Veritas. Gazprom is currently considering ways to use the results of this project to reduce the carbon footprint of its supplies, attract green funding or enter carbon markets.

Indirect GHG emissions (Scope 2) related to power, heat or steam generation purchased from third-party companies are calculated for the whole production chain of PJSC Gazprom by types of activities and by the Group's companies.

Indirect energy GHG emissions at PJSC Gazprom by types of main activities (Scope 2), 2022, mln tons of CO_2e

Production	0.31
Transmission	1.84
Processing	1.83
Underground gas storage	0.04

Indirect energy GHG emissions at the Gazprom Group companies (Scope 2), 2022, mln tons of CO_2e

PJSC Gazprom	4.03
Gazprom energoholding	0
Gazprom Neft Group	4.84
Gazprom neftekhim Salavat	2.25

[2] https://www.ipcc.ch/report/ar6/wg1/
[3] Resolution 18 / CMA.1 Appendix 37.

The Gazprom Group evaluates GHG emissions from the use of products as a fuel or feedstock both in Russia and abroad (Scope 3). Emissions are calculated from all types of sold products: natural gas, oil and gas condensate, petrol, diesel and jet fuel, liquefied hydrocarbon gases, oil residue.

The carbon intensity of the Gazprom Group's products combusted by the end consumers is 302.6 kg of CO_2e/bbl. o.e

Due to predominant share of natural gas in the products portfolio, and implementation of GHG emission reduction measures, the Gazprom Group demonstrates one of the lowest carbon footprint values of its products among major oil and gas industry companies.

Use of renewable and secondary energy sources

The Gazprom Group uses and develops alternative energy sources wherever it is economically and technically feasible, especially in remote or technologically cut-off areas.

In 2022, at the St. Petersburg International Economic Forum, Gazprom Neft, the administration of the Tomsk Region and Tomsk Polytechnic University signed an agreement on the development of geothermal energy technologies.

The Gazprom Group uses renewable energy sources (RES) and secondary energy sources (SES) for own needs and sales to external consumers. Solar and wind generators, converters of heat and energy of gas flow into electric power are widely applied at gas production and trunkline transmission facilities as well as gas distribution networks to provide current power supply to telemetry systems, cathodic protection of pipelines, lighting, etc.

Renewable hydrogenation at PAO TGK-1 (Gazprom energoholding) and OOO Nugush hydrotechnical uzel (Gazprom neftekhim Salavat) produced 13.17 bln kWh of power in 2022. The main generation volume is the hydroelectric power plants of PAO TGK-1 that make a significant contribution to the green energy of the North-Western Federal Region of Russia (40% of the installed capacity of PAO TGK-1 is accounted for by hydro generation, i.e. 40 HPPs with a total capacity of approx. 2,900 MW).

The Gazprom Group used 2,968 RES- and SES-based power units in 2022, excluding hydroelectric ones. These include turboexpanders, thermoelectric generators, solar modules and cells, wind generators. Cumulative volume of electrical power generated by these power units totaled 4,992.97 thousand kWh.

The Gazprom Group companies planned the investments in green energy for 2023–2026 in amount of more than RUB 14 bln.

PAO Gazprom Neft is successfully implementing pilot projects on alternative energy sources and digitalization of refinery energy complexes. The company develops RES generation. The Omsk Refinery operates a solar power plant (SPP) with 1 MW of installed capacity, the construction of which was completed in 2019. In the reporting year, the actual power generation at the Omsk Refinery SPP amounted to 1,073 thousand kWh.

Electrical power generation from renewable and secondary energy sources at the Gazprom Group, 2020–2022

	Power generation, kWh			Number of units, pcs.		
Generation type	2020	2021	2022	2020	2021	2022
All types of RES and SES	**13,281,763,422.66**	**13,156,049,550.78**	**13,171,829,491.03**	**2,689**	**2,848**	**3,084**
incl. PJSC Gazprom	589,444.67	4,236,483.34	3,656,277.33	1,641	1,686	1,846
Turbo-expanders	**105,257.76**	**77,378.90**	**78,263.00**	**18**	**22**	**33**
incl. PJSC Gazprom	105,257.76	77,378.90	78,263.00	18	22	33
Thermoelectric generators	**258,061.96**	**3,949,184.66**	**3,326,556.66**	**830**	**872**	**999**
incl. PJSC Gazprom	258,061.96	3,949,184.66	3,326,556.66	830	872	999
Solar and wind generators	**1,441,921.94**	**1,623,258.22**	**1,588,150.37**	**1,725**	**1,838**	**1,936**
incl. PJSC Gazprom	226,124.96	209,919.78	251,457.67	793	792	814
Hydroturbines	**13,279,958,181.00**	**13,150,399,728.00**	**13,166,836,521.00**	**116**	**116**	**116**
incl. Gazprom energoholding	13,248,799,100.00	13,130,080,629.00	13,136,298,283.00	113	113	113
Gazprom neftekhim Salavat	31,159,081.00	20,319,099.00	30,538,238.00	3	3	3

Scientific and technical support of environmental protection

Innovative research and development

Gazprom is prioritizing for innovative development, technological and organizational upgrade. Gazprom's activities are associated with regular tasks in environmental protection and energy performance, which is feasible only with investments in searching, acquiring, and applying of new knowledge and continuous technological development. Share of R&D costs in a revenue is one of the highlights of PJSC Gazprom's 2025 Innovative Development Program, which follows quite a predictable pattern.

In 2022, the Gazprom Group implemented environmental protection and energy efficiency R&D works priced at RUB 274 mln.

The introduction of innovative technologies and equipment at PJSC Gazprom is system based.

Gazprom Group's science complex runs a whole gamut of tasks, providing planning and scientific support for the entire cycle of investment projects. Currently, scientific activity is consolidated in its leading institutes – OOO Gazprom VNIIGAZ and OOO NIIgazeconomika. Putting together and developing these responsibility centers has become part of a unified and systematic approach to strengthen and expand business potential. This allowed the Group to effectively respond to new challenges, improve asset management and increase the level of responsibility for the results of their performance as well as reinforce intra-industry cooperation.

Corporate research institutes focus on one of the goals of PJSC Gazprom's 2025 Innovative Development Program – to mitigate negative impact on the environment during business activities.

We can judge the range of activities and immensity of tasks that the Gazprom Group companies face by the topics of R&D projects carried out in 2022.

In 2022, National Research University Higher School of Economics (FSAEI HE NRU Higher School of Economics) prepared a full report on the research project "Development of an impact assessment tool for the use of natural gas as a motor fuel for environmental, social, economic, and other indicators of regions".

OOO Gazprom VNIIGAZ carried out "Carbon footprint estimation for a life cycle of natural gas vehicles, hybrid vehicles, and e-cars".

Within this task, the Environmental Impact Atlas for conversion of vehicles to gas motor fuel, hybrid vehicles (incl. hydrogen fuel cells), and e-cars in the regions of the Russian Federation was issued. The purpose of the Atlas is to provide information for the interested parties to broaden options for the use of gas motor fuel, production scale-up and the use of gas engines and other alternatives to mitigate harmful emissions not only at the operation stage, but also within a whole life cycle of energy carriers, as compared to petroleum-based fuels. The Atlas contains relevant statistical and forecast data on the Russian vehicle transport sector, results of the in-depth analysis, and data on pollutant and GHG emissions, carbon and toxic footprint of the vehicles.

OOO NIIgazekonomika completed two works promoting the goal: "Drawing up feasibility study and proposals for prioritized introduction of energy efficient and energy-saving technologies based on analysis of the funding sources and prospects of their replication at PJSC Gazprom's production facilities", and "Study on efficiency factors and energy-saving measures, development of methodical approaches to cost-effectiveness evaluation of PJSC Gazprom's energy-saving and energy efficiency enhancement programs".

While OOO Gazprom VNIIGAZ completed the following research projects:

– "Development of energy-saving and energy efficiency enhancement programs for PJSC Gazprom up to 2025. Improvement of PJSC Gazprom's energy efficiency and energy-saving regulations.

  PJSC Gazprom Energy Saving and Energy Efficiency Improvement program for 2023–2025 is aimed at energy performance gains in workflows and secondary production processes based on implementation of feasible energy conservation measures, energy output ratio reduction, and fuel & energy production cost-cutting.

  Energy saving target values were developed for business activities of PJSC Gazprom, its subsidiaries and organizations. Energy saving and energy efficiency improvement action plan for 2023–2025 was developed in order to achieve target energy saving and energy efficiency values, and enclosed the following types of FES: natural gas, electrical power, thermal energy. The plan was developed with due consideration of capital improvement and upgrade programs for the existing gas production, transmission, processing and UGS facilities. Additionally, summary data by business activities on anticipated economic benefits from introduction of the 2023–2025 Program were prepared.

– "Development of proposals on introduction of innovative energy saving technologies in natural gas production and transportation. Estimating energy saving potential in case of their implementation".

  Engineering solutions to reduce the volume of vented natural gas at PJSC Gazprom's GDS were analyzed with special attention paid to the use of non-flow dust arrester blowing systems and introduction of ejectors in CRs of the gas trunkline transmission facilities. Specialists prepared specification summary for the non-flow dust arrester blowing technology, formulated an outlook for its application, highlighted benefits of gas ejection technologies, defined circuit designs for integrating ejectors into gas line hook-up, determined boundary conditions for the technology use, outlined proposals for the application prospects. This technology helps to save gas in case of GCU and CR shutdown with 82% gas recovery rate.

Aiming at accounting of environmental aspects and risk assessment during activity planning, development and implementation of investment projects, OOO NIIgazekonomika prepared "Analysis and forecast of BRICS countries contribution in global sustainable development considering improvement in efficiency of using energy resource base (incl. nonconventional and renewable energy sources) and rational consumption of fuel and energy resources".

The need to find solutions and develop technologies capable of responding to any challenges, that both the Company and the Russian gas industry as a whole are facing,

form strategic priorities of innovation activity. Such challenges include decarbonization – the so-called climate neutrality.

OOO Gazprom VNIIGAZ commissioned by OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk prepared materials on scientific and methodological support for participation in an experiment to establish special regulation of GHG emissions and removals for the Sakhalin Region in 2022, which include a forecast quantitative assessment of GHG emissions for 2023–2025 and proposals on established GHG quota.

PJSC Gazprom engages Russian universities to study problems and prospects relevant to the Company.

In 2022, Saint Petersburg State University of Economics completed R&D project “Drawing up 2050 PJSC Gazprom sustainable development scenarios with due regard for low carbon trend of the global economy”. Within the scope of this project, OOO Gazprom VNIIGAZ developed “2050 PJSC Gazprom climate roadmap”. This roadmap is a visual instrument of PJSC Gazprom’s corporate GHG emissions management system. It ensures simple and quick estimation of GHG emissions management scenarios as well as optimal decision-making regarding specific scenario implementation at a certain time to achieve set targets under constantly changing political, economic, and environmental conditions.

GHG emissions reduction potential by mainstream business activities of PJSC Gazprom and the Gazprom Group for 2025-2050 was estimated with due regard to accomplishment of technically feasible resource and energy saving activities as well as offsets to ensure achievement of GHG emission rate targets.

Scenarios for the Company’s prospective development as well as risks and opportunities given a global energy transition were determined. Some decisions were made regarding quantitative objectives and measures on mitigation of absolute and specific GHG emissions by 2050 with account of relevant amendments in the legislation of the Russian Federation and international incentives on mitigation of GHG emissions as well as technology level able to provide such mitigation.

PJSC Gazprom develops a new business thrust – hydrogen economy, which is impossible without thorough and detailed research. A.V. Topichev Institute of Petrochemical Synthesis of RAS by the order of PJSC Gazprom completed a work “Assessment of technologies for production of hydrogen and methane-hydrogen fuel from natural gas”.

In 2022, OOO Gazprom VNIIGAZ as a principle research institute of Gazprom worked on a number of R&D projects on this topic: “Development of a pilot test unit for advancement of hydrogen production technologies from natural gas”, “Estimating the possibility of using PJSC Gazprom’s gas transmission system for transportation and storage of hydrogen-containing gas”, “Drawing up suggestions on using UGS to store different gaseous hydrogen-containing mixtures in a porous media”.

In 2022, Gazprom's science complex continued its mission to provide high-quality and timely solutions to scientific and technical environmental and energy efficiency problems that arise on the way of the established production objectives and targets.

Use of best available techniques

BAT – a technique of outputs (goods) production, works execution, and services rendering defined by present-day achievements of science and technology, and the best combination of EP goal criteria if there are technical capacities for its application.

PJSC Gazprom's natural gas production and processing facilities fall under the BAT scope under the Russian Government Resolution No. 2674-r as of 24 December 2014.

In 2022, PJSC Gazprom's subsidiaries (OOO Gazprom pererabotka, OOO Gazprom dobycha Noyabrsk and OOO Gazprom LNG Portovaya) obtained 6 complex environmental permits for their production facilities.

Use of BATs at different stages of business activities, including procurement of technologies, materials, and equipment is one of the key mechanisms in fulfillment of environmental obligations that is entrenched in Gazprom's Environmental Policy.

A series of Comprehensive Programs are in progress at PJSC Gazprom enabling introduction and usage of BATs along the whole natural gas value chain.

The Order of the Ministry of Natural Resources of the Russian Federation No. 154 as of 18 April 2018 defines a list of facilities with 1st class negative impact on the environment, which require obtaining complex environmental permits from 1 January 2019 up to and including 31 December 2024. Similar facilities not mentioned in this list are required to obtain complex environmental permits by 1 January 2025.

In business activities, PJSC Gazprom and its subsidiaries rely on best available techniques reference documents (BREF-ITS) of the Federal Agency on Technical Regulation and Metrology of Russia.

Practical application analysis of developed BREFs revealed the need for additional expert appraisals of technologies employed at PJSC Gazprom's gas production and processing facilities.

PJSC Gazprom begins the process of revision of national and corporate BREFs on natural gas production, transmission, processing and underground gas storage in the reporting year.

The measures taken by PJSC Gazprom to introduce BAT will result in minimization of emissions, discharges of pollutants into water bodies during business and other activities of the Company.

PJSC Gazprom totally supports transition to BAT principles, referring not only to prevention of negative impact on the environment, but also to feasibility of resource-saving measures, technological upgrading of production facilities, addressing relevant import substitution measures, and finally development of a commercially viable industry.

Gazprom's Science and Technology Prize

Every year, PJSC Gazprom holds a competition for the Science and Technology Prize. The Prize aims to recognize outstanding solutions in production, transportation, storage, processing and utilization of natural gas, gas condensate and oil that transformed into new machinery, equipment, instruments and materials being created or improved and, what is most important, effectively applied. This award is an important constituent of the corporate R&D policy of Gazprom for promoting innovations for company's activities and securing its technological leadership in the global energy business.

The results of the competition are reviewed and approved at the meetings of the Gazprom Management Committee.

For the most part, the majority of Prize winning projects has direct or indirect environmental benefits.

In 2022, 16 works (134 authors in total) from 28 Gazprom companies and 7 third-party organizations were submitted for the competition.

The total economic impact of the implementation of the Prize-winning solutions and technologies exceeded RUB 36 bln.

The winners of the 2022 Science and Technology Prize, among others, were the following.

Single line-gas metering station equipped with ultrasonic flow transducers checked for accuracy on site

Nominee – OOO Gazprom transgaz Moscow.

The authors became the first in Russia to develop and implement next-generation metering equipment for large-diameter pipelines based on large-diameter ultrasonic flow transducers checked for accuracy by means of an intra-facility verification unit. All component parts of the equipment are made in Russia. A new approach is to use ultrasonic measuring complex of large-diameter (as high as 1400 mm) that is installed (tie-in) into GTLs. It allows operating the gas metering system in fully automated mode, reduces specific quantity of metal per structure, and provides for continuous pipeline transmission of natural gas during maintenance and repair works. Moreover, allows performing routine verification of the flow meter directly on site with no need to dismantle it thanks to an intra-facility reference flow meter. The introduction of this method significantly reduces financial costs and the duration of repair works, mitigates negative impact on the environment.

The project received two invention patents.

Development and implementation of a unique set of technical and engineering solutions for performing 4D seismic monitoring to optimize the control over offshore hydrocarbon field development on the continental shelf of the Russian Federation

Nominee – OOO Sakhalinskaya Energia.

The authors became the first in Russia to develop and implement a unique set of technical and engineering 4D seismic monitoring solutions as a primary tool to control offshore hydrocarbon field development. It is designed to ensure the most effective and efficient development of subsoil resources. 4D seismic monitoring is an invaluable source of information to identify reservoir pay zones and water intrusion zones of the reservoir layer, to design extended-reach wells and provide safe technical condition of the near-wellbore zone.

The project received two invention patents.

Development of a combined ultrasound cleaning method for burner devices

Nominee – OOO Gazprom transgaz Saratov.

The relevance of the research is determined by the need for increasing the operating efficiency of burner devices installed in low-emission combustion chambers at GCUs. In both Russian and foreign practice, this is the first-ever method based on combined ultrasonic cleaning of burner devices through creating ultrasonic vibrations directly inside the devices that provides for the restoration of performance efficiency and parameters to the values recorded in their technical passports. A 6% efficiency factor increase is achieved. Specified concentration of NOx and CO compounds decreases in dry waste gases by 4.3 and 7.5 times, respectively.

The project received one invention patent.

High-efficiency repair technology for gas trunklines prone to stress corrosion cracking

Nominee – OOO Gazprom VNIIGAZ.

The relevance of the research is determined by the need to ensure reliable and safe operation of the LSs of GTLs under resource-limited conditions, and to cut the LSs of GTLs overhaul repair costs. The authors developed and introduced a novel approach to extend the lifetime of pipelines with shallow stress corrosion flaws, measures to prevent creation and propagation of SCC defects, and reliable defect size estimation. This high-efficiency repair technology provide several-time reduction in pipe cut volumes that significantly reduces financial costs and the duration of repair works, mitigates the negative impact on the environment.

The project received three invention patents.

Development and operation technology for a "well–underground reservoir" system in UGS facilities built in rock salt deposits

Nominee – OAO Gazprom transgaz Belarus

Tightness, high peak capacity, multiple-cycle operation option are obvious advantages of UGS facilities built in rock salt deposits. The authors worked out and introduced technological solutions on the creation of a "well-underground reservoir" UGS system within rock salt deposits for natural gas storage and further operation that provide for maximum industrial and blowout safety. This novel technology outranks its foreign equivalents.

The project received one Belarusian and one Russian invention patents.

Information disclosure

Information disclosure and environmental safety transparency is a keystone of the Gazprom Group operating principles.

Since 1995, PJSC Gazprom Environmental Report has been issued on an annual basis. The Gazprom Group's Sustainable Report published regularly since 2010 contains "Environmental Protection" section, which provides detailed information on environmental management and climate preservation, mitigation of impact on natural resources from production processes, and relevant interaction with stakeholders.

PJSC Gazprom official web-site www.gazprom.ru presents relevant information on environmental aspects and energy efficiency improvement of the Gazprom Group activities in section "Sustainable Development" in tabs "Innovative activity", "Local communities", "Ratings", and "Environmental Protection" with further breakdown to tabs: "Hydrogen Energy", "Environmental Impacts", "Vernadsky Nongovernmental Ecological Foundation", "Environmental Management System", "Energy management System", "Environmental Reports", "Energy Saving and Energy Efficiency".

The tab "Investors" provides the Articles of Association and regulatory documents of PJSC Gazprom, data on the corporate governance, annual shareholders meetings, shares and dividends, creditor relations, and financial calendar. The "Information disclosure" tab encloses year-wise data, annual, financial, environmental, sustainability reports, IFRS consolidated financial statements, quarterly issuer reporting, etc.

The tab "Media" highlights chronologically the Gazprom Group news with hashtags "Gas infrastructure expansion", "NGV fuel", "Environmental Protection". Information on the current and future EP activities of Gazprom can be found in tab "Periodicals", which has pinned references to online versions of the corporate printed press: annual Gazprom Magazine (published since 2006), annual industry-specific science & technology journal "Gas Industry" (published since 1956), and "Gas Science Bulletin" published on a quarterly basis by OOO Gazprom VNIIGAZ since 1948.

Within the Gazprom Group, subsidiaries publish newspapers and other periodicals, make TV and radio broadcasts (over 40 titles). Pursuing the information transparency principle, the Gazprom Group companies publish Environmental Policy guidelines, environmental news, environmental and sustainability reports, biological diversity preservation action plans, environmental monitoring reports, environmental impact assessment, information on public hearings, oil spill response plans, and other content on their websites.

PJSC Gazprom holds public hearings for the majority of its investment activities on an annual basis, as it is compulsory according to the Russian legislation.

The Gazprom Group management's commitment to information disclosure is confirmed by annual meetings with representatives of federal and regional mass media, when rational use of natural resources, EP and energy saving is being discussed. Gazprom monitors mass media to analyze public opinion on its environmental activities and further considers it for future planning and prompt managerial decision-making.

In 2022, there were 18,127 positive publications in mass media and Internet related to environmental aspects of the Gazprom Group activities.

Activities of PJSC Gazprom and its subsidiaries in arranging and holding voluntary EP and energy efficiency campaigns do not go unnoticed.

For example, OOO Gazprom transgaz Kazan was ranked as second in an annual Tatarstan all-republic contest "ECO Leader". The company's project "Preservation Technology for Vent Gases based on Two-Stage Jet Ejectors" was acknowledged in "The best environmental safety project" nomination.

Over 670 works from 71 regions of Russia were submitted for the contest of the international project "Environmental Culture. Piece and Conciliation" organized by the Vernadsky Nongovernmental Ecological Foundation. There were 28 winners, among which three projects of PJSC Gazprom's subsidiaries were the best in the "Sustainable Business" nomination: OOO Gazprom transgaz Chaikovsky, OOO Gazprom VNIIGAZ and OOO Gazprom transgaz Krasnodar. OOO Gazprom dobycha Yamburg succeeded in the "Ecotourism" nomination with a project "Secrets of Mangazeya"; OOO Gazprom dobycha Urengoy triumphed in the "Eco Education" nomination with a project "Ecological crews". Media educational program ECOMEDIA prepared by OOO Gazprom transgaz Yugorsk got the victory in the "Ecology Horn: mass media" nomination.

Vernadsky Nongovernmental Ecological Foundation awarded winners of the "Green Spring – 2022". OOO Gazprom dobycha Astrakhan, OOO Gazprom dobycha Orenburg, OOO Gazprom transgaz Kazan, OOO Gazprom transgaz Samara and OAO Gazprom transgaz Belarus joined the winning ranks of this campaign. In the reporting year, Green Spring Campaign hold from 23 April to 29 May attracted over 18.5 thousand participants from 49 organizations of PJSC Gazprom.

On 9 December, Moscow hosted XX Annual Ceremony of the Vernadsky National Environmental Award. In 2022, this Contest collected 342 projects from 62 regions of Russia. The main objective pursued by all project-winners is to contribute into achievement of sustainable development goals. Winners in the nomination "Sustainable Development via Education": "Environmental Camp" by PJSC Gazprom, "Skilled" by OOO Gazprom transgaz Nizhny Novgorod, "ECO marathon" and "Friends of the Planet" by OOO Gazprom transgaz Saratov. Winners in the nomination "Contribution of Mass Media in Sustainable Development": "Khara and Savey" project by OOO Gazprom dobycha Nadym, "Movie lesson" by OOO Gazprom transgaz Samara, Umnikum information and educational program by OOO Gazprom transgaz Yugorsk. Winner in the nomination "Conservation of ecosystems and biodiversity": Development of a nature conservation area – federal state natural sanctuary "Paraskiny lakes" by OOO Gazprom transgaz Ukhta. Winners in the nomination "Sustainable production and consumption": "Action plan for the

Urengoy OGCF development to mitigate methane emissions" by OOO Gazprom dobycha Urengoy, and "Repeated use of ceramics applied in natural gas dehydration" by Gazprom transgaz Krasnodar.

The Gazprom Group supports Russian environmental educational media projects.

For many years, PJSC Gazprom acts as a general sponsor of the All-Russian Nature Festival Primordial Russia. In 2022, the Festival attracted more than 55 thousand spectators only in Moscow and became the largest nature photography exhibition in Russia. The Festival arranged a round table on sustainable development, conservation of biodiversity and collaborative programs on preservation of the nature of Russia and Mongolia. The Festival brought to the attention of the audience programs on conservation of rare animals and related scientific research: the Tiger Day, the Arctic Day, the Wildlife Science Day, Sustainable Development and Ecology Day as well as presentations of innovative environmental student projects developed by grant-holders of the Vernadsky Nongovernmental Ecological Foundation. The Festival Program included 91 lectures and 50 master-classes for children and adults.

The Festival's movie program showed 57 pictures dedicated to pristine nature of Russia and its preservation.

OOO Gazprom dobycha Irkutsk became a sponsor to the 21st Baikal International Film Festival "People and Environment". The Festival's program embraced competition screenings of documentary, popular-science, story and animation films, out-of-competition programs with films and videos from the competition or selected by organizers, professional round table discussions, conferences, forums, press-discussions, master-classes of outstanding filmmakers and scientists. In 2022, the Festival's organizing committee received 126 offers from 25 countries. The Contest program included 25 films, 12 out-of-competition movies as well as fulldome films showed in planetarium.

The environmental movie "Yamal. Seasons" was created and presented this year upon an initiative of OOO Gazprom dobycha Urengoy. The movie is dedicated to the flora and fauna of the Arctic region.

OOO Gazprom dobycha Yamburg has carried out the ecological educational project "Protected Yamal" since 2019. Its goal is the media promotion of SPNAs of the YNAD. The "Unseen Gydan" and "Taiga Heart" photo albums have already been published. They spread the word about the Gydansky National Park and the Verkhne-Tazovsky State Nature Reserve. The publications were given to the libraries of all educational institutions of the region, public organizations, and state authorities. An information channel was created on the Zen platform (Russian personal recommendations service) as part of the project. E-albums are available on a corporate website www.yamburg-dobycha.gazprom.ru.

Gazprom effectiveness in environmental information disclosure is proved by independent expert rating agencies. As is customary, the Russian Union of Industrialists and Entrepreneurs (RSPP) included PJSC Gazprom in leader groups "A" of both ESG-indexes "Responsibility and transparency" and "Sustainable development vector".

Biodiversity conservation and voluntary environmental responsibility

Compliance with the Russian and international environmental norms and requirements, mitigation of the negative impact on the environment and taking any and all measures to preserve biodiversity and compensate possible damage to the environment are the keystones of the Environmental Policy that the Gazprom Group companies strictly adhere to.

Gazprom's concern about conservation of biodiversity, habitats of rare and threatened plants and animals is an important part of the Company's environmental activities. Prevention of the negative impact on offshore and onshore ecosystems is an initial condition for commencement of Gazprom's projects.

In 2022, RUB 991.4 mln were spent for the conservation of biodiversity and the protection of natural territories.

Gazprom has been cooperating for several years with the ANO Eurasian Center for the Conservation of Far Eastern Leopards and the ANO Center for the Study and Conservation of the Amur Tiger Population.

ANO Eurasian Center for the Conservation of Far Eastern Leopards continued the implementation of the environmental program "Restoration and conservation of the population of the Far Eastern leopard in its natural habitat" with the support of PJSC Gazprom. In 2022, a number of actions were taken to expand habitat and increase the number up to 250 leopards (the number necessary for the safe existence of the species). The Center, together with RAS, made a decision to translocate leopards on the territory of the Ussuri Reserve and adjacent territories as well as the Gamovsky eco-cluster.

Gazprom's assistance to the nature protection program "Preservation of the Amur tiger population in its natural habitat" allowed the ANO Center for the Study and Conservation of the Amur Tiger Population to purchase the necessary vehicles to be used during security and fire-fighting measures in a SPNAs of the tiger habitat and for the needs of hunting supervision inspectors. In addition, an administrative facility of the hunting supervision service was opened in the village of Sosnovka, Khabarovsk Region, and a construction of a nature museum continued in the city of Ussuriysk, Primorsky Territory.

In their current production activities, the Gazprom Group companies are faced with the need to solve specific tasks for the conservation of wildlife. For example, on 28 January 2022, employees of OOO Gazprom dobycha Nadym evacuated two one-year-old polar bears from the territory of the Kharasavey field to the Gydansky National Park. On 28 December 2022, an imperial eagle was released into its natural habitat in the Krasnodar Territory after a month of rehabilitation. The transportation of the bird to the place of its release was provided by OOO Gazprom transgaz Saratov that responded to the appeal of the Wise Rukh Center for Nature Protection and Rehabilitation of Wild Animals.

In 2022, Gazprom's subsidiaries implemented a significant number of environmental projects aimed at restoring aquatic biological resources.

In 2022, more than 49.4 mln various fish were released into water basins, including especially valuable species.

Employees of the Rostov branch of OOO Gazprom transgaz Krasnodar took part in fish stocking of the Don River as part of the International project "Ecological Culture. Peace and Harmony", organized by the Vernadsky Nongovernmental Ecological Foundation. 1,600 carp juveniles were released into the river from a water body on the territory of the Rogozhkinsky fish hatchery. In addition, more than 30 thousand sterlet and sturgeon juveniles were released into the tributary of the Kuban River in cooperation with the Azov-Black Sea Territorial Administration of Rosrybolovstvo.

OOO Gazprom Nedra in the Sakhalin Region released more than 4.7 mln chum juveniles in the Zyryanskaya River and approx. 3 mln chum juveniles in the Krasnoyarka River within the framework of the program for artificial reproduction of aquatic biological resources.

OOO Gazprom transgaz Samara has released young sterlets into the Saratov reservoir near the village of Vinnovka. The population has been replenished by more than 17 thousand individuals.

More than 16 mln peled (northern whitefish) juveniles and 6 mln muksun (whitefish) juveniles, grown by order of the Gazprom Group companies, were released in the rivers of the Ob-Irtysh basin.

In July, OOO Gazprom transgaz Tomsk, together with representatives of the Ozerki salmon fishing plant, released more than a million specimens of sockeye salmon juveniles in the Plotnikov River of the Kamchatka Territory. In August, several thousand chum salmon juveniles were released in Primorsky Territory with the participation of employees of the Gazprom transgaz Tomsk branch and representatives of the Glavrybvod plant in the Barabashevka River.

OOO Gazprom transgaz Ukhta has released more than 1.3 mln juveniles and larvae of valuable commercial fish into three reservoirs of the Komi Republic, the Yaroslavl and Tyumen Regions: whitefish, pike and Siberian sturgeon, respectively.

Employees of OOO Gazprom transgaz Ekaterinburg have released more than 6 thousand sterlet juveniles in the Lozva

river in the north of the Sverdlovsk Region. Approx. 300 carp were released into the Shershnevsky reservoir, located on the southwestern outskirts of the city of Chelyabinsk. Also, gas workers released 6.3 thousand carp juveniles into the Iriklinsky reservoir in the Orenburg Region in November 2022.

More than 1.3 thousand sterlet juveniles were released in the Volga River in the Nizhny Novgorod Region. Sterlet juveniles were released by employees of OOO Gazprom gazoraspredelenie Nizhny Novgorod and OOO Gazprom gasification together with representatives of the EKOVOLGA Fishery Support Association.

Employees of OOO Gazprom transgaz Saratov and their family members took part in the final stage of the annual regional ecological project "Curtains for Algae" – the release of young carp, sazan and white amur to the Volga (a total of almost 30 thousand juveniles). From May to October 2022, the project participants collected plastic caps from soft drink bottles and product packages and took part in their sorting. Then the collected plastic was sent for recycling. With the proceeds, ANO "Ecologizer" purchased juveniles of herbivorous fish that were released into the Volga by the participants of the project.

Since 2016, like most other companies of the Group, OOO Gazprom transgaz Saratov has been implementing a program to prevent the death of wildlife, which includes, among other things, the installation of bird protection devices at power grid facilities.

Helicopter routes are mapped in the way to exclude impact on nesting areas. Birds populations are saved also through biotechnical measures suggested by scientists, including development of roost sites, and protecting nest trees. To control and evaluate efficiency of measures, new monitoring results on, in particular, birds numbers, are compared with data of previous years and with equivalent values of the control zone located outside the impact area of industrial facilities.

In summer 2022, OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk examined the waters of the Nabil Bay on Sakhalin in cooperation with scientists from Lomonosov Moscow State University and the Institute of Biological Problems of the North-Far Eastern Branch of RAS. It was more than 200 km^2 of the water area and the bay shores as well as areas suitable for nesting and feeding birds near the Orkunya, Vasi, Chernaya and Nabil rivers.

The Company took a commitment as part of its Environmental Policy to take into account the interests and rights of indigenous minorities to lead their traditional way of life and to preserve their native habitat. Thus, the preservation of the traditional way of life of the indigenous peoples of the North becomes one of the basic principles in the development of deposits of the Yamal Peninsula.

Being a member of a commission consisting of representatives of the Yarsalinskoye Municipal Reindeer Herding Enterprise and the Yamal Public Movement of Indigenous Minorities of the North, OOO Gazprom dobycha Nadym provided safe and comfortable conditions for the passage of tundra families and 8 thousand reindeers through the Bovanenkovsky OGCF industrial zone on the way to the Kara Sea in 2022 as in previous years. The ways of migration were taken into account at the design and construction stage of production facilities.

As part of its activities on the continental shelf and in the Arctic zone of the Russian Federation, Gazprom guarantees compliance with standards and requirements that ensure environmental safety.

In 2022, PJSC Gazprom and PJSC NOVATEK signed a Cooperation Agreement, mainly aiming at ensuring the sustainable development of the Arctic zone of the Russian Federation. The companies intend to work together on environmental protection, biodiversity conservation, environmental monitoring and environmental safety standardization as well as support for the Indigenous Minorities of the North. In addition, the partners will join efforts in the development of hydrogen energy. A Coordinating Council has been established to implement the Agreement.

In each region of the Company's presence, subsidiaries develop and implement action plans involving measures for the conservation of biological diversity in the Arctic zone of the Russian Federation.

In the reporting year, Gazprom continued to actively participate in the implementation and funding of projects to identify and eliminate sites of accumulated environmental damage in the Arctic zone.

Campaign to clear the Kharasavey natural gas and condensate field has been in progress at OOO Gazprom dobycha Nadym since 2019. The task of eliminating the accumulated environmental damage will be completed by the end of 2023. Thanks to the full-scale cleanup of the territory of Kharasavey GCF, the fragile Arctic ecosystem will get rid of the accumulated damage from the time of the first geological and exploration expeditions.

The Program for the conservation of biological diversity during the production and development of fields in the areas of PJSC Gazprom activity on the continental shelf of the Russian Federation in the Arctic was developed in 2022. Its purpose is to ensure the sustainable existence and natural process of replenishing biological diversity during the development of oil and gas fields onshore, on the continental shelf of the Russian Federation, in inland sea waters, territorial sea and the adjacent zone of the Russian Federation, thus, to achieve strategic objectives and target values.

While enchasing mechanisms of voluntary environmental responsibility, over the years, PJSC Gazprom has been executing large-scale plans of additional environmental protection measures in the regions of its activities. Such measures include the organization and participation in environmental competitions, seminars, meetings, participation in cleanup days, environmental campaigns. These measures support the development of ecological culture, education and awareness as well as the image of PJSC Gazprom as an environmentally and socially responsible company.

In 2022, 3,913 cleanup days were held in the Gazprom Group. The Company's employees cleared of garbage 4,230 sites (with an area of more than 5,500 ha), and planted more than 185 thousand seedlings of trees and shrubs.

Within the framework of the federal project "Preservation of unique water bodies" of the Ecology national project, employees of OOO Gazprom transgaz Surgut cleaned the shore of Lake Syrkovy Sor in the Nefteyugansk district and the bank of the Karasul River. Employees of OOO Gazprom transgaz Tomsk have cleaned the shoreline of the Nevers River, the Lena River near the Karavanka wharf, the shore of the Buzulinsky quarry and the surrounding area. Employees of OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk have cleaned part of the coast of the Okhotsk Sea and the Lunsky Bay that is the part of same-name Special Protected Natural Area. The water area of the bay and the rivers flowing into it are the habitats of the Sakhalin taimen, listed in the Red Lists of Threated Secrecies (aka the Red Book) of the Russian Federation and the Sakhalin Region.

OOO Gazprom transgaz Saratov has joined the Volga Day campaign. The employees cleared the river bank in the Saratov Region near the village of Orlovskoye. Employees of OOO Gazprom transgaz Volgograd removed garbage from approx. 60 km of the shores of 18 rural and urban reservoirs including the Volga, the Don, the Khoper, the Torgun, the Tolucheyevka, the Podgornaya, and the Archeda.

Gas workers of OOO Gazprom dobycha Nadym joined the international campaign "Clean Shores of Eurasia – 2022" and cleaned the coastal zone of Lake Yantarnoye.

Taking part in the All-Russian ecological clean-up event "Green Russia", employees of OOO Gazprom transgaz Tomsk cleaned the cedar forest on the outskirts of the village of Parabel, the shores of Lake Krasnoe and the Tom' River as well as the lake shore in the village of Matveevka, Khabarovsk Region. OOO Gazprom gazoraspredelenie Arkhangelsk joined the event in Yarensk and Urdoma villages and the city of Arkhangelsk, and collected dozens of bags of garbage on the coastal territory of the Kizhmola, Lupya and Severnaya Dvina rivers.

In addition to the All-Russian ecological clean-up event "Green Russia", the Gazprom Group companies actively participated in a number of other no less important and large-scale cleanup days in 2022. It is especially necessary to emphasize the attention paid to Special Protected Natural Areas, nature reserves and national parks.

Employees of OOO Gazprom dobycha Krasnodar held the Day of the Ecologist events in the regions of the Company's presence. Together with the Department of Special Protected Natural Areas, they cleaned from garbage the Yasenskaya Spit in the Primorsko-Akhtarsky district of Kuban and the coastal strip of the Pechora River.

As part of the Year of Ecology announced in Yamal in 2022, employees of OOO Gazprom dobycha Urengoy held an annual environmental campaign "Clean City" near the Varengayakha River. Approx. 20 tons of waste were collected and removed in just a few hours of cleaning. Employees of OOO Gazprom dobycha Yamburg organized 6 field events for sanitary cleaning of public lands from unauthorized landfills. Almost 50 tons of waste has been collected and taken out for disposal.

Employees of OOO Gazprom transgaz Samara held eco-cleanup days at Special Protected Natural Areas taken under patronage as part of the project "Guardians of the Volga Lands". Cleanup days were held on Blue Lake in Sergievsky district, Kopeyka Mountain in Pokhvistnevsky district, Yagodinsky forest in Stavropol district and the Kamyshlinskaya Matsesta spring in the village of Kamyshla.

OOO Gazprom dobycha Irkutsk took part in a citywide cleanup day in the city of Irkutsk. More than 500 employees of enterprises and organizations that are members of the Gazprom on Baikal Non-profit Partnership were engaged in cleaning. They collected over 200 m^3 of dead leaves and garbage to remove for disposal. More than 100 representatives of the company joined the campaign to clean up the territory of the Baikal National Park from garbage. The participants of the event cleaned approx. 1.5 kilometers and collected more than 400 bags of garbage.

OOO Gazprom transgaz Tomsk organized a cleanup day on the shore of Lake Kudrovskoye. The Company has been monitoring its cleanliness for seven years. In the Kemerovo Region, an eco-quest "Clean Games" was held on the outskirts of the city of Yurga, during which a total of 2 tons of waste was collected, some of it sent for recycling.

With the support of OOO Gazprom transgaz Moscow, a 1.1 thousand m long eco-path "Konstantinovskoe Podvorye" was created in 2022 in the homeland of the poet Sergei Yesenin in the Ryazan Region. Employees of OOO Gazprom transgaz Stavropol have arranged a unique eco-route in the Podluzhnensky Nature Reserve of the Stavropol Territory. The gas workers implemented this social initiative thanks to a grant from Gazprom Trade Union.

It is customary that the Gazprom Group employees and their family members are active participants in the All-Russian eco-event "Green Spring" organized by the Vernadsky Nongovernmental Ecological Foundation with the support of PJSC Gazprom, within which cleanup days are held and trees and shrubs are planted.

In Novy Urengoy, more than 800 employees of OOO Gazprom dobycha Urengoy cleaned the bank of the Tomcharu-Yakha River and the urban space of more than 19 ha. More than 2 thousand employees of OOO Gazprom dobycha Yamburg cleaned a few city streets, lawns and front gardens, and the shore of Molodezhnoye Lake. The company's employees participated in cleaning of shift settlements of Yamburg and Novozapolyarnoye. As a result, 144 ha of territories were cleaned, approx. 130 m^3 of garbage and waste were sent for further processing and disposal.

OOO Gazprom transgaz Volgograd cleaned 1 ha of dead wood from the Archedinsk-Don Sands Nature Reserve and planted more than 4.5 thousand pine seedlings.

In a month, more than 1.3 thousand employees of OOO Gazprom transgaz Stavropol from 7 regions of the company's area of responsibility cleaned 65 ha of land from garbage. They transferred 75 tons of garbage to specialized landfills, cleaned the coastal zone of the Novotroitsky reservoir, sections of the Barsuchka River, Stavropol Territory, the Terek, Republic of North Ossetia, the Volga, the Serebryanaya Volozhka, the Tishkovsky Canal and the Podstepok Branch, Astrakhan Region. During an eco-marathon, more than 450 trees and shrubs were planted, 65 new flowerbeds, over 60 monuments and memorials to the soldiers of the Great Patriotic War were restored.

30 employees of OOO Gazprom transgaz Saratov planted approx. 300 pine seedlings with a closed root system on the territory of the Lysogorsky forestry of the Saratov Region. Employees of OOO Gazprom transgaz Kazan planted 300 firs and pines on the territory of the Prigorodny forestry near the settlement of Biryulinsky Animal Farm.

Employees of OOO Gazprom transgaz Tomsk joined this event on the territory of the Timiryazevsky forestry near Lake Peschanoe and planted more than 15 thousand pine trees, and more than 2.2 thousand pine seedlings on an area of 1.1 ha in the Barnaul forestry. In addition, the Kaya relic grove was completely cleared of garbage. Gas workers, joining the eco-event "Hand over recyclables – plant a tree", exchanged bags of batteries and plastic covers for seedlings. Then, they planted these seedlings next to the new stele "Irkutsk – the city of labor valor".

Together with representatives of the settlements of the Rostov Region, employees of the branches of OOO Gazprom tansgaz Krasnodar planted 4 thousand seedlings of Crimean pine in the Mikhailovsky forestry and 700 more seedlings of ash in the forestry of Akhtyrsky village in the Krasnodar Territory.

OOO Gazprom dobycha Krasnodar has become a partner of an environmental campaign to plant more than 180 trees and shrubs near the St. Nicholas Church in the village of Vesely-Voznesenka, Rostov Region.

On the 11 of October, the Youth Council of OOO Gazprom gazoraspredelenie Cheboksary and OOO Gazprom mezhregiongaz Cheboksary planted more than one thousand pine seedlings on the territory of the Mariinsko-Posadsky district, where forests were affected by fires. The company's employees planted 4 thousand seedlings of two-year-old pines on a plot of more than 2 ha.

Employees of OOO Gazprom Invest and OO Gazprom LNG Portovaya took part in the All-Russian campaign "We Give the Forest" and planted trees on the territory of Sevastyanovo village, Leningrad Region.

OOO Gazprom dobycha Noyabrsk implemented the eco-project "45 ha of forest" on its 45th anniversary. The project covered all regions of its production activity – from Yamal to Kamchatka. The aim is to clean up forest areas from garbage. In total, 20 environmental events took place; the company's employees collected more than 30 tons of garbage and cleaned 45 ha of forest.

In 2022, a new project "Environmental Partnership" was launched on the initiative of OOO Gazprom dobycha Orenburg and a non-profit partnership "Gazprom in the Orenburg Region".

The first environmental events took place in October-November of the reporting year. Coniferous and deciduous trees were planted on the territories of the production facilities of the company, educational and healthcare institutions of the city of Orenburg, Orenburg and Perevolotsky districts.

Gazprom is well known in Russia as a company that organizes and actively supports scientific and educational activities in the field of ecology, especially among children and youth.

OOO Gazprom transgaz Yugorsk hosted events dedicated to the World Environment Day. One of the events of the three-day program was the environmental quest "Industrial Ecology" for 10th graders of schools and students of Yugorsk State University (the city of Khanty-Mansiysk). The final event of the program was the tradition to release Siberian squirrels and chipmunks into their natural habitat.

In the summer, two stages of the annual ornithological scientific and educational expedition of specialists of the Novourengoy children's ecological station took place on the territory of the Yamburg OGCF under the Protected Yamal project of OOO Gazprom dobycha Yamburg.

This year, PJSC Gazprom set up the Environmental Camp for teams from 25 subsidiaries. Participants (aged 15-17) have prepared their environmental projects: "The Importance of Protected Areas" (OOO Gazprom Transgaz Yugorsk), "The Second Life of Waste" (OOO Gazprom pererabotka), "Developing Ecological Culture" (OOO Gazprom dobycha Orenburg), "New Life of Food Plastic" (OOO Gazprom transgaz Stavropol), "Environmental Problem of Unconscious Consumption and Disposal of Unnecessary Things" (OOO Gazprom proektirovanie) and "The Concept of Waste-Free Production: validity and viability" (OOO Gazprom transgaz Makhachkala).

Since 2014, more than 1.5 thousand people aged from 14 to 18 have become participants of the Ecological Teams of OOO Gazprom dobycha Urengoy. 270 boys and girls learned more about pro-environmental attitude in 2022. Moreover, the All-Russian Junior Readings named after V. I. Vernadsky for young researchers from Yamal were organized. The company also provides assistance to the Children's Ecological Station, the Russian Arctic Development Center, and the Verkhne-Tazovsky State Nature Reserve.

Glossary of main terms and acronyms

Name	Definition
AAMS	Automated air monitoring system
ACU	Air cooling units
AECS	Automated environmental control station
AGPCS	Automatic gas pollution control stations
Associated petroleum gas (APG)	Mixture of gases and vaporous hydrocarbon and non-hydrocarbon components emitted from oil wells and all-in-place during separation.
BAT	Best available technique
Biodiversity (biological diversity)	The whole variety of living forms of different habitats, including onshore, offshore, and other water ecosystems and their constituent eco complexes.
BREF-ITS	Best available techniques reference documents
CHPP	Combined heat and power plant
CNG	Compressed natural gas
CR	Compressor room
CS	Compressor station
EMS	Environmental Management System
Energy saving	Implementation of legal, organizational, scientific, production, technical and economic measures aimed at effective (rational) use of fuel and energy resources and introduction of renewable power sources into economic turnover. Energy-saving is a critical mission in preserving natural resources.
Environment	Set of nature components, natural and anthropogenic as well as man-made objects.
Environment quality	State of the environment characterized by physical, chemical, biological, and other values and (or) their combination.
Environmental audit	Independent comprehensive documented assessment of compliance of business and other activities with environmental requirements, including standards and regulatory documents, international standards, and drawing up recommendations to improve such activities.
Environmental damage	Negative change in the environment caused by pollution, which entailed degradation of natural ecosystems and depletion of natural resources.
Environmental impact assessment	Type of activity aimed at identification, analysis and accounting of direct, indirect and other consequences of the impact on the environment from planned business and other activities to make a decision on possibility or impossibility of their execution.
Environmental management	Part of the general corporate management system with a clear organizational structure aimed at reaching Environmental Policy provisions by implementation of environmental protection programs.
Environmental monitoring	Comprehensive system of observations over the state of the environment, assessment and forecast of environmental conditions changes under the impact of natural and anthropogenic factors.
Environmental oversight	System of measures aimed at prevention, identification and restraint of environmental legislative violations, ensuring compliance of business and other activities with environmental requirements, including standards and regulatory documents.
Environmental protection (EP)	Actions aimed at conservation and recovery of the environment, rational use and reproduction of natural resources, prevention of negative environmental impact of business and other activities, and mitigation of consequences.
Environmental protection requirments	Obligatory conditions, restrictions or their combination applicable to business and other activities stipulated by environmental laws, statutes, environmental standards, federal norms and rules as well as other environmental regulatory documents.
Environmental review	Ensuring compliance of documents and/or documentation that justify planned business and other activities according to implementation of environmental review object with environmental requirements, established by environmental technical regulations and legislation, in order to prevent the negative impact of such activities on the environment.
Environmental safety	State of security of the environment and vital human interests from possible negative impact of business and other activities, natural and man-made emergencies and their consequences.
ESG	Environmental, Social, and Governance
FER	Fuel and energy resources

Name	Definition
GCU	Gas compressor unit
GDS	Gas distribution station
Global temperature change potential (GTP)	An index measuring the change in global mean surface temperature at a chosen point in time following an emission of a unit mass of a given substance, relative to that of the reference substance, carbon dioxide (CO_2).
Global warming potential (GWP)	An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO_2).
GMF	Gas motor fuel
GPP	Gas processing plant
Greenhouse gases (GHG)	Gases that presumably cause greenhouse effect globally. The main greenhouse gases in order of their estimated contribution into the Earth's heat balance are water steam, carbon dioxode, methane, ozone, sulphurylfluoride, halocarbons, and nitrogen oxide.
GTL	Gas trunkline
GTS	Gas transmission system
HPP	Hydroelectric power plant
IFRS	International Financial Reporting Standards
IMS	Information & Management system
IPCC	Intergovernmental Panel on Climate Change
ISO 14001:2015	Environmental management systems – Requirements with guidance for use
ISO 14064-2:2019	Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
ISO 50001:2018	Energy management systems – Requirements with guidance for use
LNG	Liquefied natural gas
LS	Linear section
MCS	Mobile compressor station
MEL	Mobile eco-laboratory
Natural complex	Set of natural objects functionally and natively related to each other, and united by geographical and other corresponding features.
Natural object	Natural ecosystem, natural landscape, and their constituent elements that preserve their natural features.
Nature resources	Nature components, natural objects, and nature and anthropogenic objects that are used or can be used in the course of business and other activities as energy sources, products and consumables, and that have consumer value.
Negative impact on the environment	Impact of economic and other activities, which consequences lead to adverse changes in the environment quality.
NGV	Natural gas vehicle
OEC	Opperational environmental control
OEM	Operational environmental monitoring
OGCF	Oil, natural gas and condensate field
Pollutant	Substance or mixture of substances that occur in amounts and (or) concentrations exceeding specified limits for chemicals, including radioactive and other substances, and microorganisms, and affect the environment in negative ways.
R&D	Research and development
RAS	Russian Academy of Sciences
RES	Renewable energy sources
RSPP	Russian Union of Industrialists and Entrepreneurs
SAF	Sustainable aviation fuel
SCC	Stress corrosion cracking

Name	Definition
SES	Secondary energy sources
Specially protected natural area (SPNA)	Land, water and air zones with natural complexes and objects having special nature protection, scientific, cultural, esthetic, recreational and wellness significance with exclusive security arrangements, totally or partially removed from the economic use by the decision of state bodies. SPNAs are national heritage.
SPP	Solar power plant
TEDC	Technological experimental and demonstration complex
UAV	Unmanned aerial vehicle
UGS	Undergroud gas storage
UGSS	Unified Gas Supply System
Waste management	Activities on collection, accumulation, transportation, processing, recovery, treatment, disposal of waste.
YNAD	Yamal-Nenets Autonomous District

Russian Business and Other Organizations

Name	Definition
ANO	Autonomous Non-Commercial Organization
AO	Joint Stock Company
FSAE HE	Federal State Autonomous Educational Institution of Higher Education
OAO	Open Joint Stock Company
OOO	Limited Liability Company
PAO	Public Joint Stock Company
ZAO	Closed Joint Stock Company

Addresses and contacts

PJSC Gazprom

2/3 Lakhtinsky Avenue, Bldg. 1
St. Petersburg
197229
Russia
www.gazprom.com
Phone: +7 (812) 641-36-14

OOO Gazprom VNIIGAZ

Corporate R&D Centre
for Environmental Safety and Energy Efficiency
45 Malookhtinsky Avenue, Liter A
Facility 2-H, office 812
Internal premises of the city municipal district Malaya Okhta
St. Petersburg
195112
Russia
www.vniigaz.gazprom.com
Phone: +7 (498) 657-42-06

Independent practitioner's assurance report

Translation of the original Russian version

To the Board of Directors of
Gazprom, PJSC

Subject matter

We have been engaged by Gazprom, PJSC (hereinafter "the Company") to perform a limited assurance engagement, as defined by International Standards on Assurance Engagements (herein "the Engagement"), to report on the greenhouse gas emissions indicators included in the Gazprom Environmental Report 2022 (hereinafter "the Report") for 2022 (hereinafter "the Reporting period"):

- Direct GHG emissions dynamics (Scope 1) at PJSC Gazprom by types of activities, 2022, mln tons CO_2e, page 51, 53.

Production	15,63 mln tons CO_2e
Transmission	66,03 mln tons CO_2e
Processing	6,82 mln tons CO_2e
Underground storage	1,22 mln tons CO_2e
Other types of activities	1,32 mln tons CO_2e

- Indirect energy GHG emissions (Scope 2) at PJSC Gazprom by types of mainstream activities, 2022, mln tons of CO_2e, page 53.

Production	0,31 mln tons CO_2e
Transmission	1,84 mln tons CO_2e
Processing	1,83 mln tons CO_2e
Underground storage	0,04 mln tons CO_2e

- Methane emissions at PJSC Gazprom by types of activities, 2022, thousand tons of CO_2e, page 52.

Production	82,09 thousand tons CH_4
Transmission	706,11 thousand tons CH_4
Processing	2,84 thousand tons CH_4
Underground storage	14,95 thousand tons CH_4
Other types of activities	4,17 thousand tons CH_4

Translation of the original Russian version

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.

Applicable criteria

In preparing the Indicators the Company applied the methodology for quantifying greenhouse gas emissions approved by Order of the Russian Ministry of Natural Resources No. 371 dated 27 May 2022, guidelines for quantifying the volume of indirect energy emissions of greenhouse gases, approved by Order No. 330 of the Russian Ministry of Natural Resources dated 29 June 2017, International standard ISO 14064-1:2018 (GOST R ISO 14064-1-2021): "Greenhouse gases. Part 1. Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals" (hereinafter "the Criteria").

The Company's management responsibilities

The Company's management is responsible for selecting the Criteria and for presenting the Indicators in accordance with the Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the Indicators, such that these are free from material misstatement, whether due to fraud or error. In addition, the Company's management is responsible for ensuring that the documentation provided to the practitioner is complete and accurate.

Practitioner's responsibilities

Our responsibility is to express a conclusion on the presentation of the Indicators based on the evidence we have obtained.

We conducted our assurance engagement in accordance with International Standard for Assurance Engagements 3410 *Assurance Engagements on Greenhouse Gas Statements* (hereinafter "ISAE 3410"). ISAE 3410 requires that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Indicators are presented in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error. We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Our independence and quality control

We apply International Standard on Quality Control 1 (ISQC 1) and International Standard on Quality Management 1 (ISQM 1) adopted by the International Federation of Accountants in respect of those matters for which the relevant requirements in ISQC 1 are either missing or less in scope (or in nature) than the requirements in ISQM 1, and accordingly, we maintain a robust system of quality control, including policies and procedures documenting compliance with relevant ethical and professional standards and requirements in law or regulation.

Translation of the original Russian version

We comply with the independence and other ethical requirements of the IESBA Code of Ethics for Professional Accountants, which establishes the fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Summary of work performed

The assurance engagement performed represents a limited assurance engagement. The nature, timing and extent of procedures performed in a limited assurance engagement is limited compared with that necessary in a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is lower.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within information technology systems.

The GHG quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of GHGs. Additionally, GHG procedures are subject to estimation (or measurement) uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Indicators and related information, and applying analytical and other appropriate procedures.

Our procedures included:

- Surveys of managers and specialists of the Company who are responsible for policies, activities and results in the field of GHG emissions, reduction of GHG emissions and consumption of energy resources, as well as for the preparation of relevant reports;
- Analysis of key documents relating to the Company's policies, results of operations and reporting in the field of GHG emissions, reduction of GHG emissions and consumption of energy resources;
- Obtaining an understanding of the Company's GHG reporting process;
- Analysis of a sample of data on indicators in the field of GHG emissions of Scope 1 and 2 for the Reporting period in order to make sure that at the Company level the specified data were collected, prepared, combined and included in the Report in an appropriate way.

We also performed such other procedures as we considered necessary in the circumstances.

Translation of the original Russian version

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the Indicators are not represented fairly, in all material respects, according to the Criteria.

R.G. SAVELIEV
Partner
TSATR – Audit Services Limited Liability Company

17 May 2023

Details of the independent practitioner

Name: TSATR – Audit Services Limited Liability Company
Record made in the State Register of Legal Entities on 5 December 2002, State Registration Number 1027739707203.
Address: Russia 115035, Moscow, Sadovnicheskaya naberezhnaya, 77, building 1.
TSATR – Audit Services Limited Liability Company is a member of Self-regulatory organization of auditors Association "Sodruzhestvo". TSATR – Audit Services Limited Liability Company is included in the control copy of the register of auditors and audit organizations, main registration number 12006020327.

Details of the entity

Name: Gazprom, PJSC
Record made in the State Register of Legal Entities on 2 August 2002, State Registration Number 1027700070518.
Address: Russia 197229, Saint Petersburg, Lakhtinsky prospekt, 2, building 3, p. 1.

www.gazprom.com