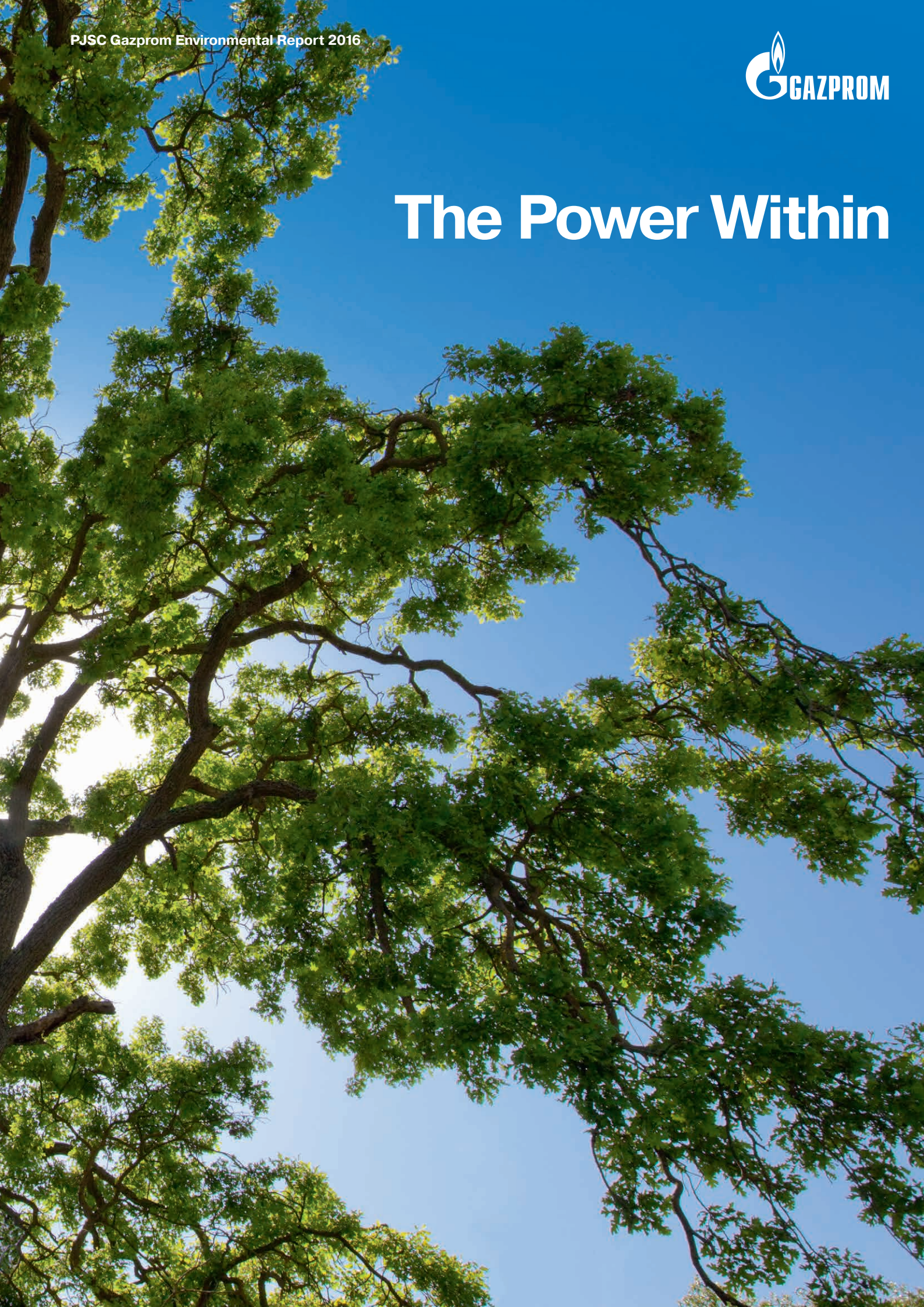
GAZPROM

The Power Within



PJSC Gazprom Environmental Report 2016

Letter of Deputy Chairman of PJSC Gazprom Management Committee

Dear readers!

On behalf of the PJSC Gazprom Management Committee I present you Environmental Report 2016.

Environmental policy of PJSC Gazprom and efficient environment protection management system are the basis of safe production, high environmental competence level and responsible attitude of our employees.

Gazprom's activities are based on the sustainable development principles and comply with legal requirements. Gazprom constantly improves the energy efficiency and reduces anthropogenic impact on the environment through the application of advanced technologies and equipment.

Gazprom Group allocates significant funds for the purposes of environment protection and rational nature management and increases the funding basis from year to year. In 2016, current costs for environment protection comprised RUB 34.10bn, while fixed investments into environmental protection and rational use of natural resources reached RUB 22.54bn.

Gazprom takes part in solution of global air pollution issues by promoting natural gas as an environmentally safe motor fuel. Owing to the use of natural gas, energy balance of Russia is one of the "greenest" in the world.

Gazprom is actively using tools of voluntary environmental responsibility, provides most open and available information on the environment impact levels of existing facilities and environmental aspects of future projects, and measures taken to reduce environmental risks.

In 2016 PJSC Gazprom became the best energy company in Russia listed on the international stock exchange for the fifth time, according to the rating of CDP, an international non-profit partnership that evaluates self-reported corporate information on greenhouse gas emissions and corporate climate strategy.

In the environmental responsibility rating of largest Russian oil and gas companies, PJSC Gazprom holds leading positions.

Considering the Decree of the President of the Russian Federation on Holding the Year of the Environment in the Russian Federation in 2017, and continuing traditions of large-scale voluntary actions in the regions of presence, in 2017 PJSC Gazprom announced the Green Year in Gazprom under the motto "Conserving Nature".

V.A. Markelov
Deputy Chairman of
PJSC Gazprom Management Committee,
Chairman of PJSC Gazprom Coordination Committee
for Environmental Protection and Energy Efficiency

The present Environmantal Report has been formed in accordance with the Decree of the Gazprom Management Committee on Organization of Work Related to Preparation and Holding of the Annual General Shareholders Meeting of PJSC Gazprom.

The present report is based on the data of the corporate annual reporting statistics on environmental protection, as well as other information published on the corporate web resources, articles of the Group published in Russia and abroad.

The 2016 Environmental Report provides information about the Gazprom Group activities in the Environmental Policy implementation, including the current performance on air, water and land resources, waste management and measures undertaken to mitigate the environmental impact. The Report presents data on environmental management and funding of fundamental studies and production complex technical modernization aimed at ensuring the environmental safety of the Gazprom Group operating facilities.

The data are provided in respect of the Gazprom Group on the whole, PJSC Gazprom (including retrospective data for 5 years) and some companies from the Group that contribute greatly to the activities aspects covered in the report.

The term PJSC Gazprom used in this Report refers to the parent company of the Gazprom Group, Public Joint Stock Company Gazprom and its fully owned subsidiary companies and organizations involved in hydrocarbons exploration, production, transportation, underground storage and processing activities, as well as maintenance of unified gas supply system.

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
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AO Tchetchengazprom
OOO Gazprom UGS
OOO Gazprom pererabotka
OOO Novy Urengoy gas chemical complex
OOO Gazprom energo
OOO Gazprom tsentrremont
OOO Gazprom podzemremont Orenburg
OOO Gazprom podzemremont Urengoy
OOO Gapprom geotekhnologii
OOO Gazprom georesurs
OOO Gazprom gazomotornoye toplivo
OOO Gazpromavia Aviation Company
OOO Gazpromtrans
OOO Gazprom flot
OOO Gazprom invest
OOO Gazprom sotsinvest
ZAO Yamalgazinvest
ZAO Gazprom invest Yug
OAO Gazpromtrubinvest
AO Tsentrgas

The terms Gazprom Neft Group or Gazprom Neft comprise PAO Gazprom Neft and its subsidiary companies.

The terms Gazprom neftekhim Salavat comprise OOO Gazprom neftekhim Salavat and its subsidiary companies.

The terms Gazprom Energoholding comprises OOO Gazprom Energoholding and its subsidiary companies (PAO Mosenergo, PAO MOEK, PAO OGK-2, PAO TGC-1, PAO Murmanskaya CHPP, OAO Saint Petersburg Heating Grid).

Gazprom Group, Gazprom or Group will stand for PJSC Gazprom (all above mentioned 100% subsidiaries) and the following companies:

Gazprom Neft Group
Gazprom Energoholding
Gazprom neftekhim Salavat
Vostokgazprom Group
OOO Gazprom mezhregiongaz
AO Daltransgaz
OAO Krasnoyarskgazprom
Sakhalin Energy Investment Company Ltd. (Sakhalin Energy)
OAO Severneftegazprom
ZAO Purgaz

as well as PJSC Gazprom subsidiary companies conducting their activities abroad:
OAO Gazprom transgaz Belarus
ZAO Gazprom Armenia
OsOO Gazprom Kyrgyzstan
Gazprom EP International B.V.

The Gas business companies of the Gazprom Group comprises PAO Gazprom (and all its 100 per cent subsidiary companies and organizations involved in hydrocarbons production, transportation, underground storage and refining activities, as well as maintenance of unified gas supply system), OOO Gazprom Mezhregiongaz, Vostokgazprom Group (OAO Tomskgazprom), AO Daltransgaz, Sakhalin Energy Investment Company Ltd., OAO Severneftegazprom, ZAO Purgaz.

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

Environmental management system

Gazprom operates an environmental management system with various management units ranging from the PGSC Gazprom's Board of Directors to branch offices and production facilities.

The Gazprom Environmental Policy is the major environmental protection guideline which determines both the company's environmantal principal obligations and volunteer objectives, and defines their implementation mechanisms as well.

With account of liabilities taken, PJSC Gazprom performs operations in line with the national and international regulation to ensure the continuous improvement of environmental performance.

In 2015 a new revision of Environmental Policy was approved by a Decree of the Management Committee of PJSC Gazprom in order to reflect current trends in environment protection and energy efficiency.

The update was caused by the expansion of the scope and geographical scale of the PJSC Gazprom activities, including implementation of projects at the continental shelf and in the Arctic area of the Russian Federation, as well as by changes in the national environmental regulation.

The newly approved edition of the Environmental Policy considers additional responsibilities for environmental safety of hydrocarbon field exploration on the continental shelf and the Russian Arctic, as well as for mitigating risks of negative environmental impact, especially on highly vulnerable areas and areas subject to thorough protection and preservation.

Top Administrative Body of PJSC Gazprom in the Environmental Protection Management System is the PJSC Gazprom Management Committee that submits data on environmental protection activities and PJSC Gazprom Environmental Policy implementation results to the Board of Directors regularly.

PJSC Gazprom Coordination Committee for Environmental Protection and Energy Efficiency was created by the Order No. 280 of PJSC Gazprom dated October 17, 2007. The Committee includes the majority of the Management Committee members and heads of the PJSC Gazprom Administration's structural subdivisions (specialized departments). The Committee exercises complex administration and general coordination of activities for the PJSC Gazprom Administration structural divisions, affiliate and subsidiary companies of the Gazprom Group, interaction with the state environment protection bodies and social organizations aimed at environmental protection.

The Directorate responsible for implementation of unified environmental policy of the PJSC Gazprom and aimed at increasing Gazprom Group energy efficiency is directly in charge of actions on interacting PJSC Gazprom subsidiary companies and organizations in the environmental activities area and decisions implementation of the Coordination Committee and senior executives of the PJSC Gazprom. This Directorate is included in the Department coordinating perspective development of PJSC Gazprom.

Corporate environmental review and environmental control (audit) are used by PJSC Gazprom successfully as tools of voluntary environmental responsibility. Environmental design and survey works carried out by research and development organizations upon Gazprom request are an integral part of the management system.

PJSC Gazprom has an environmental management system (PJSC Gazprom's EMS) implemented and functioning efficiently, that covers 36 affiliate companies performing major activities of exploration, production, transportation, storage and processing of gas and gas condensate, as well as managing investment projects and assets.

Application scope of PJSC Gazprom's EMS in 2016

OOO Gazprom dobycha Astrakhan	OOO Gazprom transgaz Samara
OOO Gazprom geologorazvedka	OOO Gazprom transgaz Saint Petersburg
OOO Gazprom dobycha Irkutsk	OOO Gazprom transgaz Saratov
OOO Gazprom dobycha Krasnodar	OOO Gazprom transgaz Stavropol
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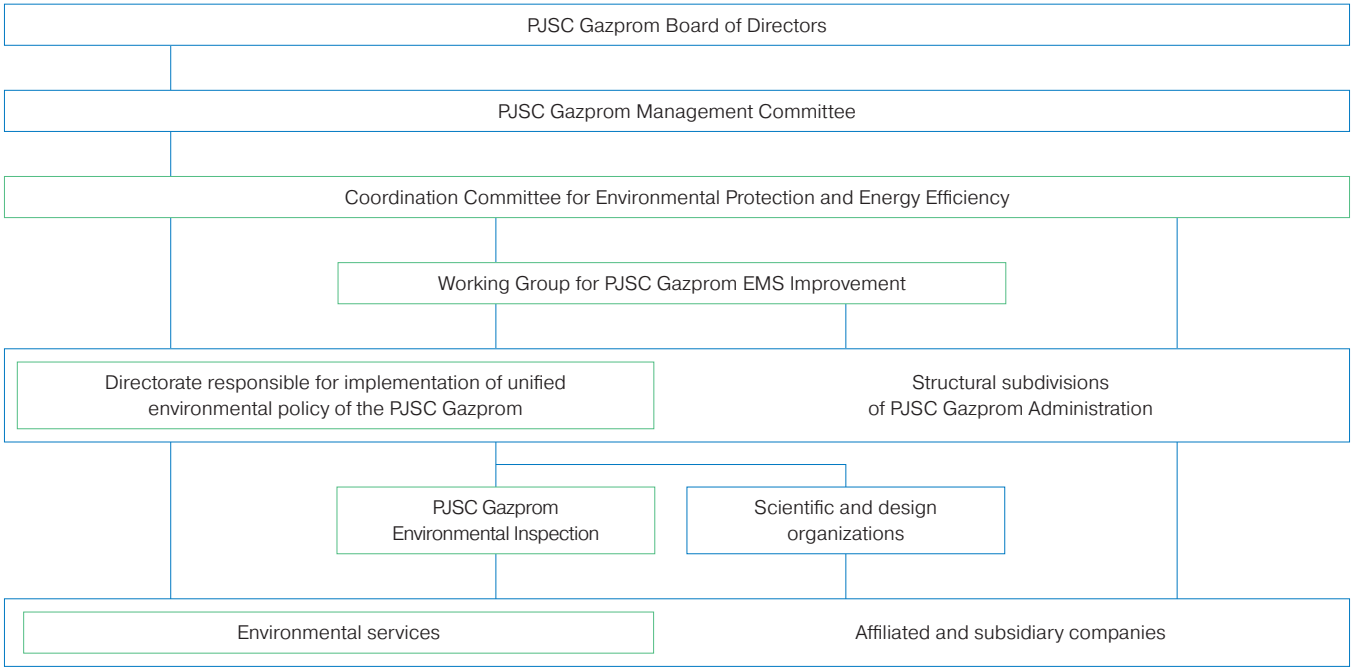
OOO Gazprom transgaz Yekaterinburg	OOO Gazprom pererabotka
OOO Gazprom transgaz Kazan	OOO Gazprom energo
OOO Gazprom transgaz Krasnodar	OOO Gazprom tsentrremont
OOO Gazprom transgaz Makhachkala	OOO Gazprom podzemremont Orenburg
OOO Gazprom transgaz Moscow	OOO Gazprom podzemremont Urengoy
OOO Gazprom transgaz Nizhny Novgorod	OOO Gazprom invest



Since 2011, PJSC Gazprom's EMS has been certified for compliance with the international standard ISO 14001:2004. Recertification and supervision audits performed in 2014–2016 by an independent international certification body DNV-GL proved that the system complied with the requirements.

In order to ensure comprehensive approach and coordination of the environmental management activities of PJSC Gazprom's structural subdivisions, there is a constantly operating Work Group for the PJSC Gazprom's EMS improvement. The head of the group is O.E. Aksyutin, a member of the PJSC Gazprom Management Committee, Head of Department.

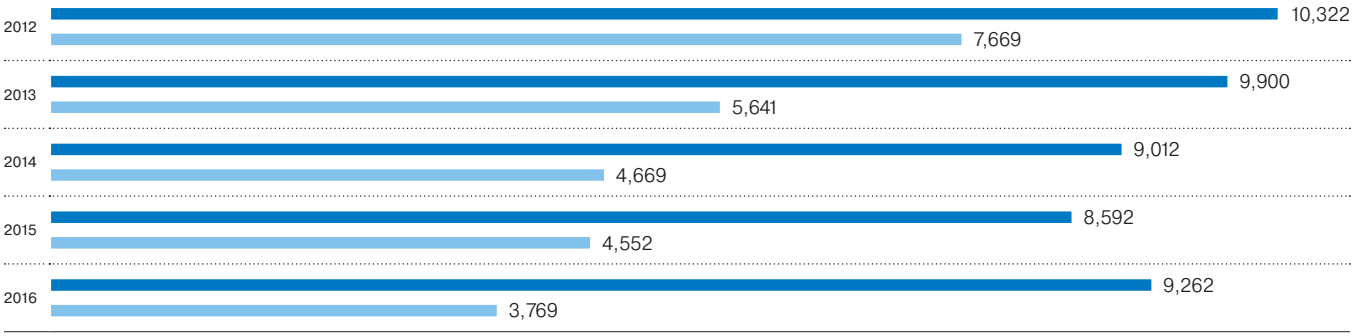
In Gazprom Group companies not covered by PJSC Gazprom EMS, environmental management systems are also implemented and functioning successfully, most of them are certified for compliance with international standard ISO 14001:2004. Environmental management systems of those companies are made wit account of specific features of their activities and have some special features.

In 2015, a revision of international standard ISO 14001:2015 "Environmental Management System — Requirements with guidance for use" (ISO 14001:2015) was introduced.

For transition of PJSC Gazprom's EMS to the new revision of the standard ISO 14001:2015, a plan was developed and is being implemented, that included specified corporate procedures related to PJSC Gazprom's EMS functioning, review of regulatory documents, relevant training of the staff. Active works on PJSC Gazprom's EMS preparation for re-certification audit in 2017 for compliance with ISO 14001:2015 are performed.

A prerequisite for successful environmental management is the process of improving ecological knowledge and culture of the staff. In 2016, 9,262 people in the Group were trained and improved their qualifications in environment protection (3,769 of them studied EMS), including 6,928 PJSC Gazprom employees (3,521 of them studied EMS), 1,132 Gazprom Neft Group employees (153 of them studied EMS) and 415 Gazprom Energoholding employees (37 in EMS).

Environmental training of Gazprom Group personnel, 2012–2016, pers.



In 2012–2016, over 47 thousand employees underwent environmental training in Gazprom Group.

Competition of environmental services and ecologists of the PJSC Gazprom subsidiary companies

A competition of environmental services and ecologists of PJSC Gazprom subsidiary companies is held annually in PJSC Gazprom in compliance with the OAO Gazprom Order No. 113/A dated April 30, 2008.

In 2016, according to 2015 results among environmental services, OOO Gazprom transgaz Ufa (Head of the Environmental Protection Division D.G. Novikov) won the competition.

Winners of the Competition of ecologists:

— S.A. Vladimirova, cat. 1 environment protection engineer (ecologist) from laboratory monitoring and environment protection service of Priyutovskoye LPUMG, OOO Gazprom transgaz Ufa;
— E.N. Kutkova, a leading on environment protection engineer in Ivdel LPUMG, OOO Gazprom transgaz Yugorsk;
— D.G. Leshan, head of the Environmental Protection Department at OOO Gazprom dobycha Urengoy.

Environmental targets and programs

PJSC Gazprom operations are based on the principles of sustainable development interpreted construed as a well-balanced and socially acceptable combination of economic growth and preservation of a favorable natural environment for future generations.

Major environmental aspects of the subsidiary companies activity are defined on a yearly basis, which signpost environmental objectives, environmental safety measures development and implementation.

In 2016, major environmental aspects for PJSC Gazprom were: methane emissions during trunk gas pipeline (TGP) repair and nitrogen oxides emissions during the compressor station (CS) operation, as well as waste waters discharge and waste disposal. In compliance with the decision of PJSC Gazprom's Coordination Committee for Environmental Protection and Energy Efficiency, Corporate Environmental Targets of PJSC Gazprom for 2017–2019 were updated in 2016.

As per results of 2016, all Corporate Environmental Targets of PJSC Gazprom established for 2014–2016 were achieved.

Achieving corporate environmental targets of PJSC Gazprom in 2016, %

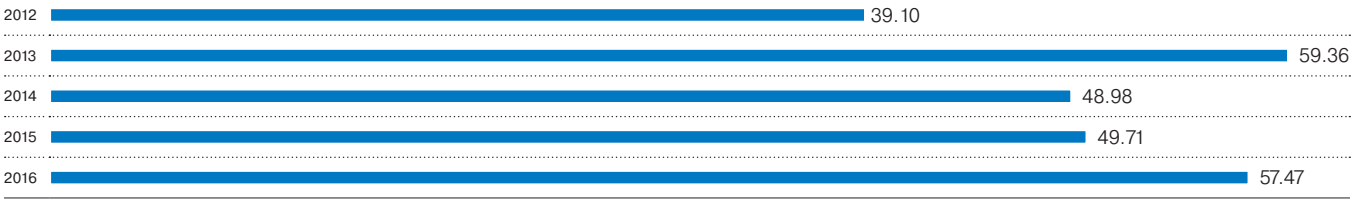
No.	Corporate environmental target	Entities with the EMS scope	Change against the 2011 baseline,%
1	Methane emissions decrease (during gas transportation system repair)	All subsidiaries engaged in natural gas transportation	Down 9.4
2	Reduction nitrogen oxide emission intensity (during compressing)	All subsidiaries engaged in natural gas transportation	Down 16.4
3	Reduction of waste and under-treated water discharge into surface water bodies	All subsidiaries	Down 34.5
4	Reduction of disposable waste share	All subsidiaries	Down 9.2
5	Reduction of above-limit impact charges as an integral indicator of negative environmental impact	All subsidiaries	Down 14.6
6	Reduction of specific fuel & energy consumption for own operational needs	All subsidiaries engaged in natural gas transportation	Down 23.3

Financing of environmental protection

In 2016, environmental costs of Gazprom Group increased almost by 16% as compared to the previous year and amounted RUB 57.47bn, with 36% for PJSC Gazprom.

Gazprom Group's capital investments into environment protection and rational use of natural resources increased by 70% compared to 2015 and preceding years (except for 2013) and comprised over RUB 22mm. Gas business companies including PJSC Gazprom, as well as Gazprom Energoholding reduced their investment due to completion of a number of investment programs in 2015.

Gazprom Group environment protection costs dynamics, 2012–2016, RUB bn



Capital investments into environmental protection and rational use of natural resources, 2012–2016, RUB mm

	2012	2013	2014	2015	2016
Gazprom Group	**12,885.76**	**24,947.93**	**15,578.35**	**15,754.33**	**22,541.85**
Gas business companies	10,416.56	20,760.53	7,703.04	6,931.87	2,542.10
including PJSC Gazprom	10,388.40	20,671.18	7,526.22	6,893.16	2,270.89
Gazprom Neft Group	1,210.09	1,115.51	3,995.61	3,114.05	14,275.03
Gazprom Energoholding	646.81	162.26	800.78	2,837.54	368.31
Gazprom neftekhim Salavat	612.30	2,909.63	3,078.92	2,870.87	5,356.41

Gazprom Neft increased its investments more than four times in 2016 compared to 2015 due to implementation of a number of large-scale investment programs:

- Reconstruction and re-equipment of gas transportation, preparation and processing facilities and gas system (construction of Ety-Pur Compressor Station of OOO Gazpromneft-Muravlenko subsidiary; GTPP of Shinginskoye field and stable condensate unit of OOO Gazpromneft-Vostok);
- Processing of drilling sludge from current drilling operations, recultivation of sludge pits (temporary sludge collectors);
- Replacement of hazardous pipeline sites and construction of new pipelines of 140.75 km length (Clean Territory program);
- Commissioning of new waste water treatment capacities in the reporting period, continued construction of Biosfera biological treatment plants and water treatment unit at AO Gazpromneft-Moscow NPZ (for commissioning in 2017).

Gazprom neftekhim Salavat has also increased investments in 2016 due to reconstruction of treatment facilities and re-equipment of its tank battery.

In 2012–2016, Gazprom Group invested RUB 91.71bn into environment protection and rational use of natural resources.

In 2016, 99% of Group's capital investments were assigned for: protection and rational use of water resources (RUB 11,791.20mm), protection and rational (sustainable) use of lands (RUB 2,877.12mm), air protection (RUB 7,545.93mm), construction plants and landfills for recovery, neutralization and disposal of toxic, industrial, household and other waste (RUB 34.07mm).

In 2016, total current environmental costs of Gazprom Group did not change greatly as compared to 2015 and amounted to RUB 34.10bn.

Structure of capital investments in environmental protection and rational use of natural resources, Gazprom Group, 2016,%

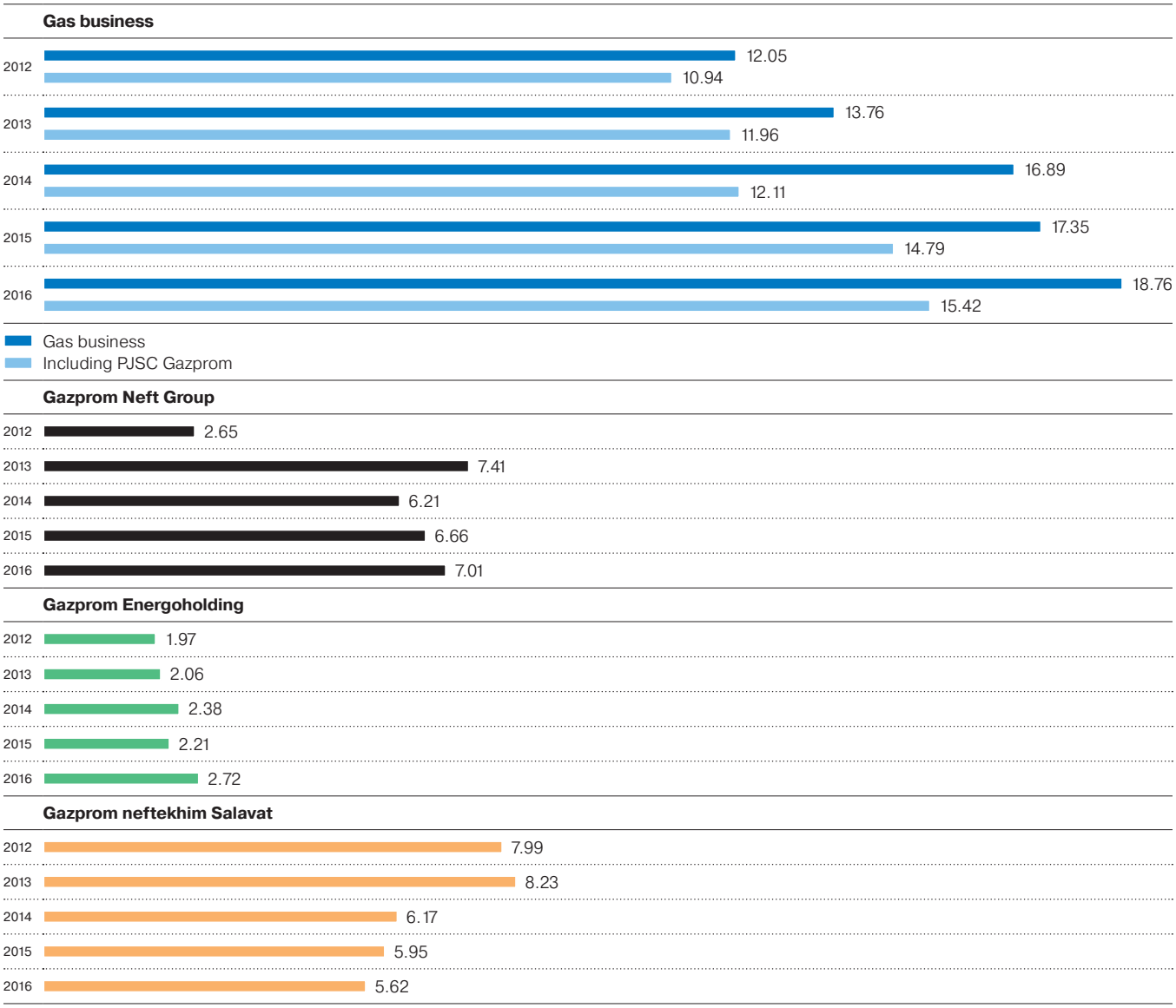
Protection and rational use of water resources	52
Air protection	34
Protection and rational use of lands	13
Protection and rational use of forest resources, protection and restoration of fish stocks, plants and landfills for recovery, neutralization and disposal of waste	1

Current environmental expenditures, 2012–2016, RUB mm

	2012	2013	2014	2015	2016
Gazprom Group	**24,648.79**	**31,456.47**	**31,656.24**	**32,169.03**	**34,103.25**
Gas business companies	12,047.14	13,758.91	16,895.69	17,348.59	18,757.29
including PJSC Gazprom	10,938.75	11,957.75	12,113.02	14,787.92	15,423.62
Gazprom Neft Group	2,647.73	7,413.42	6,210.19	6,656.05	7,005.29
Gazprom Energoholding	1,966.64	2,058.68	2,380.27	2,214.70	2,717.38
Gazprom neftekhim Salavat	7,987.28	8,225.46	6,170.09	5,949.69	5,623.29
including current (operational) expenditures for environment protection					
Gazprom Group	**18,354.68**	**20,328.15**	**18,047.89**	**16,399.90**	**17,189.74**
Gas business companies	7,034.19	8,224.35	8,079.39	8,561.32	9,539.58
including PJSC Gazprom	6,517.20	7.161.35	7,141.84	8,328.66	9,273.12
Gazprom Neft Group	2,605.06	3,953.91	3,843.48	2,282.08	2,190.53
Gazprom Energoholding	1,253.69	425.05	544.65	413.00	457.90
Gazprom neftekhim Salavat	7,461.74	7,724.85	5,580.37	5,143.50	5,001.73
including fees for environmental protection services					
Gazprom Group	**3,849.51**	**8,021.87**	**9,403.46**	**12,806.27**	**14,725.57**
Gas business companies	3,100.07	4,008.73	4,988.78	6,591.72	7,735.50
including PJSC Gazprom	2,516.47	3,273.98	3,300.71	4,284.04	4,690.93
Gazprom Neft Group	–	2,208.34	2,316.29	4,095.48	4,685.08
Gazprom Energoholding	436.00	1,420.62	1,686.30	1,729.35	1,843.82
Gazprom neftekhim Salavat	313.44	384.18	412.09	389.72	461.17
including current costs for overhaul repair of main production assets (environmental protection aspects)					
Gazprom Group	**2,444.61**	**3,106.45**	**4,204.88**	**2,962.86**	**2,187.94**
Gas business companies	1,912.89	1,525.84	3,827.52	2,195.54	1,482.21
including PJSC Gazprom	1,905.08	1,522.42	1,671.01	2,175.23	1,459.57
Gazprom Neft Group	42.67	1,251.17	50.41	278.49	129.68
Gazprom Energoholding	276.95	213.02	149.32	72.36	415.66
Gazprom neftekhim Salavat	212.10	116.42	177.63	416.47	160.38

The increase in the fees for environmental protection services resulted from the implementation of planned environmental programs and measures. For example, in 2016 oil production and processing companies performed cleaning of oil preparation equipment, field development (including purchase of biological waste water treatment plants, waste recycling units, oil collection and other environmental equipment and materials), recycling programs for oil contaminated waste and drilling sludge from current drilling operations were implemented in producing and developing assets of the companies. The performance was also affected by the price increase for environmental services such as water discharge, transportation, landfilling, disposal and neutralization of waste, development of permit documents, monitoring and analytical chemical tests.

Dynamics of current expenditures for environmental protection in Gazprom Group, 2012–2016, RUB bn



Structure of Gazprom Group's current environmental expenditures, 2016,%

Waste water collection and treatment	50
Protection and reclamation of lands, surface and underground waters	18
Atmospheric air protection and prevention of climate change	14
Waste management	12
Other activity areas in the environmental protection sphere	6

In the current cost structure of Gazprom Group, the costs for waste water collection and treatment are predominant, amounting to RUB 17.08bn, or 50%, in 2016. Costs of land protection and reclamation, surface and underground waters comprised RUB 6.29bn; RUB 4.69bn were spent for atmospheric air protection and prevention of climate change; RUB 4.12bn were spent for waste management; 1.92bn were spent for other environment protection programs (preservation of biodiversity and protection of natural areas, environment protection against physical impact factors, radiation safety, scientific research activities and development of actions mitigating adverse environmental impacts).

Adverse environmental impact fee

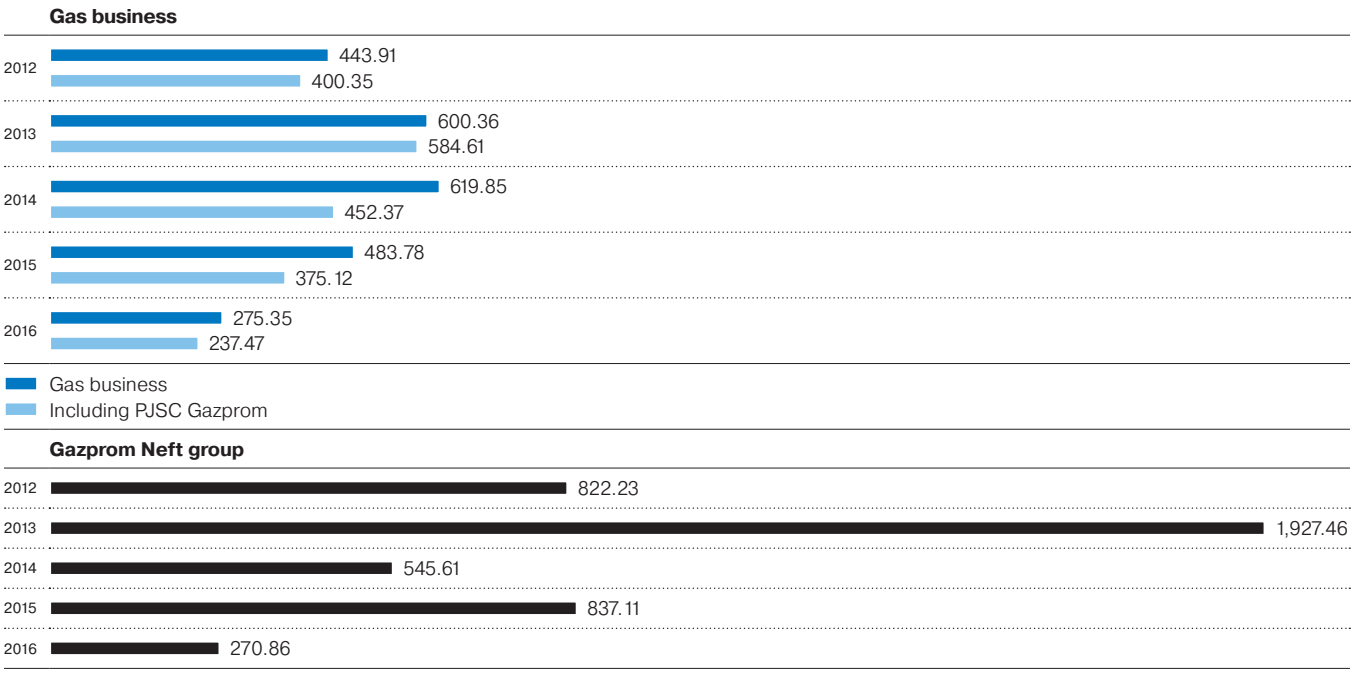
RUB 824.80mm were transferred by the Gazprom Group to budgets of different levels as payment for adverse environmental impacts in 2016.

In the adverse environment impact fee structure, payments for air pollutant emissions and payments for industrial and consumer waste disposal were predominant in 2016. Reduced payments for negative impact on the environment compared to 2015 is caused by legislation payments in effect since January 1. 2016. According to the Resolution No. 913 of the Government of the Russian Federation dated September 13, 2016 on Rates of Payment for Negative Impact on the Environment and Additional Coefficients, payments for negative impact on the environment are calculated without coefficients provisioned earlier by the Resolution No. 344 of the Government of the Russian Federation dated June 12, 2003 on Limits of Payment for Air Pollutant Emissions by Stationary and Mobile Sources, Pollutant Discharge into Surface and Underground Water Basins, including Centralized Water Discharge Systems, landfilling of production and consumption waste. Reduction of payments for waste landfilling by 60% is caused by reduction of off-limit payments for PAO Gazprom Neft achieved due to monitoring of drilling waste accumulation periods. Reduction of charges for pollutant emissions by 50% is caused mainly by reduction of off-limit payments due to a 95% level of useful utilization of associated petroleum gas at a number of fields of PAO Gazprom Neft.

Payments for negative environmental impact, 2012–2016, RUB mm

	2012	2013	2014	2015	2016
Gazprom Group	**1,563.12**	**2,952.5**	**1,746.89**	**1,790.42**	**824.80**
Gas business companies	443.914	600.36	619.85	483.78	275.35
including PJSC Gazprom	400.35	584.61	452.37	375.12	237.47
Gazprom Neft Group	822.23	1,927.46	545.61	837.11	270.86
Gazprom Energoholding	292.70	403.16	571.11	460.01	260.91
Gazprom neftekhim Salavat	4.28	21.53	10.32	9.52	17.68

Adverse environmental impact fee dynamics in Gazprom Group, 2012–2016, RUB mm



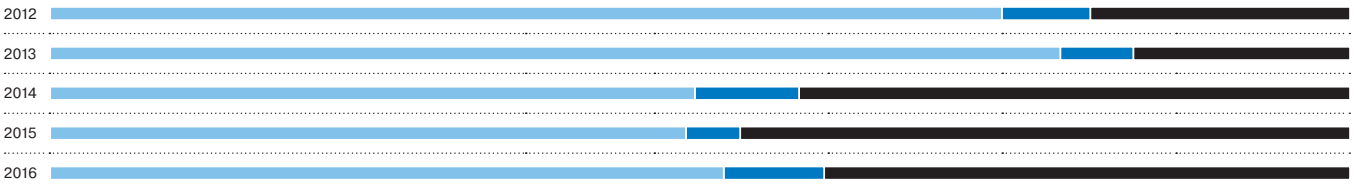
Gazprom Energoholding

2012	292.70
2013	403.16
2014	571.11
2015	460.01
2016	260.91

Gazprom neftekhim Salavat

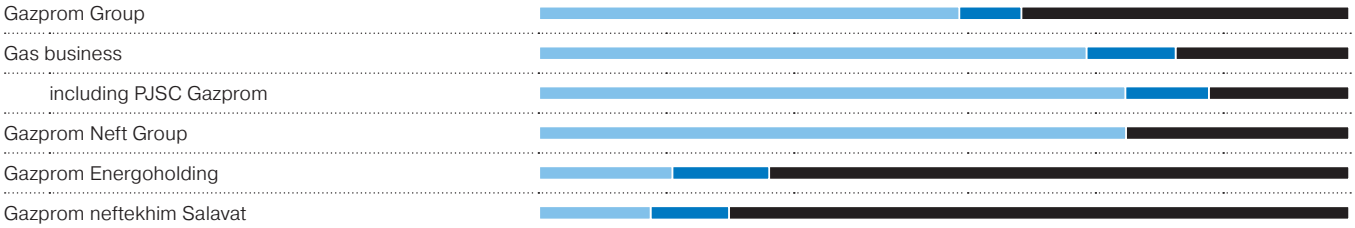
2012	4.28
2013	21.53
2014	10.23
2015	9.52
2016	17.68

Structure of environmental payments of Gazprom Group in russian federation by types of adverse environmental impac, 2012—2016, RUB mln



	2012	2013	2014	2015	2016
Payment for air pollutant emissions	1,140.46	2 294.27	866.34	875.70	427.38
Payment for pollutant discharge into water bodies	105.95	165.84	139.96	74.66	63.72
Industrial and consumer waste disposal	311.31	492.41	740.44	840.06	333.70

Payment breakdown by the types of environmental impact, Gazprom Group, 2016, RUB mm



	Gazprom Group	Gas business	including PJSC Gazprom	Gazprom Neft Group	Gazprom Energo-holding	Gazprom neftekhim Salavat
Air pollutant emissions	**427.39**	185.82	171.62	196.14	42.99	2.44
Waste water discharge into surface water bodies	**63.72**	30.45	24.63	0.22	31.33	1.72
Waste disposal	**333.70**	59.08	41.22	74.51	186.60	13.52

Air protection

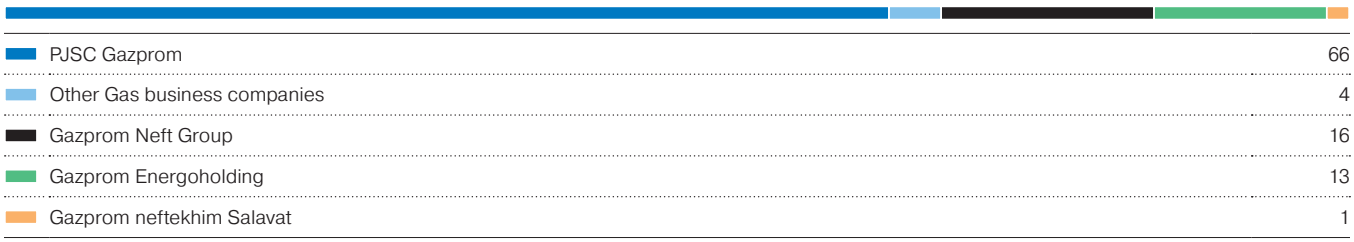
In 2016 total pollutant emissions from stationary sources of Gazprom Group companies amounted to 2.868.46 thousand tonnes which does not differ greatly from the 2015 value.

At Gazprom's gas treatment facilities 2.689.04 thousand tonnes of pollutants, including 2.551.40 thousand tonnes at Gazprom Energoholding, 105.92 thousand tonnes at PJSC Gazprom, were captured and neutralized. Weight of captured and neutralized pollutants is construed by 99% by gaseous and liquid substances (sulfur dioxide comprising 98% of them).

Dynamics of total air pollutant emissions in Gazprom Group, 2012–2016, thousand tonnes

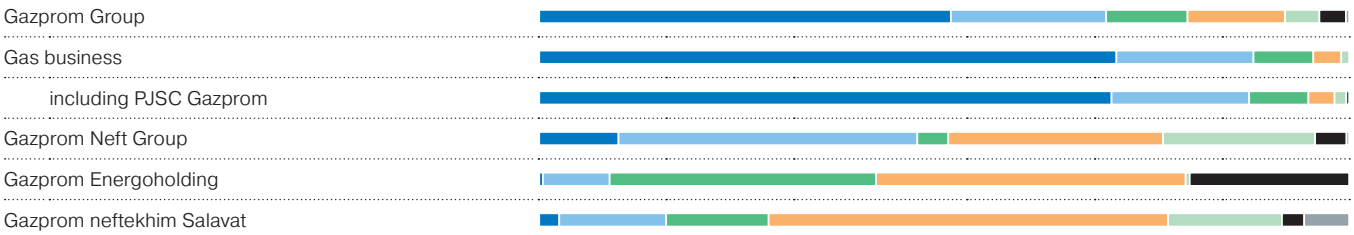
In 2012–2016 Gazprom Group reduced total pollutant emissions by 542.39 thousand tonnes.

Share of Gazprom Group companies in total emissions, 2016,%



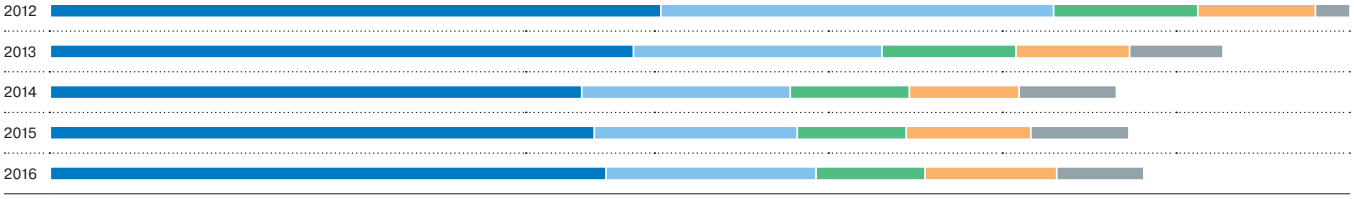
Structure of Gazprom Group emissions is mostly dependent on specific production activities of PJSC Gazprom and other gas business companies. Basic pollutants within total emissions of the Group include hydrocarbons (mainly methane, about 51%), carbon oxide, nitrogen oxides, sulfur dioxide. Particulate matter emissions come mostly from the Gazprom energy sector (over 76.7% of respective amounts of the Group's emissions), whereas volatile organic compounds are commonly associated with the operations of the companies of Gazprom Neft Group and gas processing assets specializing in hydrocarbon production and processing (approximately 72% of the respective amounts).

Component structure of air emissions in Gazprom Group, 2016, thousand tonnes,%



	Gazprom Group	Gas business	including PJSC Gazprom	Gazprom Neft Group	Gazprom Energo-holding	Gazprom neftekhim Salavat
Hydrocarbons (including methane)	**1,462.35**	1,415.17	1,338.33	46.19	0.10	0.89
Carbon monoxide	**550.48**	340.47	316.98	173.65	31.63	4.73
Nitrogen oxides	**288.46**	146.49	138.82	18.02	119.41	4.54
Sulfur dioxide	**346.09**	64.90	64.83	124.76	138.77	17.66
Volatile organic compounds	**123.04**	29.34	17.95	88.40	0.26	5.04
Solid substances	**93.82**	2.46	1.71	18.43	71.94	0.99
Other gaseous and liquid substances	**4.22**	1.57	0.49	0.66	0.01	1.98

Dynamics of air pollutant emissions from Gazprom Group's stationary sources, 2012–2016, thousand tonnes



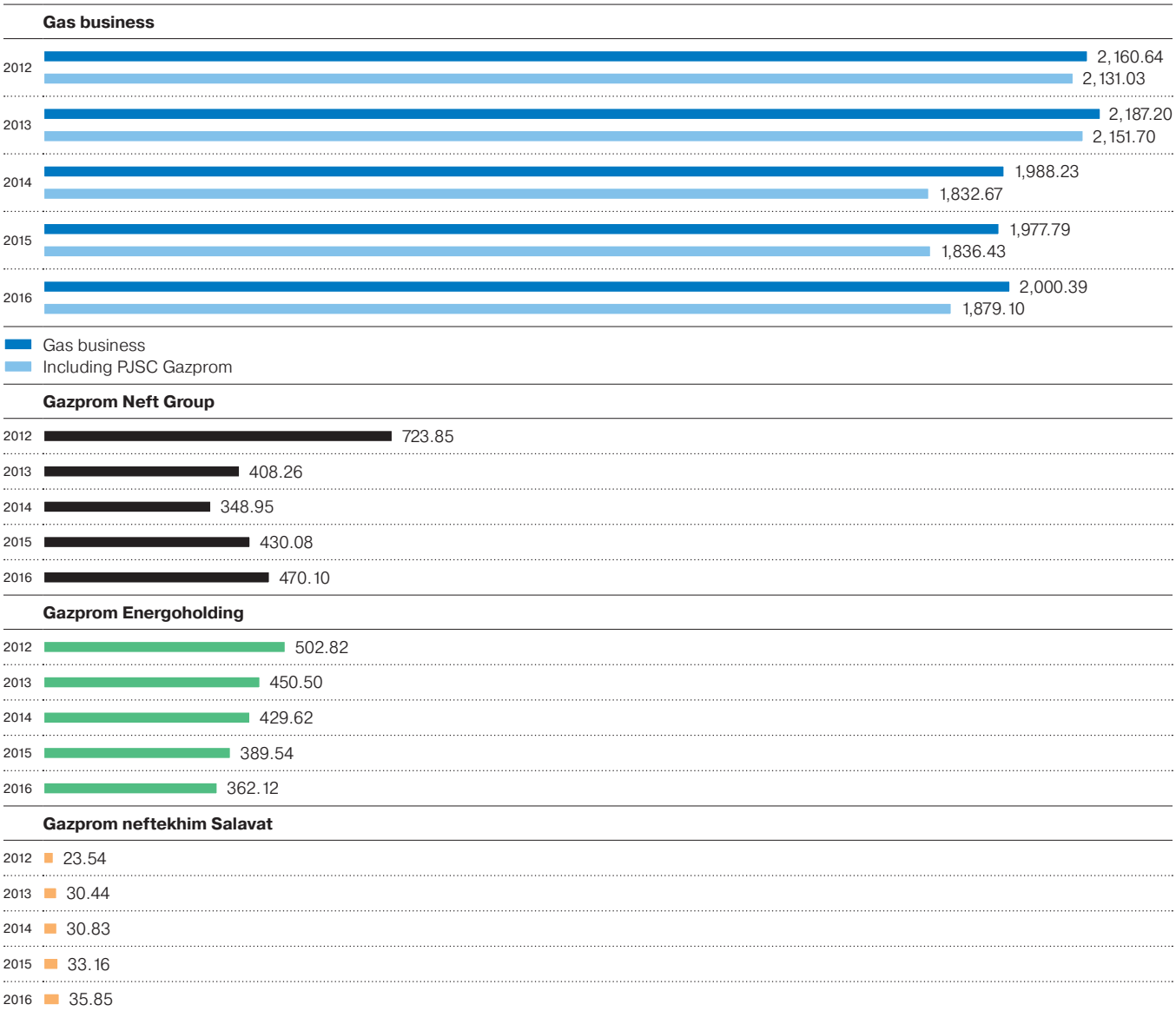
	2012	2013	2014	2015	2016
Hydrocarbons (including methane)	1,606.64	1,534.00	1,398.48	1,430.80	1,462.35
Carbon oxide	1,031.95	653.41	546.95	533.64	550.48
Nitrogen oxides	378.33	352.90	313.10	286.26	288.46
Sulfur dioxide	310.022	296.89	289.33	328.43	346.09
Other substances	83.91	239.20	249.77	251.42	221.08

In 2012–2016, Gazprom Group's emissions decreased by 144.25 thousand tonnes of hydrocarbons, 481.42 thousand tonnes of carbon oxide, 89.85 thousand tonnes of nitrogen oxides.

Air pollutant emissions from stationary sources of the gas business companies amounted 2,000.39 thousand tonnes, which was 1.14% higher than in 2015. The PJSC Gazprom share of the total emissions of the gas bussines is 93.94%.

The total air pollutant emissions of PJSC Gazprom* increased by 42.67 thousand tonnes (2.32%) compared to 2015 due to the methane emissions associated with repair of trunk gas transport facilities. Meanwhile, emissions from natural gas and gas condensate production and processing facilities decreased by 4.3 thousand tonnes and 937 thousand tonnes respectively, and from underground storage facilities by 3.19 thousand tonnes due to the reduction of methane emissions from technological operations.

Dynamics of total air emissions in Gazprom Group, 2012–2016, thousand tonnes



* Pollutant emissions (including methane) at PJSC Gazprom facilities were calculated according to documents of PJSC Gazprom standardization system, included in the List of Guidelines used in 2016 for calculation, rating and monitoring of pollutant emissions to air, approved by AO Scientific Research Institute for Atmospheric Air Protection on December 28, 2015.

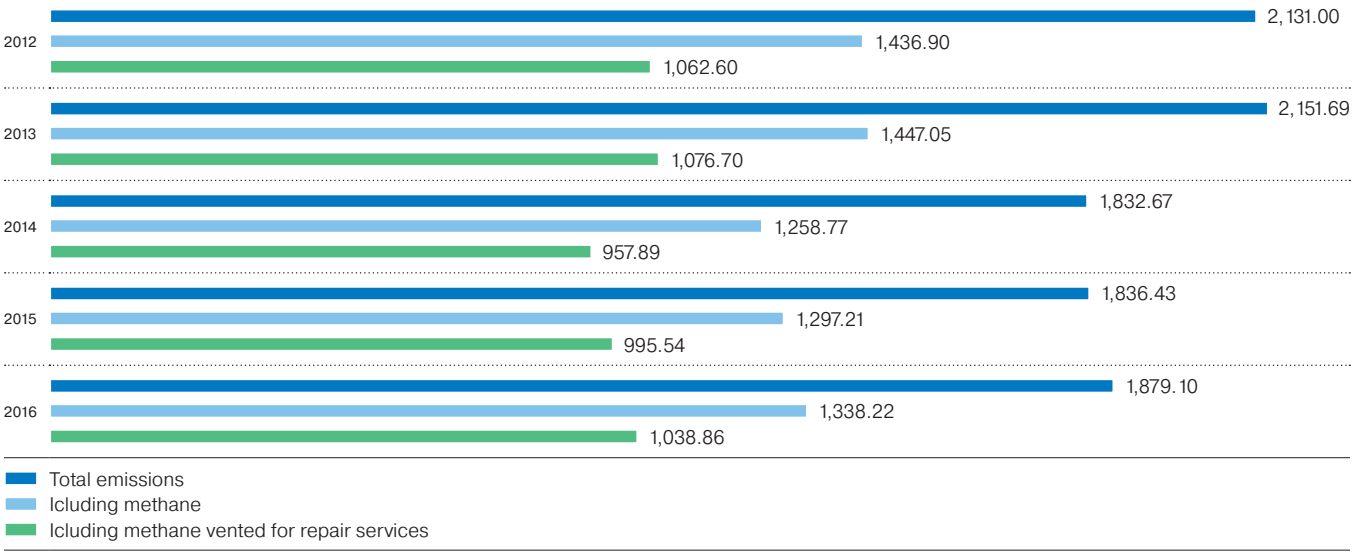
Increase of Gazprom Neft Group's total pollutant emission was related to:

— Expansion of production volume, construction and commissioning of new infrastructure facilities of Novoportovskoye OGCF and "Mys Kamenny" crude oil delivery and acceptance point (OOO Gazpromneft-Yamal) and East Messoyakhskoye field (AO Messoyakha-neftegaz);
— The increase in the volume of flared gas due to the restriction of gas supplies for the Gazpromneft-Muravlenko branch of OAO Gazpromneft-Noyabrsk-neftegaz at the compressor station of Vyngayakhinskoye field;
— Increased volume of flared gas at Shinginskoye field of OAO Gazpromneft-Vostok due to significant fall of APG delivery to Luginetsky gas compressor station from OAO Tomskneft VNC;

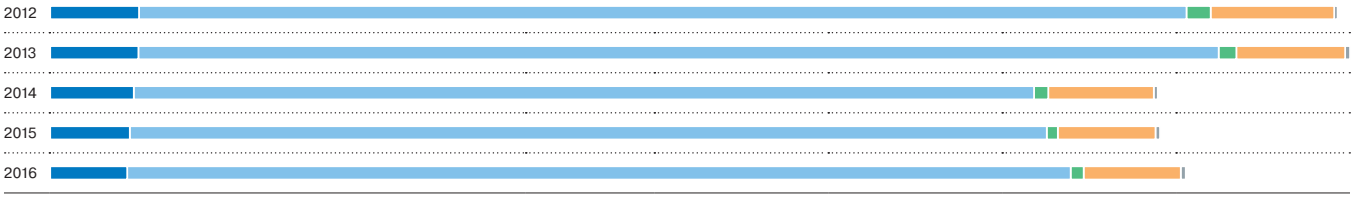
Total emissions in Gazprom Energoholding were reduced upon increase in electric and heat energy generation caused by changes in fuel balance.

Emissions from Gazprom neftekhim Salavat remained almost the same as in 2015.

Dynamics of air pollutant emissions from PJSC Gazprom stationary sources, 2012–2016, thousand tonnes



Dynamics of total air pollutant emissions in PJSC Gazprom by activity types, 2012–2016, thousand tonnes



	2012	2013	2014	2015	2016
Production	146.36	145.29	137.65	131.05	126.75
Transportation	1,736.87	1,791.33	1,492.61	1,520.37	1,564.34
Underground gas storage	39.18	28.36	22.66	17.38	20.57
Processing	203.92	179.55	174.12	161.08	160.14
Other activities	4.70	7.16	5.63	6.55	7.30

In 2016, the Gazprom Group launched 28 units for the collection and neutralization of air pollutants with a capacity of 3.19mcm/h, including 22 pcs in OOO Gazprom Energo-holding (PAO OGK-2); OOO Gazprom Neftekhim Salavat — 2 pcs; Sakhalin Energy — 1 pc; OOO Gazprom transgaz Yekaterinburg —1 pc; OOO Gazprom transgaz Tchaikovsky — 1 pcs .; OOO Gazprom transgaz Samara — 1 pc.

Greenhouse gas emissions

PJSC Gazprom climate protection activities are based on the Energy Strategy of Russia for the period up to 2030 and Russian National Environmental Protection Programm 2012–2020, as well as the Climate Doctrine of the Russian Federation.

Greenhouse gas (GHG) control is a part of the Corporate Strategy of PJSC Gazprom. It helps the PJSC Gazprom to maintain dominant positions in sustainable development ratings, encourage achievement of the national objective approved by the Order of the President of the Russian Federation No. 752 dd. September 30, 2013 that is, to ensure a 75% reduction of GHG emissions by 2020 as compared to the 1990 level.

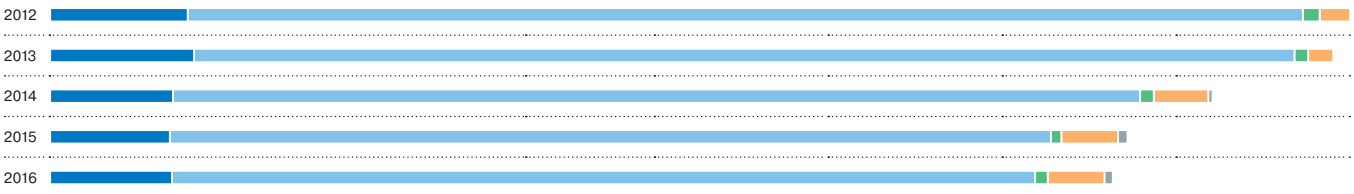
GHG emissions in PJSC Gazprom were reduced mainly due to lower natural gas consumption for compression, enhanced FER usage efficiency, and implementation of other energy saving measures.

PJSC Gazprom emissions are primarily reduced by means of lowering natural gas consumption for ownprocess needs within corporate programs, such as:

— Program of energy saving and energy efficiency improvement for PJSC Gazprom;
— Comprehensive program of a technical modernization of upstream;
— Comprehensive program of technical modernization of PJSC Gazprom midsrteam.

Energy saving practices and measures provide for the biggest GHG emission reduction at the gas transportation facilities.

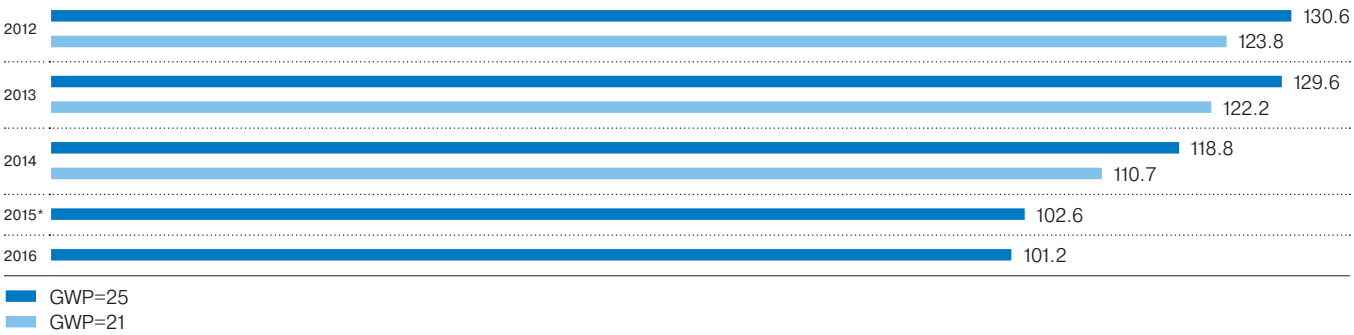
Greenhouse gas emissions in PJSC Gazprom by activity types, 2012–2016, CO_2-equivalent, mm tonnes



	2012	2013	2014	2015	2016
Production	13.1	13.7	11.7	11.4	11.6
Transportation	106.2	104.8	92.1	83.9	82.2
UGS	1.6	1.3	1.3	1.0	1.2
Refinery	2.9	2.4	5.2	5.4	5.4
Other	–	–	0.4	0.9	0.8

In 2016 greenhouse gas emissions at PJSC Gazprom facilities dropped by 1.4% compared to 2015.

Greenhouse gas emissions in PJSC Gazprom, 2012–2016, CO_2-equivalent, mm tonnes



* All the greenhouse gas emissions calculations till 2014 were based on the methane global warming potential (GWP) of 21. Since 2015, methane GWP of 25 is accepted in accordance with Methodological guidance on the quantification of greenhouse gas emissions of organizations carrying out economic and other activity in territory of the Russian Federation approved by the Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation dated June 30, 2015.

Every year PJSC Gazprom submits the results of the quantitative assessment of annual greenhouse gas emissions to Rosgidromet for preparation of the national greenhouse gas emission inventory of the Russian Federation to meet requirements of the national legislation and requirements of the United Nations Framework Convention on Climate Change (UNFCCC). PJSC Gazprom participates in data collection for Russian National Reports on greenhouse gas emissions. In 2016, PJSC Gazprom, together with the Ministry of Energy of Russia, International Sustainable Energy Development Center, Institute of Global Climate and Ecology of Roshydromet and Russian Academy of Sciences, were developing and updating national coefficients and parameters of greenhouse gas emissions for the gas sector in order to reconcile design values with actual parameters in the National Report on the Register of mancaused emissions from sources and greenhouse gas absorption by absorbents.

Since 2009 the Company has been participating in the in the international investment partnership project — Carbon Disclosure Project (CDP). Starting from 2013, the Company widened its set of indicators reflected in questionnaire, and provided additional data on indirect GHG emissions.

According to the results of CDP questioning in 2011–2016, PJSC Gazprom got the best results among Russian oil and gas companies.

A system of GHG metering and stock-taking is implemented almost in all Gazprom Group subsidiaries, such as Gazprom Energoholding, Gazprom Neft Group, Sakhalin Energy and others.

Participation in the CDP Climate and Water programs allowed PJSC Gazprom to announce its water resource and greenhouse gas emission management strategies to the global financial institutions and investors, which consider these data for their investment portfolio policies. It also granted PJSC Gazprom an access to the global database of corporate information on climate change, providing a reliable tool of studying and analyzing the advanced experience of multinational corporations, including world's largest oil and gas companies, in mitigation of environmental impacts.

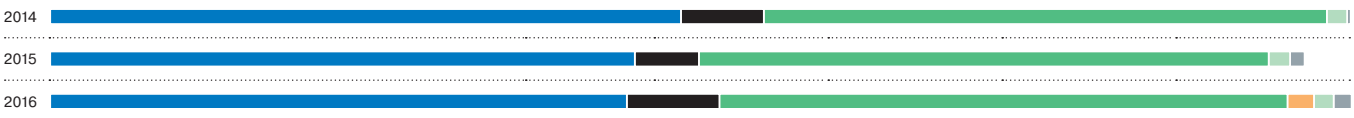
In 2011–2016 as the result of the CDP questionnaire rating PJSC Gazprom was listed as the top oil and gas company in Russia.

Currently, climate aspects gain ever higher relevance. Carbon footprint (green house gas emissions from the whole production chain up to the product consumption stage) becomes a key indicator in the energy resource market. In 2016, German association Zukunft ERDGAS together with PJSC Gazprom, Uniper, E.ON, Wintershall, Shell, Statoil, Gasunie, WINGAS, Gazprom Germania and other companies initiated an research that allowed for a demonstration of environmental advantages of natural gas compared to other types of hydrocarbon energy sources.

Calculations performed by German institute DBI* showed that the carbon footprint of Russian natural gas supplied to the Central Europe averages 12.2 kg CO_2-equiv./GJ and 9.3 kg CO_2-equiv./GJ for shipment by the Nord Stream (as per 2015 data). In addition the research notes constant reduction of carbon footprint of Russian natural gas owing to annual upgrades energy efficiency improvement and increased share of export via the Nord Stream.

Greenhouse gas accounting and inventory system is implemented and improved in other Gazprom Group companies as well. Since 2016 all Group subsidiaries regardless of operations type are metering natural gas emissions and have adopted a unified algorithm of NG emission calculation according to the Methodological guidance on the quantification of greenhouse gas emissions of organizations carrying out economic and other activity in territory of the Russian Federation approved by the Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation dated June 30, 2015.

Greenhouse gas emissions in Gazprom Group, 2014–2016, CO_2-equivalent, mm tonnes



	2014	2015	2016
PJSC Gazprom	110.7	102.6	101.2
Gazprom Energoholding	14.5	11.2	16.2
Gazprom Neft Group	98.9	100.0	99.7
Gazprom neftekhim Salavat	–	–	4.6
Sakhalin Energy	3.5	3.7	3.4
Other companies	0.5	2.5	3.1

* http://www.dbi-gut.de/emissionen.htm

Utilization of associated petroleum gas

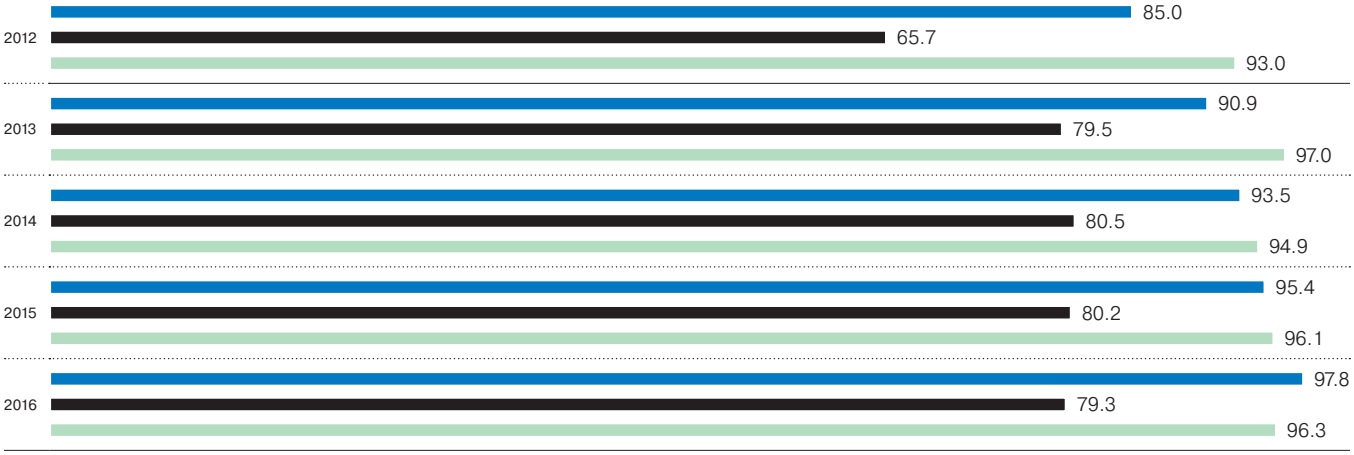
A great contribution to the greenhouse gas emission reduction is made by Gazprom activities in decrease (elimination) of APG flaring.

APG combustion is an urgent problem of the oil and gas sector at the background of global tendencies of economy transition to the low-carbon and energy-efficient way of development and due to the reasons of economic, environmental and social risks and losses. Implementation of investment projects for APG use at Gazprom Group fields is aimed at achievement of a minimum APG utilization level of 95% in accordance with the Decree No. 7 of the Government of the Russian Federation dated January 8, 2009.

In 2016, the rate of the APG utilization at upstream subsidiaries of PJSC Gazprom (including OAO Tomskgazprom) comprised 97.8%, in Gazprom Neft Group — 79.3%, in Sakhalin Energy — 96.3%.

Reduction of APG utilization in Gazprom Neft Group compared to the previous year is caused by increased production of oil and gas at Novogodneye field (AO Gazpromneft-Noyabrskneftegaz) and off-schedule shutdowns of Vyngayakha gas processing plant of Sibur operating with APG, as well as existence of separate field sectors not provided with required infrastructure yet, and lack of capacities for APG utilization.

APG utilization level in the Gazprom Group cjmpanies, 2012–2016, %



Reduction of vehicle fleet impact on air

Up to 90% of air pollution in large cities is caused by motor vehicles. Gazprom Group makes a descent contribution into the greening of the Russian motor transport by developing the NGV market and producing relevant gasoline and diesel fuels. Natural gas is the most cost-effective, environment-friendly and safe motor fuel. A motor of an NGV complies with highest international environmental standards, Euro-5 and Euro-6.

Gazprom takes active part in creation of conditions required for wide use of gas fuel in motor transport in Russia. The Company develops gas refueling infrastructure, purchases relevant motor vehicles, cooperates with the largest car producers in issues of NGV production and with authorities regarding support of NGV industry.

In 2016, total number of compressed naturall gas filling stations of Gazprom Group in Russia reached 254 units.

In early 2016, over 270 compressed naturall gas filling stations (CNG FS) operated in Russia, and 209 of them belonged to Gazprom. By the results of 2016, number of CNG FS of Gazprom Group in Russia increased to 254 units (including stations of Gazprom neft), and total design capacity of the stations increased by 21.3% to about 2bcm of gas annually. Gazrom has developed and started implementing of the reconstruction schedule for operating CNG FS through 2020.

Volume of compressed natural gas sales at Gazprom's CNG FS grows consistently. In 2015 it reached 436mmcm, which is by 7.3% higher than in 2014. By the 2016 results, increase exceeded 17%. Works are performed to place compressed natural gas modules at the existing fuel stations of PAO Gazprom Neft, AO Gazprom Gazenergoset, PAO Lukoil, PAO Tatneft.

In August 2016, in the cities of Syktyvkar and Ukhta two compressed gas filling stations were opened after the reconstruction (OOO Gazprom transgaz Ukhta). Gas refueling stations started servicing new passenger buses as well as departmental vehicles and private cars running with motor gas fuel.

CNG FS in the city of Syktyvkar is a part of motor gas fuel market infrastructure of Komi Republic. With account of prospective of expansion of municipal car fleet running on compressed gas, assurance of uninterrupted operation of the CNG FS is a priority area.

For 2015–2017, Gazprom has identified 10 priority Russian regions for the natural gas fuel infrastructure development: the Republics of Tatarstan and Bashkortostan, Krasnodar and Stavropol Krai, Leningrad, Moscow, Rostov and Sverdlovsk Regions, and Moscow and Saint-Petersburg cities.

PJSC Gazprom has also made agreements with 45 Russian federal subjects on promotion of natural gas as a motor fuel.

An agreement on cooperation and expansion of gas fuel use between PJSC Gazprom and the Republic of Tatarstan is in effect, together with a gas infrastructure expansion agreement. In 2015, a Roadmap of expanded use of high-technology products of enterprises of the Republic on behalf of Gazprom. Agreement on research and engineering cooperation is to follow in the next year.

OOO Gazprom gazomotornoye toplivo and administration of Voronezh Region have executed a Roadmap for development of motor gas fuel market in the region. The project is aimed at development of gas refueling infrastructure and creation of up-to-date environmentally friendly machine fleets operating with natural gas. According to the Roadmap, the company would provide for construction of 8 new CNG filling stations and a service center for comprehensive servicing of NGVs operating in Voronezh Region.

In 2016, two existing CNG filling stations were reconstructed in Voronezh, and new stations are scheduled for launch in Semiluki and Borisoglebsk.

Currently, six CNG filling stations of Gazprom Group with total capacity over 52mmcm of natural gas per year are operating in Voronezh Region.

In summer 2016, a ceremonial presentation of a new environmentally friendly taxi fueled by natural gas was held in Saratov. The project was implemented by OOO Gazprom gazomotornoe toplivo with support from Gazprom transgaz Saratov. The enterprise has a regional center retrofitting cars for fueling with compressed natural gas, servicing such vehicles and testing gas cylinders used for motor vehicles. Currently, over 1,500 vehicles in Saratov Region run on motor gas fuel.

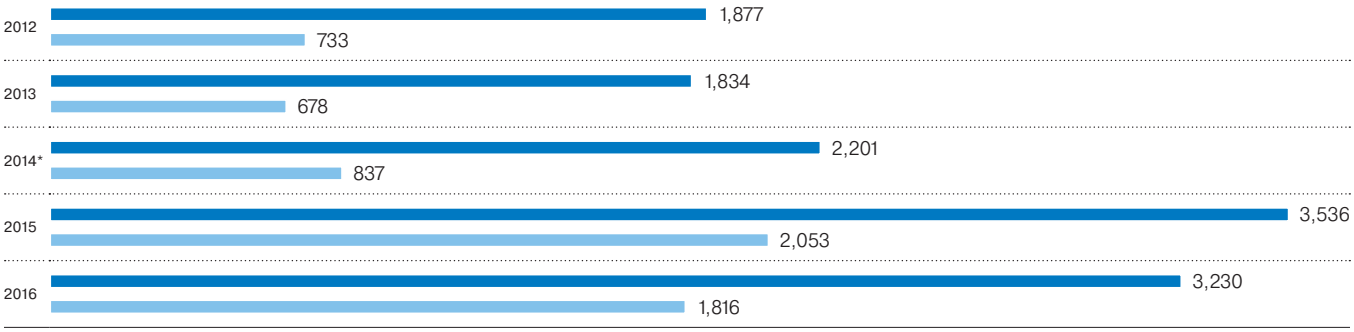
Under the memorandum signed jointly with the PAO Russian Railways, practice grounds for locomotive transition to liquefied natural gas were chosen, as well as sites for construction of LNG production and railway equipment fueling stations.

Russian NGV fleet is about 110 thousand units. PJSC Gazprom holds the largest NGV fleet in Russia: 20% of the total motor vehicle fleet of the company (6614 units) runs on natural gas.

Gazprom Group is implementing a dedicated program of the corporate road transport switch to NGVs in all subsidiary organizations.

In 2016, Gazprom Group added 3,230 units to its NGV fleet. PJSC Gazprom converted 1,816 cars in the Russian Federation and 95 cars in CIS countries to motor gas fuel; 1009 units were converted by OOO Gazprom mezhregiongaz, and 337 units were converted by Gazprom Neft Group.

Number of vehicles switched to natural gas by Gazprom Group, 2012–2016, vehicles in year



* The data reported through 2014 are provided for PJSC Gazprom only.

Gazprom carries on its activities on evaluating the gas engine fuel market segment abroad. OOO Gazprom gazomotornoye toplivo and OAO Gazprom transgaz Belarus signed a Roadmap for development of NGV fuel market in the Republic of Belarus. Gazprom and AO KazTransGaz signed a memorandum of cooperation in the area of natural gas use as motor fuel in the Republic of Kazakhstan.

OOO Gazprom export and its subsidiaries and joint ventures make investments in gas refueling station construction in Europe. One of the major links in the work with Gazprom Germania GmbH is creation of infrastructure for provision of marine transport, trucks and cars with compressed and liquefied natural gas. As of July 2016, GAZPROM Germania GmbH and Czech company Vemex s.r.o. were operating 67 CNG FS and two LNG filling centers. In Polish cities, Warsaw and Olsztyn, Gazprom Germania GmbH implements first projects in Europe for introduction of municipal LNG-fueled buses jointly with local companies.

Gazprom Group plans to expand its share in global markets of natural gas fuel for motor vehicles, sea and inland vessels.

Gazprom and operator of Rostock port, Hafen-Entwicklungsgesellschaft Rostock mbH, executed a Memorandum of Intentions for cooperation at LNG market. Main cooperation area is development, use and sales of LNG in motor and water transport sector in Mecklenburg-Vorpommern Federal Land. In early 2016, the Company performed the first vessel fueling with liquefied natural gas in Rostock port, signifying availability of the largest German port in Baltic Sea for sea ship bunkering with LNG. Other LNG projects are under development.

Since 2008 Gazprom has been organizing gas car rallies under a common name of Blue Corridor for promotion of unique combination of environmental, economical and social advantages of natural gas used as a motor fuel and for display of serial gas-fueled vehicles.

According to statistical data, in 2009 to 2015, number of gas refueling stations increased by 70% in European countries through which the Blue Corridor motor rally passed (over 1,800 new stations were constructed), natural gas demand increased by 3.2 times, and NGV fleet grew doubled.

In the reporting year, the tenth motor rally of NGVs, Blue Corridor — 2016: Amber Route, took place. Focus of this rally was shifted from land transport to promotion of LNG for vessel bunkering, which is especially vital in the light of tightening standards of hazardous emissions for marine shipment. In this connection key stages of the motor rally ran through important port cities of Russia, Estonia, Poland, Germany, Denmark, Sweden — about 4 thousand km all around the Baltic Sea. In Tallinn, Gdansk, Rostock, Copenhagen, Stockholm, round table conferences were held with representatives of authorities, shipping companies and ports, shipbuilders, gas motor equipment manufacturers, LNG suppliers, as well as associations and consulting agencies specializing in LNG bunkering standard development. The actions showed good prospectives for the use of gas in water transport and importance of unified standards and rules of LNG bunkering for industry stimulation.

Water use and protection of water resources

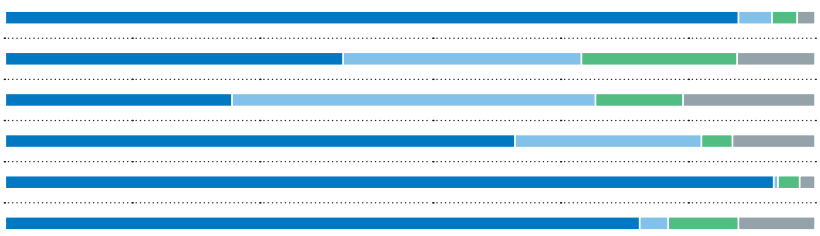
In 2016, indicators of water intake for water supply in Gazprom Group did not change much compared to 2015 and comprised 4,538.206mmcm.

Water discharge to surface water bodies in Gazprom Group has grown less than by 1% compared to 2015 and reached 3,855.45mmcm. Water collecting areas, field irrigation and filtration fields cover 17.49mmcm, underground horizons take up 48.93mmcm including 42.20mmcm for repressuring, 162.42mmcm for municipal and other water supply systems. 12,482.12mmcm of water was recycled or used in recycling and return water supply systems.

Aggregated figures of Gazprom Group water use, 2012–2016, mmcm

	2012	2013	2014	2015	2016
Total water intake	5,462.45	5,130.18	4,895.38	4,511.81	4,538.21
including water from natural sources	5,212.95	4,890.63	4,410.68	4,290.12	4,301.46
Auxiliary needs	5,319.62	5,051.64	4,779.50	4,387.64	4,449.27
including production needs	5,209.31	4,919.51	4,506.18	4,149.,04	4,192.10
Water discharge to surface water bodies	4,892.96	4,389.91	4,179.09	3,853.75	3,855.45
including clean and treated as per standards	4,691.55	4,227.86	3,991.59	3,660.57	3,691.24

Structure of water consumption in Gazprom Group by types of sources, 2016, mmcm



	Gazprom Group	Gas business	including PJSC Gazprom	Gazprom Neft Group	Gazprom Energo-holding	Gazprom neftekhim Salavat
Surface sources	**4,112.34**	46.91	17.62	36.40	3,997.47	31.55
Underground sources	**189.12**	33.11	28.18	13.30	21.61	1.42
Municipal water supply systems	**139.96**	21.64	6.81	2.23	112.62	3.47
Other water supply systems	**96.79**	10.75	10.20	5.84	76.41	3.79

The share of natural sources in the Group water withdrawal comprises 94.8%, of which 90.6% are presented by surface sources, and 4.2% by underground sources. Water consumption structure by source types depends on the Group's specifics of production and location.

In 2016, Gazprom Group waste water discharge into surface water bodies was reduced by 21% from 2012 to 2016.

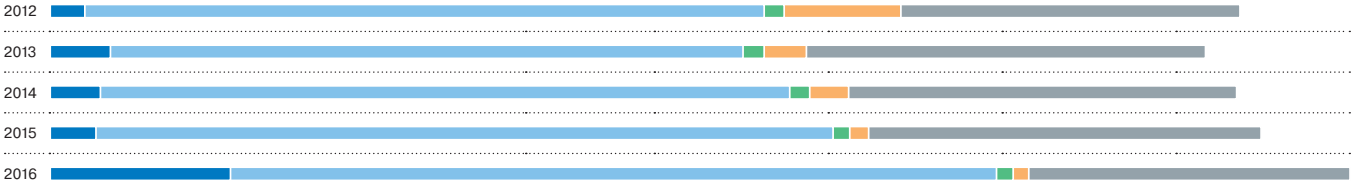
In the total volume of the Group discharge to surface water bodies, untreated clean waters as per standards and effluents treated to standard quality comprised 96%.

Indicators of water discharge to surface water bodies in Gazprom Group, 2012–2016, mmcm

	2012	2013	2014	2015	2016
Gazprom Group	**4,892.96**	**4,389.91**	**4,179.09**	**3,853.75**	**3,855.45**
Gas business companies	36.63	34.00	40.35	34.09	35.10
including PJSC Gazprom	10.70	10.38	10.66	10.88	11.69
Gazprom Neft Group	0.10	0.08	0.32	27.20	0.11
Gazprom Energoholding	4,827.77	4,307.80	4,091.95	3,754.12	3,781.,85
Gazprom neftekhim Salavat	28.46	48.03	46.47	38.34	38.39

In 2012–2016 waste water discharge into surface water bodies was reduced by 21% in Gazprom Group.

Dynamics of water discharge to surface water bodies in PJSC Gazprom by activity types, 2012–2016, mmcm



	2012	2013	2014	2015	2016
Gas and gas condensate production	0.30	0.53	0.44	0.40	1.61
Gas Transportation	6.11	5.69	6.20	6.63	6.89
Underground gas storage	0.18	0.19	0.18	0.15	0.15
Natural gas and gas condensate processing	1.05	0.38	0.35	0.17	0.14
Other (supporting) activities	3.05	3.59	3.49	3.53	2.89

The Gazprom Energoholding companies accounted for 93% of water consumption and 98% of waste water discharge into the surface water bodies in the Group. The Group gas business share in the water consumption is insignificant, about 2.5% (of which 1.4% is the share of PJSC Gazprom).

Reduction of total effluent discharge into surface water basins against 2012 value is mainly caused by complete discontinuation of discharge of contaminated (untreated) effluents into surface water basins by Gazprom Neft Group in 2016.

Gazprom Group performed a great number of environmental events aimed at increasing water utilization efficiency both in industrial and in household sectors.

999 units of effluent treatment plants are commissioned, their total capacity is 156.10mcmd, 971 of them belong to Gazprom Neft Group, 23 belong to PJSC Gazprom, and 1 belongs Gazprom Energoholding.

6 recycling water supply systems of 2,372.98mcmd capacity are launched, with PJSC Gazprom owning 3 of them, PAO OGK-2 operating 2 units, and OAO Severneftegazprom owning 1 unit.

Production and consumption waste management

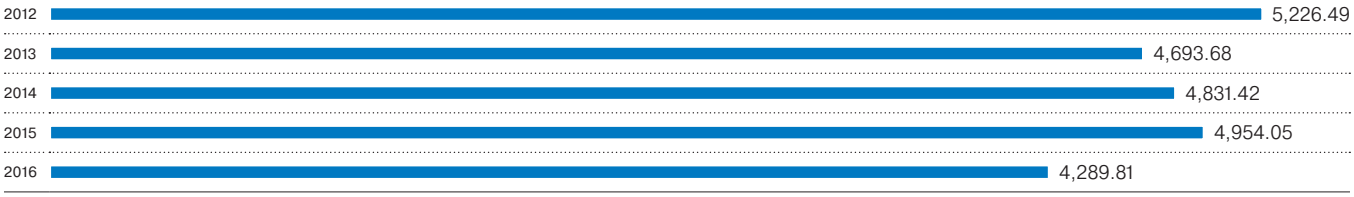
In 2016, the companies of Gazprom group formed 4,289.81 thousand tonnes of waste, which is by 13.4% lower than in the previous year. Activities of Gazprom Energoholding had significant impact on the volume of waste produced, as ash waste generation was reduced due to increase of natural gas share in the fuel balance and respective reduction of coal combustion volume (PAO Mosenergo, PAO OGK-2), Gazprom Neft reduced scope of operation drilling works, as well as completion of disturbed land reclamation.

The major part (97.4%) of waste of Gazprom Group is represented by IV and V waste hazard classes, i.e. low-hazard or non-hazard waste. The share of waste hazard class I (extremely hazardous) was 0.005%, waste hazard class II (highly hazardous) comprised 0.2%, waste hazard class III (moderately hazardous) reached 2.4%.

The main volume of waste of Gazprom Group is represented by ash and slag waste from Gazprom Energoholding (solid ash from coal combustion at HPPs), as well as drilling waste and oil sludge generated mainly at oil and gas production and refining facilities.

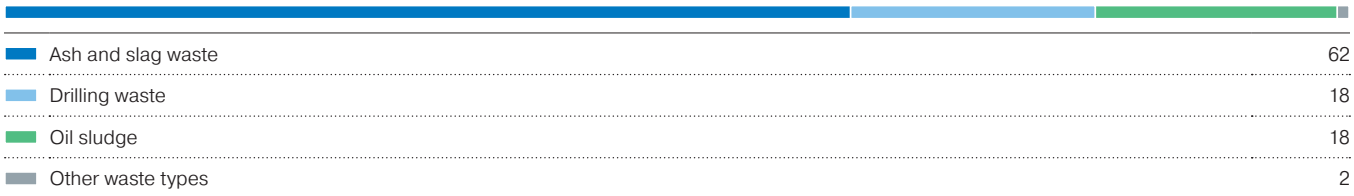
During 2016, Gazprom Group launched 14 facilities of waste neutralization and disposal with capacity of 1,407.06 thousand tonnes per year, including 9 units in Gazprom Neft Group, 4 units in PJSC Gazprom, 1 unit in Gazprom Group neftekhim Salavat.

Dymanics of waste generation in Gazprom Group, 2012–2016, thousand tonnes

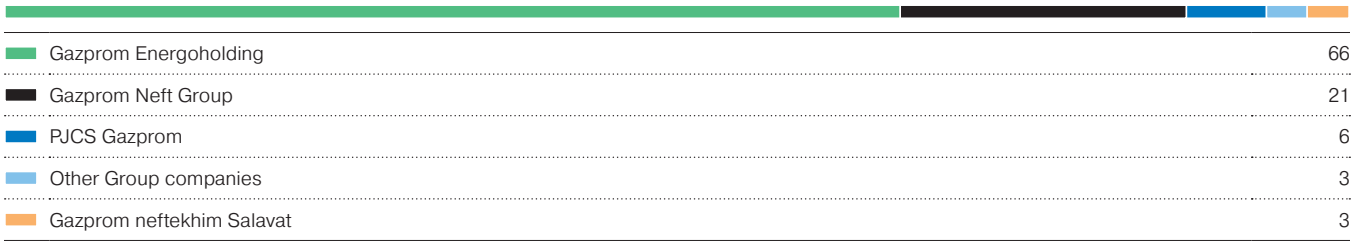


In 2012–2016, waste generation in Gazprom Group decreased by 937 thousand tonnes, or 18%.

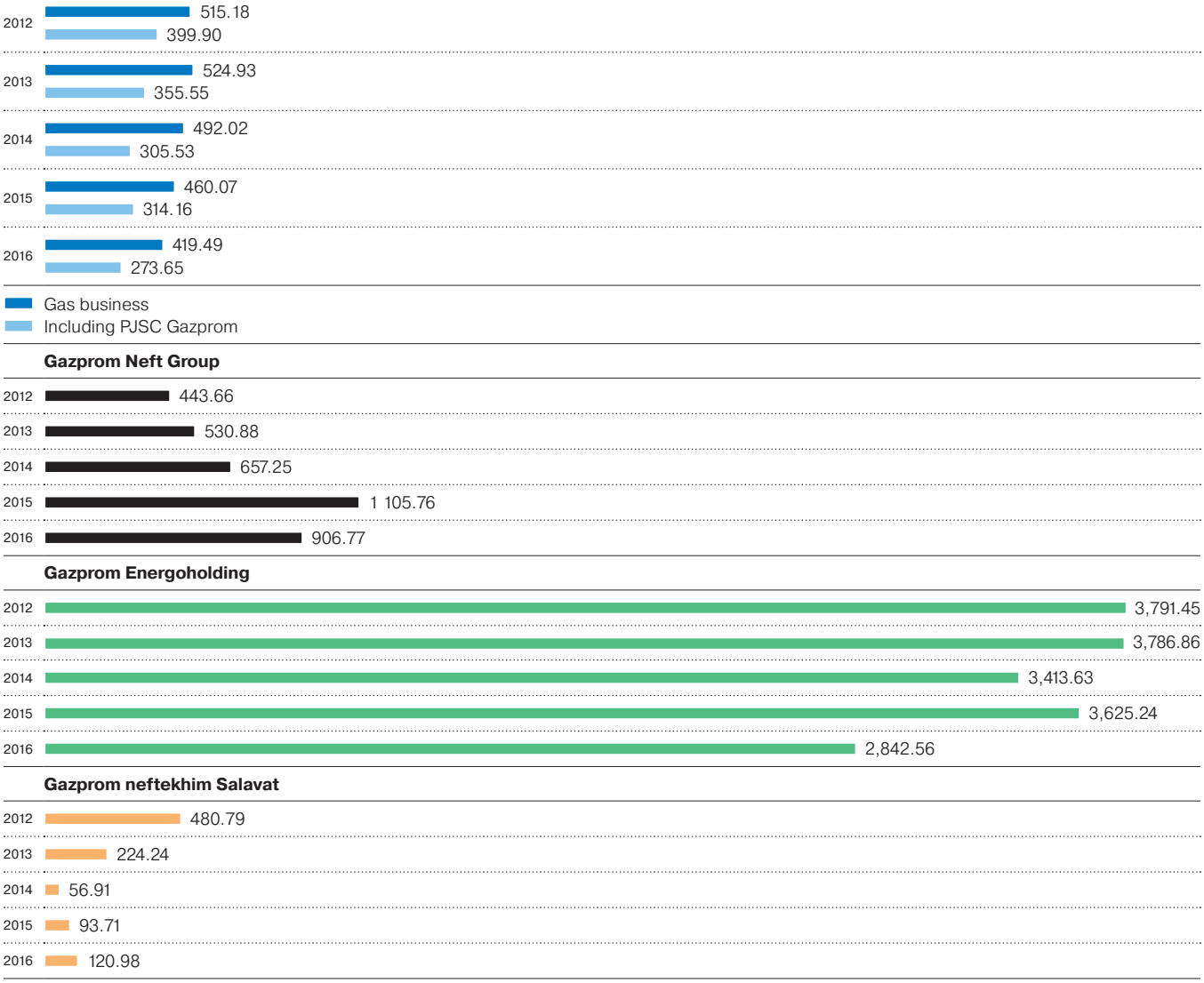
Waste structure in Gazprom Group by types, 2016,%



Share of Gazprom Group companies in waste generation, 2016,%

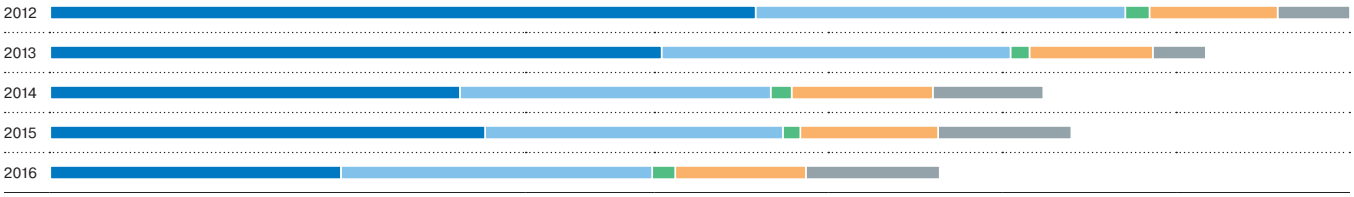


Dymanics of waste generation in Gazprom Group companies, 2012–2016, thousand tonnes



In 2016, PJSC Gazprom reduced the amount of waste compared to 2015 by 12.9% to 273.65 thousand tonnes. The opposite trends in waste generation were observed in different sectors. Gas production subsidiaries showed waste volume reduction by 33.2% due to changes in the procedure of customer and contractor interaction in well construction, which stipulates that drilling waste is transferred to the contractor from the moment of formation (Gazprom dobycha Astrakhan, Gazprom dobycha Nadym, Gazprom Dobycha Urengoy).

Dynamics of waste generation by activity types in PJSC Gazprom, 2012–2016, thousand tonnes



	2012	2013	2014	2015	2016
Gas and gas condensate production	217,00	188,07	125,99	133,73	89,37
Gas Transportation	113,75	107,37	95,65	91,66	95,78
Underground gas storage	7,46	5,84	6,45	5,36	7,10
Natural gas and gas condensate processing	39,43	37,95	43,44	42,40	40,20
Other (supporting) activities	22,27	16,32	34,00	41,01	41,20

The Gazprom Group companies pay much attention to environmentally safe management of oil-contaminated waste. This waste type consists predominantly of cuttings from pipeline, vessels and oil separation units cleanings, supernatant film from oil catching (gasoline separator) facilities. These are usually moderately hazardous wastes (hazard class III).

In 2016, a total of 109.93 thousand tonnes of oil waste (including 16.18 thousand tonnes available at the beginning of the year, 93.60 thousand tonnes generated during the year and 0.15 thousand tonnes supplied by other enterprises) was handled by the facilities of Gazprom Group. Of this amount, 87.2% were transferred to outside specialized licensed organizations for utilization, neutralization, storage and landfilling. 3.6% of oil-contaminated waste was used and neutralized on site.

Oil-contaminated waste volume breakdown in Gazprom Group, 2016,%

Gazprom Neft Group	82
Gas business	12
Gazprom Energoholding	3
Gazprom neftekhim Salavat	3

Structure of oil-contaminated waste handling in Gazprom Group, 2016,%

Transferred to specialized organizations for use and neutraization	56
Used and neutralized at the enterprise	40
Transferred to specialized organizations for storage and disposal	10
Availability at the enterprise by the end of the reported year	4

The utilization of a large amount of drilling waste associated with completion and operation of wells is a major challenge of upstream oil and gas companies of the Group.

In 2016, the drilling waste turnover amounted for 795.05 thousand tons (including the amount registred from the previos year — 42.93 thousand tonnes and generated in the reporting year 752.12 thousand tonnes), out of which 70.6% (561.34 thousand tonnes) were transferred to specialized licensed companies for utilization, neutralization and safety storage and disposal; 16.5% of drilling waste (131.08 thousand tonnes) were used and neutralized in-situ.

Share of Gazprom Group companies in drilling waste generation, 2016,%

Gazprom Neft Group	91
Sakhalin Energy	5
PJSC Gazprom	4

Structure of drilling waste handling in Gazrpom Group, 2016,%

Transferred to specialized organizations for use and neutralization	71
Used and neutralized at the enterprise	16
Transferred to specialized sites for disposal	10
Availability at the enterprise by the end of the reported year	3

One of the main requirements for technological process of well drilling is prevention of drilling adverse environmental impact, especially in extreme climatic conditions of the Far North. For these purposes, field infrastructure development involves practical implementation of some solutions that provide minimal environmental impact during drilling. For instance, during operational well drilling, a pit-free drilling is used. The corporate upstream has been taking advantage of implementing the drill waste utilization technique producing a mineral by-product powder, which is used as a feed component of building materials for developing fields. Thus, Gazprom Neft Group keeps up the tendency of significant reduction of waste neutralization rate at its enterprises due to implementation of the most environmentally friendly methods of drilling waste handling excluding options of waste storage in sludge pits. Main volume of drilling sludge is transferred for processing to specialized companies in order to obtain secondary products.

Since Gazprom Group practices wide use of waste disposal methods with obtainment of secondary products used in production process, waste accumulation by the end of a reporting period dropped by 40% in 2016.

Land and soil protection

As a result of geological survey, construction and repair works, operation of wells, pipelines and other facilities by the Gazprom Group, mechanical soil disturbance and pollution take place.

Gazprom pays constant attention to practical ways of resolving the issues of restoration and preservation of disturbed soils. Biological and technical remediation are conducted and aimed at recovery of land productivity and its economic value.

During the reporting year, the Group companies disturbed 27.03 thousand ha of land, which is by 53.44% lower than in the previous period. Out of that area, 15.91 thousand ha is disturbed by PJSC Gazprom, 9.93 thousand ha is affected by Gazprom Neft Group, and 1.19 thousand ha is affected by other companies of the Group. Disturbed land area was reduced mainly due to decline in construction volumes.

Used lands, i. e. lands where production operations causing soil damage are completed, underwent reclamation, including lands disturbed in the previous period. In 2016, 42.45 thousand ha was reclaimed, which is by 133% higher than the same parameter in 2015. PJSC Gazprom reclaimed 11.14 thousand ha, Gazprom Neft Group restored 30.17 thousand ha, and other companies of the Group reclaimed 1.14 thousand ha.

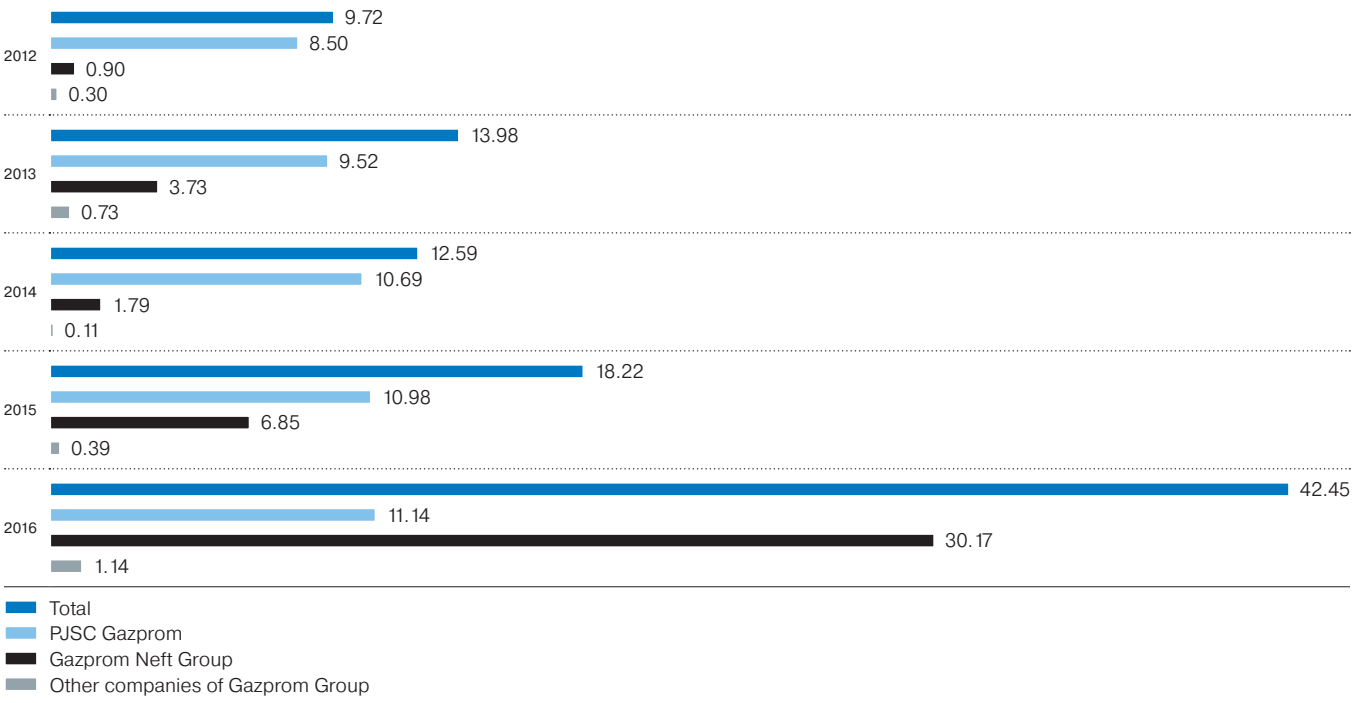
Gazprom Neft Group has its amount of disturbed land reclamation increased in JSC Messoyakhaneftegaz of Eastern Messoyakha field due to the launch of new production and infrastructure facilities occupying significant areas.

The problem of disturbed land resources is not an acute environmental issue for the Group, for rehabilitation measures are undertaken to the extent required, and no damage accumulation is noted. The majority of companies fully rehabilitated the lands disturbed during the year. Works on remediation and rehabilitation of the lands are performed at the operation sites of producing companies of the Group.

Soil protection activities parameters in Gazprom Group, 2012–2016, ha

	2012	2013	2014	2015	2016
Area of disturbed lands during the year	14,402.15	13,065.47	15,407.40	58,054.53	27,027.45
including polluted areas	237.50	1,019.48	105.43	82.30	71.31
Area of rehabilitated lands during the year	9,717.18	13,977.04	12,589.34	18,220.34	42,450.24
including polluted areas	278.26	839.18	464.39	187.37	94.08

Dynamics of disturbed land recultivation in Gazprom Group companies, 2012–2016, thousand ha



The measures undertaken by Gazprom are cost-efficient and up-to-date works aimed at prevention of negative erosion processes, they provide terrain stabilization conditions and enable restoration of topsoil and vegetation. These technologies provide for usage of available materials, including recycled materials (such as drilling waste), biocompatible materials, plant growth stimulants. Tailored soil microorganisms enable topsoil strengthening, including spoil heaps, they also increase the speed and intensity of root generation and plant growth.

The Group companies take every precautions to prevent pollutant penetration into the soil, surface and ground waters, avoid erosion and other types of the soil degradation. The environmental monitoring and control of the Gazprom Group construction and reconstruction operations provides for the inspection of the remediated soil compliance with environmental regulations on soil state, geobotanical, agrochemical and other types of surveys. The road transport and mobile process equipment of subcontractors operating within the assigned land areas is monitored.

The company implements its policy to identify and liquidate the accumulated environmental damage of previous land users.

Comprehensive measures are implemented in Gazprom Neft Group to enhance piping system reliability, thus increasing safety of environment components. Area of polluted lands was reduced in 2016 by 15% compared to 2015 in connection with actions aimed to decrease the number of leaks in transport pipelines within “Clean Territory” investment program.

Protection of biodiversity

A key aspect of the sustainable development is care for the biological and landscape diversity, preservation of habitats of rare plant and animal species at the risk of extinction.

Support of protection for rare animal species is a consistent step for the Group companies. In 2016, a total of RUB 310mm was invested in tasks related to biodiversity conservation and environmental protection, protection and reproduction of fish stock.

In the reporting year, PJSC Gazprom continued charitable help to non-commercial organizations “Amur Tiger Center” and "Eurasian center of saving far eastern leopards", implementing projects of preservation and population growth of rare animal species included in the Red Book of Russia.

Beside protection of rare animals, PJSC Gazprom subsidiaries finance projects implemented with participation of the Russian Geographic Society in Arctic, including monitoring of insular ecosystems in Arctic, preservation of marine mammal and polar bear populations in protected natural territories of North-East Barents Sea.

To implement the Order of the President of the Russian Federation summarizing a session on efficient and safe exploration of the Arctic (June 5, 2014), Gazprom Group is implementing a Program of preservation of the biological diversity on the basis of a list of plant and animal species providing sustainability indication for marine ecosystems of the Arctic of the Russian Federation.

The program includes PJSC Gazprom strategy for biodiversity preservation and Action Plans for Gazprom Group projects in continental Arctic shelf of the Russian Federation, in internal seas, territorial seas and adjoining territory of the Russian Federation.

The program is prepared with assistance of leading research institutes of the Russian Academy of Science, Russian Arctic National Park, Marine Mammal Council.

In compliance with the mentioned Program, OO Gazprom Neft Shelf (Gazprom Neft Group) performed studies in the sea water areas, onshore and in littoral waters in the reporting year to determine impact of Prirazlomnaya platform, operation of escort vessels and tankers delivering oil from Novoportovskoye and Prirazlomnoye fields to Murmansk on phytoplankton, zoobenthos, fish and bird fauna and marine mammals. Studies confirmed absence of any significant stress impact on plankton microphytocenosis. Ornithological studies at the islands of the Nenetsky State Natural Reserve and in its water area showed successful reproduction of anseriformes and presence of 75 bird species in that area, including rare species, such as white-tailed eagle, pale harrier, peregrine falcon, gerfalcon, Bewick’s swan. Studies of marine mammal populations near Prirazlomnaya platform covered large molting grounds of Greenland seal (several thousands of heads), and single Atlantic walruses were noticed. In 2016, migration processes of walruses were studied with the use of satellite transmitters. According to the data obtained, walruses are actively populating water area between Dolgy and Vaygach islands. Absence of significant impact of the platform and escort vessels on the animals was confirmed.

For animal protection, fish screens are installed at water intakes, and bird protection devices are mounted on overhead transmission lines. Vegetation is planted in areas affected by production facilities and in settlements in the operation regions.

In 2016, a large number of environmental protection measures aimed at protection and restoration of fish stock, including rare species, were implemented.

In July 2016, employees of OOO Gazprom Dobycha Shelf Yuzhno-Sakhalinsk took part in an anniversary fifth release of Siberian salmon whitebait to the water area of Sakhalin. Around 1.2mm pcs. juvenile salmons were released to Tym river from Ado-Tymovsky salmon fish hatchery.

Gazprom geologorazvedka released over 1 mln of young muksun fish and over 2.8mm pcs. juvenile peled fish from Yugorsk fish hatchery in Khanty-Mansi Autonomous Okrug to Ob and Irtysh fishery basin within compensation measures for reproduction of water bioresources.

Upon initiative of OOO Gazprom pererabotka Blagoveshchensk (subsidiary of OOO Gazprom Pererabotka), and event of Zeya river stocking with fish. Compensation actions are taken in the course of jetty facility construction for Amur gas processing plant and formation of jetty water area in Zeya river. 1,529 pcs. juvenile carps were released to the river basin.

OOO Gazprom dobycha Noyabrsk, OOO Gazprom transgaz Samara, OOO Gazprom transgaz Saratov, OOO Gazprom transgaz Stavropol, OOO Gazprom transgaz Yugorsk, OOO Gazprom geologorazvedka, OAO Gazprom Neft, ZAO Yamalgazinvest, companies of OOO Gazprom Energoholding took actions for artificial reproduction of water bioresources and their release into water bodies. Thus, whitebait of valuable species (peled, broad whitefish, grayling, Siberian salmon, muksun, sterlet, etc.) for a total amount of RUB 85.36mm was released to rivers in Astrakhan, Murmansk, Penza, Pskov, Ryazan, Samara, Saratov, Sakhalin Regions, Yamalo-Nenets Autonomous Okrug, Khanty-Mansi Autonomous Okrug – Yugra, Sakha Republic (Yakutia).

In 2016, Gazprom Group continued support of protected territories. In 2016, OOO Gazprom transgaz Ukhta continued monitoring the status of protected species of plants and animals of the Southern districts of national park “Yugyd va”, studying operations influence on the fish fauna and territory of the Pleshcheevo Lake National Park.

OOO Gazprom dobycha Kuznetsk has been monitoring eisenia salairica, the annelid worm endemic to Salair Ridge, at the territory of gas production for several years already. Impact of methane and coal wells on life of the endemic species is studied (with participation of Russian Geographic society). Measures are developed for preservation of animals and plants included in the Red Book of Russia and Red Book of Kemerovo Region. New production site design and territory development are performed with account of the results obtained.

OOO Gazprom transgaz Moscow continued volunteering and charity help to Oksky National Natural Biosphere Reserve in Ryazan Region and Prioksko-Terrasny National Natural Biosphere Reserve in Moscow Region.

OOO Gazprom dobycha Orenburg supports a program of participates in a program of Przewalski's horse population recovery in Orenburg Region implemented by Federal State Budgetary Institution "Zapovedniki Orenburzhya". With support of the subsidiary, 14 Przewalski's horses were shipped to Orenburzhsky Reserve from Hortobagy National Park in Hungary.

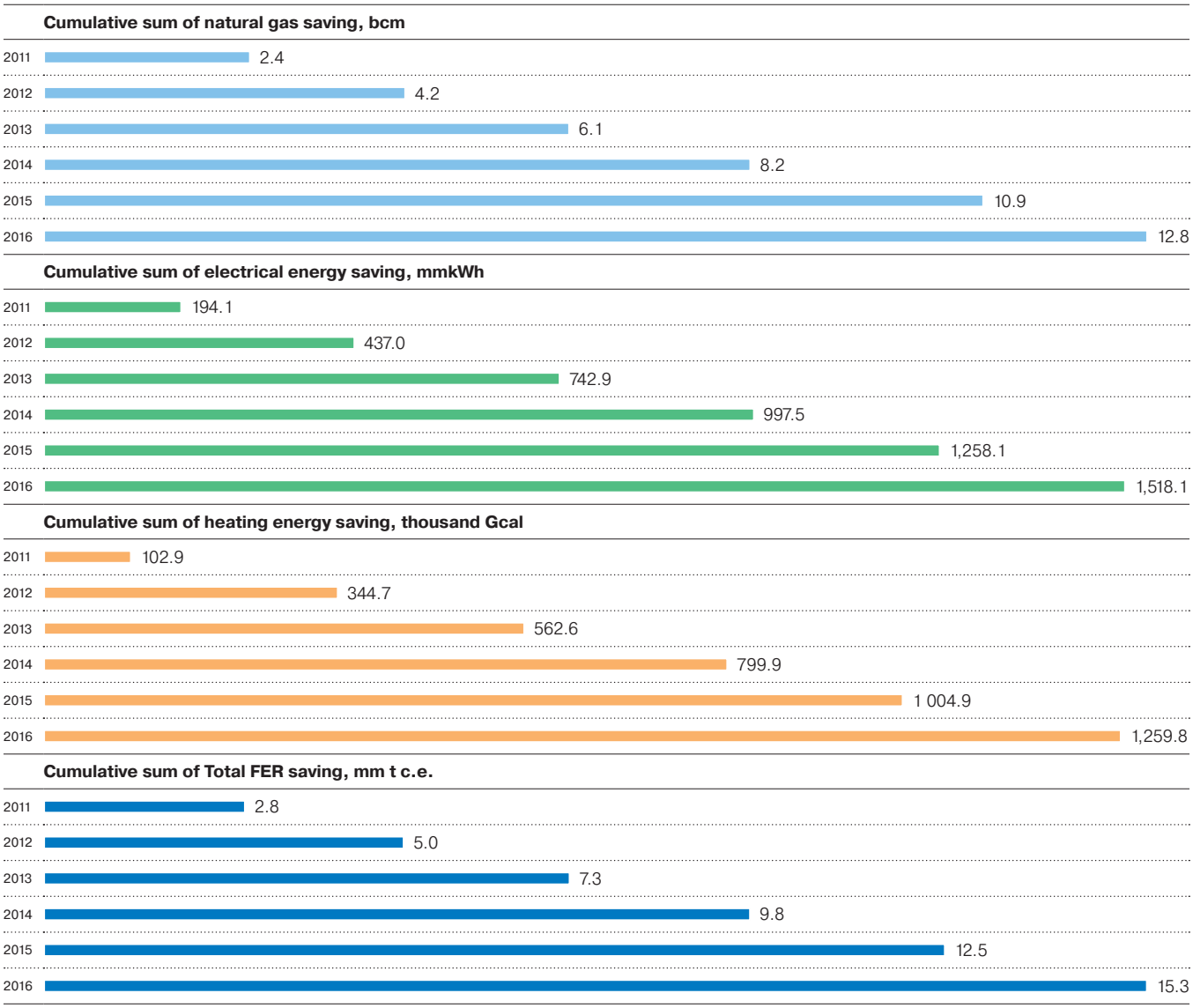
Since 2013 OOO Gazprom dobycha Yamburg and OOO Gazprom dobycha Nadym take part in charity event for elimination of environmental damage at Bely island in Kara Sea. This event is included in the event list of Federal Target Program "Elimination of accumulated environmental damage" for 2014–2025.

Energy saving

In 2016, PJSC Gazprom continued implementation of Energy Saving and Energy Efficiency Improvement Policy as per the Concept of OAO Gazprom Energy Saving and Energy Efficiency Improvement for 2011–2020 and energy saving and energy efficiency improvement programs.

As a result of energy saving and energy efficiency improvement programs of PJSC Gazprom in 2011–2016, actual saving of fuel and energy resources comprised 15.3mm t c.e., including: 12.8bcm of natural gas; 1.5bnkWh of electric energy; 1.3mm Gcal of heat energy.

Energy saving and energy efficiency increase objectives fulfillment for the PJCS Gazprom for the period 2011–2020



Energy saving and energy efficiency increase objectives fulfillment for the PJCS Gazpromfor the period 2011–2020

Fuel and power resources saving

Planned saving 2020 — 28.2mm t c.e.
Actual saving in the period of 2011–2016 is 15.3mm t c.e.
Objective fulfillment — 54.3%

Decrease of natural gas specific consumption for OPN

Planned annual reduction previous year — 1.2%.
Actual reached annual saving in the period of 2011–2016 — 3.6%.
Objective fulfillment — the objective is achieved.

Greenhouse gases reduction

Planned reduction for the period up to 2020 is 48.6mm tonnes.
Actual achieved reduction in the 2011—2016 period is 32.2mm tonnes.
Objective fulfillment — 66.5%.

Main areas of natural gas saving in a gas pipelines, 2016,%

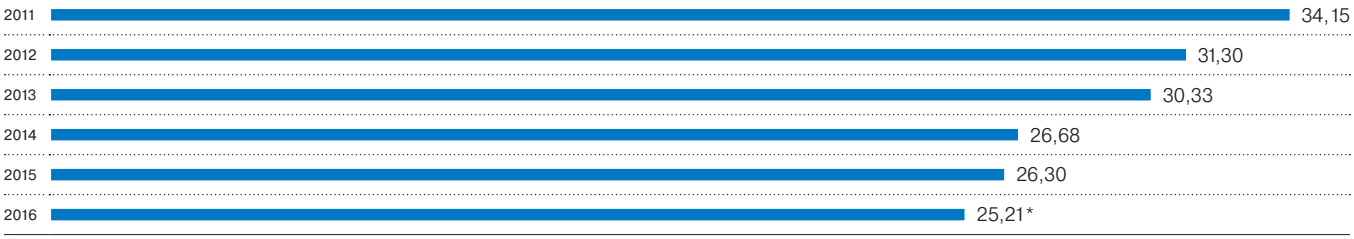
Reduction of gas consumption for process needs of CW, CS	37.7
Optimization of operating modes of GTS process facilities	20.4
Reconstruction and upgrade of CW, CS, LP, GDS	14.5
Improvement of GPU technical state by means of repair	13.0
Reduction of gas losses at the CS, LP, GDS facilities	8.7
Other activities	5.7

Main areas of energy saving in a gas pipelines, 2016,%

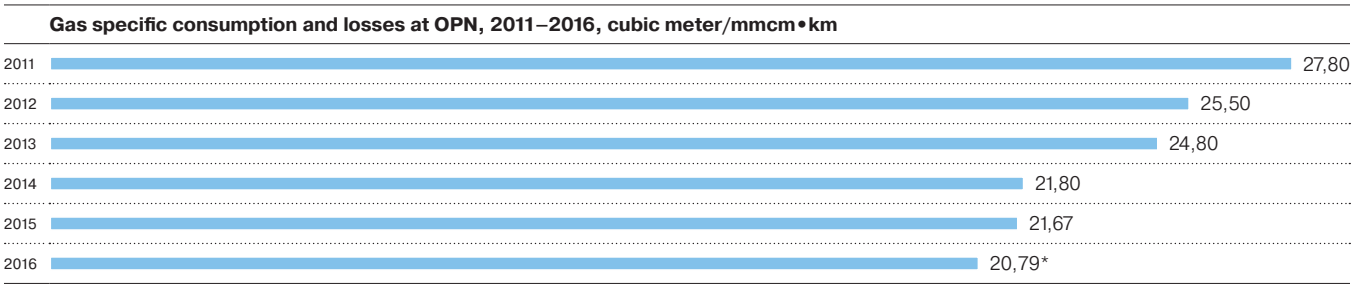
Optimization of operating modes of electric equipment	49.9
Management operational arrangements	16.7
Increasing the equipment technical condition by means of repair	14.8
Introduction of variable frequency drives and electric engine cushion start	10.5
Other activities	8.1

Based on the 2016 results, actual specific rate of FER consumption (natural gas and electrical energy) for gas pipeline transportation amounted to 25.21kg c.e./mmcm•km, which is 30% lower than the target value of specific FER consumption, 36.00kg c.e./mmcm•km, defined for 2016 by the Order No 587-e of the Federal Service for Tariffs, dated 31.03.2015.

Energy saving and energy efficiency improvement targets fulfilment of PJSC Gazprom for the period of 2011–2020 in gas transportation



* With account of commercial transportation operations of North European gas pipeline.



* With account of commercial transportation operations of North European gas pipeline.

For further development and improvement of energy saving management system, a Program of energy saving and energy efficiency improve was developed by PJSC Gazprom in 2016 for 2017–2019 (approved by the Order No. 202 of PJSC Gazprom dated April 7, 2017), and a number of R Gazprom documents of corporate standardization system was developed and introduced. In compliance with GOST R ISO 50001:2012, PJSC Gazprom subsidiaries develop regulatory documents of energy management system.

Results of the PJSC Gazprom's program of energy saving and energy efficiency improve in 2016

Type of activity	Natural gas, mmcm	Electric energy, mmkWh	Thermal energy, thousand Gkal
Gas, condensate and oil production	281.36	14.35	16.09
Gas transportation	1,942.03	204.33	58.56
Underground gas storage	17.76	0.96	0.00
Natural gas, condensate and oil processing	41.64	35.05	178.95
Distribution of gas	2.25	1.30	0.63
Total	**2,285.04**	**225.99**	**254.23**
Total, thousand t c.e.	**2,641.06**	**84.48**	**36.42**

The biggest contribution in FER saving (83.92%) was achieved in trunk gas pipeline transmission sector due to a large variety of energy-saving actions. In 2016, the practice of vented gas recovery technologies in repair operations, including the use of mobile compressor stations, continued. OOO Gazprom transgaz Kazan performed successful acceptance tests of domestic-made mobile compressor station.

OOO Gazprom transgaz Yugorsk continues preparation and implementation of technologies of end gas heat recovery at compressor stations, and OOO Gazprom Transgaz Tchaikovsky continues development of turbo expander technologies at gas distribution stations for electric energy generation. Both projects are implemented using energy service contracts.

For energy supply to remote facilities, Gazprom group uses independent power unit, such as gas turbine power plants, including APG-fueled ones as well.

Energy Policy and Engineering Policy of PAO Gazprom Neft in the sphere of energy efficiency are aimed at improvement of energy efficiency of enterprises while maintaining required reliability, safety and performance levels and reducing negative impact on the environment and consumption of non-renewable energy resources.

In 2015, Exploration and Production Unit of PAO Gazprom Neft obtained a certificate of compliance with ISO 50001 "Environmental management systems" from DQS international audit and certification holding (Germany). In 2016, 3 more enterprises were certified (GPN-Muravlenko, Vostok,

Orenburg). Currently five subsidiaries and a corporate center of Exploration and Production Unit of PAO Gazprom Neft are covered by a single compliance certificate.

By the results of 2016, Energy Efficiency Program of Exploration and Production Unit of PAO Gazprom Neft and Energy Saving and Energy Efficiency Improvement Program for 2016–2018 of enterprises from Logistics, Processing and Sales Unit of PAO Gazprom Neft are completed.

indicators of energy efficiency and saving program inplementation, PAO Gazprom Neft, 2016

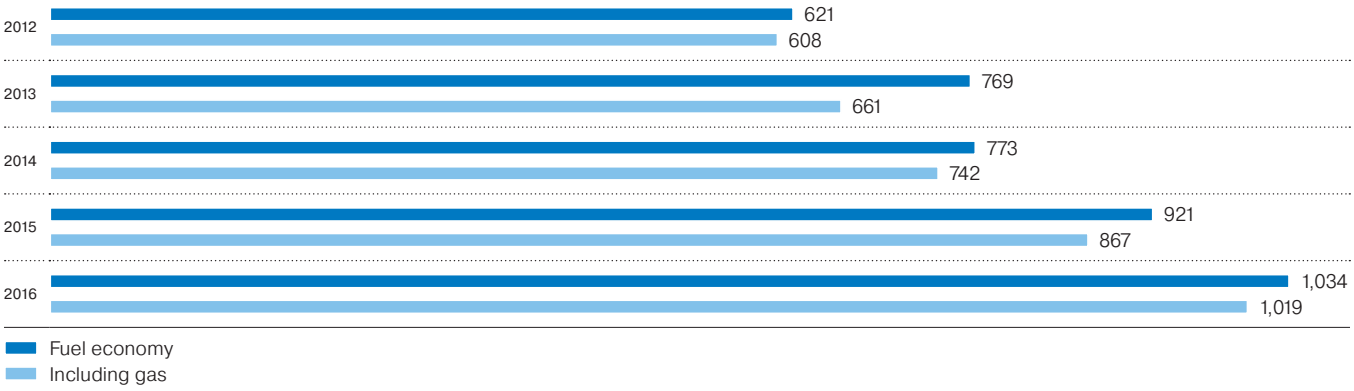
	Exploration and Production Unit	Logistics, Processing and Sales Unit	Shelf Projects Development Unit	PAO Gazprom Neft
FER consumption				
Electrical energy, mmkWh	6,412	3,773	152	10,337
Heat energy, thousand Gcal	258	11,246	19	11,523
Fuel, thousand t c.e.	465,987	4,624	7	470,617
Fuel and power resources saving				
Electrical energy, mmkWh	433	16	0	449
Heat energy, thousand Gcal	0	259	0	259
Fuel, thousand t c.e.	0.4	43	0	44

In order to meet the current state regulations, all the Gazprom Energoholding companies have introduced flagship technical guidelines on energy efficiency and energy saving. PAO Mosenergo, PAO MPIC and PAO TGC-1 have endorsed and are updating the medium-term energy saving programs on the yearly basis. Since 2013, PAO OGK-2 has been implementing a program of operation efficiency improvement (project Efficiency), which includes energy efficiency measures. The major objectives of the program are implementation of refurbishment and reconstruction projects (introduction of new capacities); improvement of equipment cost effectiveness, other administrative and engineering measures (upgrade of lighting systems etc.); energy studies, development and implementation of guiding documents based on rational energy source utilization principles.

Results of implementation of energy saving and energy efficiency improvement programs in Gazprom Energy

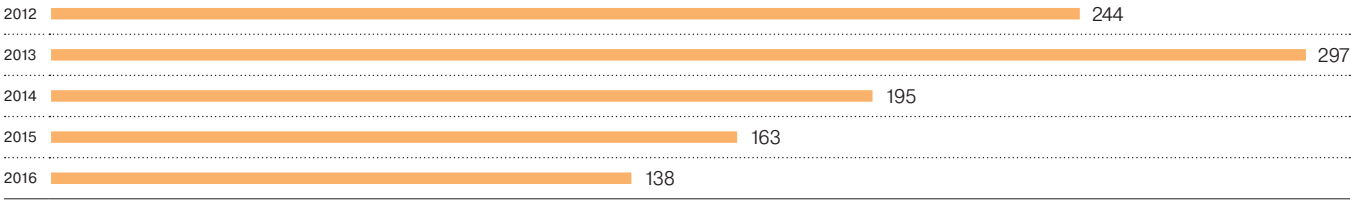
Generation company	Fuel saving, thousand t c.e.		Electrical energy saving, mmkWh	Heat energy saving, thousand Gcal
	Total	including natural gas		
PAO Mosenergo	957	957	393	46
PAO TGC-1	17	15	7	0
PAO OGK-2	47	34	57	0
PAO MPIC	13	13	0	92
Total	**1,034**	**1,019**	**457**	**138**

Dynamics of fuel economy in Gazprom Energoholding, 2012–2016, thousand t c.e.



Dynamics of electrical energy economy in Gazprom Energoholding, 2012–2016, mmkWh

Dynamics of heating energy economy in Gazprom Energoholding, 2012–2016, thousand Gcal



Use of renewable and secondary sources of energy

Gazprom Group supports the use of alternative energy sources where it is economically and technically feasible, particularly in remote regions or technologically isolated areas. It complies with provisions of the Federal Law No. 261-FZ dated November 23, 2009 "Energy saving and energy efficiency improvement and modification of single legislative acts of the Russian Federation".

Gazprom Group utilizes renewable energy sources (RES) and secondary energy sources (SES) for energy generation for auxiliary needs and sale to third-party consumers.

Main volume of RES utilization is attributed to PAO TGC-1, a subsidiary of OOO Gazprom Energoholding which holds 14 small HPPs in Karelia Republic and Murmansk Region. Small-scale HPPs of PAO TGC-1 make large contribution into development of "green" electric power generation in the South-West Federal Okrug of Russia.

Hydro power generation accounted for 13,036.42mm kWh of electric power while other RES and SES provided 360.48 thousand kWh.

In 2016, 1,329 power plants based on RES and SES, such as turbo expanders, thermoelectric generators, solar modules and batteries, wind generators, were used at PJSC Gazprom facilities. Total amount of electric energy generated at such plants comprised 297,211.14 kWh.

Indicators of electric energy generation with renewable and secondary sources, Gazprom Group, 2016

Energy generation type	Electric energy produced (kWh)	Number of installations based on RES and SES, pcs
All types of RES and SES	**13,036,783,055.28**	**1,907**
including PJSC Gazprom	297,211.14	1,329
Turbo expander installation	38,470.46	10
including PJSC Gazprom	38,470.46	10
Heat and electric energy generation	774.14	672
including PJSC Gazprom	774.14	672
Solar generation (solar modules, solar batteries, etc.)	235,848.48	961
including PJSC Gazprom	172,579.31	501
including OOO Mezhregiongaz	63,050.15	459
including OAO Severneftegazprom	219.00	1
Wind generation	85,387.20	146
including PJSC Gazprom	85,387.20	146
Hydrogeneration (hydraulic units)	13,036,422,575.00	118
including Gazprom Energoholding	13,007,579,963.00	115
including Gazprom neftekhim Salavat	28,842,612.00	3

Indicators of secondary and renewable energy source utilization in PJSC Gazprom, 2015–2016

Gazprom Neft tests technologies of power generation with renewable energy sources in Serbia: together with Energo-wind NIS it implements a project of wind power plant construction in Plandište, involving up to 40 innovative wind turbines. Total installed capacity of the facility would reach 102MW. In addition, NIS signed and agreement in October 2016 with Betec company (Singapore) on joint development of active geothermal areas in northern Serbia.

Parameters of environmental activity and environmental impact of PJSC Gazprom abroad

Republic of Armenia

ZAO Gazprom Armenia is a 100% subsidiary of PJSC Gazprom, engaged with transportation, storage, processing, distribution and selling of natural gas, electric power generation and selling of electric energy in the territory of the Republic of Armenia.

In 2015, gross pollutant emissions into the atmospheric air comprised 80.07 thousand tonnes which is by 5% higher than in previous reporting year due to increased gas tapping from UGSF and electric power generation growth. Greenhouse gas emissions from gas business facilities and power industry comprised 2.44mm tonnes CO_2-equivalent in total.

Water discharge to surface water bodies in the reporting year comprised 122.00mcm, 100% of which was represented by effluents treated to standard quality.

During the year, 0.189 thousand tonnes of waste was produced, 96% of which belongs to environmental hazard classes IV and V. Reduced waste production is caused primarily by administrative measures for improvement of metering and reporting system in the waste handling sphere. Pollution charges were paid under the established standards and amounted to RUB 449.85 thousand.

In 2016, two accidents without natural gas ignition occurred:

— 25.08.2016, pipe damaged by a landslide at 49th km of Dzhermuk-Ararat TGP (DN 700), gas loss comprised 206.955mcm;

— 02.09.2016, pipe damaged in Maralik-Karmrashen TGP (DN 500) due to inaccurate operations of a contractor during excavations, gas loss comprised 272.33mcm.

No inspections by environmental control (surveillance) were held in the reporting year.

Main indicators of environment protection by ZAO Gazprom Armenia, 2014–2016

	2014	2015	2016
Total air pollutant emissions, thousand tonnes	86.13	80.07	83.80
Greenhouse gas emissions, mm tonnes of CO_2-equivalent*	–	–	2.44
Water discharge to surface water bodies, mcm	265.70	105.00	122.00
including clean and treated as per standards	265.70	105.00	122.00
Produced waste amount, thousand tonnes	0.128	0.361	0.189
Disturbed lands as of the end of the year, ha	0	0	0
Charges for negative environment impact, RUB thousand	301.65	360.27	449.85
Share of payments within established rates in the total payment amount, %	100	100	99.99

* Greenhouse gas emissions were calculated according to the Methodological guidelines of quantitative assessment of greenhouse gas emissions of organizations operating on the territory of the Russian Federation approved by the Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation dated June 30, 2015.

Republic of Belarus

OAO Gazprom transgaz Belarus is a 100% affiliate of PJSC Gazprom, involved in natural gas transportation and storage in the Republic of Belarus. The company is included in the scope of the PJSC Gazprom Environmental management system.

Gross pollutant emissions into the atmospheric air comprised 23.78 thousand tonnes, which is by 4% lower than in 2015. 99.6% of emissions were within established standards. Actions of Energy Saving Program of OAO Gazprom transgaz Belarus and additional measures allowed preventing emission of 8.7 thousand tonnes of methane to the atmospheric air, volume of methane emissions during repair of linear gas pipeline portions were reduced significantly by 1.2 thousand tonnes to the level of 2015.

Effluent discharge into surface water bodies comprised 97.48mcm, 100% of which were clean and treated as per standards. Affiliated companies performed a scope of works to reduce the weight of pollutants discharged as part of waste water.

During the year, 4.13 thousand tonnes of waste was produced at facilities of the Company, which is by 17% lower than in 2015. This value was influenced mainly by reduction of drilling work scope at UGSFs and implementation of a plan of production waste handling optimization. For example, drilling waste produced during well construction were used after liquefaction in reclamation of process pits of the drilling site.

During the year, 8 ha of lands was disturbed, 22 ha was reclaimed, including 14 ha of lands disturbed in 2015 due to repair works. Pollution charges were paid under the established standards and amounted to RUB 22,116.42 thousand.

In 2016, OAO Gazprom transgaz Belarus paid charges for utilization of natural resources at the level of 2015 in amount of RUB 22,116 thousand. Upon environmental damage, air pollution with methane (85.769 tonnes) caused by accident in well No. 136 of Probugskoye UGSF, damage in amount of RUB 4.42mm is claimed.

Three inspections performed at facilities of the company, performed by territorial bodies of the Ministry of Natural Resources and Environment Protection of the Republic of Belarus revealed two violations of environmental protection laws of the Republic of Belarus, that were eliminated within the reporting period. Fines were imposed in amount of RUB 19.35 thousand and paid in full.

In December 2016, an independent certification authority, the State Metrology Institute of Belarus, performed re-certification audit that confirmed compliance of the environmental management system with the requirements of the state standard of the Republic of Belarus STB ISO 14001-2005.

Main indicators of environment protection by OAO Gazprom transgaz Belarus, 2013–2016

	2013	2014	2015	2016
Total air pollutant emissions, thousand tonnes	21.55	25.70	24.85	23.78
Greenhouse gas emissions, mm tonnes of CO_2-equivalent*	0.229	0.288	0.323	0.298
Water discharge to surface water bodies, mcm	65.85	37.47	167.42	97.48
including clean and treated as per standards	65.85	37.47	167.42	97.48
Produced waste amount, thousand tonnes	3.37	2.29	5.00	4.13
Disturbed lands as of the end of the year, ha	50.73	0	14	0
Charges for negative environment impact, RUB thousand	24,150.81	30,441.11	25,600.88	22,116.42
Share of payments within established rates in the total payment amount, %	100	100	100	100

* GHG emissions were calculated in compliance with the technical code of common practice Environment Protection and Use of Natural Resources. Climate. Greenhouse Gas Emission and Absorption. Rules of Emission Calculation with Implemented Energy Saving Actions, Renewable Energy Sources approved by Decree No. 13-T of the Ministry of Natural Resources and Environment Protection of the Republic of Belarus dated September 5, 2011 Concerning the Statement and Introduction in Action Technical Normative Legal Acts and Amendments to Technical Regulatory Legal Act.

Kyrgyz Republic

OsOO Gazprom Kyrgyzstan is a 100% PJSC Gazprom subsidiary operating in transportation, storage, distribution and marketing selling of natural gas at the domestic market of the Republic of Kyrgyzstan.

In 2016, total pollutant emissions into the atmospheric air comprised 13.52 thousand tonnes (including 12.54 thousand tonnes of methane emissions during process operations), and significant difference from 2015 value is caused by operations of pollutant emission metering and stocktaking from all stationary sources and process losses of natural gas. In 2016, 22.20km of gas pipeline was replaced and 48.3km of TGP from Bukhara gas region to Tashkent — Bishkek — Almaty was reconstructed.

Total effluent discharge comprised 23.80mcm (27.58mcm in 2015; 27.42mcm in 2014), and water is discharged mainly to municipal systems; no discharge is made to surface water bodies. Treated water is also used for greenery watering and for dust control during construction works.

Waste production volume comprise 139.36 thousand tonnes. Negative environmental impact charges were paid within established rates and comprised RUB 61.75 thousand. Significant reduction of charges was caused by changes in legislation of Kyrgyz Republic in terms of fees for solid municipal waste landfilling.

In 2016, ten inspections were performed by the state surveillance bodies, revealing 11 violations that were further eliminated within established time period. No penalties were imposed on OsOO Gazprom Kyrgyzstan.

Main indicators of environment protection by OsOO Gazprom Kyrgyzstan, 2014–2016

	2014	2015	2016
Total air pollutant emissions, thousand tonnes	1.67*	1.88*	13.52
Greenhouse gas emissions, mm tonnes of CO_2-equivalent**	no data	no data	0.33
Water discharge to surface water bodies, mcm	0	0	0
including clean and treated as per standards	0	0	0
Produced waste amount, thousand tonnes	0.16	0.16	0.14
Disturbed lands as of the end of the year, ha	0	0	0
Charges for negative environment impact, RUB thousand	41.32	166.95	61.75
Share of payments within established rates in the total payment amount, %	100	100	100

* Without account of process loss of natural gas.
** Greenhouse gas emissions were calculated according to the Methodological guidelines of quantitative assessment of greenhouse gas emissions of organizations operating on the territory of the Russian Federation approved by the Order No. 300 of the Ministry of Natural Resources and Environment of the Russian Federation dated June 30, 2015.

Non-CIS countries

Gazprom EP International B.V. is a PJSC Gazprom operator of projects on exploration and development of hydrocarbon deposits outside the Russian Federation. Realizing its high liability to partners and communities of countries of the Company's operation, Gazprom EP International B.V. takes all measures required to protect environment and health of employees, keeping to the highest environmental standards. The company makes a lot of effort to implement technological and scientific innovations aimed, in particular, at minimizing the environmental impact.

Currently the company runs activities in 16 countries and sees its mission as facilitating economic development and strengthening the energy potential of its partners by offering a range of high-quality services: geological exploration, drilling, and the construction of pipelines, compressor stations, and many other things.

In 2016, Gazprom EP International B.V. companies performed production operations in El Assel project in People's Democratic Republic of Algeria, well drilling was completed in April, and drilling at units 130 and 131 in the Socialistic Republic of Vietnam completed in early January. In all other countries of operations, Gazprom EP International B.V. runs activities in the form of representative offices.

Algeria

Gazprom EP International B.V. subsidiary in Algeria is an operator in the stage of exploration works by El Assel in Berklin's oil and gas basin in the eastern part of Algerian Sahara. The works are performed in compliance with strict rules and regulations of hydrocarbon exploration, established by Algerian legislation of environment protection and the use of natural resources.

In 2016, drilling of RSH-3 exploration well was completed within a project entering its final, third phase of exploration. A comprehensive approach to drilling waste management was applied during its construction. Through the year, 5.5mcm of oil-based mud cuttings from RSH-5 and RSH-3 wells were processed. Also, additional measures were taken to optimize drilling waste handling system, allowing for significant reduction of disposal costs approximately by 10%. According to national legislation of Algeria, a technology of mud encapsulation with further application of the obtained product for reclamation was used for mud disposal. RSH-5 and RSH-3 well sites with the total area of 8 ha were reclaimed.

To reduce negative environmental impact of drilling operations, contractors providing services for well construction performed a number of actions for rational water utilization and waste reduction in compliance with contractual terms. A system of separated waste collection for waste transfer to specialized organizations for further disposal is in effect at production and residential sites of the wells.

Issues of planned environmental protection measures were discussed in the course of kickoff and onsite meetings. Program of daily training included training in containment of consequences of oil product spills and contamination prevention. Initial briefing and a course of mandatory training of employees necessary for access to the drilling site include information on environmental hazards of drilling processes.

Vietnam

In January 2016, construction of two VGP exploration wells at units 130 and 131 was completed at the continental shelf of Vietnam. Well construction involved measures of environmental production control and monitoring in part of prevention of waste mud to sea by a drilling contractor and of compliance with the standards of drilling sludge discharge to sea. Other waste was taken from the drilling vessel to an onshore base for transfer to a contractor for disposal.

Environmental assessment of projects

According to the requirements of Russian and international laws, the Gazprom Group companies perform environmental assessment of planned business activities at all the investment life cycle stages — from and investment idea to construction projects.

Since 1994, PJSC Gazprom performs corporate expert review before submitting the documents to the state expert review and state environmental expert review (for facilities indicated in the Federal Law No. 174-FZ Concerning Environmental Review dated November 23, 1995). The corporate expert review procedure is governed by the STO Gazprom 2-2.1-031-2005 "Regulations on the review of preliminary and detailed project design documentation in OAO Gazprom".

The review of the design object is carried out to verify the compliance with the requirements of the existing Environmental Regulations of the Russian Federation, energy-saving legislation, STO Gazprom, international rules and regulations.

Corporate expert review is performed in order to improve documentation quality in terms of up-to-date environment protection and energy efficiency decisions aimed to reduce environmental risks during project implementation.

The technical design tasks and specifications of 238 reconstruction, modernization and construction objects, as well as predesign and design documentation on 294 projects of reconstruction, modernization and construction were reviewed in 2015 within the framework of the corporate environmental appraisal.

As a whole, pre-design and design documentation for 532 facilities was reviewed within corporate environmental review in 2016. Technical assignments for design, pre-design and design documentation were reviewed and endorsed for a number of fundamental manufacturing entities, such as:

— Justification of investment to UGSS expansion to ensure gas supply to the 3rd and 4th lines of Nord Stream offshore gas pipeline;
— Investment plan of the gas resource development at the Kirinskoye license site;
— Trunk gas pipeline "Power of Siberia" Stage 4.1. Belogorsk-Blagoveshchensk site, stage 4.2. Compressor stations. CS-7A Zeyskaya, Stage 4.3. Blagoveshchensk-China border site;
— Infrastructure development for Cenomanian-Aptian deposits of Kharasaveyskoye GCF. Connection gas line of Kharasaveyskoye GCF;
— LNG production, storage and shipment complex in the area of Portovaya compressor station, etc.

Expert review of document packages on TGP and UGS construction and reconstruction objects, on field development and UGSS capacity expansion was conducted.

Operational environmental monitoring and control

Operational environmental control is performed in each subsidiary of Gazprom Group. In addition, Environmental Inspection Service of PJSC Gazprom monitors implementation of environment protection legislation, corporate standards and rules in the field of Environment Protection by subsidiaries and contractors, and performs internal audits of the EMS of PJSC Gazprom's subsidiaries.

Corporate environmental control at the facilities of PJSC Gazprom is exercised according to corporate standard STO Gazprom 2-1.19-275-2008 "Environment protection at enterprises of PJSC Gazprom. Operation Environmental Control. General requirements" and others.

In 2016, the Gazprom Environmental Inspection Service performed 481 inspections of compliance with environment protection legislation in PJSC Gazprom subsidiaries and organizations according to the established schedule.
A total number of monitoring objects of the Gazprom Environmental Inspection Service comprised 21,379 units in the reporting year.

9 gas production facilities, 17 gas enterprises, OOO Gazprom UGS, OOO Gazprom Pererabotka, OOO Gazprom Energo and 28 other subsidiaries and general contractors performing operations at the objects of key construction, reconstruction and overhaul sites of UGSS were performed.

According to the Minutes of the PJSC Gazprom Coordination Commitee for Environmental Protection and Energy Efficiency issues dated 22.07.2016, Environmental Inspection Service of PJSC Gazprom performed 146 inspections of compliance with environment protection legislation at 86 facilities of capital construction, reconstruction and overhaul.

According to the schedule plan of Environmental Inspection Service operations, 209 internal audits of EMS in structural divisions of PJSC Gazprom subsidiaries were performed in 28 subsidiaries in combination with inspection of compliance with environment protection legislation.

Managers of the companies audited were informed on the results of the checks, along with recommendations on the improvement of environment protection procedures, and activities to eliminate and prevent violations were determined. Rate of timely non-compliance elimination comprised 99%.

To ensure environmental safety in construction and operation the production activity facilities, the companies of Gazprom Group lodge also the stringent requirements to their contractors. Audits of the environmental protection measures fulfillment, planned in construction and upgrading projects, are being implemented within operational environmental control (OEC).

Operational environmental monitoring (OEM) system of Gazprom Group has a high level of equipment capability and is constantly developing. Rules, procedures and peculiarities of development and introduction of environmental monitoring systems for different production facilities are specified in a number of industrial and departmental regulatory documents, including corporate standards.

OEM system of Gazprom Group is furnished with stationary and mobile laboratories, meteorological and aerologic stations, automated control stations and monitoring wells. It allows for monitoring of air pollutant emissions from stationary sources, quality of air at the sanitary protection zone boundary and in settlements, noise level, background radiation, quality of surface and underground water, bottom sediments, quality of water of utility and drinking purposes, state of geological environment, soil and snow cover, waste and effluents.

Any specially protected area or facility of a special ecological status located in the area of production operations should be subject to the Gazprom Group Operation Environmental Monitoring programs.

OOO Gazprom Dobycha Krasnodar continues monitoring of the water area state of the Gulf of Taganrog in the Azov Sea and sea water quality. OOO Gazflot monitors water area at the base fleet location in Kola Bay and water area at the point of winter mooring of semi-submersible offshore drilling rigs.

Environmental operational control of sea and air is performed in vicinity of the Prirazlomnaya offshore ice-resistant oil-producing platform. Monitoring of environment components at the territory of Novoportovskoye license site, Mys Kamenny custody transfer point. Ob' Bay at the site of Arctic terminal of year-round oil shipment, and of flora and fauna of Yamal is performed in connection with development of Novoportovskoye OGCF.

No negative impact of business activities of the Company was detected by the monitoring results in 2016. Biodiversity of natural communities was rather high.

In 2016, the complex environmental monitoring was continued within the framework of project Nord Stream project, which, after the gas pipeline launch in 2012, has been focused on the aspects related with operation of the pipeline and recovery after construction.

Studies by 16 environmental parameters are performed within environmental monitoring program, covering physical and chemical parameters of surface water and bottom sediments; biological environment (status of fish, bird and marine mammal populations); social and economical conditions (assessment of impact on commercial-scale fishing and cultural heritage objects). Data for the study are gathered almost from 1000 monitoring points along the whole gas pipeline route. Studies included in the monitoring program are performed through the whole construction period, and will continue for the first three years of gas pipeline operation, allowing for minimization of any environmental impact.

Monitoring works are being performed according to the national programs in Russia, Finland, Sweden, Denmark and Germany.

No negative impact on the environment components has been detected as per the results of the monitoring. Continuously updated information is available at the website: www.nord-stream.com.

For assessment of environment state, detection of production facility impact on the environment, and development of impact elimination or reduction actions, Sakhalin Energy company implements a number of programs of local environmental monitoring and biodiversity preservation.

Environmental monitoring and biodiversity preservation actions were taken in the following areas: monitoring of river ecosystems; monitoring of flora; monitoring of water and swamp areas, monitoring of protected bird species; monitoring of Steller's sea eagle; monitoring of ballast water in littoral zone of Aniva Bay in vicinity of Prigorodnoye production center; monitoring of gray whales.

To prevent and reduce methane emissions in the PJSC Gazprom gas transportation subsidiaries, helicopter surveillance of TGP technical state with laser gas leakage detectors, gas leakage detection of CS using infrared visualizers, as well as pipeline pigging are performed, preventing gas losses and reducing risks of environmental impact.

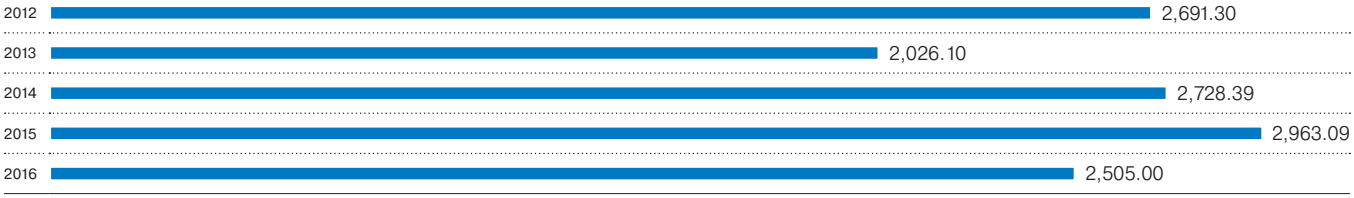
Automated systems of OEM for existing facilities in operation are operated as an element of the integrated system of supervisory control. For example, the main goal of automated OEM system of OOO Gazprom dobycha Astrakhan is to ensure safety of the production personnel and population living in close proximity to the Astrakhan gas complex. In 2016, monitoring of the environment state was carried out at 15 automatic stations equipped with the most advanced for meteorological observations and chemical and analytical contamination control systems. The information gathered is transferred through a radio channel to the Monitoring Center every 20 minutes, where it is processed, kept in a database and through a local area network comes to the terminals of the Central gas safety station on duty and environment protection laboratory. In case maximum allowable concentrations of pollutants are exceeded, or in another emergency situation, an alarm thereof is transmitted immediately.

In OOO Gazprom dobycha Orenburg, integrated monitoring system of atmospheric air also functions successfully as well; it includes automated control stations in 24 populated localities and 7 mobile environmental laboratories. In order to improve environmental safety, an additional level of control has been introduced — the Center of gas and environmental safety of OOO Gazprom dobycha Orenburg.

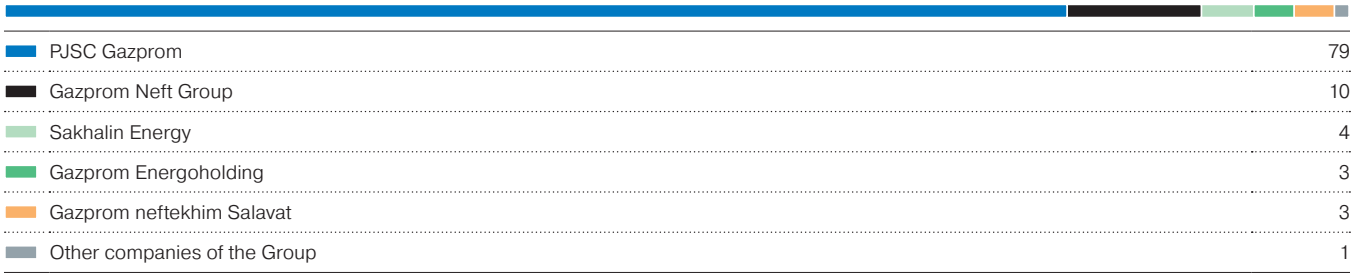
In a number of cases, OEM systems of Gazprom Group are integrated with regional environmental situation monitoring systems. For example, automated systems of environmental monitoring of PAO Mosenergo (Gazprom Energoholding) and Moscow Oil Refinery Plant (Gazprom Neft Group) transmit data online concerning air emissions to the Integrated System of Environmental Monitoring of Moscow city (GPBU Mosekomonitoring).

Gazprom Group allocates large sums annually for functioning of the OEC and OEM systems; over RUB 2.5bn was spend on these purposes in 2016, 79% of which was provided by PJSC Gazprom.

Gazprom Group expenditures on operational environmental monitoring and control, 2012–2016, RUB mm



Structure of expenditures on operational environmental monitoring and control Gazprom Group, 2016,%



In 2012–2016, Gazprom Group provided RUB 12.9bn for operational environmental monitoring and control.

Prevention of accidents

In 2016, 16 accidents with environmental consequences took place at Gazprom Group facilities, 9 of which were attributable to PJSC Gazprom, 4 in OOO Gazprom mezhregiongaz, 1 in Gazprom Neft Group, 1 in Gazprom neftekhim Salavat and 1 in PAO OGK-2 (Gazprom Energoholding).

7 accidents occurred at trunk gas transport facilities (3 in OOO Gazprom transgaz Yugorsk; 1 in OOO Gazprom transgaz Volgograd; 1 in OOO Gazprom transgaz Yekaterinburg; 1 in OOO Gazprom transgaz Moscow; 1 in OOO Gazprom transgaz Chaykovsky), and 2 accidents occurred at the facilities of OOO Gazprom Pererabotka. The damage was compensated by AO SOGAZ.

4 accidents with environmental consequences (gas emission) occurred in OOO Gazprom mezhregiongaz in distribution networks in Kurgan Region, Karachay-Cherkess Republic, Republic of Ingushetia, caused by corrosion damage of pipelines and unauthorized works performed by third parties.

An accident at a line facility of Gazprom Neft-Muravlenko (Gazprom Neft Group) subsidiary took place as a result of depressurization of onsite pipeline, with the pollutant discharged into Sugmut-Yanyagun water body. A site of 0.04 ha area was completely reclaimed, contamination is eliminated in full. Emergency pipeline is decommissioned.

An accident happened in OOO Gazprom neftekhim Salavat at Pyrolysis-1 aggregate of Monomer plant. Compensation for accidental pollutant release from oil product combustion is paid in full amount.

Accidental pollution of a 1.9 ha land site adjoining Uy river at with ash pulp from hydraulic ash removal system at Troitskaya TPP of PAO OGK-2. To eliminate this violation and prevent similar incidents, a project of recycle water supply system downstream of ash pulp settling plant was designed in 2016 for implementation in 2017.

The Group companies take accident prevention actions on a yearly basis allowing for improvement of equipment reliability and reduction of risk of accidents at Gazprom production facilities. Such actions include: timely repair and preventive maintenance works, anti-flood activities, technical diagnostics of pipelines, regular inspection of abandoned plugged wells, injection of corrosion inhibitors, regular helicopter inspections of TGP LPs and pipeline extensions to detect flaws and gas leakages, including application of laser detectors; equipment of facilities with required devices and means to eliminate hydrocarbon spills.

In recent years no accidents with significant environmental consequences were registered at the Gazprom Group facilities.

Environmental risk insurance

The Gazprom Group environmental insurance covers the liability for emergency environmental contamination and aimed at provision of environmental safety, compensation of the environmental damage and compensation of losses of third parties.

In 2016, as in previous years, PJSC Gazprom and AO SOGAZ signed a comprehensive insurance contract providing for coverage of risks of damage to environment, life, health and property of third parties in the process of land and marine exploration and drilling, hydrocarbon production, transportation, refining, storage, operation of sources of increased hazard, construction and other associated operations in the territory of the Russian Federation and continental shelf of the Russian Federation.

The insurance contract is voluntary and complements obligatory general liability insurance contracts of a hazardous facility owner (as per Federal Law No. 225-FZ dated July 27, 2010). The insurance contract replaced all voluntary general liability insurance contracts of legal persons who operate sources of increased hazard, signed earlier by each subsidiary company.

Amount of insurance payments of AO SOGAZ in the reporting period comprised RUB 11.57mm (RUB 23.87mm in 2015), including RUB 11.23mm for damages of the previous years (RUB 17.78mm in 2015).

State environmental supervision

544 state inspections of compliance of Gazprom Group companies with environmental requirements were performed in 2016. Based on the results of 270 audits (50% from the total number of the audits), no violations have been detected. Out of 637 violations detected in the reporting year, 408 violations (64%) were eliminated timely, 19 violations (3%) were overturned by the court, and enforcement deadlines for other violations has not expired yet. A total of 521 violations was eliminated in this year with account of 113 violations detected in the previous years. Among the revealed violations, 45% did not constitute a threat of environmental damage and haven't entailed any penal sanctions to a legal entity.

Inspections performed in the Group companies in the reporting year resulted in penalties imposed in amount of RUB 39.32mm, RUB 9.48mm of penalties was challenged in court, RUB 23.68mm was paid, including RUB 1.86mm by inspection results of previous years.

Calculated environmental damage comprised RUB 177.03 mln including RUB 28.32mm of damages caused by accidents. Claims for environmental damage compensation in amount of RUB 38.61mm were challenged in court. Compensations paid for environmental damage (with account of previous years) amounted to RUB 45.84mm, including: RUB 29.73mm by Gazprom Neft Group; RUB 16.02mm by PJSC Gazprom; RUB 0.09mm by Gazprom Energoholding.

Scientific research and development

In order to increase the work efficiency of the companies in Gazprom Group, the scientific researchers are being carried out, new technologies are being developed and implemented decreasing negative impact on the environment.

16 scientific research, development and disign works (R&D) in the environment protection sphere were performed for PJSC Gazprom during 2016. The following works were continued:

- Development of a biological preparation for disturbed and contaminated land reclamation, based on rhizospherical and nitrogen-fixing microbes (OOO Gazprom VNIIGAZ);
- Studies of disturbed and contaminated land recovery processes and improvement of land reclamation technologies in environment of Yamal Peninsula (OOO Gazprom VNIIGAZ);
- Creation of a pilot unit of methane/hydrogen mix production plant Studies of hydrogen production and use are run (OO Gazprom geotekhnologii);
- Research Institute of Occupational Medicine of the Russian Academy of Sciences performed an expert hygienic evaluation of BIOROSTOK biological preparation and expert examination of engineering documentation package developed.

Practical testing of process parameters of the biological preparation production on the basis of rhizospherical and nitrogen-fixing microbes allowed for determination of optimum fermentation parameters (temperature, pH, aeration intensity) ensuring maximum producer culture growth rate. Process regulations for obtainment of BIOROSTOK biological preparation were developed.

Multilevel procedure of bioindicator application was developed and defended by invention of a method of comprehensive environment state assessment

A pilot plant of methane/hydrogen fuel production with 1000 cm/h capacity was manufactured. The plant passed acceptance tests and confirmed its operability. The technology is based on adiabatic methane conversion in water steam medium and is aimed at improvement of energy efficiency of gas pumping units and reduction of pollutant and greenhouse gas emission from gas turbine units.

Tests showed that application of methane and hydrogen mix would allow for significant improvement of emission parameters of gas turbine units with low NO_x values (11 mg/cm) at high excess air factor with simultaneous drop of CO emission (20 mg/cm).

For replication of the technology of methane/hydrogen fuel application in gas turbine drives of gas pumping units, next stage will involve manufacturing of a single test center consisting of a three-burner section of gas turbine motor combustion chamber, connected to a methane/hydrogen fuel production unit, and a research cycle will be performed for all operation modes of the combustion chamber, imitating natural gas pumping through trunk gas pipelines.

In the subsidiaries of PJSC Gazprom and other companies of Gazprom Group, scientific research, development and design works were also carried out, aimed at increasing the environmental safety and energy efficiency.

OOO Gazprom neftekhim Salavat developed engineering and process measures to reduce flare emissions in OOO Gazprom neftekhim Salavat, together with technical solutions for disposal of effluents from superabsorbent polymer (SAP) production.

Within the national project of catalytic production development, Gazprom Neft manufactured a commercial pilot batch of oligomerization catalyst in 2016, which showed high results after laboratory tests. Largest Russian enterprises with oligomerization process included in the process chain have already expressed interest in this innovative product.

In 2016, Gazprom Neft developed a Strategy of production and consumption waste handling, and an efficient method of biological reclamation of disturbed lands in Novoportovskoye line section was selected, and maximum permissible concentration of lithium hydroxide was determined.

For its crucial projects, Gazprom Neft is actively implementing and using safety analysis and project risk determination method with account of industrial and environmental safety requirements, occupational health and civil defense (PHSER - Project HSE Review) with further implementation monitoring of project solutions for elimination or mitigation of detected risk impacts. In 2016, an independent expert review of risk assessment was performed for Zapolyarnaya base development project.

OOO Gazprom dobycha Yamburg performed research work in the subject: “Development of innovative technology of disturbed and contaminated soil and ground rehabilitation at the territory of OOO Gazprom”.

OOO Gazprom transgaz Samara has continued the work for design, construction and installation of a experimental industrial center for neutralization of waste and residual natural gas odorant.

Within research works, Surgut affiliate of OOO Gazprom energo performed overhaul of sewage network site of water supply and drain workshop.

Implementation of innovative environment protection technologies

In June 2016, Gazprom approved an Innovative Development Program until 2025. Main purpose of the Program is a continuous improvement of technology level in Gazprom to maintain technological leadership in the global energy business. The Program provides for active cooperation with corporate and third-party research organizations within R&D operations, state development institutes and higher education institutions to arrange joint research and personnel training.

Within their cooperation, in 2016 Gazprom and RUSNANO were solving issues of innovative substitution technology and equipment introduction at existing and future production facilities of Gazprom, including facilities at the Russian East. Particularly, membrane modules of water preparation, DC systems based on Li-ion batteries, electrical insulation liners in pipeline supports for anticorrosion protection from Russian manufacturers were recommended after tests for the use at electric power and heat generation facilities of Gazprom Group. List of pipes permitted for use at Gazprom facilities includes pipes with nanomodified cement-sand coating enhancing pipe surface protection against mechanical damage during gas pipeline installation in hard conditions.

Improvement of environmental safety and energy efficiency of activities of Gazprom Group companies is chieved largely owing to implementation of innovative technical and process solutions.

In 2016, development of comprehensive measures for PJSC Gazprom transition to implementation and use of the best available technologies continued, including development of engineering information reference books of the best available techniques of gas industry (OOO Gazprom VNIIGAZ and OOO NIIgazekonomika). In 2016, the following guidelines were developed: Procedure of comprehensive assessment of economical and environmental aspects for the best available techniques and evaluation of impact of transition to process regulation system based on the best available technologies on economic indicators of PJSC Gazprom.

Engineering information reference book of the best available techniques of raw hydrocarbon material production for PJSC Gazprom.

During the year, Sakhalin Energy was including technology of drilling waste pumping through special absorption wells into deep subsurface horizons with required isolating strata ensuring safe waste containment in the bed into the engineering information reference book ITS-17 2016 “Production and consumption waste landfilling” as the best available techniques for disposal of oil and gas production-related waste. In December 2016, the reference book was approved by the Order No. 1885 of the Federal Agency for Technical Regulation and Metrology and scheduled to come into effect starting from July 1, 2017. During the year, pumping process was monitored continuously, and required actions were taken to reduce volume of drilling waste production. Sakhalin Energy was monitoring sea water state in the bottom stratum, bottom deposits and benthos communities in vicinity of drilling waste disposal facilities to confirm absence of negative impact on the environment. Report on the monitoring results with the data confirming absence of negative environmental impact was submitted to Rosprirodnadzor Department in Sakhalin Region in compliance with the Order No. 66 of the Ministry of Natural Resources and Environment of the Russian Federation dated March 4, 2016.

During 2016, OOO Gazprom dobycha Yamburg was developing an innovative techniques package for reclamation of disturbed and polluted tundra landscapes. Basic technology is protected by a Russian patent for invention. To enhance accuracy of field development monitoring, a telemetry system was implemented in OOO Gazprom dobycha Yamburg. It allowed for collective research of gas well clusters without greenhouse gas release into air. This study received an award of the Government of the Russian Federation in the research and engineering sphere and award of the Ministry of Natural Resources and Environment of the Russian Federation in the category of Environment Protection Techniques as the best environmental project.

In 2016, Gazprom won a competition for the All-Russian Award “Environmentally Friendly Development — Evolution Awards 2016” sponsored by the Ministry of Natural Resources and Environment of the Russian Federation in the category of Best Solution for Green Techniques. The Company was awarded for development and introduction of the best available techniques ensuring high level of energy efficiency and reducing specific green house gas emissions.

Gazprom prize in science and technical engineering

The Gazprom Prize in science and technical engineering has been awarded annually since 1998 and is an important component of the corporate scientific and engineering policy of Gazprom, aimed at the stimulation of using innovations in the Company's activity and provision of its technological leadership in the world energy business.

The prizes are granted for major developments in the spheres of natural gas production, transportation, storage, refining and use, completed by formation or improvement, and — which is most important — efficient use of new machinery, devices, equipment and materials specimens. As a rule, most of the nominated scientific and technical works are directly or indirectly related to the environmental effect.

Among the winners in year 2016, among others, there was the following elaboration making it possible to attain an ecological effect: **Energy and environmental improvement of GTK-25IR using front-end domestic developments** (A.O. Prokopets, A.N. Poshelyuzny, L.Yu. Marakuyeva, V.V. Sedov, I.A. Yatsenko, S.Yu. Salnikov, R.S. Kashapov, O.V. Komarov, N.I. Orlov, D.V. Mosolov).

Works of environmental and energy improvement of GTK-25IR gas turbine unit using front-end domestic solutions have been performed: a new regulation algorithm is developed and introduced into automatic control and regulation system of gas pumping unit (GPU), allowing for the most efficient utilization of fuel cost efficiency inherent to the GPU design. To maintain power independence of GPU, a special-purpose device is used to ensure stable parameters of voltage output through the whole work mode range of the generator. Low-emission combustion chamber with fuel pre-mixing is developed and used in the design of GTK-25IR gas turbine unit to provide conditions for automatic maintenance of optimum mix composition in a local area of combustion zone.

Implementation of optimum regulation algorithm at the aggregates similar to GTK-25IR operating in OOO Gazprom transgaz Yugorsk ensures fuel gas saving in amount of 126mmcm per year. Retrofitting of GTK-25IR-type aggregate pool with fuel pre-mixing combustion chambers enables reduction of total nitrogen oxides emissions more than by 10.0 thousand tonnes per year.

Within the frames of PJSC Gazprom cooperation with the largest global fuel and energy companies, a number of meetings was held in 2016 for joint search of solutions for environment protection and energy efficiency improvement.

In the reporting year, a big work was carried out within the framework of the activity of the International Business Congress (IBC), an international non-governmental non-commercial entity. In December 2016, the XXXV session of IBC Presidium in St. Petersburg devoted to environmental and process advantages of natural gas in comparison with other energy sources defined a central subject of the following General IBC Meeting, "Natural gas as a target fuel of the future". A round table involving international experts was held regarding implementation issues of IBC project, "Environmental and economical evaluation of compressed gas shipping by sea". Within that project, analytical and statistical research was performed for review of compressed gas shipping by sea by environmental and economic criteria, for gas supply to European countries as well.

The 2016–2020 Program for scientific & technical cooperation and partnership was executed between PJSC Gazprom and OMV Aktiengesellschaft. Among other issues, the Program includes technical dialogues on issues of the best available technology application, shipping of hydrogen-rich natural gas, and liquidation of hydrocarbon pollution with the use of biological preparations. Agreements are reached on demo test cleaning of lands polluted with oil products by a biological preparation developed by the head research center of PJSC Gazprom, OOO Gazprom VNIIGAZ.

Application of biotechnologies for natural environment recovery is of great interest for a number of companies implementing scientific and engineering cooperation programs with PJSC Gazprom. Thus, in June 2017, during technical dialogues, Vietnam Oil and Gas Group (PetroVietnam) and China National Petroleum Corporation (CNPC) came to conclusions regarding the need to take experience of PJSC Gazprom in account for joint work on biological preparation technology development. PetroVietnam is also greatly interested in experience of environmental monitoring program implementation during exploration and operation of oil fields, especially at the shelf.

Paris Climate Agreement and a global-level discussion of the role of greenhouse gas, especially methane, in climate changes, provide a special boost to the meetings. Issues of natural gas use for decarbonization of economics were discussed at the meeting of Gas Expert Group of the Committee on Sustainable Energy, UN Economic Commission for Europe (Switzerland, Geneva, April 21–22, 2016), conferences with European Gas Industry Union in the Russian Gas Association (Belgium, Brussels, May 12, 2016), sessions of the working team of internal markets in the Advisory Russian-EU Gas Council in Vienna in July 2016, at the "Prospects of Russian-EU Energy Cooperation. Gas Aspect" conference (June 23, 2016, Berlin, Germany); at the "Environmental Safety and Energy Efficiency Improvement" conference of the VIII International Forum "Energy Safety and Development Prospects" in St. Petersburg, at the round table for risk issues of Paris Climate Agreement implementation for economics and national security of Russia in the Analytical Center of the Government of the Russian Federation. Relevant exposition was presented at the 22nd session of Conference of the Parties to UN Framework Convention on Climate Changes in Marrakesh (November 7–18, 2016). A joint workshop of PJSC Gazprom and Project Delta Group of Companies was held within the frames of German DVGW Gas Congress "Gas and renewable energy sources as a joint future of energy" in Essen in November 2016. Central topic of the workshop was issues and solutions for the role and place of natural gas after Paris Climate Conference. At the 4th session of Scientific and Technical Cooperation Work Group of PJSC Gazprom and CNPC (June 2016), Chinese experts showed interest in joint projects for methane leak detection and leak parameter measurement.

Cooperation with Uniper company is progressing actively. In May 2016, "Application of heat and power recovery complex for higher efficiency of natural gas utilization and energy supply reliability at compressor stations" conference was held. The need to exchange data, calculations and best practices in heat recovery projects was noted upon the meeting results. Besides, the subject of environmental advantage assessment for natural gas with account of the whole life cycle was of great interest.

In March 2016, a meeting was arranged with ENGIE company where experts of the companies exchanged opinions regarding environmental parameters of natural gas life cycle, paying special attention to methane emissions and best available practices/technologies for emission reduction. Expediency of joint work of ENGIE and PJSC Gazprom in evaluation and comparative analysis of carbon footprint in the life cycle of gas shipping process was noted.

In April (within ECOTECH International Exhibition and Forum) and in October 2016, a work meeting with N.V.Nederlandse Gasunie company took place, where the subject of greenhouse gas emission at gas production and transportation facilities and methane emission impact on climate were actively discussed.

Cooperation with Shell continued through 2016. "Contemporary technologies of oil and oil product spill containment at sea" workshop arranged for experts of environmental and emergency rescue departments of PJSC Gazprom included opinion exchange on relevant issues of accidental spill containment, legal collisions related to oil dispersant application, application of newest OSR technologies and their development prospects in the Russian Federation. In the end of 2016, a joint workshop on corporate regulation of greenhouse gas emissions and best practices of emission reduction took place.

Session of expert group of scientific and technical cooperation (Moscow, 21.12.2016) dedicated to 25th anniversary of collaboration of the companies included discussion of joint efforts of PJSC Gazprom and BASF Wintershall Holding GmbH to ensure environmental safety and the companies' operations and climate conservation. Main conclusions of the meeting referred to high relevance of carbon footprint evaluation in gas industry and preparation of solutions to natural gas promotion.

Information disclosure is one of the principles the Gazprom Group companies in terms of environmental efficiency. The main criteria for the implementation of information transparency principle are: reliability and completeness, regularity and timely presentation, and availability to the state authorities, shareholders and investors, the public and other interested parties.

Information on the Gazprom Group is available at the official website of PJSC Gazprom (www.gazprom.ru) in the Environment, Media, Investors sections. Sections of environment protection and energy saving are provided in the Annual Report of PJSC Gazprom and in the corporate edition "Gazprom in Figures".

Information on the current and proposed Gazprom activities in environment protection and energy efficiency sphere is constantly published in corporate magazines "Gazprom", "Gas Industry", newspapers and other periodicals of Gazprom Group subsidiaries, special industrial publications.

According to the requirements of UNFCCC and Kyoto Protocol, Gazprom submits information documents to the National Communications of the Russian Federation as per UNFCCC. The reports disclose data on GHG emissions up to 2030 and on activities to reduce the emissions. Participation of PJSC Gazprom in the international project CDP (Carbon Disclosure Project) on the disclosure of information on GHG emissions is an important indicator of success in the work to improve the transparency of the Company's activities and one of the factors of its investment attractiveness increase.

Since 1995, Environmental Report of the Company has been issued annually. Since 2010, a Report of PJSC Gazprom on sustainable development activities has been issued regularly, its "Environmental Impact" and "Rational Use of Resources" sections give detailed information on the strategy and tactics of rational nature use, environment protection, climate change and interaction with stakeholders.

By the results of second half of 2016, Gazprom leads the environmental activity rating among Russian fuel, energy and metallurgy industries, prepared by Live Planet TV channel.

Following the information transparency principle, Gazprom Group companies publish Environmental Policy texts, environmental news, environmental and sustainability reports, plans of activities to preserve biological diversity, environmental monitoring reports, EIA, data on public hearing of projects, OSRPs and other materials at their websites.

Annually the Group's subsidiaries prepare and submit reports on the parameters of production activity impact on the environment, implemented activities and volume of their financing, negative environmental impact charges to the state executive authorities and state statistic bodies of the Russian Federation.

Public discussions for the majority of the investment activity objects of PJSC Gazprom are compulsory according to the Russian laws, however the statutory requirements to the procedure of such discussions are not available. To fill this legal gap, a document of the corporate standardization system is in force in PJSC Gazprom since 2014 that contains recommendations for provision of public discussions and public hearings for materials of assessment of the impact on the environment for the planned economic activities.

In 2016, a number of public hearings was held for such projects as:

— Development of Kamennomysskoye-Sea gas field — Engineering Survey Program for offshore sites at the "Development of Kamennomysskoye-Sea gas field" object for 2016 was heard, including EIA materials (future activity location: Gulf of Ob in the Kara Sea, Yamalo-Nenets Autonomous Okrug, Tyumen Region);
— Construction of gas condensate operation wells No. SK1, SK2, SK4, SK5, SK6, SK7 at Yuzhno-Kirinskoye field and oil and oil product spill prevention and containment plans for well construction (future activity location: Yuzhno-Kirinskoye field, water area of Okhotsk Sea);
— Construction of exploration wells No. 11–17, 21 at Khadinskaya Area, including EIA materials (future activity location: Irkutsk Region, Kazachinsko-Lensky District, Zhigalovsky District);
— Construction of operation wells and underground tanks for drilling waste disposal for the wells of Kharasaveyskoye GCF (future activity location: Tyumen Region, Yamalo-Nenets Autonomous Okrug, Yamal District);
— Construction of exploration well No. 3 at Leningradskoye gas condensate field. 4 variants of works were provided for discussion, together with relevant EIA materials and oil and oil product spill prevention and containment plans for well construction (future activity location: Yamalo-Nenets Autonomous Okrug, South-West part of continental shelf in Kara Sea);
— Construction of exploration and evaluation wells No. 1 at Vostochnaya Area and No. 1 at the Ayashskaya Area with relevant EIA materials and oil and oil product spill prevention and containment plans for well construction (future activity location: North-East shelf of Sakhalin island (Okhotsk Sea);
— Technical documentation draft for a liquid effluent thermal neutralization complex — future activity location: Lena District, Republic Sakha (Yakutia).

Public hearing on the subject of activities of Gazprom Neft companies and sustainable development of operation regions was held on voluntary basis. Approach of Gazprom Neft Group and OOO Gazpromneft-Khantos to business operations in Yugra, production and environmental policy, implementation of "Native Cities" social investment program were discussed at the hearing in Khanty-Mansiysk (Khanty-Mansiysk Autonomous Region-Yugra). The company representatives voiced their plans for development of hard-to-recover oil reserves, disclosed environment protection and educational actions.

Dedication of Gazprom Group companies to information transparency is demonstrated by annual meetings with central and regional mass media representatives where issues of rational use of natural resources, environment protection and energy saving are discussed.

Gazprom monitors mass media to analyze public opinion on its environment protection activities and consider it in its future planning and timely making of management decisions. In 2016, 7,199 positive articles were published in mass media and Internet on the subject of environmental aspects of Gazprom Group business.

Contribution of Gazprom into improvement of environmental situation in regions was appraised by a large number of encouragement, such as awards, certificates of honor, diplomas, letters of gratitude from federal, regional and local power bodies, public organizations, educational institutions.

PJSC Gazprom is recognized as the best Russian power industry company in terms of corporate climate reporting and strategies of greenhouse gas emission reduction in international Carbon Disclosure Project (CDP) rating for the period of 2011–2015.

World Wildlife Fund (WWF of Russia) and analytical and consultive group in the field of the Fuel-Power Complex CREON Energy, with participation of National Rating Agency and UNDP/GEF of the Ministry of Natural Resources of Russia presented an environmental responsibility rating of Russian oil and gas companies for 2016. Gazprom Group companies Sakhalin Energy and PJSC Gazprom were leaders again.

In accordance with the positive experience of the Year of Ecology and the Year of Environmental awareness implementation in PJSC Gazprom in 2016, voluntary environmental activities were also planned, organized and carried out.

Environmental event River band 2016

The event is intended for cleanup of unauthorized waste dump sites and for drawing public and authority attention to the problem of water basin and shore site pollution.

From OOO Gazprom transgaz Ukhta, over 300 administration and subsidiary employees from all business areas took part in the event. Over 190cm of garbage was collected, area of cleaned territory comprised 65.8 thousand square meters. In Komi Republic, employees of gas industry cleaned up shores of Chib'yu, Simva, Vis, Vychegda, Pechora rivers, Paras'kiny lakes, collected garbage at the shore territories of Lapta-Il' stream and many other water bodies. In Arkhangelsk Region, workers of Urdoma line production department of TGP removed garbage from the banks of Verkhnyaya Lup'ya river; the staff of Privodino line production department of TGP cleaned up shores of Northern Dvina river. In Vologda Region, the staff of Nyuksenskoye line production department of TGP set Sukhona river shores to order.

All-Russian Ecological Community Work Days "Green Spring 2016" and "Green Russia 2016"

Traditionally, all companies of the Group supported All-Russian ecological community work day "Green Spring 2016". In April, over three hundred of OOO Gazprom dobycha Irkutsk and OOO Gazprom georesurs and other PJSC Gazprom subsidiaries-members of "Gazprom at Baikal" Non-Commercial Partnership performed cleanup of the territory of the Company and sponsored organizations within the frames of general municipal community work day.

OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk took active part in this action. Experts of the company gave ecology lessons in the Lyceum No. 1 for students of special Gazprom class and in gymnasium of Nogliki settlement within the frame of Environmental Culture Week.

OOO Gazprom transgaz Kazan held events for cleaning of territories adjoining facilities of its subdivisions, territories of municipalities, forest sites, recreation places, water areas and potable water sources. Cleaning, development, rehabilitation of water objects, shores and water protection zones of Volga, Morkvashka, Ik rivers, Ilyinskoye and Kombazy lakes, Salkyn Chishme, Yully Kul, Ak Chishme, Kazachya Tropa springs and other water bodies was performed. Over two thousand people took part in the community work day, over 60 machinery units were involved. Total cleaned area comprised 69 ha.

OOO Gazprom transgaz Makhachkala by efforts of administration and subsidiary employees took part in the municipal work day and cleaned up construction and other waste from a territory of total area about 500 thousand square meters. The Company provided special-purpose machines (dump trucks, backhoe loaders, sweepers) to the participants.

Over one and a half thousand of OOO Gazprom transgaz Stavropol employees participated in the action. The project covered seven Russian South subjects in the responsibility area of OOO Gazprom transgaz Stavropol: Astrakhan and Rostov Regions, Stavropol Krai, North Ossetia-Alania, Kabardino-Balkar, Karachay-Cherkess, Kalmykia Republics. A whole of two hundred actions were performed, some of them dedicated to the 71st anniversary of victory in the Great Patriotic War. Gas industry workers held a number of ecological events for community redevelopment, elimination of unauthorized dump sites and cleanup of water bodies. As a result, 50 ha of land were cleaned, 87 tonnes of garbage were removed, three water bodies were cleaned up. Key attention was paid to restoration of memorials to warriors fallen in the Great Patriotic War. Gas industry workers repaired 70 monuments, designed 85 flowerbeds, planted over 800 bushes and trees.

Employees of OOO Gazprom transgaz Saint-Petersburg arranged a community work day at the islands and shores of Vuoksa lake at Karelian isthmus in Priozersky district of Leningrad Region. Their colleagues from Gazprom Invest, Gazprom Sotsinvest, Gazprom Gaznadzor joined them. 280 bags of garbage were gathered, tables discouraging unauthorized garbage dumping in picturesque islands and banks of this unique nature object were set up. Vuoksa Lake is a part of lake and channel system that lies in Finland and Russia and plays a major role in Ladoga-Neva river ecosystem.

All affiliates of OOO Gazprom transgaz Ukhta were gathering garbage and dry grass, redeveloping industrial site territories of their companies and of municipal territories within their business zone. Campaigns of waste paper collection were also implemented.

Over 2 thousand employees of OOO Gazprom dobycha Urengoy took part in cleanup of adjacent territory of all city and production buildings and facilities of the company.

OOO Gazprom dobycha Yamburg in Novy Urengoy town cleaned up tundra sites adjacent to office buildings and a recreation area at Molodyozhnoye lake. At the company's fields, Yamburg settlement and gas production territories were put to order. A total of about 10 t of scrap metal and 80 m^3 of garbage was removed for disposal. About three thousand people participated in community work days.

OAO Gazprom transgaz Belarus received an award for active participation in ecological work day and contribution to ecology improvement from the Vernadsky Fund for participation in ecological work day "Green Spring 2016".

Gazprom Energoholding staff joined the community work day at CHPP-20 of Mosenergo in Moscow. In the course of the work day, a territory adjacent to a new power unit CCP-420 was developed, bush and trees were planted. A field trip to CCP-420 power unit was arranged for children of Gazprom Energoholding staff.

Within the campaign, over 70 administration employees of Gazprom transgaz Tomsk spent a community work day gathering garbage in Ipatovsky cedar grove near Luchanovo

village of Tomsk Region. The ecological work day featured divided garbage collection. Plastic, glass and iron scraps found in the cedar grove were gathered in separate bags and sent for recycling to a specialized organization. A total of 430 kg of garbage was gathered during the community work day.

Gazprom geologorazvedka staff participated in a project of territory development for Tyumen specialized child care center. Garbage and fallen leaves were gathered from the center yard and adjacent alleys, bush was planted instead of old vegetation.

OOO Gazprom dobycha Astrakhan took part in the All-Russian ecological work day "Green Russia" held in Astrakhan. As a result, about 50 trucks of garbage was removed from Astrakhan streets and grounds surrounding buildings, many kilometers of railings and curbs were painted, replaced and repaired, about 60 playgrounds and sports grounds were constructed, redeveloped and put to order. In addition, dry boughs and old trees were cut, holes in the ground were filled, and construction materials for development of territories around buildings were supplied. About two thousand of employees from 11 structural units of OOO Gazprom dobycha Astrakhan took part in the community work day, as well as their colleagues from Astrakhan affiliate of Gazprom energo.

For two days representatives of all affiliates of OOO Gazprom dobycha Urengoy were landscaping municipal territories: larch and birch trees were dug out in a dedicated quarry and planted near office buildings of the company and kindergartens.

the staff of OOO Gazprom dobycha Noyabrsk joined the All-Russian Ecological Campaign "Green Russia". Garbage was removed from forests and roadsides along main city roads. A total of 80 ha was cleaned up in Yamal, Kamchatka and Yakutia. 85cm of garbage (142 tonnes) was removed to solid domestic waste landfills.

Over one thousand of OOO Gazprom transgaz Ukhta employees took part in the event from August to October. The campaign was supported in four regions in the operation area of the enterprise: Komi Republic, Arkhangelsk, Yaroslavl and Vologda Regions. Gas industry employees gathered a total of 1000cm of garbage and cleaned up a total area of 229 ha. The cleanup was made at the territories of schools, stadiums, motor roads, at the banks of local rivers and lakes, at the beaches and areas adjacent to compressor stations. Administration staff and employees of some affiliates performed redevelopment and landscaping of territories. More than three thousand of tree and decorative bush saplings was planted in Ukhta, near the new administrative building of the company. Trees were planted in Urdoma, Nyuksenitsa, Gryazovets near production facilities and sponsored institutions. In addition, the campaign included ecological rally "Sport is Life", "Gift is Easy" event, waste paper gathering event "Save a Tree", and "Clean up after yourself" educational game.

A large-scale ecological campaign was run by the staff of OOO Gazprom transgaz Stavropol in four subjects of South Russia within the operation area of the company: Stavropol Krai, Astrakhan Region, Kabardino-Balkarian Republic and Republic of North Ossetia-Alania. About 50 ha of land was cleaned up, over 90 tonnes of garbage was removed, 280 plants and bushes were planted, several dozens of flowerbeds were arranged at the industrial sites of affiliates and in park zones of settlements. Gas industry workers cleaned up shores of four water bodies, Terek river, springs in Svetlograd and Izobilny and Serebryanaya Volozhka canal in Astrakhan. In addition, a series of open lessons of environment protection for students of general-education high schools in the region and a contest of kids' drawings "Save the Nature of Stavropol'e".

Other environmental actions and events

Ecological community work day "Clean games" was held in Petergof at the territory of Lugovoy Park in corporate quest format among subsidiaries of PJSC Gazprom (OOO Gazprom transgaz Saint-Petersburg, OOO Gazprom sotsinvest, OOO Gazprom gaznadzor and others). Employees of OOO Gazprom transgaz Saint-Petersburg gathered around 300 bags of garbage with total weight exceeding two tonnes, which were delivered to a processing ground.

Tenth ecological campaign of Sakhalin energy was held within "Hurry up for good Deeds!" program and involved over 120 employees and their family memebers, as well as city residents. The company held an ecological campaign in Korsakovsky Park. Large-scale preparation was made for the event: ecologists of the company visited the Park to gather information and register plants of the woodland belt. Local information boards were made with information about the plants of the Park in Russian, English and Japanese. With financial support of the company, over 130 m of railing for a concrete stair leading to the park was installed, an ecological route was made. Ecological campaign was also run at the territory of Yuzhno-Sakhalinsk care home for elderly and disabled people.

More than 80 employees of OOO Gazprom dobycha shelf Yuzhno-Sakhalinsk with their families took part in the All-Russian ecological work day "Country of my Dream" initiated by the All-Russian Ecological Public Movement "Green Russia". More than ten cubic meters of garbage were gathered at the shores of Aniva Bay.

OOO Gazprom dobycha Nadym planted around three hundred trees of different species (pine, birch, willow, cedar) within the frame of All-Russian Day of Forest Planting. More than 100 employees participated in the event.

1300 people from OOO Gazprom dobycha Nadym gathered 120 cubic meters of garbage at one hundred hectare area during All-Russian community work day "Country of my Dream". Territories adjoining buildings and facilities of the enterprise, residential areas, parks, public gardens and streets of Nadym town and Pangoda settlement were cleaned up. More than four hundred of trees were planted, including blue firs, pines, larches, rowan-berry and wild rose bush.

OOO Gazprom dobycha Orenburg together with residents of Perevolotsky district of Orenburg Region put

Sadovy spring to order: cleaned up adjacent territory, erected fencing, reinforced slopes, built a stair, pavement, bridge over a brook and an entrance arch. A viewpoint platform, pavilion and table with benches were provided.

Employees of OOO Gazprom transgaz Saratov supported "Clean Shores to Volga" ecological campaign and organized a community work day at the left and right shores of Volga river in Voskresenskoye and Marks districts of Saratov Region at the same time. Household waste, water weeds and leaves were gathered from 4 ha of shore territories.

In February 2016, more than 250 gas industry employees from 16 affiliates and administration of OOO Gazprom transgaz Ukhta in Komi Republic took part in winter community work days in Ukhta, Vorkuta, Pechora, Vuktyl, Mikun towns, Kozhva, Dutovo, Malaya Pyora, Kadzherom, Kedvavom, Borovoy, Vodny, Sindor, Ust-Vym settlements. The company provided special equipment for snow transportation. First of all, territories of sponsored organizations (schools, kindergartens, hospitals) were freed from snow.

Gazprom geologorazvedka supported IX Interregional Art Festival of School Forestries and Ecological Associations "Live Planet". The event took place in Tyumen in Lesnoy Dom environmental center. The Festival gathered over 100 school students from the south of Tyumen Region, Khanty-Mansi Autonomous Okrug, Altay, Komi Republic and other regions. The program included ecological contests and workshops of landscape design, pottery, woodcarving etc. The festival's aim is to promote environmental culture among new generations.

Sakhalin affiliate of Gazprom transgaz Tomsk held a photo contest "Birds of Sakhalin island" timed to coincide with the International Day of Birds. Employees of Sakhalin Main-Pipeline Field-Operation Department together with children from sponsored social rehabilitation center participated in the contest. This educational project cultivates care for nature in the staff, locals and children.

"Blue Ribbon" interregional ecological carnival was organized in Samara Region with the support from OOO Gazprom transgaz Samara and Vernadsky Non-Governmental Fund. The theme of the ecological carnival was water: water resource saving, spring development, rehabilitation of river and lake ecosystems. This choice was caused by the festival location, Isakly settlement, which is called "a land of one hundred springs".

To support implementation of the Decrees of the President of Russia No. 392 on Holding the Year of Specifically Protected Natural Areas in the Russian Federation dated August 1, 2015 and No. 7 on Holding the Year of the Environment in the Russian Federation in 2017 dated January 5, 2016, in 2017 PJSC Gazprom announced the Green Year in Gazprom.

Action plan of the Green Year in PJSC Gazprom includes more than 8.5 thousand events.

PJSC Gazprom keeps to the policy of information transparency and provides data on its activities in the sphere of environment protection and rational use of natural resources to the stakeholders, primarily to shareholders and investors.

Analysis of main environment impact indicators for 2012–2016 period allows for conclusions about reduction of environment impact: total emissions to the atmospheric air have fallen by 16%, waste water discharge into surface water bodies decreased by 21%, waste generation reduced by 18%. In all Gazprom Group companies, greenhouse gas metering, monitoring and emission reduction system is implemented and improved.

Amounts of investment in fixed capital, targeted for environment protection and rational utilization of natural resources through the Gazprom Group comprised over RUB 22.5bn, while current costs reached RUB 34.1bn.

Through the year, no accidents with significant environmental consequences were registered at the Group facilities. Environmental risks of production activities are insured.

The Group companies control compliance of contractors' operations with environment protection legislation.

Development and implementation of projects in Gazprom Group involves target planning of actions aimed to reduce environmental risks, register environmental economy and environment protection aspects on par with financial and economical parameters.

Gazprom Group uses innovative technologies and devices in all production areas, runs research for improvement of energy efficiency and reduction of negative environmental impact.

Gazprom Group initiates and implements numerous volunteer ecological events in its operation regions.

High results of independent public ratings demonstrate efficient functioning of environmental management system in Gazprom Group companies.

Comprehensive assurance of mitigation of adverse impact on the environment, preservation of natural ecosystems and ensuring efficient use of natural resources will be continued.

Glossary of main terms and abbreviations

Adverse environmental impact	Impact of economic and other activity, the consequences of which lead to adverse changes in environmental quality
APG	Associated petroleum gas. Mixture of gases and vaporous hydrocarbon and non-hydrocarbon components emitted from oil wells and in-place oil in the process of its separation
APN	Auxiliary process needs
Biodiversity (biological diversity)	Diversity of living organisms in all spheres including onshore, marine and other water ecosystems and ecological complexes forming them
CNG	Compressed natural gas
CNG FS	Compressed natural gas filling station
Ecological monitoring (environmental monitoring)	Comprehensive system of environment monitoring, evaluation and forecast of environmental changes under the impact of natural and man-caused factors
EIA (environmental impact assessment)	Type of activity aimed at detection, analysis and accounting of direct, indirect and other environmental impact consequences of planned economic and other activity to make a decision on possibility or impossibility of its implementation
EMS	Environmental management system
Energy saving	Implementation of legal, management, scientific, production, technical and economic measures aimed at efficient (rational) use of energy resources and involvement of renewable energy sources into economic turnover. Energy saving is an important task for natural resources preservation
Environment	System of nature components, natural, natural and man-made, as well as man-made objects
Environmental audit	Independent comprehensive documented assessment of compliance of an economic or other entity with requirements, including standards and regulatory documents, in the environmental protection sphere, requirements of international standards and preparation of recommendations for such activity improvement
Environmental damage	Negative change in environment caused by pollution which resulted in degradation of natural ecosystems and depletion of natural resources
Environmental management	Part of the general corporate management system with a clear organization structure and aimed at reaching the objectives indicated in the environmental policy by means of environmental programs implementation
Environmental monitoring (ecological monitoring)	Comprehensive system of environment monitoring, evaluation and forecast of environmental changes under the impact of natural and man-caused factors
Environmental quality	Environmental condition characterized by physical, chemical, biological and other parameters and/or their combination.
Environmental requirements (nature protection requirements)	Any obligatory conditions, limitations or their combination for economic or other activity, established by laws, other regulatory legal acts, environmental norms, state standards and other regulatory documents in the environmental protection sphere
Environmental review	Establishment of relevant documents and/or the documentation of the economic and other activities planned in connection with implementation of environmental review object, environmental requirements established by technical regulations and legislation on environmental protection, in order to prevent the negative effects of such activities on the environment
Environmental safety	State of protection of the environment and vital interests of humans from possible adverse impact of economic and other activity, natural and industrial emergencies, and their consequences
Environmental surveillance	System of measures aimed at prevention, detection and elimination of legislation violation in the environmental protection sphere, provision of fulfillment by entities of economic or other activity of the requirements, including norms and regulatory documents, in the environmental protection sphere
EP (environment protection)	Activity aimed at preservation and recovery of the environment, rational use and reproduction of natural resources, prevention of the adverse environmental impact of economic and other activity and liquidation of its consequences (hereinafter environment protection activity)
FER	Fuel and energy resources
GCF	Gas condensate field
GDS	Gas distribution station
Global warming potential (GWP)	Value characterizing heating effect of a greenhouse gas compared to the effect of carbon dioxide molecule
GPU	Gas pumping unit
Greenhouse gases (GHG)	Gases that presumably cause the global greenhouse effect. The main greenhouse gases in the sequence of their estimated impact on the Earth's heat balance include water steam, carbon dioxide, methane, ozone, sulphurylfluoride, halocarbons and nitrogen oxide
LNG	Liquefied natural gas

LPUMG	Line production department of main gas pipelines
Natural complex	Complex of natural objects functionally and naturally related to each other, united by geographic and other corresponding characteristics
Natural object	Natural environmental system, natural landscape and their components, which preserved their natural properties
Natural resources	Environmental components, natural, natural and man-made objects which are or can be involved in economic or other activities as energy sources, manufacturing and consumption as well as have consumer value
NGV	Natural gas vehicle (NGV) is an alternative fuel vehicle that uses compressed natural gas or liquefied natural gas as a cleaner alternative to other fossil fuels
OEC	Operation environmental control
OEM	Operation environmental monitoring
OGCF	Oil, gas & condensate field
Pollutant	Substance or a mixture of substances that occur in amounts and/or concentrations exceeding specified limits for exposure to chemicals, radiation sources, other substances and microorganisms, and affect the environment negatively
R&D	Research and development
RES	Renewable energy sources
SES	Secondary energy sources
Specially protected natural area (SPNA)	Area of land, water surface and air space above it where natural complexes and objects having specific nature-protecting, scientific, recreational, health-improving and other values are located, withdrawn partially or in full from economic use based on the decisions of the state authorities, and for which a special protection mode has been established. Specially protected natural areas are referred to national endowments
TGP	Trunk gas pipeline
UGS	Underground gas storage
Waste disposal unit	Specially equipped facility designed for waste disposal (landfill, slurry pond etc.)
Waste management	Activity involving waste collection, accumulation, utilization, neutralization, transporting and landfilling

Russian business structures

AO	Joint Stock Company
OAO	Open Joint Stock Company
OOO	Limited Liability Company
PAO	Public Joint Stock Company
ZAO	Closed Joint Stock Company

Measurement of units

cm	cubic meter
Gcal	billion calories
ha	hectare (ten thousand square meters)
mm	million
mcm	thousand cubic meters
mcmd	thousand cubic meters per day
mmcm	million cubic meters
bcm	billion cubic meters
t	tonne
kilotonne	thousand tonnes
t c.e.	tonne of coal equivalent
W	watt
Wh	watt hour
kW	thousand watts
MW	million watts

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