GAZPROM

ENVIRONMENTAL REPORT 2012

LEADERSHIP AND EFFICIENCY

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LETTER OF DEPUTY CHAIRMAN OF GAZPROM MANAGEMENT COMMITTEE

Dear readers!

On behalf of the OAO Gazprom Management Committee I am presenting you our corporate Environmental Report 2012, which provides the information about the *Gazprom Group* rational nature use and environmental performance.

The production increase in environmental and energy efficiency is the prime constituent of the *Gazprom* strategy, the key element of the corporate environmental management system and the *Gazprom* Environmental Policy.

The innovative thrust of the *Gazprom* development ensures the deployment of best available technologies, which improve energy efficiency and environmental safety of the production, followed by the conformity with the requirements of environmental security of major projects.

The one of a kind project in the world gas industry, the large gas production center in the Yamal region is based on a complex of technological solutions, which enable the minimal impact on the Polar environment. The pipeline Nord Stream has become an example of a successful large-scale and complex construction of a marine pipeline system avoiding environmental damages. The gasification program in Eastern Siberia and the Far East, which considers all environmental peculiarities of Kamchatka, Sakhalin and Primorye, resulted in a soon and significant environmental effect in 2012.

Gazprom Group has been practicing environmentally safe energy capacities, intensifying modernization of oil refineries in order to ensure an oil deep conversion and environmental friendliness of oil-based fuel.

The year of 2013 is annunciated as the Year of Ecology in *Gazprom*, which is why a complex of environmental protection measures will be implemented in the regions of operation. This complex includes technological renovation and modernization of production capacities, introduction of innovative environmental protection technologies, development and greening of residential areas, provision of aids to special protected areas, environmental trainings and educating. We are full of confidence that this plan will certainly become a good contribution into the Year of Environmental Protection in the Russian Federation.

Deputy Chairman of
OAO Gazprom Management Committee,
Chairman of Coordination Committee
for Environmental Protection and Energy Efficiency

V.A. Markelov

INTRODUCTION

The Environmental Report 2012 provides information about the *Gazprom Group* activities in the Environmental Policy implementation, including the current performance and measures undertaken to mitigate the impact on air, water bodies and land. The Report will present data on environmental management and funding of fundamental studies and production complex technical modernization aimed at ensuring the environmental security of operating facilities.

The environmental data performed by the production activities were formally collected from *Gazprom Group* companies and exposed to an accurate processing. The Report provides the data performed in total by *Gazprom Group*, Gazprom (including the retrospective analysis of 5 years) and single Gazprom Group companies, which contribute much to the analyzed scope of activities.

Hereinafter the term "OAO Gazprom" refers to the heading company of *Gazprom Group*, i.e. Open Joint Stock Company Gazprom with its 100 % subsidiary companies and organizations. The term *Gazprom Neft Group* or *Gazprom Neft* hereinafter likewise stands for the company of Open Joint Stock Company Gazprom Neft and its subsidiaries. The term *Gazprom energoholding* stands for the company of Limited Liability Company of Gazprom energoholding and its subsidiaries (Open Joint Stock Companies of Mosenergo, OGK-2, TGK-1 and Murmanskaya CHP). The term *Gazprom Group*, *Group* or *Gazprom* hereinafter refers to the above mentioned companies and other group of subsidiary incorporated oil and gas companies.

The list of OAO Gazprom limited liability subsidiary companies, which have reported on their environmental protection activities, is given below:

OOO Gazprom dobycha Astrakhan
OOO Gazprom dobycha Krasnodar
OOO Gazprom geologorazvedka
OOO Gazprom dobycha Irkutsk
OOO Gazprom dobycha Kuznetsk
OOO Gazprom dobycha Nadym
OOO Gazprom dobycha Noyabrsk
OOO Gazprom dobycha Orenburg
OOO Gazprom dobycha Urengoy
OOO Gazpromdobycha Yamburg
OOOGazpromtransgaz Volgograd
OOO Gazprom transgaz Yekaterinburg
OOO Gazprom transgaz Kazan
OOO Gazprom transgaz Krasnodar
OOO Gazprom transgaz Makhachkala
OOO Gazprom transgaz Moscow
OOO Gazprom enerego
OOO Gazprom szhizhenny gaz
OOO Gazpromavia
OOO Gazpromtrans
OOO Gazflot
OOO Gazprom mezhregiongaz
OOO Gazprom invest Vostok
OOO Gazprom invest Zapad
OOO Gazprom invest Yug
OOO Gazprom transgaz Nizhny Novgorod
OOO Gazprom transgaz Samara
OOO Gazprom transgaz Saint-Petersburg
OOO Gazprom transgaz Saratov
OOO Gazprom transgaz Stavropol
OOO Gazprom transgaz Surgut
OOO Gazprom transgaz Tomsk
OOO Gazprom transgaz Ufa
OOO Gazprom transgaz Ukhta
OOO Gazprom transgaz Tchaikovsky
OOO Gazprom transgaz Yugorsk
OOO Gazprom UGS
OOO Gazprom pererabotka
OOO Novo-Urengoy gas and chemistry complex
OOO Gazprom sotsinvest
ZAO Yamalgazinvest
OOO Gazprom neft shelf
OOO Gazprom dobycha shelf
OOO Gazprom podzemremont Orenburg
OOO Gazprom podzemremont Urengoy
OOO Gazprom tsentrremont
OOO Podzemgazprom
OOO Gazprom gaznadzor

Gazprom Group will stand for OAO Gazprom (all above mentioned organizations and 100 % subsidiaries) and the following companies:

ZAO Purgaz
OAO Tsentrgaz
OAO Zapsibgazprom
Vostokgazprom Group
Gazprom Neft Group
OOO Gazprom energoholding
and its subsidiaries:
- OAO Mosenergo
- OAO OGK-2
- OAO TGK-1

OAO Daltransgaz
Sakhalin Energy Investment Company Ltd
(or "Sakhalin Energy")
OAO Severneftegazprom
OAO Gazpromtrubinvest
OAO Gazprom space systems
OAO Gazprom gazoraspredelenie
DOAO Spetsgazavtotrans
OAO Krasnoyarskgazprom
OAO Gazprom neftekhim Salavat

And OAO Gazprom foreign assests:
OAO Beltransgaz
"Kaunasskaya HPS"

ENVIRONMENT PROTECTION MANAGEMENT

Environmental management system

The OAO Gazprom environmental management system (EMS) is a vertical highly developed structure, which integrates various environmental management units ranging from the administration of OAO Gazprom, subsidiaries and other companies to environmental units of affiliated organizations and production facilities.

The OAO Gazprom Environmental Policy and the incorporated companies' own environmental policies constitute the EMS foundation and define strategic targets in terms of environmental protection, considering all activities specifications and principle of environmental impact minimization. The implementation of environmental policies enables the companies to meet all environmental requirements, monitor and prevent pollution and continuously improve the environmental performance.

The supreme element of the OAO Gazprom EMS is the Management Committee of OAO Gazprom. The complex management of the environmental protection is performed by the Coordination Committee of OAO Gazprom for environmental protection and energy efficiency, which was established by the Order of OAO Gazprom № 280 as of October 17, 2007. The Committee ensures the complex approach and coordinates environmental protection activities of the OAO Gazprom subsidiaries. The Coordination Committee membership includes the majority of the OAO Gazprom Management Committee and heads of the Gazprom profile departments. The Committee makes an overall assessment of environmental protection actions, provides for the complex management of environmental protection, energy saving and energy efficiency and coordinate the interaction with governmental authorities and public organizations. The protocol decisions generated by the Committee are the basis for the company's decision-makers in environmental protection, energy saving and energy efficiency.

The OAO Gazprom Directorate of Energy-Saving and Environment of the Gas transportation, underground storage and utilization Department coordinates the implementation of the OAO Gazprom Environmental Policy and decisions of the Coordination Committee and Management in the company's subsidiaries.

In order to ensure the company's volunteer environmental responsibility OAO Gazprom has deployed an Environmental Inspection and environmental expertise system, which includes regular audits of the EMS. The high-tech systems of industrial environmental monitoring and analytical operation control have been functioning in the corporate system. The environmental research and development projects have also been an integral part of the management system.

In 2012 the Board of Directors put on its agenda the issues of the Environmental Policy of OAO Gazprom and its subsidiaries, procedures of applying volunteer mechanisms of the OAO Gazprom environmental responsibility. As a result of this review the Board approved the current practice.

The OAO Gazprom EMS is well developed structure, which integrates environmental management units of the head company and 28 100 % owned subsidiaries operating in exploration, production, transmission, storage and processing of hydrocarbon raw materials.

In 2011 the OAO Gazprom environmental management system was successfully certified under the international standard ISO 14001:2004, and in 2012 the system was subject to the supervisory audit, which validated the conformity with the international requirements. The validation was executed be the accredited independent entity Det Norske Veritas. Over the course of the audit the employees of the OAO Gazprom administration and subsidiaries covered by the audit scope were demonstrating high knowledge and expertise in environmental management, as well as the contentious improve orientation.

In 2012 the supervisory audit of Det Norske Veritas validated the conformity of the OAO Gazprom environmental management system with the requirements of the international standard ISO 14001:2004.

The environmental management systems certified under the international standard ISO 14001 have been successfully deployed in the energy companies of the Group — OAO Mosenergo, OAO OGK-2, OAO TGK-1; in the companies incorporated by *Gazprom Neft Group*, — OOO Gazpromneft-lubricants, OAO Gazpromneft-Omsk Refinery, OAO Moscow Refinery as well as OAO Gazprom neftekhim Salavat, OAO Tomskneft, OAO Sakhalin Energy and others.

Environmental targets and programs

According to the OAO Gazprom Environmental Policy the underlying principle of the company's business is "sustainable development construed as intensive economic growth accompanied by maximal conservation of natural resources and preservation of a favorable natural environment for future generations". Thus the corporate strategic targets are:

— minimization of the negative environmental impact per unit;
— efficiency improve of natural and energy resources use;
— involvement of the company's entire personnel in minimization of environmental risks, improve of environmental management system and environmental performance of the production.

The first stage of the corporate EMS introduction covered 28 subsidiaries fully owned by OAO Gazprom, which operate in production, transmission, storage and processing of natural gas and condensate. These are the OAO Gazprom largest nature users, which make the major contribution into the negative environmental impact. In 2009 these were the companies subject to the greening of production, which the environmental targets were set for. Prior to the target setting, the significant environmental aspects of production operations were identified based on the Manual on the identification of environmental aspects in the environmental management system of OAO Gazprom. The significant aspects in 2012 became methane emissions resultant from gas pipeline repair and nitrogen oxide emissions from compressor station operations, waste water discharge and waste landfilling.

Within the EMS scope, based on the corporate environmental targets, the subsidiaries develop and implement measures of environmental.

Progress of OAO Gazprom subsidiaries in achieving corporate environmental targest in 2012 within the EMS scope

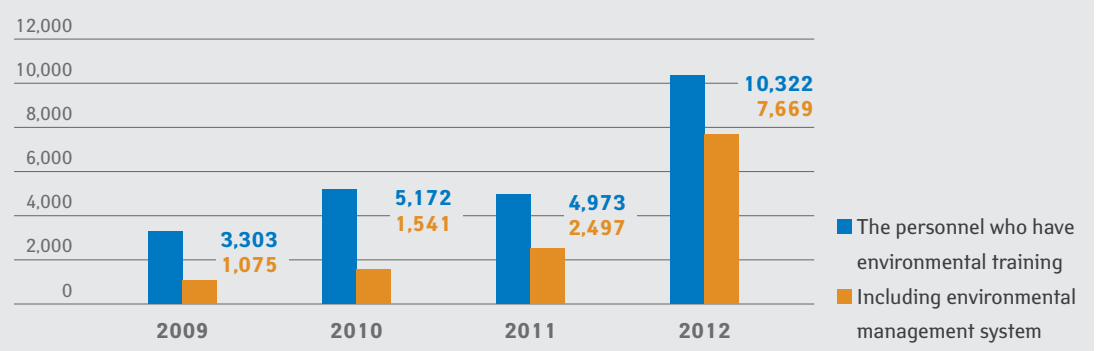
Corporate environmental target	Subsidiary range	Change compared to baseline of 2008
Methane emissions reduction	All subsidiaries operating in production, transmission, storage and processing of natural gas and condensate	Reduction by 12 %
Reduction of per-unit emissions of nitrogen oxides (target deadline is 2018)	All transmission subsidiaries	The rate has not increased
Lowering of waste and under-treated water discharge into surface water bodies	All subsidiaries with a negative environmental effect	Reduction by 3.5 %
Lowering of waste disposal share	All subsidiaries with a negative environmental effect	Increase by 10 %
Lowering of the payment for exceeding the allowed impact as an integral indicator of the negative environmental impact	All subsidiaries with a negative environmental effect	Reduction by 93 %
Lowering of gas consumption for own process needs	All transmission subsidiaries	Reduction by 13 %
Launch of the environmental management system in consistency with the ISO 14001:2004 requirements	Administration and subsidiaries covered by the OAO Gazprom EMS scope	EMS has been introduced in the administration and 28 subsidiaries of OAO Gazprom

In 2012 the company reported an overall achievement of the corporate targets. The increase in waste disposal was caused by the incremental rate of waste generation in OAO Gazprom production subsidiaries compared with 2008 by 122 %. Over 40 % (104.3 kilotons) of waste in gas production subsidiaries resulted from drilling operation.

In order to ensure the improve of environmental situation in the regions of operation and the sustainable proenvironmental development of the industry OAO Gazprom has been implementing the corporate Comprehensive Environmental Program for the period 2011—2015.

OAO Gazprom pays a great attention to raising the basic environmental awareness of the entire personnel. The OAO Gazprom professional development institute and all the corporate training centers provide programs for managers, engineers and technical workers. In the OAO Gazprom headquarters since 2011 all new employees get validated for fire safety, labor security as well as the environmental protection instructions. Every year thousands of employees raise their environmental expertise and environmental competence. In 2012 *Gazprom Group* trained 10,322 employees, including 7,669 on environmental management system.

Dynamics of environmental training of the *Gazprom Group* personnel, 2009—2012, pers.



Financing of environmental protection

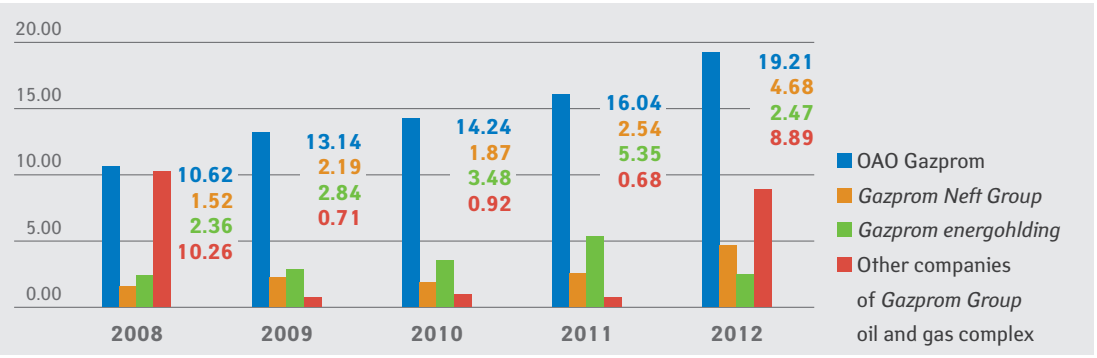
Gazprom Group allocates and annually raises funding for environmental protection. In 2012 the funding grew by 43 % compared to the previous year and totally made 35.25 billion rubles, 54.5 % of which were covered by OAO Gazprom.

Gazprom Group investments in environmental protection, million rubles

	2008	2009	2010	2011	2012
Current environmental expenditure					
Gazprom Group	17,162.25	10,376.47	10,289.84	11,232.71	18,354.68
Oil and gas companies	15,514.83	8,362.69	8,799.84	9,535.51	17,100.99
incl. OAO Gazprom	6,598.10	6,141.97	6,577.51	7 411.36	6,517.20
incl. *Gazprom Neft Group*	915.31	1,838.67	1,649.00	1,514.24	2,605.06
Gazprom energoholding	1,647.42	2,013.78	1,490.00	1,697.20	1,253.69
Costs of overhaul repair of environmental protection production assets					
Gazprom Group	1,428.77	962.68	1,243.22	2,571.76	2,444.61
Oil and gas companies	1,028.30	782.74	1,093.98	1,412.83	2,167.66
incl. OAO Gazprom	879.68	728.15	1,068.08	1,395.24	1,905.08
incl. *Gazprom Neft Group*	32.39	44.32	—	—	42.67
Gazprom energoholding	400.47	179.94	149.24	1,158.93	276.95

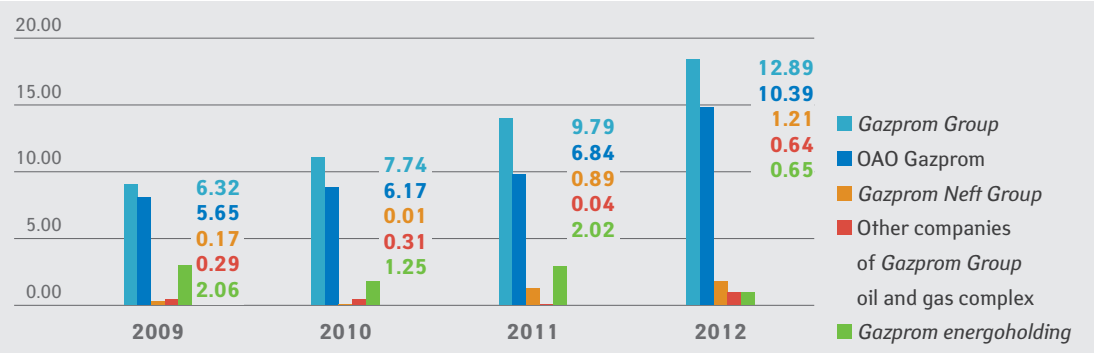
	2008	2009	2010	2011	2012
Fixed capital investments aimed at environmental protection and rational use of natural resources					
Gazprom Group	3,493.70	6,323.59	7,744.44	9,785.71	12,885.76
Oil and gas companies	3,326.53	6,117.28	6,490.84	7,764.61	12,238.95
incl. OAO Gazprom	2,497.99	5,649.77	6,171.90	6 840.75	10,388.40
incl. *Gazprom Neft Group*	357.50	172.00	14.60	891.95	1,210.09
Gazprom energoholding	167.17	206.31	1,253.60	2,021.10	646.81
Payment for a negative impact on the environment					
Gazprom Group	2,678.80	1,218.41	1,234.38	1,017.24	1,563.12
Oil and gas companies	2,529.33	782.56	645.81	544.57	1,270.42
incl. OAO Gazprom	647.44	616.22	426.92	391.86	400.35
incl. *Gazprom Neft Group*	210.77	137.95	201.40	133.39	822.23
Gazprom energoholding	149.47	435.85	588.57	472.67	292.70
Total funding					
Gazprom Group	24,763.52	18,881.15	20,511.88	24,607.42	35,248.17
Oil and gas companies	22,398.99	16,045.27	17,030.47	19,257.52	32,778.02
incl. OAO Gazprom	10,623.21	13,136.11	14,244.41	16,039.21	19,211.03
incl. *Gazprom Neft Group*	1,515.97	2,192.94	1,865.00	2,539.58	4,680.05
Gazprom energoholding	2,364.53	2,835.88	3,481.41	5,349.90	2,470.15

Gazprom Group total environmental funding and breakdown by major companies in 2008–2012, billion rubles



Fixed capital investments aimed at environmental protection and rational use of natural resources stand for the material background of the innovative proenvironmental development of the production. This item of the *Group* investments was 32 % more than in 2011 and three times the amount of 2008.

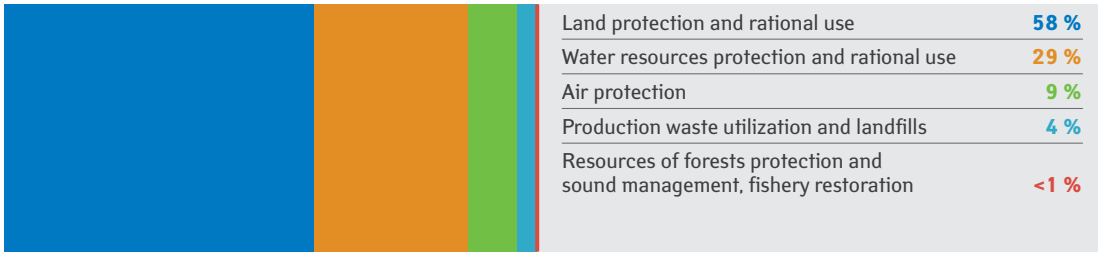
Gazprom Group investment in fixed capital directed on environmental protection and nature use in 2009–2012, billion rubles



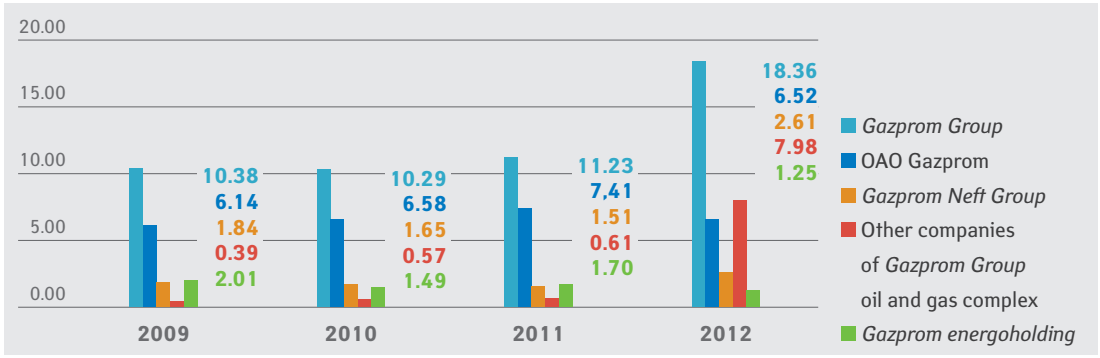
From 2008 to 2012 the *Gazprom Group* fixed capital investments aimed at environmental protection and rational use of natural resources made a more than threefold growth.

In 2012 OAO Gazprom raised the investments by more than 52 %. Over a half of the OAO Gazprom investments, which was 6,051.65 million rubles, were allocated for land protection and rational use; water resources protection and rational use — 3,605.07 million rubles; air protection — 933.93 million rubles; waste utilization recycling — 393.17 million rubles, the rest of 16.89 million rubles was invested in ration use of forest resources and rehabilitation of fish reserves.

Gazprom Group breakdown of investments in environmental protection and nature use by the investment activities in 2012, %



Gazprom Group current expenditure on environmental protection in 2009—2012, billion rubles



In 2012 the *Gazprom Group* environmental operational costs grew by 63.4 % (7.12 billion rubles) compared with 2011. The major cause of it was the consideration of additional data of OAO Gazprom neftekhim Salavat, which was incorporated in 2012 and increased respective costs of *Gazprom Neft Group*.

The majority of the *Group* operational costs (63 %) is covered by wastewater collection and treatment, which amounted to 11.67 billion rubles. The air protection amounted to 3.06 billion rubles; 2.26 billion rubles — prevention of environmental contamination with production waste, 1.05 billion rubles — protection of land, surfaces and ground water bodies. Along with it 312.32 million rubles was spent on other environmental items such as protection of biodiversity and natural reserve territories, protection from physical factors, provision of radiation security, research and development studies and projects of anthropogenic impact reduction.

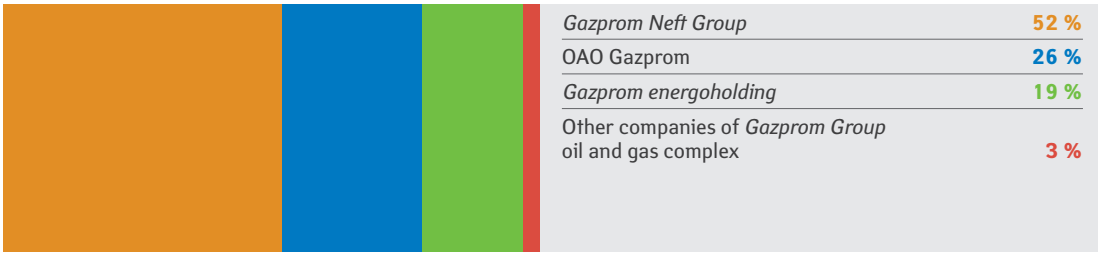
Gazprom Group breakdown of current expenditure on environmental protection in 2012

In 2012 the *Group* made transactions into different state budgets as payments for negative environmental impact, which made 1,563.12 million rubles, out of which 610.82 million rubles was paid for the impact within the project allowances and 952.30 million rubles was paid for exceeding the allowed values.

The increase of these payments by 53.7 % in 2012 compared with 2011 referred to the respective sixfold increase of this rate in *Gazprom Neft Group* due to the incremental coefficient 4.5 and 5 for the projected emissions of pollutants. This resulted from the incompletion of *Gazprom Neft* projects on reaching the 95 % utilization rate of APG as required by the Decree of the Government

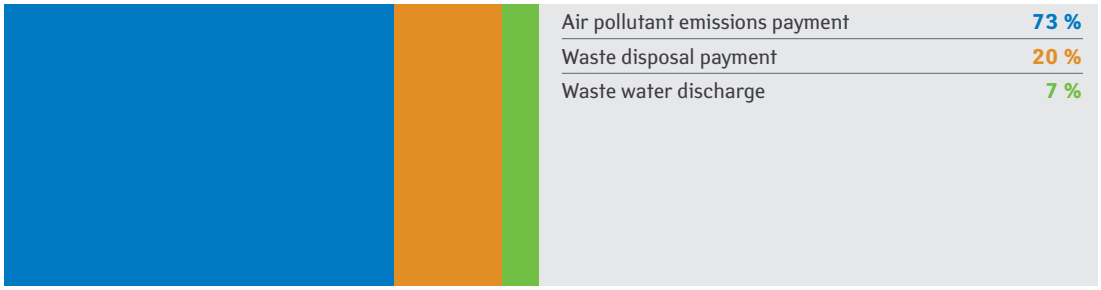
of the Russian Federation as of January 8, 2009 № 7 "On Measures of Stimulating Reduction of Atmosphere Pollution by the Associated Gas Combustion Products Emitted by Flare Units".

Gazprom Group companies' shares in pollution fee, 2012, %

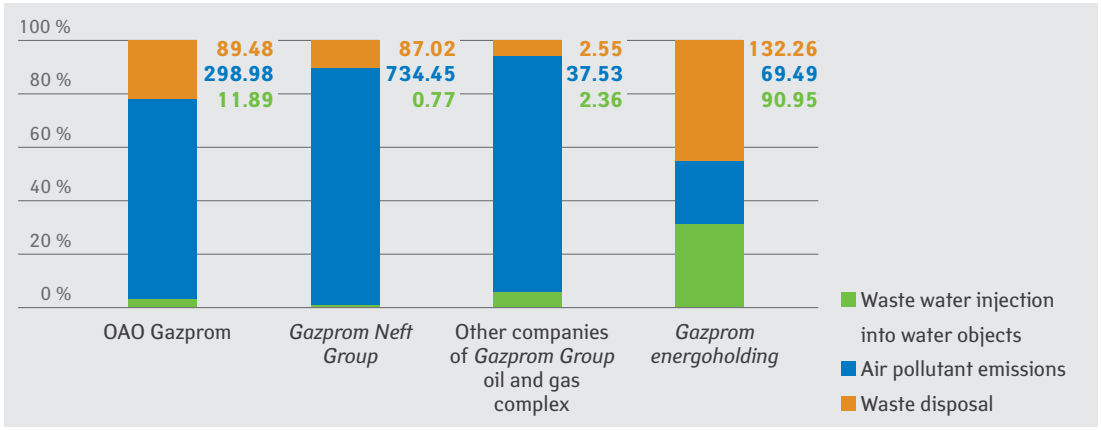


The major share of environmental payments is made for pollutant emissions, which tend to be the most significant environmental aspect of *Gazprom Group*, especially in the oil and gas sector.

Structure of *Gazprom Group* environmental payment by types of negative effects in 2012, %

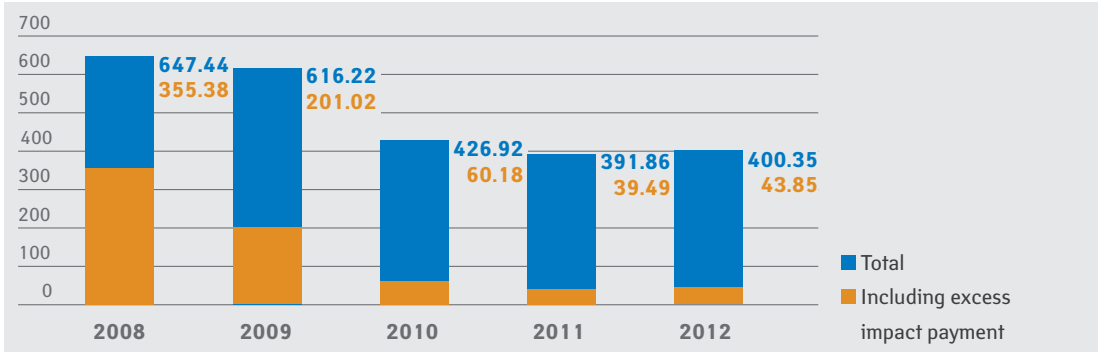


Gazprom Group companies breakdown of environmental payment in 2012, million rubles



Once the OAO Gazprom corporate-wide target of reducing the environmental payments for exceeding the allowed impact rate in 2008–2012 was set the subsidiaries, especially where the EMS is introduced, have managed to achieve a sustainable improve of this indicator of efficiency and environmental responsibility of profile units.

OAO Gazprom pollution fee in 2008–2012, million rubles.



In 2008–2012 the OAO Gazprom share of environmental payments for exceeding the allowed impact rate reduced from 55 % to 11 %.

ENVIRONMENTAL PERFORMANCE AND ENERGY SAVING

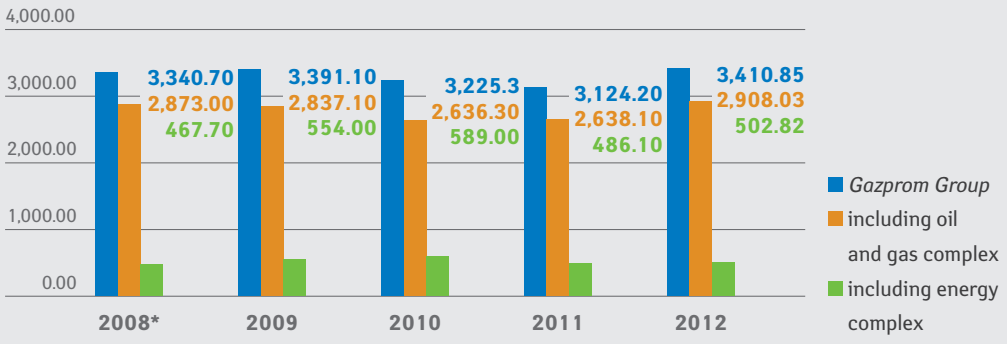
Air protection

In 2012 the *Gazprom Group* total pollutant emissions from stationary sources increased by 9 % and made as much as 3,410.85 kilotons, including the emissions from oil and gas sector — 2,908.03 kilotons; energy sector — 502.82 kilotons.

Gazprom Group impact on air, kilotons

	2008	2009	2010	2011	2012
Pollutant emissions, kilotons	**3,340.7**	**3,391.1**	**3,225.3**	**3,124.2**	**3,410.9**
incl. major pollutants:					
carbon oxide	785.5	645.8	666.8	687.2	1,031.9
nitrogen oxides	339.4	335.3,	377.4	372.6	378.3
sulfur dioxide	248.6	249.1,	296.1	260.9	310.0
hydrocarbons (including methane)	1,712.4	1,859.8	1,589.1	1,491.1	1,606.6

Dynamics of *Gazprom Group* air pollutant emissions in 2008–2012, kilotons

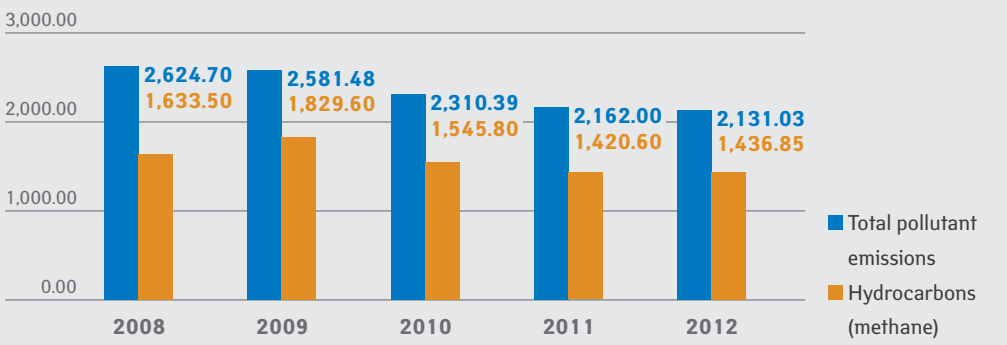


* The statistics of 2008 excluded the performance of OAO "TGK-1", "Sakhalin Energy".

The *Gazprom energoholding* pollutant emissions grew by 3.4 % due to the change in fuel balance (use of coal and fuel oil instead of natural gas) of some generating units as well as to the launch of a new combined cycle generating unit PGU-800 at Kirishskaya GRES (OAO OGK-2).

The *Group* determinant contribution into the emissions growth was made by *Gazprom neft*, where they rose by 276.37 kilotons. In *Gazprom Group Neft* 84 % of emissions refers to combustion of associated petroleum gas (APG).

Dinamics of OAO Gazprom air pollutant emissions in 2008—2012, kilotons



Gazprom Group companies' shares in total air pollutant emissions, %

OAO Gazprom	62 %
Gazprom Neft Group	21 %
Gazprom energoholding	15 %
Other companies of *Gazprom Group* oil and gas complex	2 %

The major pollutants in *Gazprom Group* are hydrocarbons (primarily methane), carbon oxide, nitrogen oxides, sulfur dioxide, which together comprise 90 % of pollutant emissions. Hydrocarbons in the *Group* emissions structure are mostly (95.3 %) amounted to by the OAO Gazprom subsidiaries, which operate in production, transmission, storage and processing of natural gas and condensate. The Gazprom emissions of solid substances mostly refer to the energy sector (84 % of the *Group* total) and the emissions of volatile organic compounds (VOC) mostly refer to the oil production and refinery (nearly 70 %).

Component structure of energy complex *Gazprom energoholding* air pollutant emissions, 2012, %

Sulphur dioxide	34 %
Nitrogen oxides	29 %
Particulate matters	28 %
Carbon oxide	8 %
VOC, hydrocarbons and other	1 %

In 2012 the OAO Gazprom total pollutant emissions decreased by 30.96 kilotons compared to 2011 and made 2,131.03 kilotons. Notwithstanding the pollutant emissions increased in the gas production sector by 2.15 kilotons or 1.5 % and decreased in the gas transmission sector by 33.57 kilotons or by 2 %. The overall reduction was resultant from lower hydrocarbon extraction rate, pipeline throughput capacity rate, lower rates of gas inflow and outflow at underground gas storages, as well as a complex of energy saving measures. The emissions of nitrogen oxides were reduced by 8.7 % (18.54 kilotons) compared to 2011, as well as the emissions of carbon oxides by 7.1 % (30.58 kilotons). The insignificant increase of methane emissions (by 1.1 %) was caused by process venting of gas during pipeline repairing and GDS maintenance.

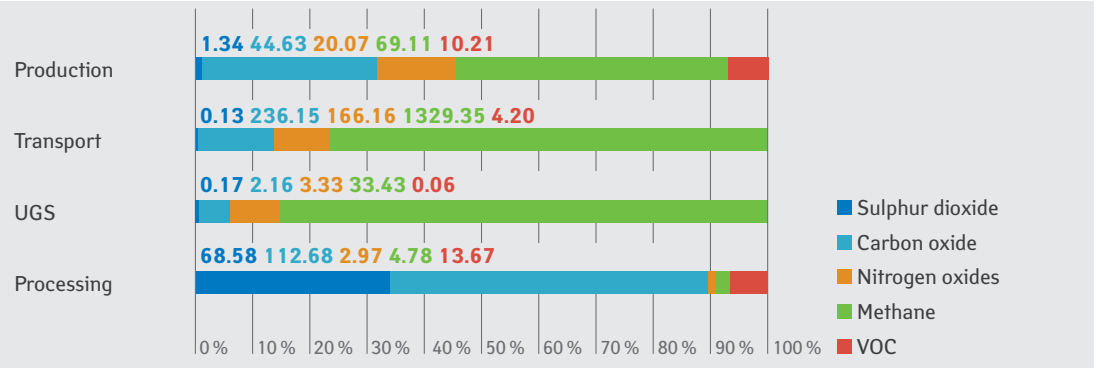
In 2008—2012 OAO Gazprom pollutant emissions decreased by 19 %, methane emissions by 12 %.

In the OAO Gazprom component structure of emissions the major pollutants amounted to the biggest share of 98.3 %, including: hydrocarbons (methane) — 66.8 %, carbon oxide — 19 %, nitrogen oxides — 9.3 %, sulfur dioxide — 3.3 %. The gas transmission sector amounts to over 92 % of methane emissions in OAO Gazprom.

Component structure of OAO Gazprom air pollutant emissions, 2012, %

Hydrocarbons	67 %
Carbon oxide	19 %
Sulphur dioxide	3 %
Nitrogen oxides	9 %
Other pollutants	2 %

OAO Gazprom breakdown of total pollutant emissions by business activities, in 2012, kilotons



Greenhouse gas emissions

The corporate climate initiatives and projects are consistent with the Energy Strategy of Russia through 2030 and State Program of the Russian Federation "Environmental Protection" for 2012—2020, as well as the Climate Doctrine of the Russian Federation.

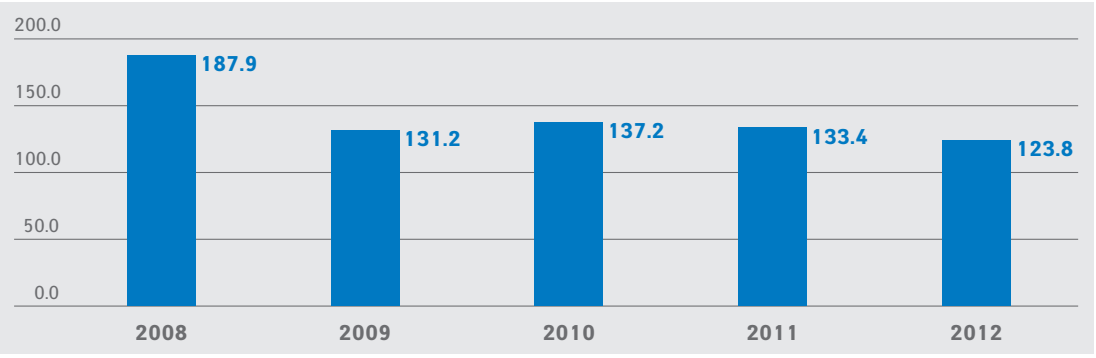
On the basis of the Cooperation Agreement between the Federal Service for Hydrometeorology and Environmental Monitoring, representatives of OAO Gazprom took part in the work of international bodies of the United Nations Framework Convention on Climate Change (UNFCCC). The OAO Gazprom greenhouse gas emissions mitigation measures provide for achievement of the emissions 15—25 % reduction target through 2020 against the 1990 level announced by the Russian Federation at the 15th session of the Conference of the Parties to the UNFCCC.

OAO Gazprom implements measures on efficiency improve in energy use and fuel energy resources saving, optimizes production operations, develops cooperation and takes advantage over partnerships, strives for attracting new investments into innovative technologies and advancing technological solutions. All in all it ensures the reduction of greenhouse gas emissions and provides for achievement of the national emissions target.

The corporate greenhouse gas emissions inventory system is fully consistent with national and international standards and requirements.

In 2012 OAO Gazprom amounted to 123.8 million tons of CO_2-equivalent, which was 9.5 million tons (7 %) lower than in 2011. The reduction resulted from a decrease in gas consumption on compression due to a lower gas extraction (479 billion m^3 — in 2012, 513 billion m^3 — in 2011) and a lower pipeline throughput capacity rate (1,577 trillion m^3•km — in 2012, 1,623 trillion m^3•km — in 2011), as well as due to implemented measures under the Program of Energy Saving in OAO Gazprom in 2011—2013.

Greenhouse gas emission dynamics, million tons of CO_2-equivalent



In 2008—2012 OAO Gazprom greenhouse gas emissions from subsidiary facilities reduced by 34 %.

Every year OAO Gazprom submits the results of the quantitative assessment of annual greenhouse gas emissions to Roshydromet for preparing the national greenhouse gas emissions inventory of the Russian Federation to meet the requirements of the national legislation and requirements of the UNFCCC.

OAO Gazprom has been participating in the international investment Carbon Disclosure Project (CDP) on regular bases and has presented data on measures undertaken to reduce greenhouse

gas emissions to international financial institutes and investors for their review and support decisions of their investment policies. As a result OAO Gazprom has obtained an access to the global database of climate change information submitted by other businesses worldwide, which has enabled strategic studies and analyses of other oil and gas companies' experience. In 2012 like the year before upon the data submitted and further estimate OAO Gazprom was recognized as the CDP Best Respondent among Russian companies.

Within the programs of nature protection and rehabilitation measures along with the pollutant emissions inventory **OAO Gazprom neft** carried out the inventory of the sector priority greenhouse emissions (methane and carbon dioxide). The main greenhouse mitigation actions in energy generation are yearly repairing and retrofitting of oil preheaters.

Gazprom energoholding also undertakes climate mitigation measures. For instance, since 2001 all **OAO Mosenergo** power stations have been projecting their total emissions of carbon dioxide and other greenhouse gases (guiding document RD 153-34.0-02.318-2001 "Methodological guidelines for calculation of total greenhouse gas emissions from heat stations and boilers" as of December 20, 2007).

Utilization of associated petroleum gas

A great contribution into the greenhouse gas emissions reduction is made by the *Gazprom* activities in the flared APG decrease.

Implementation of APG investment projects on the *Gazprom group* hydrocarbon fields is aimed at achieving the APG utilization rate of no less than 95 %. In 2012 the Gazprom Group APG average utilization rate made 70 %: OAO Gazprom performed 85 %, *Gazprom Neft Group* — 65.3 %.

OAO Gazprom anticipates to perform the maximal utilization rate by 2013, and *Gazprom Neft Group* — 2016.

OAO Gazprom neft and OAO Sibur Holding expanded their capacities of transmission and utilization of associated gas, which resulted in an increase of a processing input. *Gazprom neft* constructed new pipelines and reconstructed 111 km of the existing systems of gas collection from the group of Vyngapurovskoe fields. The OAO Gazprom Holding investment of 3 billion rubles enabled to expand the capacities of the Vyngayakhinskaya compressor station and Vyngapurovsky gas processing plant (GPP) by 2.5 billion m^3 of gas per year. Development of the infrastructure of the companies enabled to additionally process 1 billion m^3 of gas per year.

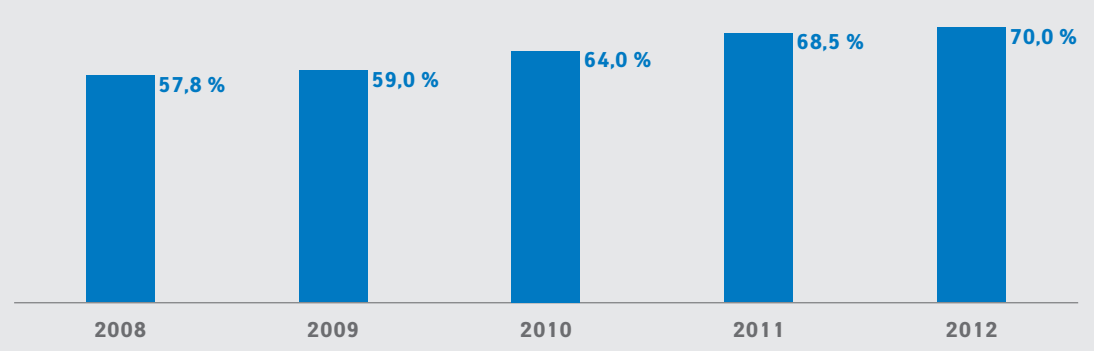
The following capacities were constructed and put into service:

— pipeline connecting Severo-Yangtinskoe field and Muravlenkovsky GPP — APG additional utilization of 29 million m^3 of gas in 2012;

— pipeline connecting Shinginskoe field and Luginetskaya compressor station — APG additional utilization of up to 55 million m^3 of natural gas per yer .

In 2013 (in cooperation with OAO Sibur Holding) the implementation of the project of the APG utilization improve on the Yuzhno-Priobskoye field will enable *Gazprom neft* to considerably increase the APG utilization rate and achieve the company's average of over 80 %.

Dynamics of using associated petroleum gas of *Gazprom Group* fields in 2008—2012, %



For the period of 2008—2012 *Gazprom Group* increased the APG utilization up to 70 %.

Reduction of vehicle fleet impact on air

The activities of *Gazprom Group* make a significant contribution to the greening of the motor complex in Russia by promoting the production of motor fuel, construction of gas filling stations and production of gasoline and diesel fuel that meet international standards of Euro-3 and Euro-5.

Currently, of all the motor fuel mix and technologies natural gas provides the most environmentally friendly exhaust emissions from motor vehicles. The switch of cars from gasoline to natural gas causes the fivefold lowering of average emissions hazardous substances, and twofold lowering of the noise impact.

The concept of long-term socio-economic development of the Russian Federation until 2020, considers promoting the use of natural gas as motor fuel as one of the priorities of oil and gas industry and increase of national competitiveness. The appropriate legal framework is now being developed.

OAO Gazprom is actively working on development of the Russian NGV sector, switching vehicle fleet to natural gas and is the ultimate leader of the national gas fuel market. *Gazprom* is working with suppliers of gas filling equipment with state and municipal government, economic, and scientific centers, international organizations and foreign partners, creating new infrastructure facilities across country. This work is based on the provisions of the Federal Law № 261 FZ as of November 23, 2009 "On energy saving and energy efficiency improve and on amendments of various legal acts of the Russian Federation", as well as the instruction of the Russian President № Pr-1923 as of June 27, 2011.

Gas filling capacities are being intensively promoted in the regions of Western Siberia and Far East. In September 2011 the Chair of the OAO Gazprom Management Committee approved of funding of Gazprom transgaz Tomsk for CNG FS construction in Gorno-Altaisk and Petropavlovsk-Kamachatsky. In latest year CNG FS were built in Tomsk and Bratsk. Within the framework of the long term target program "Gasification of Bratsk city in 2011—2015" the administration developed and approved the city program "Gasification of vehicles in Bratsk in 2011—2015". *Gazprom* is working on plans and measures of gas supply and gasification through 2020 jointly with the authorities of the Far East Federal District.

The world market of natural gas vehicles (NGV) is developing rapidly. The number of vehicles that use methane as a fuel came over 13 million. According to the forecast of the Working Group "Natural Gas Vehicles" of the International Gas Union, the growth of NGV will make 50 million units by 2020, and more than 100 million units by 2030. Natural gas has become a motor fuel in more than 80 countries. The annual average rate of the NGV growth is 26 %.

In order to promote the OAO Gazprom initiatives aimed at expanding the gas fuel market, in cooperation with the non-profit partnership National Natural Gas Vehicle Association, the company annually holds Exhibition GasSUF, International Scientific and Practical Conference "Gas in motors" and auto caravans "Blue Corridor".

The auto caravans involve natural gas vehicles of serial manufacture (trucks, buses and cars made in Russia and abroad). In the cities along the route, they arrange scientific and practical seminars with participation of heads of local administrations, representatives of the automotive industry, academic experts and exhibitions of Natural Gas Vehicle Technology. Specialists from Gazprom VNIIGAZ LLC measured the composition of exhaust gases, which confirm the ecological purity of CNG as motor fuel.

Caravans held within the "Blue Corridor":

- 2008 — St. Petersburg — Novgorod — Tver — Moscow;
- 2009 — Rostov-on-Don — Krasnodar — Novorossiysk — Sochi;
- 2010 — the Moscow-Ryazan, Penza, Togliatti, Ulyanovsk, Naberezhnye Chelny, Kazan, Nizhny Novgorod;
- 2011, June — Prague — Greifswald;
- 2011, October, November — Yekaterinburg — Ufa — Saratov — Volgograd — Moscow.

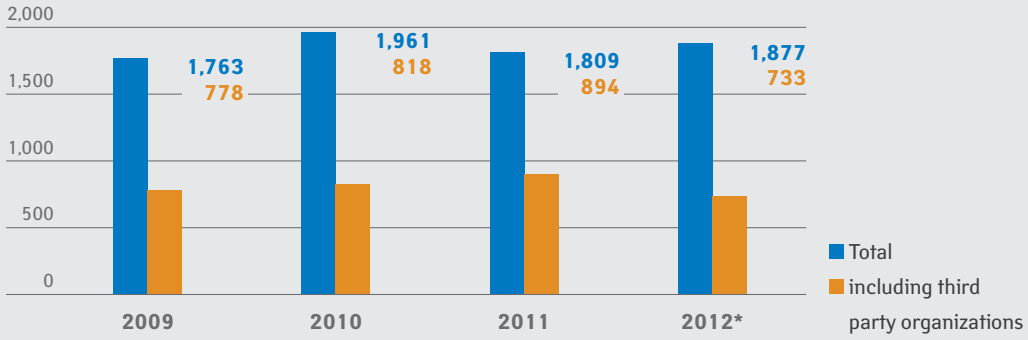
In 2012 the international caravan of natural gas vehicles "Blue Corridor-2012" was co-organized by OAO Gazprom and E.ON Ruhrgas. The caravan traveled from Moscow to Brussels over Smolensk, Minsk, Brest, Warsaw, Ostrava, Prague, Karlsruhe and Paris, and then back to Moscow from Brussels over Essen, Berlin, Warsaw, Brest, Minsk. The main partner of the event in Belarus was OAO Beltransgaz. In Belarus a round table was held to discuss main challenges of expanding the network of compressed natural gas filling stations and gas fuel market development in the

republic. The NGV fleet in Belarus amounts for 5 thousand units. OAO Beltransgaz operates the network of 26 CNG FS with a total capacity of 9 thousand fillings per day or 165 million cubic meters of natural gas per year. In 2011 the average sales of gas motor fuel in Belarus made as much as 16.6 million cubic meters of natural gas, and average load of the CNG FS network reached 13.1 %. The market price of 1 cubic meter of compressed natural gas (an equivalent of 1 liter of the conventional fuel) in Belarus reached Br2430, which was 2.7 times as low as the price of 1 liter the patrol AI-92 and only one third the price of diesel. In order to enable the fuel switch to the natural gas, repair and maintenance services OAO Beltransgaz set up seven specialized facilities and one for the equipment validation.

OAO Gazprom is planning to achieve the 30 % NGV share in the corporate vehicle fleet.

In 2012 1,877 vehicle units were switched to natural gas, including 733 units owned by third party organizations. Thus 7,410 vehicle units were retrofitted with the natural gas equipment in 2009—2012.

Number of vehicles switched to natural gas by OAO Gazprom, 2009—2012, units in year



* Including OAO Beltransgaz.

Water use and protection of water resources

In 2012 the *Gazprom Group* companies withdrew (received) 5,462.45 million m³ of water and 97.4 % of it was used for own needs, 2.6 % was directed to other consumers. The *Gazprom Group* water discharge in 2012 made 4,931.17 million m³.

Aggregated figures of *Gazprom Group* water use in 2011—2012, million m³

	2011	2012
Total water intake	**5,793.00**	**5,462.45**
including water from natural sources	5,572.42	5,212.95
Own needs	**5,643.19**	**5,319.62**
including process needs	5,550.79	5,209.31
Water discharge	**5,300.65**	**4,931.17**
including surface discharge	5,257.71	4,892.96
of them normatively clean and normatively treated	5,096.23	4,691.55

The volumes of normatively clean and normatively treated water and water discharged into surface bodies made 96 % of the *Gazprom Group* water discharge.

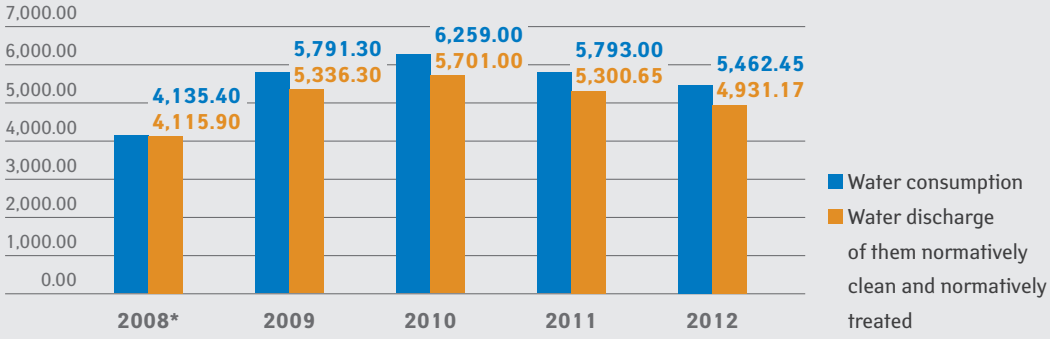
The breakdown of *Gazprom Group* water consumption is similar to the water discharge: the major volume is traditionally shared by *Gazprom energoholding* — in 2012 the water withdrawal amounted to 5.252,94 million m³, the water discharge — 4,827.93 million m³ (96.2 and 97.9 % of the total respectively). The share of OAO Gazprom in the total water consumption was nearly 1 %.

In general the *Gazprom Group* water withdrawal decreased in 2012 by 330.55 million m³ (5.7 %) compared to 2011. This was caused by the power generation and output decrease in *Gazprom*

energoholding, the most water-intensive companies in *Gazprom Group*, as well as an increase of water recycle in *Gazprom Neft Group* and *Gazprom energoholding*.

In 2012 *Gazptom Group* companies implemented a set of measures aimed at optimizing the water use: installation of flow meters of drinking and process water, flow rate regulators and purchases of bottled drinking water. This resulted in a decrease of waste water discharges by 369.49 million m³ (7 %).

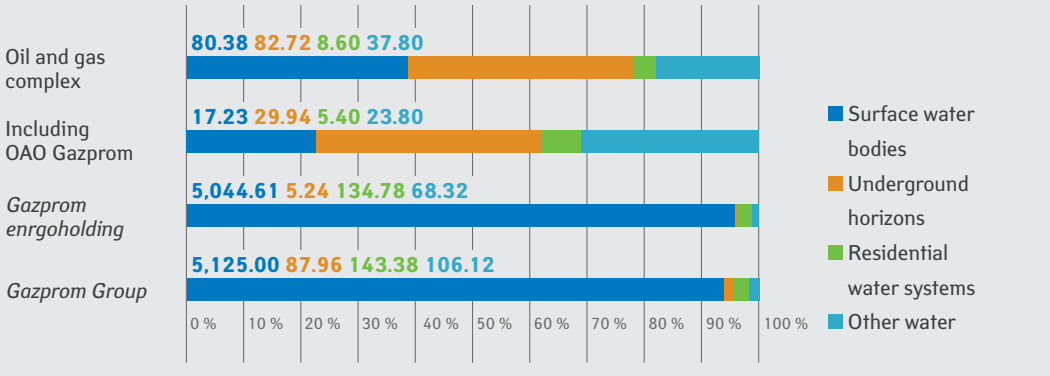
Gazprom Group dynamics of water consumption and water discharge in 2008–2012, million m³



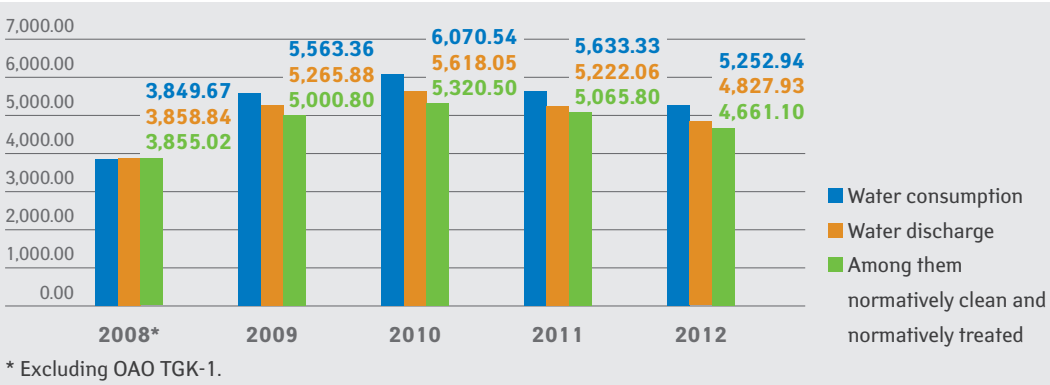
* Excluding OAO TGK-1 and Sakhalin Energy.

The surface water bodies are the major water sources of the *Gazprom energohoding* power stations (96 %). The oil and gas companies predominantly withdraw water from ground sources (39.5 % of the total withdrawal), along with it the withdrawal from surface water bodies was 38.4 %. The *Gazprom Neft Group* companies are the major consumers of the ground water — 60.7 %.

Gazprom Group water withdrawal breakdown by types of sources in 2012, million m³

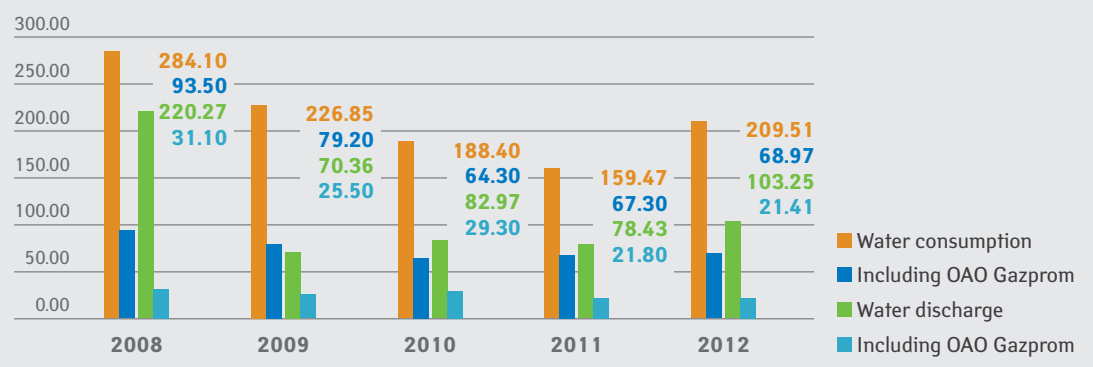


Energy complex *Gazprom Group* dynamics of water consumption and water discharge in 2008–2012, million m³



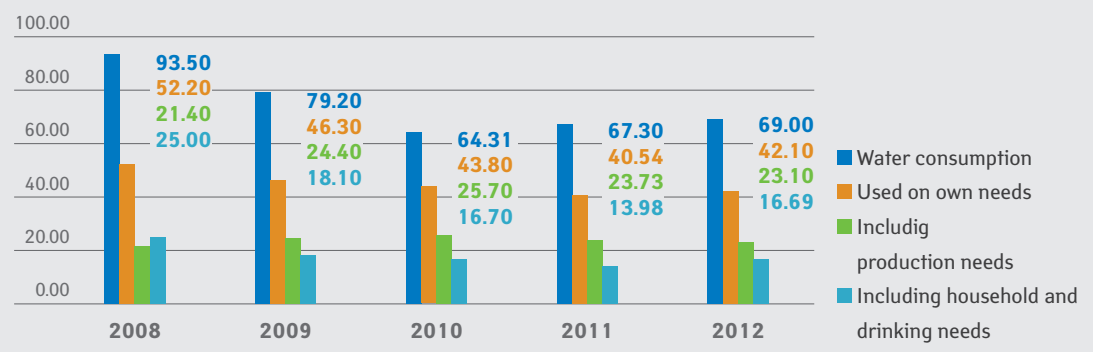
* Excluding OAO TGK-1.

Oil and gas complex *Gazprom Group* dynamics of water consumption and water discharge in 2008–2012, million m³



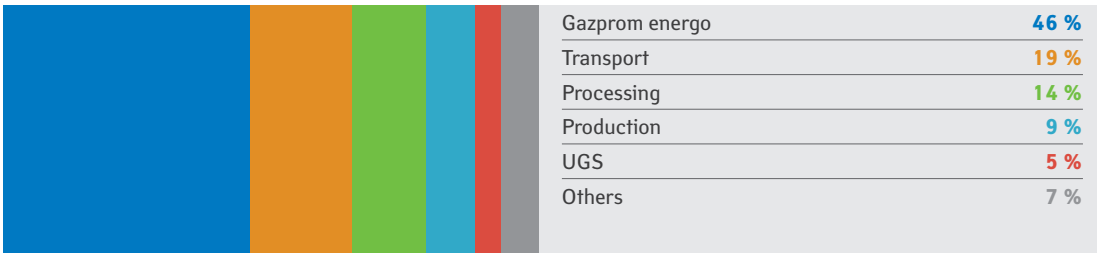
In 2012 the Gazprom total water withdrawal (from water bodies and household water supply systems) was just 2.5 % (1.67 million m³) higher than in 2011. Notwithstanding that, the water withdrawal reduced in the gas production sector by 4.8 % (from 6.3 down to 6.0 million m³), in the gas transmission sector the reduction made 17.5 % (from 15.4 to 12.7 million m³), in the gas underground storage sector — 12.8 % (from 3.9 down to 3.4 million m³), as well as in the processing the water withdrawal dropped 5.3 % (from 10.56 down to 10.0 million m³). This was caused by implementation of water saving technologies measures. Along with that the water withdrawal grew in secondary sectors from 31.1 up to 36.6 million m³ (17.7 %) due to an increase of operation scope (OOO Gazprom tsentrremont).

OAO Gazprom water consumption on own needs in 2008–2012, million m³



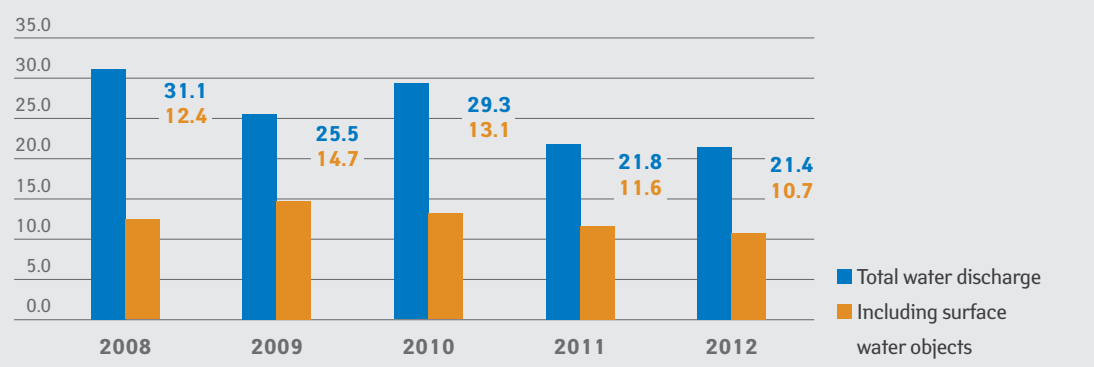
Implementation of water saving measures allowed OAO Gazprom to reduce the process water consumption by 19 % in 2008–2012.

OAO Gazprom water consumption breakdown by business activities in 2012, %



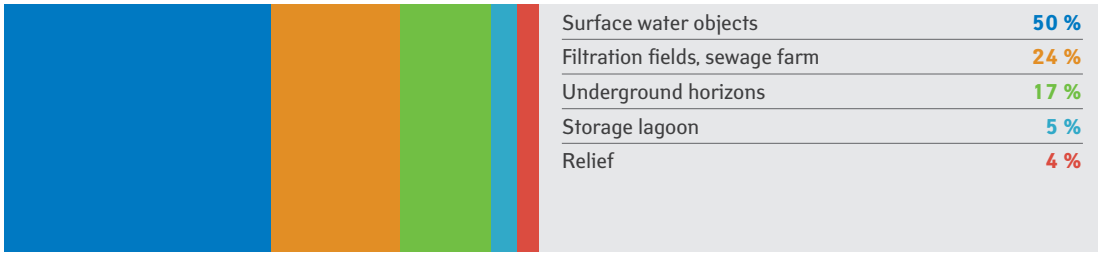
Compared to 2011 in 2012 OAO Gazprom managed to drop the waste water discharge (untreated and undertreated water) by 0.3 million m³ (4.7 %), by 0.13 million m³ (26 %) of the contaminated water (untreated) and by 0.18 million m³ (3 %) of undertreated water discharge, which was caused by both the total decrease of the water discharge and improve of the treatment efficiency. For example, OOO Gazprom transgaz Saratov put into full service new treatment facilities at Mesherskoe LPUMG, Kirsanovskoe LPMUMG and in the emergency response and restoration operation control, which resulted in a 30 % reduction of contaminated water discharge into water bodies.

OAO Gazprom water discharge, including surface water objects, in 2008–2012, million m³



OAO Gazprom predominantly discharges water into surface water bodies, which is why the decrease of water discharges is a significant factor of negative environmental impact reduction.

OAO Gazprom water discharge breakdown by drainage in 2012, %



In 2012 OOO Gazprom dobycha Urengoy implemented the technology of water injection into ground waters to maintain the formation pressure, which enabled to reduce water discharged into surface bodies by 95 %. This was the reason for the OAO Gazprom slight increase of the water discharge into ground waters.

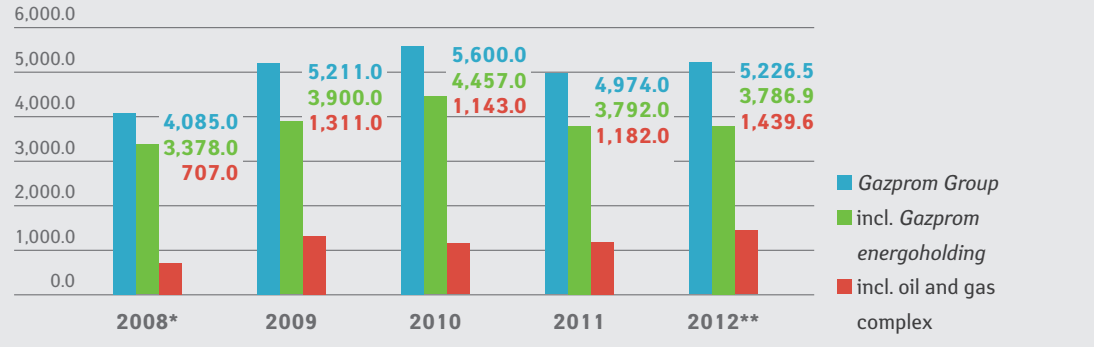
In 2008–2012 OAO Gazprom managed to reduce the water discharge into surface reservoirs by 6.5 %.

Production and consumption waste management

In 2012 the *Gazprom Group* companies generated in 5,226.5 kilotons of production and consumption waste, which was 252.5 kilotons (5 %) more than in 2011. The main contributor 72 % was energy companies of *Gazprom energoholding* waste generated (90 % of the waste was presented by the ash and sludge (ASW) from solid fuels combustion in power plants with a very low negative environmental impact rate).

The share of the total annual waste generation of the oil and gas companies was approximately 28 % (1,439.6 kilotons).

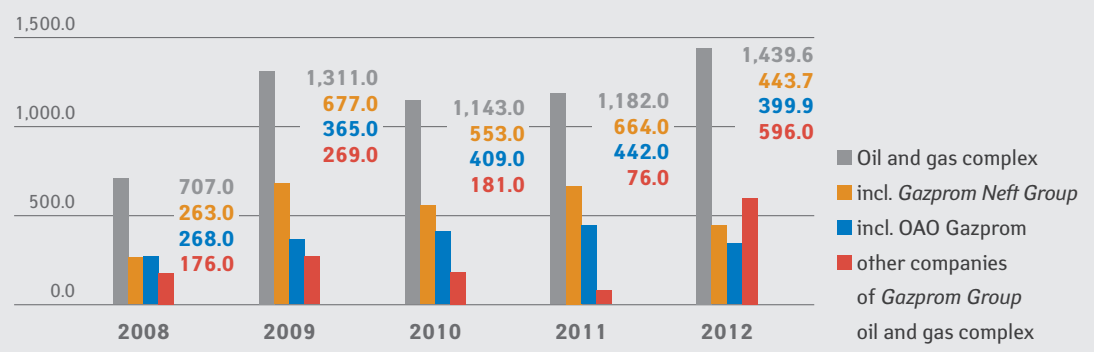
Dynamics of *Gazprom Group* waste generation in 2008–2012, kilotons



* The statistics of 2008 excluded the performance of OAO "TGK-1", "Sakhalin Energy".
** The statistics of 2012 included the performance of affiliated asset OAO "Gazprom Neftekhim Salavat"

Despite the decrease of the newly generated waste in OAO Gazprom and OAO Gazprom neft in 2012 a general growth of waste generation was observed, which was mainly determined by including the data of OAO Gazprom neftekhim Salavat into the reporting statistics (480.79 kilotons).

Dynamics of oil and gas complex *Gazprom Group* waste generation in 2008–2012, kilotons



In 2012 *Gazprom Neft Group* generated 443.7 kilotons of waste, which was 30 % lower than in 2011 due to lower intensity of drilling and implementation of pitless technology during well construction. In addition ZAO Gazpromneft Orenburg managed to have associated bottom water excluded from the waste list (in 2011 the mass of bottom water made as much as 90 kilotons).

In 2012 new capacities were put into service: 1st line of the pipeline system Bovanenkovo-Ukhta and 1st, 2nd lines of the North-European pipeline (OOO Gazprom transgaz Ukhta), affiliated Bashkirskoe emergency response and restoration operation control and well workover operation control and Kaliningradskoe UGSC (Gazprom UGS), social infrastructure facilities and production facilities at Kamchatskoe, Amurskoe, Primorskoe, Khabarovskoe LPUMG and Sakhalinskoe LPUMT (Gazprom transgaz Tomsk). Despite these measures OAO Gazprom generated 9.5 % (42.1 kilotons) less waste than in 2011.

Structure of *Gazprom Group* production and consumption waste management in 2012, %

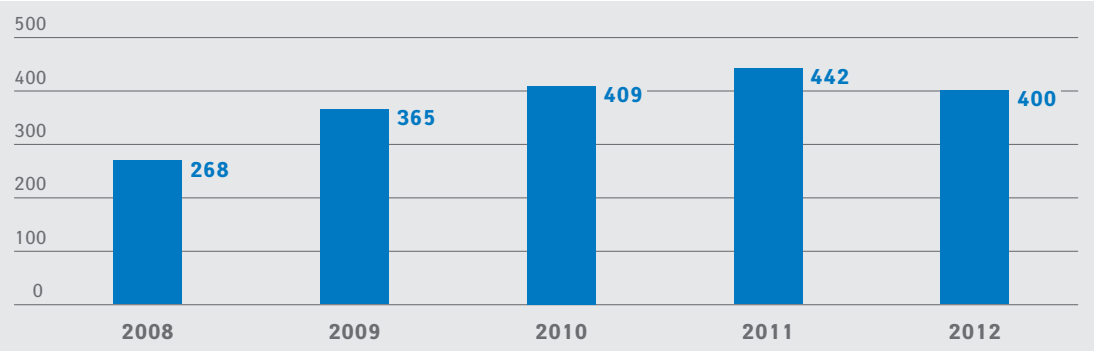
In 2012 *Gazprom Group* companies placed 2,804.9 kilotons (67 %) of production and consumption waste on their own landfills and disposal, which was 2 % less than in 2011. The bulk of waste placed on its own landfills and disposal was covered by the ASW of power generating companies — 84 %.

The *Group* permanently improves the corporate waste management and works on intensifying reusing the waste in order to reduce the waste accumulation rate on production sites. By the end of 2012 the amount of accumulated waste was 47 % less than in 2011. *Gazprom Group* increased the amount of waste transferred to other organizations for further use, neutralization, landfilling and disposal by 48.5 %, which made 936.8 kilotons. The amount of waste reused at own facilities also grew by 18.8 %, which made 325 kilotons or 8 % of the total waste. For example, OAO Gazprom neftekhim Salavat reused 205 kilotons of waste during reconstruction of the 2nd section of the biopit OS-90 UVK and the pit remediation.

In 2012 compared to 2011 *Gazprom Group* increased the amount of waste reused at own facilities by 18.8 %, transferred for further use by 48.5 %, reduced the accumulated waste by the end of the year by 47 %.

In 2012 the OAO Gazprom subsidiaries amounted to 399.9 kilotons of waste, which was 9.5 % less than in 2011 (442 kilotons). It is noteworthy that the waste of IV and V class of hazard held the biggest share of more than 90 % (371.3 kilotons).

Dynamics of OAO Gazprom waste generation in 2008—2012, kilotons



An insignificant decrease of waste was observed in almost all the OAO Gazprom business activities. Thus, the gas production sector amounted to 217 kilotons of waste (54 %), which was 7.9 % less than in 2011. The bulk of waste originate from drilling operations (IV and V class of hazard) — 104.3 kilotons. The waste reduction in the production sector resulted from the lower drilling rate (in 2011 the drilling waste amounted to 135.5 kilotons).

The gas transmission sector generated 130.7 kilotons of waste, which was 13 % less than in 2011.

OAO Gazprom waste generation breakdown by business activities, 2012, %

Production	54 %
Transport	28 %
Processing	10 %
UGS	2 %
Others	6 %

Structure of OAO Gazprom production and consumption waste management in 2012, %

Delivered to other entities	64 %
Located on own landfills and disposal objects	28 %
Accumulated by the end of the year within the enterprise	4 %
Completely neutralized	3 %
Used	1 %

The OAO Gazprom subsidiaries waste turnover amounted to 419.5 kilotons of waste (including preexisting 12.8 kilotons at the beginning of the year and 6.9 kilotons, received from third-party companies). Out of this amount 266.7 kilotons was transferred to third parties, 115.5 kilotons was landfilled or disposed, 19.5 kilotons was utilized and neutralized in-situ.

OOO Gazprom dobycha Nadym recycles part of the waste, for example scrap and nonferrous waste were converted to such items as rivets, plugs, blanks and others using furnaces "Keleman" and "SATN" installed at Nadymskoe CTT and SE; waste silica gel used to control humidity of air and gases is reused in road construction in Medvezhinskoe GPU; the waste wood is reused as for heating hunting housholds and in fire-places of the hotel "Iceberg", conditioned saw dust is reused for liquidating local oil contaminations.

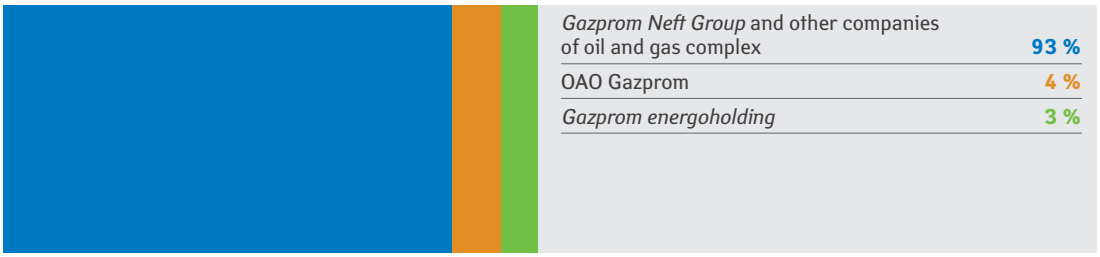
In 2012 the amount of waste placed on own disposal objects reduced by 37 %, the amount of waste transferred to other entities increased by 22.2 %.

Oil contaminated waste handling

Gazprom Group pays a great attention to the environmentally safe handling of oil contaminated waste. The latter originates from oil processing, cleaning of pipelines and reservoirs — this kind of waste normally refer to the III class of hazard.

In 2012 *Gazprom Group* amounted to 164.85 kilotons of oil contaminated waste, which were represented by slurry of oil treatment plants, sludge treatment tanks and pipelines of oil and petroleum products, floating film of oil traps.

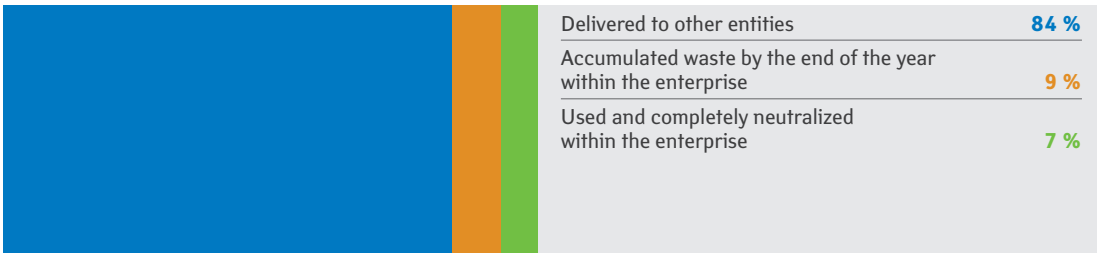
Structure of *Gazprom Group* oily waste generation in 2012, %



Gazprom Neft Group contributed up to 93 % of oil contaminated waste, whereas 4 % was amounted to by OAO Gazprom and 3 % by *Gazprom energoholding*.

In 2012 the turnover of *Gazprom Group* oily waste made 180.35 kilotons (including preexisting 15.5 kilotons at the beginning of the reporting period). Out of this amount 153.6 kilotons was transferred to other entities for further use, neutralization, landfilling and disposal, 13 kilotons was used and neutralized in-situ.

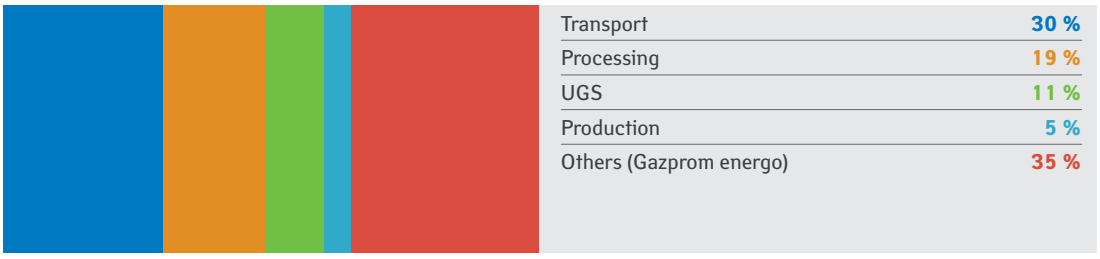
Structure of *Gazprom Group* oily waste management in 2012, %



In 2012 *Gazprom Group* increased the amount of oil contaminated waste reused and neutralized in-situ by 65 %.

In 2012 the OAO Gazprom turnover of oil contaminated waste made 9.0 kilotons of oil sludge, 81 % (7.3 kilotons) of which was generated in 2012 and 19 % (1.7 kilotons) remained from the previous period. The major contributors herein are facilities of OOO Gazprom energo (2.3 kilotons), the OAO Gazprom subsidiaries operating gas transmission (2.2 kilotons), as well as in processing of natural and condensate (1.2 kilotons).

Distribution of oil sludge OAO Gazprom by business activities in 2012, %



Structure of OAO Gazprom oily waste management in 2012, %

OAO Gazprom reused over 2.3 kilotons of oil contaminated waste. In addition, 1.9 kilotons of oil sludge was transferred to other organizations for further use and 3.9 kilotons for neutralization. The amount of remaining oil sludge for the end of the period decreased by 64 % and made 0.6 kilotons.

OOO Gazprom dobycha Nadym: in 2012 Medvezhinskoy has production unit reused 0.028 tons of sludge. The recovery of useful organic compounds from cleaning of pipelines (vessels, containers, tanks, distributors) is based on removal of polluting compounds (water, mechanical impurities) from process equipment.

Compared to 2011 in 2012 OAO Gazprom accumulated 64 % less of oil contaminated waste by the end of the period.

Protection of land and soil

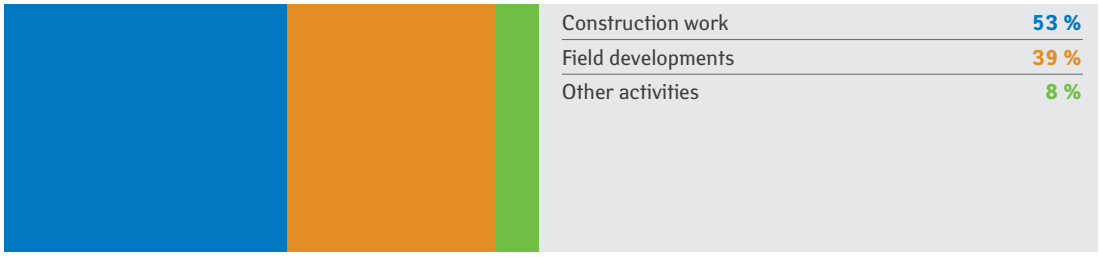
The technologies of land use in *Gazprom Group* ensure protection and restoration of land fertility and sustainability of the earth environmental functions.

The land and earth protection in *Gazprom Group* is achieved by means of the negative impact scale minimization and disturbed land rehabilitation. The project requirements determine the work of technical and biological rehabilitation, timely recycle of the land in use, restoration and return of territories to the economy. Within the environmental monitoring and industrial control *Gazprom Group* examines the state and quality of soils on the regular bases to ensure their consistency with the projected rates and protection of land in use.

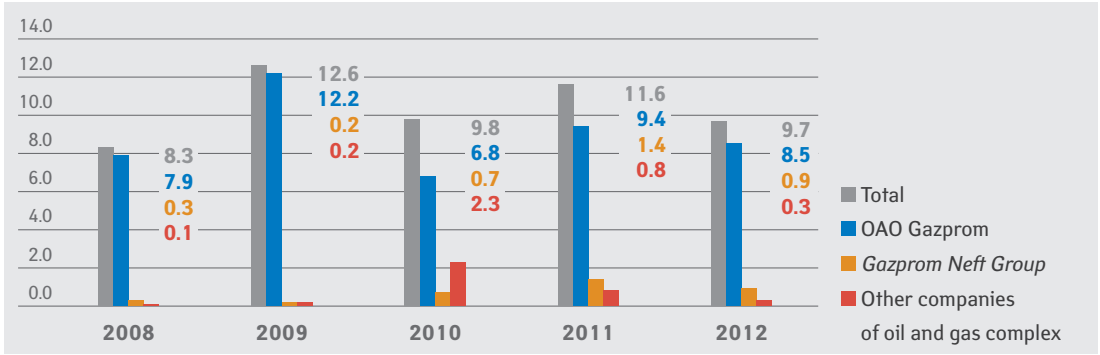
In 2012 the *Gazprom Group* companies disturbed 69.3 thousand hectares, 33 % of which was the share of OAO Gazprom, 63 % — of *Gazprom Neft Group*, about 3 % of OAO Tomskgazprom, less than 1 % of *Gazprom energoholding*.

In the reporting period the *Group* disturbed territories made 14.40 thousand hectares, 9.62 thousand hectares (67 %) of which was disturbed by OAO Gazprom, 32 % by *Gazprom Neft group*, 1 % by OAO Tomskgazprom. The major impact factor originated from development of hydrocarbon fields, construction operations, maintenance services and others.

Distribution of *Gazprom Group* lands disturbed by business activities in 2012, %



Dynamics of oil and gas complex *Gazprom Group* land rehabilitation in 2008—2012, thousand ha



Gazprom Group rehabilitated 9.72 thousand hectares of the land used, 8.46 thousand hectares of which was remediated by the OAO Gazprom subsidiaries. The majority of subsidiaries fully rehabilitated the disturbed territories for the reporting period, a number of subsidiaries managed to restore the lands disturbed in previous period.

For example OOO Gazprom dobycha Nadym carried out technical remediation, and rehabilitated the soils of the well clusters on the Bovanenkovskoe and Yamsoveyskoe oil gas and condensate

fields, as well as on Yubileynoe gas and condensate field. OOO Gazprom dobycha Noyabrsk focusing on preventing land and soil contamination in 2012 made a decision on avoiding waste water discharge on the relief of the rotation camp of Zapadno-Tarkosalinsky gas production site. Using biopreparations OOO Gazprom transgaz Ukhta remediated 1.403 hectares of contaminated lands.

OOO Gazprom dobycha Krasnodar carried out field studies of OAO Gazprom patented advanced technologies of land and soil restoration and conditioning for returning to the economy.
Thus 14.7 hectares of lands was rehabilitated on the reserve territory of "Priazovsky". The quality control was based on the method of bioindication.

In order to enhance the esthetical appeal of the remediated lands the greening solutions of OOO Gazprom transgaz Ufa involved both industrial measures and landscape design.

Gazprom Neft Group has been implementing land rehabilitation programs, which primarily focus on liquidating the previously accumulated damage. In 2012 a set of measures was undertaken aimed at enhancing resilience and rehabilitating of land resources considering the climatic, hydrological specification and uniqueness of their flora and fauna. In addition a scientific study was executed, which was aimed at developing technologies of aerobic and anaerobic bioremediation of deep oil contamination of industrial lands. Along with the rehabilitation program, the *Gazprom Neft Group* made an inventory of sludge pits, disturbed and oil contaminated lands for the sectors of exploration and production, as well as remediated a number of sludge pits (OAO Gazpromneft-Noyabrskneftegaz).

Within the environmental monitoring and industrial control the soils of facilities under construction and reconstruction are subject to a regular examination to ensure the conformity with the following types of indicators: pedologic, geobotanical, agrochemical and others.

Accidents and incidents

Every year *Gazprom Group* undertakes preventive measures to minimize accident risks:
— technical diagnostics of production field pipelines, injection of corrosion inhibitor;
— timely preventive repair operations;
— development and implementation of flooding control practices;
— regular monitoring of liquidated and conserved wells;
— regular air-based gas leak detection along pipelines and branches using laser detectors;
— purchase of necessary equipment for liquidating hydrocarbon spills.

All the listed measures enable to enhance the reliability of production operations and reduce probability of accidents in the *Gazprom Group* facilities. In 2012 19 accidents were registered, 17 of which were associated with a negative environmental impactc. The territory environmentally affected by accidental spills reduced by 34.5 %.

In OAO Gazprom 17 accidents were registered (in gas transmission facilities), and 15 of them affected on the environment. These accidents resulted in the natural gas loss of 24.4 million m^3. The resultant environmental payment amounted for 32,982.41 thousand rubles.

In 2012 OAO Gazprom neft registered only 1/4 the number of accidents causing an environmental damage in 2011 (in 2011 — 8 , in 2012 — 2). The resultant loss of oil and petroleum products made 0.35 tons. The territory environmentally affected by the accidents made 11.3 hectares of land, and 0.24 thousand m^2 of water surface. The resultant environmental payment amounted for 9,994.09 thousand rubles.

Protection of biodiversity

Under the corporate Environmental Policy of OAO Gazprom makes a great contribution into international, national and local programs of flora and fauna protection in the regions of operations. Following the principle of precaution OAO Gazprom makes a great effort in reducing the anthropogenic impact on natural objects, especially on affecting rare and endangered species, as well as unique natural territories and complexes.

In 2012 **OOO Gazprom dobycha Astrakhan** provided the Astrakhan regional division of the All-Russian nature protection society with a financial aid of 100 thousand rubles and the FSRE "Astrakhan state natural biosphere reserve" with the aid of 500 thousand rubles. The sponsorship for the Astrakhan regional division of the All-Russian nature protection society enabled to take actions on saving juvenile fish from water basins disconnected from spring water bodies in the area of Nariman, Volodar, Krasnoyarsk and Privolzhsk of the Astrakhan region (action group "Blue patrol").

Under the **OOO Gazprom dobycha shelf** contract on liquidating damage to water bioresources and the inhabitation resultant from construction project of "Submarine production complex" the company took actions on an artificial reproduction of marine bioresources of 25.245 million species in the fishery water bodies. As a part of Kirinskoe GCF Development the construction project of "Coast technological complex" included the reproduction of at least 27.289 million species of dog-salmon.

In May 2012 **OOO Gazprom pererabotka** signed the Environmental Declaration on protection of the biodiversity in the Republic of Komi. The declaration has been followed by the UNDP/GEF project "Strengthening resilience of special protected areas in the Republic of Komi for the original forest biodiversity protection in the regions of upper Pechora" and considered as complex tool of developing the environmental and social responsibility of authorities, business and society, including the attitude to nature protected areas, as well as the tool of incentivizing the environmental management systems development and spurring the further cooperation.

Following the investment contract № 45/2006 as of 01.03.2006 **OOO Gazprom sotsinvest**, acts as a Customer of construction of a number of facilities provided by the Olympic Program of Construction and development of Sochi mountain resort, which was approved by the Decree of the Russian Government as of December 29, 2007 № 991, executed by OAO Gazprom.

Following the Program in 2012 preparing the data of environmental impact assessment OOO Gazprom sotsinvest held eleven public hearings; set up public services for presenting the assessment results, all aspects of the construction work and for gathering comments from community and interested specialists.

The positive conclusions were received as a result of the state expertise upon each stage of the construction of "Mountain resort center of open joint stock company Gazprom", including wire cableway and ski slopes, objects of transport and engineer infrastructure (project design, study and construction). The Department of Rosprirodnadzor in SFD made a positive conclusion upon the objects being constructed in nature protected areas such as: "Semiclosed shooting range", "Passenger funicular "Psekhako II-A1", "Passanger funicular "Psekhako II-M", "Reconstruction of lifting wire cableway "Psekhako-C" with the ski way".

In order to ensure the environmental security in the construction and operation area the production and environmental monitoring is set up in each subcontracted organization. The monitoring objects are factors of environmental impacts associated with construction and operation of production facilities (emissions, discharges, waste and physical impacts), different components of the environment (air, surface water and bed deposits, geological environment, soil and flora, fauna, hydrobiological conditions). The monitoring enables to track and control the anthropogenic impact rate, timely plan and implement necessary environmental protection measures.

In order to prevent and minimize the negative impact on air resultant from construction all the equipment is exposed to an environmental control to validate the emissions of CO и CH; subcontractors are recommended decreasing the number of simultaneously operated equipment pieces on sites; loading-unloading operations are fulfilled with engines down.

In order to secure water environment the highly contaminated storm waste water from construction sites is gathered in temporal storm canalization with a discharge to temporal treatment

units. Also reinforced concrete drainages are installed on site for storm and melting water, which is further transferred to treatment facilities. The arrangement of stocks, construction sites, temporal camping and parking zones is prohibited within the protected water zones and coastlines, as well as unconditioned areas. The car washes implement water recycle technologies.

The construction of the object "Automobile driveways" in the mainstream and flood lands of the rivers Mzymta and Laura a great attention is paid to maintaining the water quality within the 500-meter range below the construction work: the ground dump unloading in the areas of fish reproduction prohibited; no construction is allowed in mainstreams during fish migration and breeding; the dump frontiers have been determined considering the ground storing and diffusion or bleeding into the river through perimeter of the storing area.

In accordance with "Plan of actions on restoration of hydrological cycle, ecosystems and landscapes of the Mzymta river lands, including modeling and monitoring of mainstream change risks through June 2011 to December 2013", in в 2012 the company carried out technical and biological remediation of the Laura coastline on the territory of 5.0 hectares, maintaining the mainstream rate.

The construction is associated with waste, which is accumulated (up to 6 months) and temporally placed on special sites in containers and further transferred to specialized entities for landfilling and disposal.

In order to minimize the damage to flora and fauna all the construction works are conducted in compliance with the rules of construction earthwork in mountains, which eliminate soil ablation and progression of corrosion processes. The replantation is based on using the genuine species. All efforts are made to keep the original plants along the migration routes. On some of the site the construction operations consider biomorphological specifications of the local fauna. The company has imposed significant restrictions during the battening and reproduction, as well as restrictions on visiting woods and fields beyond the construction area. The conformity with the rules of sanitary and fire security is under special control. In addition dislocation of construction units in places not provided by the project design is prohibited; the construction sites are equipped with containers for gathering waste oil and lubricants; no car wash, parking and repair is allowed on the sites.

The bulk of construction objects are located in federal special protected areas within the Sochi national park. This area is to the great value, which is why a lot of attention is paid to the conformity with the construction norms and rules to ensure the avoidance of soil erosion; restriction of the scope of construction work from June to September in adjacent areas of the Caucasian State Nature Biosphere Reserve, in order to avoid disturbance of the hoofed mammals and brown bears during migration. The constant identification of vegetation in the construction area and replacing of the Russian Red Book species is carried out. No hunting or timber cutting is allowed within the construction area and the territory of the Sochi national park. The annual monitoring of natural objects state is arranged on the territory of the Sochi national park.

In order to develop a plan of actions to mitigate the negative anthropogenic impact that meets the federal law "On Environmental Protection", the federal establishment "Sochi National Park" under the contract with OOO Gazprom sotsinvest as of 20.01.2010 №04/11/DPd/10 carries out environmental monitoring of special protected areas located within the Sochi national park and leased out to OAO Gazprom for construction and further operation of Olympic facilities. The contract spreads over the period of construction and operation of the facilities.

In accordance with the Projects of forest development, validated by the state expertise and approved the Ministry of Natural Resources, the compensation measures on the reforestation were undertaken.

In order to prevent negative and hazardous geological processes and destructions resultant from possible seismic effects the construction work involves seismic resistant materials and designs. The company conducts forest improvement and soil recovery measures at the end of construction stages, engineer reinforcement of possible landslides and mudflow; draining of ground water; mechanical support of landslide masses; hill enforcement with vegetation.

The unique project of the Gazprom complex in Krasnaya Polyana combines ski and biathlon, which allowed to significantly shrink the construction area and reduce the negative environmental impact — the two stadiums share the same perimeter and catering infrastructure.

The construction of Olympic objects have met the requirements of the Russian environmental legislation, the work has been controlled by the local authorities, community, international organizations — International Olympic Committee, the UNEP Mission and others.

The Olympic Cottage Settlement as a part of the general Olympic construction for sportsmen competing in ski races and biathlon is certified under the international Green Standard BREEAM Bespoke International, which considers both environmental and energy saving efficiency.

OOO Gazprom sotsinvest is an active participant of the Working Program implemented under the framework "Declaration of duties of restoration of the Mzymta basin ecosystem". The Program of Olympic facilities construction and Sochi development as a mountain resort was designed in cooperation with local authorities and major executors as well as environmental protection organizations.

Represented by OOO Gazprom sotsinvest OAO Gazprom not only takes environmental protection actions within the environmental targets and duties, which all the Olympic construction investors are obliged with, but also beyond them developing special environmental protection measures in cooperation with experts of the State Caucasian Biosphere Reserve and Sochi National Park.

In 2012 state authorities in charge of control and environmental protection (Rosprirodnadzor, state attorney office and others) made 56 unscheduled audits of the OAO Gazprom objects. As a result one contravention was identified in case of planting alien species in the Sochi National Park. The defect was corrected and the environmental control over the general contractor's compensation measures was tightened. The fine amounted to 30.0 thousand rubles.

The public relation directorate keeps the community and mass media aware about the environmental actions taken over the course of the Olympic construction in Sochi, providing photo and video materials.

In 2012 a special public hearing was held involving representatives of mass media and the Sochi National Park. The invited federal and regional mass media representatives were provided with general information about the construction operations and environmental actions taken by OAO Gazprom in Sochi and handouts about the Sochi National Park.

As a result of the public relations work on informing the community and the mass media about the environmental measures of OOO Gazprom sotsinvest in 2012 22 broadcasts materials were published in federal, regional and Sochi mass media. In 2012 specialists of the environmental protection group participated in 18 seminar meetings dedicated to conformity with the environmental legislation during construction of the Olympic facilities.

Among the compensation measures undertaken by OOO Gazprom sotsinvest organizes regular events of planting rare trees. For example in 2012 in Krasnaya Polyana OAO Gazprom held the traditional event "Ecology and sport" — in Kepshinskoe forest division in the special protected area 60 rare species were planted, which included eastern codling and European chestnut — the only kind of chestnut, which naturally grows in Russia. These plantings were called "Gazprom garden". In total in 2012 5 thousand rare plants were replanted from the OAO Gazprom construction sites, and 11 thousand plants have been replanted since 2009, which was 10 % more than original plans. In addition over 1000 amphibians were safely moved from the construction sites.

Energy saving

Long before the tasks of ensuring the energy saving and energy efficiency received the state priority since 1991 Gazprom implemented three energy saving programs, which made significant environmental effect.

OAO Gazprom continues to pursue the policy of energy saving and enhancement of energy efficiency of production process. A great attention is paid to the energy saving management system, which should meet the ISO 50001: 2011 — international standard of energy management. This means all managerial decisions are based on the principle of permanent improvement of production control over the production energy efficiency, and incentivizing single employees and subsidiaries to improve energy saving.

Compared to the previous year in 2012 the company kept the trend of decreasing or stabilizing per-unit values of energy consumption in production processes:

— in the sector of gas, condensate and oil production the gas consumption remained at the same rate of 12.5 m^3/thousand m^3 of production;
— in gas transmission the FER per-unit consumption (gas, power) reduced by 8.7 % and amounted to 31.17 kg c.e./million m^3•km, which was below the target value of 36.44 kg c.e./million m^3•km, established by the Federal Tariff Service (March 31, 2011 № 88-e);

— in processing and refining of natural gas, condensate and oil the FER per-unit consumption (gas, power, heat) reduced by 4.9 % and made as much as 80.2 kg c.e./thousand m^3;
— in underground gas storage the gas consumption per unit of gas inflow and outflow remained at the same rate of 5.8 m^3/thousand m^3.

The energy efficiency improvement of technological processes in subsidiary organizations was caused by the ongoing work on deployment of energy saving measures under the OAO Gazprom corporate programs.

Main results of the OAO Gazprom program of energy saving and energy efficiency improve in 2012

Type of activity	Natural gas saving. million m^3	Power saving. million KW·h	Heat. thousand Gcal	Total saving. million rubles
Production of gas. condensate and oil	182.7	4.9	45.6	363.7
Gas transmission	1,597.8	198.6	63.1	4,538.6
Processing of gas. condensate and oil	7.9	21.0	131.6	200.9
Underground gas storage	10.9	6.4	—	51.9
Gas distribution	7.7	24.5	1.5	124.9
Total	**1,807.0**	**255.4**	**241.8**	**5,280.0**

The biggest contribution in FER saving (87.0 %) was achieved in gas transmission sector, implementing a huge variety of measures.

Main measures of FER saving in the gas transmission sector in 2012

Gas saving measures	Amount saved, million m^3	Gas saving measures	Amount saved, million kWh
Reduction of gas venting during repair operations on linear sections of pipelines and in compressor workshops	646,6	Optimization of the power equipment operation regimes	77,9
GCU technical improvement by means of repair	295,6	Power equipment technical improvement by means of repair	43,5
Optimization of the GTS operation regimes	251,5	Organization and engineering measures	38,2
Reconstruction and modernization of CS facilities	247,4	Introduction of variable frequency drive and engine soft startup	20,8
Reduction of gas losses at the GTS facilities	76,3	Introduction of smart lighting, heating and ventilation system	5,9
Reduction of gas consumption on the needs of compressor stations and workshops	39,3		

In 2012 OAO Gazprom marked the following significant achievements in energy saving and energy efficiency improve.
— Reduction of fuel energy resources consumption on process needs by 8.7 %;
— Reduction of natural gas process losses by 12.4 %;
— Increase of the natural gas saving by means of pipeline pumdown technology; technologies of gas process use during compressor workshops repair etc.

Application and introduction of new energy saving and energy efficient technologies such as mobile compressor stations for the pipeline pumpdown during repair operations, recovery of compressor exhaust gas heat, introduction of turbo expanders at gas distribution stations, use of renewable energy power generators (wind turbines and solar panels), use of fuel cell power generators etc.

The working meeting of the Coordination Committee for environmental protection and energy efficiency made a summary of the results achieved by the "OAO Gazprom program of energy saving and energy efficiency improve in 2011—2013" in 2011. As a result the Committee approved

a regular monitoring methane leaks from compressor stations and pipelines, further studies of energy efficiency improve based on innovative technologies.

The company continued promoting energy saving and financial encouragement of employees in subsidiaries operating in production, transmission, underground storage, processing and refining of gas and liquid hydrocarbons, as stipulated by the Provisions of monetary stimulation of gas and energy resources saving in OAO Gazprom subsidiaries, endorsed by the order of OAO Gazprom as of May 13 2011 №83.

In 2012 OAO Gazprom developed and introduced the corporate standard R Gazprom 2-1.20-673-2012 "OAO Gazprom system of energy saving management".

Implementing the "OAO Gazprom program of energy saving and energy efficiency improve in 2011—2013" in 2012 OAO Gazprom subsidiaries saved 2.2 million t.c.e of energy resources, including 1,807 million cubic meters of natural gas, 255.4 million kWh of power, 241.8 thousand Gcal of heat. The total FER saving made as much as 5,280 million rubles.

PREVENTING NEGATIVE IMPACT ON THE ENVIRONMENT

Ecological projects assessment

According to the requirements of the Russian and international legislation the *Gazprom Group* companies conduct Environmental Impact Assessment (EIA) of the foreseen business operations at all the stages of the design process from the investment idea to the construction project. The environmental assessment of the projects includes several phases considering the EIA and the environmental auditing as the most important ones.

The EIA procedure is performed by the *Gazprom Group* companies based on the engineering and environmental research in the areas of the intended construction. This research studies and analyses the environmental conditions of the components (i.e. the atmospheric air, surface and ground water, the vegetative ground cover, wild animals, and subsurface resources) and the levels of the existing environmental footprint. The results of this research contain an assessment of the anticipated impact of the intended business operations, possible changes in the environment and the related effect on the society. The obtained data is then considered when providing design solutions based on the selection of the most ecologically and economically feasible options out of the existing alternatives. When developing a project design affecting the interests of other countries the EIA is conducted in a transboundary context according to the Espoo Convention.

In 1994 OAO Gazprom proactively started to carry out corporate review before submitting the documents to the State expert review making it possible to improve the quality of the OAO Gazprom project deliverables.

The corporate appraisal 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 Directorate of Energy-saving and Environment of the Gas transportation, underground storage, and utilization Department is the responsible functional area for starting-up and conducting the environmental expertise. 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.

In the reporting year Directorate received statements of work and design process scope for 195 facilities on reconstruction, modernization, and construction as well as preliminary and project design documentation for 242 facilities on reconstruction, modernization, and construction.

Design process scope statements, preliminary and detailed project design documentation were reviewed and approved for some of the fundamentally important manufacturing and Olympic facilities, namely:

- "Yakutia–Khabarovsk–Vladivostok gas-main pipeline";
- "Pre-investment feasibility study on the construction of LNG plant near the city of Vladivostok";
- "Pre-investment feasibility study on the construction of oil-refinery near the city of Murmansk";
- "Reconstruction of the Urengoy-Novopskov pipeline" on the section Petrovsk-Pisarevka by the start of the gas supplies through the South Stream Stage 1";
- "Pre-investment feasibility study on the Kamennomysskoe gas field facility construction";
- "Pre-investment feasibility study on field facility construction and transportation of the hydrocarbons of the Sobinsk oil-gas condensate field as well as the creation of the gas processing and gas chemical set of facilities";
- "Re-equipment of the Moscow underground gas storage";
- "Pre-investment feasibility study on the Chayanda gas field facility construction, gas transportation and processing";
- "Gas supply to the Kamchatka oblast. First stage — gas supply to the city of Petropavlovsk-Kamchatsky. Kshuksk and Nizhny-Kvakchinsk gas condensate field facility construction";
- "Construction of the Shatrovsk UGS. Main technical solutions";

— "Kasimovsk UGS enlargement beyond 9 billion m^3 of active storage capacity and an increase of the daily deliverability up to 130 million m^3";
— "Punginsky UGS enlargement";
— "The construction of the LNG production facilities at gas distribution stations, storage and regasification systems for non-pipe gas infrastructure development of the Kurgan oblast settlement";
— "Oil fringe facility construction of the Zapolarny oil-gas condensate field";
— "Mountain Tourist Centre of the Open Joint Stock Company Gazprom with cableways and ski slopes as well as the engineering and transport facilities design, survey, and construction. Third stage of construction. "Water supply and discharge networks of the OAO Gazprom Mountain Tourist Centre";
— "Oil fringe facility construction of the Botuobinsk deposit of the Chayanda oil-gas condensate field with a testing output stage";
— "LNG production plant at the Shtokman gas condensate field"; and others.

Production environmental monitoring and control

According to the Russian legislation requirements as well as its own regulations the *Gazprom Group* has set up and conducted regular production environmental control (PEC) and industrial environmental monitoring (IEM).

IEC is set up at the level of each *Gazprom group* subsidiary company.

OAO Gazprom has established a specialized body, **OAO Gazprom Environmental Inspection** that successfully operates as part of OOO Gazprom gaznadzor. The Environmental Inspection is not only in charge of ensuring compliance of the subsidiaries and the suppliers with the environmental protection legislation requirements, corporate regulations and the environment protection rules but is also conducting EMS internal audit in the subsidiaries and provides guidelines for the OAO Gazprom subsidiaries.

In 2012 the OAO Gazprom Environmental Inspection performed 722 audits in 54 OAO Gazprom subsidiary companies and organizations and subcontractors. The 288 targeted inspections checked on the activity of customers and general subcontractors that carry out works on the most important construction, reconstruction, and overhaul repair sites of the Unified Gas Supply System (UGSS). Together with further recommendations on improving the environmental protection activity the inspection results are reported directly to the executives of inspected companies.

In order to ensure environmental safety during the construction and the operation of the manufacturing facilities, the companies of the *Gazprom Group* impose strict requirements on environmental protection for their subcontractors. The service and works agreements to be signed include requirements for the contractors and define their responsibility for the compliance with the environmental regulations. The access of the third party personnel to the facilities under construction and installation, adjustment, repair works, and others is provided in case of the full compliance with the working regulations describing environmental protection requirements. Completion inspections of the environmental protection actions foreseen at the construction and reconstruction sites are put in place as part of the PEC. As a mandatory requirement the contractor has to be granted a license on working with hazardous wastes for all the services provided.

The *Gazprom* IEM system has high-level technical equipment including stationary and movable laboratories, meteorological and aerologic stations, automatic control stations, monitoring wells. In order to minimize the natural and man-made risks *Gazprom* uses the up-to-the-minute methods for aerospace monitoring of the technical state of the UGSS elements.

Gazprom uses IEM automated systems at the existing facilities as part of the integrated operational and dispatch management systems. In some cases the Gazprom IEM environmental state monitoring systems are integrated with the regional systems for monitoring the environmental conditions.

The *Gazprom Group* IEM system allows controlling the pollutant emissions into the atmospheric air from controlled emission sources; the quality of the atmospheric air on the buffer area edge and in the settlements; noise emissions; surface water and effluents quality; drinking and household

underground water quality; geological environment conditions; snow and ground cover. The rules, procedures, and details for the design and implementation of the different gas facilities IEM systems are defined by the industry regulations.

OOO Gazprom dobycha Orenburg successfully operates a Russia's unique integrated atmospheric air monitoring system that includes automated control stations in 24 settlements and 7 mobile environmental laboratories. According to the automated control data the number of the threshold limit value exceeds amounted only 0.03 %. Over 200,000 sample analyses of the effluents, underground and surface basins, and soil are conducted annually. In order to increase the environmental safety level an additional control level, i.e. the OOO Gazprom dobycha Orenburg centre for gas and environmental safety was created.

All the *Gazprom Energoholding* facilities run permanent control checks on atmospheric air quality on the buffer area edge. There is an environment monitoring system installed on the subsidiaries power generation boilers. It allows to monitor the exhaust gas contaminants concentration on a real-time basis and, if necessary, to promptly perform the prescribed procedures to reduce the emissions. The OAO Mosenergo automated environmental monitoring system is capable to monitor the exhaust gas contaminants concentration on a real-time basis and the data gathered is provided to the GBPU Mosecomonitoring at the Moscow Department of Environmental Management and Protection.

In 2012 the expenses of the *Gazprom Group* on industrial environmental monitoring and control amounted 2 286.90 million rubles.

State environmental control

In 2012, the 256 State inspections on the *Gazprom Group* companies detected 207 infringements of the Russian Federation environmental laws. The amount of fines paid reached 6.03 million roubles, in particular:

— OAO Gazprom as well as the other gas business companies — 1.72 million rubles;
— *Gazprom Neft Group* — 4.01 million rubles;
— *Gazprom Energoholding* — 0.3 million rubles.

ENVIRONMENT PROTECTION SCIENTIFIC AND TECHNICAL SUPPORT

Scientific research and development

The implementation of technical and technological innovations and the solution to present-day environmental problems of the *Gazprom Group* industrial activity is based on the research conducted by the leading Russian scientific bodies inter alia such reputed industry scientific, research, and design institutions as VNIIGAZ, NIIgazeconomika, Podzemgazprom, VNIPIgazdobycha, Promgaz, SevKavNIPIgaz, TumenNIIgiprogaz, Giprogaztsentr, Giprospetsgaz. The *Gazprom Group* companies have a long-standing relationship with the Russian Academy of Sciences, Lomonosov Moscow State University, Tumen State University, Gubkin Russian State University of Oil and Gas and others.

In 2012 **OOO Gazprom VNIIGAZ** completed a scientific research paper entitled "Integrated evaluation of existing and future state-of-the-art technologies that allow environmentally safe development, feed preparation, transmission, storage, and processing of the OAO Gazprom crude hydrocarbons" in order to improve the environmental protection management system with further minimization of the environmental footprint damage in areas of exploitation, reconstruction, and construction of the Company industrial facilities.

Following the results of the scientific research paper entitled "The development of organizational provisions and guidelines for rate-setting, accounting, and control on the greenhouse gas emissions from the OAO Gazprom facilities proposals were developed on creating a register for pollutants and the emission sources into the atmospheric air subject to rate-setting and control as well as a forecast was provided on the greenhouse gas emissions from the OAO Gazprom facilities till 2020.

The scientific research paper developed and revised regulations and guidelines of the OAO Gazprom air protection activity, in particular, the STO Gazprom "Buffer areas design on the OAO Gazprom production facilities" and the STO Gazprom "Pollutant emission control and inventory into the atmosphere at the OAO Gazprom production facilities".

In order to obtain unbiased information on the current state of the Yamal peninsula ecosystem as well as the adjacent Kara Sea waters required to develop regulations and guidelines that would minimize the footprint effect of the hydrocarbon extraction and transportation a comprehensive research was conducted on the environmental conditions of the subsea field waters and the Yamal peninsula coastal zone; additionally regulations and guidelines were developed, in particular, the R Gazprom "Principles of the river flow formation on the Yamal peninsula and the methods for calculating its main characteristics considering the regional territories specificity", R Gazprom "Methods for evaluating and preventing dangerous manifestations of the erosion processes at the construction and exploitation of the extraction and transportation facilities on the Yamal peninsula", R Gazprom "Reduction of the noise emissions at the construction and exploitation on the Yamal peninsula".

OOO Gazprom dobycha Astrakhan as part of its research and development work entitled "Development of the method for calculating the emissions of the gaseous sulfur compounds from the unorganized sources when producing, filling, and storing the sulfur on the Gas Processing Plant OOO Gazprom dobycha Astrakhan for using the results when rate-setting the pollutant emissions into the atmosphere, planning actions on reducing the emissions, performing design monitoring (control) of the pollutant emissions into the atmosphere developed the Program on experimental works conducted by the Customer that includes a list of pollutants to be controlled as well as the points of sample collection at the sources, the number of samples collected per point, collection conditions including the required facility exploitation and weather (air temperature, wind speed and direction) conditions.

In order to improve the IEM system developing the bioindication method **OOO Gazprom dobycha Krasnodar** prepared a scientific research paper entitled "The evaluation of the geoecological situation in the OOO Gazprom dobycha Krasnodar operation areas using the bioindication

method". Part of the research included guidelines R Gazprom dobycha Krasnodar "Bioindication of the ecosystems quality" and a practical guide entitled "Ecosystems bioindication guidelines for the specialists of OOO "Gazprom dobycha Krasnodar".

In 2012 in order to create a scientific and methodic basis for the ecologically safe Ob-Taz bay hydrocarbon field development the **OOO Gazprom dobycha Yamburg** prepared a scientific research paper entitled "Evaluation of the current state and the long-term forecast of the environmental and social conditions change due to the Ob-Taz bay hydrocarbon field development". The research paper included: "The geoinformational data bank of the terms of reference for developing the EIA and the "environmental protection measures" when conducting pre-investment feasibility studies and the design documents on the Ob-Taz bay hydrocarbon field development" (based on ArcGIS 10); "The program for organizing and conducting the environmental monitoring at the field territory and the waters of Ob, Kamennomyssk sea, Chugoriakhinsk, Aderpautinsk, Tota-Yakhinsk, Antipautinsk according to the Russian Federation environmental legislation requirements and the STO Gazprom requirements; "The environmental change forecast at the field territory and waters of Ob, Kamennomyssk sea, Chugoriakhinsk, Aderpautinsk, Tota-Yakhinsk, Antipautinsk" in terms of ecologically meaningful impact with scientific research based conclusions"; as well as "The evaluation of the current state and the long-term forecast of the social conditions when developing the Ob-Taz bay hydrocarbon field. Calculation of the estimated ecological effect performed according to the Customer requirements (STO Gazprom RD 1.12-096-2004)".

In order to set up the ecological management and environmental monitoring systems, to evaluate the admissible impact on the ecosystem in the Company impact area, and to prepare the Company statistical report on the greenhouse gas emission volume a scientific research paper was prepared entitled "The backward and forward-looking evaluation of the geoecological situation in the OOO Gazprom dobycha Yamburg operation area based on well-founded criteria". Part of this paper included the "System of environmental conditions evaluation and monitoring due to the pollutant atmosphere emissions during the gas production in the Far North regions". It also reflected an adjustment in the greenhouse gases emissions cadaster of the OOO Gazprom dobycha Yamburg in 2004-2010 as well as lead to a development of the R Gazprom "Guidelines on selecting and applying backward and forward-looking evaluation criteria of the geoecological situation in the crude carbohydrates fields in the Far North regions".

The **OOO Gazprom transgaz Samara** as part of the research and development work entitled "Development of a method for waste recycling of the gas odorant and its storage tanks" conducted a research on the development of ecologically safe detoxification method of odorant residuals and wastes, its storage tanks as well as on the study of the technological principles and the creation of a pilot machine for residuals and wastes detoxification. It also put in practice an environmental safety evaluation of the detoxification method for the odorant residuals and wastes, as well as a prefeasibility study of the investments into the odorant residuals and wastes detoxification facilities.

OOO Gazprom transgaz Ukhta in order to develop a computer monitoring system of the pollutant and greenhouse gas emissions into the atmosphere on main pipeline transmission of the natural gas on the OOO Gazprom transgaz Ukhta segment, conducted research and development works entitled "The development of a computer monitoring system of the pollutant and greenhouse gas emissions into the atmosphere on main pipeline transmission of the natural gas". In 2012 works were conducted on the development of the Programming module for automatic calculations of the pollutant and greenhouse gas emissions in the current work mode of the gas compressor units and the Programming module of the automatic data processing and the report generation on ecological emission indicators of the pollutants and greenhouse gases in the reported periods. The implementation of these developments is scheduled for 2013.

OAO Gazprom neft set up scientific and research works on the development of the bioremediation technology of the deep-earth oil pollutions on industrial-purpose lands based on the activation of aerobic and anaerobic hydrocarbon decomposition processes using special chemical agents. This method allows to increase the quality and at the same time to reduce financial and time expenditures when conducting recovery works. Such technology will allow avoiding frequent contaminated bog soil rotary milling and an efficient combination of aerobic and anaerobic processes for oil simultaneous decomposition will reduce the bioremediation timeframes for the swamp ecosystem affected by the accidental oil spills.

Part of this work in 2012 included the development of the reactors for modeling bioremediation aerobic and anaerobic technology in laboratory conditions as well as the selection of chemical

agents and the conditions for their application. In the future the lab development is planned to take place of the bioremediation aerobic and anaerobic technology of the oil contaminated swamp ecosystems and its test application in the field conditions of the Company operation areas.

The research and development works in 2012 included guidelines development regulating the list of documents on the design, development and exploitation of sludge pits where the drilling sludge can be processed into a soil-forming material. It also defined and described the procedures of the sludge pit exploitation (requirements compliance control measures). These works also provided criteria for defining self-remediation capable sludge pits without the need to process drilling sludge and recultivate soils affected by the sludge pits.

New substantiations were developed for the regulations concerning the allowed residual content of oil and petroleum products in soils designated for aquicultural use (including the water protection areas with the drinking water supply sources, table 2 of the Khanty-Mansi Autonomous Okrug-Yugra Government Decree as of 10.12.2004 N446-P) following the procedure foreseen by the Ministry of natural resources decree as of 12.09.2002 N574 "On the adoption of "Temporary recommendations on the development and enactment of regulations on the admissible residual content of oil and petroleum products in soils after recultivation and other remediation works".

Research and development work was conducted entitled "The development of theoretical basis for rate-setting of the petroleum products content in the water entity bed sediments after the remediation works. The development of scientifically founded maximum admissible levels of oil and petroleum products content in the waters bed sediments". As the result scientifically founded maximum admissible levels of oil and petroleum products content in the waters bed sediments were developed.

In order to reduce the methane emissions into the atmosphere as well as to recover gas loses and drive them into its own fuel system for gas-field operations purposes in 2012 **OAO Severneftegazprom** concluded the first stage of scientific research work entitled "The development of an automated gas loses management system after dry gas seals of the gas compressor unit from the boosting compressor station at Yuzhno-Russkoye field" which then allowed to create operational documentation and to receive positive expert conclusions on industrial safety.

OAO Gazprom gazoraspredelenie as the result of its scientific and research work developed the now under approval "Classifier for the pollutant emissions of the OAO Gazprom gazoraspredelenie, its branches, subsidiaries and affiliated entities" intended to improve the air protection activity management system at the facilities exploited by the Company.

In order to put in practice experimental, toxicological, and microbiological studies of the Pseudomonas microorganism strain pathogenicity **DOAO Spetsgazavtotrans** conducted research and development work entitled "The evaluation of the the Pseudomonas microorganism strain pathogenicity (Pseudomonas aeruginosa XP-25 and Pseudomonas putida 131) in order to protect the health of the population" and the received an expert report entitled "The evaluation of the microbiological strain pathogenicity". The work included the evaluation of the strain virulence, toxicity, and toxigenicity, the definition of the cumulative properties, toxicodynamics on repeated introduction; dissemination capacity; dysbiotic effect, immunotropic exposure including the allergenic potency, local irritation and skin-resorptive effect.

Two expert assessment reports were created and completed on the strain pathogenicity evaluation and the possibility for their State registration as industrial microorganisms and the authorization for its use in the industry. Recommendation developed on the reference impact safe level in the working area air and the atmosphere, wastewater as well as the recommendations on the hygienic safety measures at their acquisition and application. Following the results of the expert review a possibility is proved of the strain industrial use.

Monitoring conducted on the main sources of wastewater creation at the OAO Gazprom neftekhim Salavat production facilities; patent engineering studies completed on the biodegradation of the main wastewater contaminators; industrial sites soil samples taken and analyzed as part of the research and development work entitled "The development of a collection of industrial microorganisms for wastewater clarification".

In order to fine-tune the technology for deactivation and recycling of the stock solution a research and development work was conducted. The result was to fine-tune the technology of obtaining sufficiently clean aqueous distillates and to conduct neutralization works in order to reduce wastewater discharge from the Chemical plant Second Unit to the Kama-1 facilities.

DOAO Spetsgazavtotrans in order to study the possibility to develop technology for the acrylic acid production waste treatment conducted real-time sample analysis, analytical research, consulting sessions on the possibility to perform qualified wastewater recycling. These activities were included in the research and development work entitled "The development of a recycling technology of cupper containing wastewaters from the acrylic acid production".

Following the goal to develop a technology on the pollutant treatment of wastewater from the plasticizer production unit at the 48th section of the "Monomer" plant a research and development work was conducted entitled "The development of a technology on the pollutant treatment of wastewater from the plasticizer production unit at the 48th section of the "Monomer" plant". In 2012 the best practices for treatment of wastewater from the plasticizer production unit at the 48th section were developed. The most acceptable way foresees separated treatment, the coalescer installation, the assembly of the pre-treatment unit of wastes coming from the E-38 tank as well as the installation of an additional reactor for etherizing the organic layer. The pre-treatment unit of wastes coming from the E-38 tank was modelled in the ASPEN HYSYS software environment. Business calculations prepared on the modernization of the waste collection and treatment.

Following the results of a research and development work entitled "The development of a method for improving the quality of the wastewaters discharged by the unit 1-3 of the 34th station using the exiting technologies. Selection of alternative ways for wastewater treatment" proposals were made on the rectification and biological methods of treatment of the wastewater from organic compounds. Calculations were made on the estimated costs of using these methods.

Gazprom Group disposes of an efficient scientific and technical activity management system, possesses substantial experience in creating innovational environmental protection, resource preservation and energy efficient technologies.

The prize of the Government of the Russian Federation in science and engineering technology

The prize of the Government of the Russian Federation is awarded annually in the science and engineering technology field for research and development concluded with a creation and broad industrial use of fundamentally new technologies, engineering solutions, devices, equipment, materials and substances; highly-efficient scientific developments and remarkable achievements in research, development, and practical application of new methods and means in different science and engineering technology areas including the works representing contribution to the solution of ecological and environmental protection problems.

Upon the Government Decree as of February 27, 2013 P254-p "On awarding the prizes of the Government of the Russian Federation in 2012 in the field of science and engineering technology" the Prize of the Government of the Russian Federation in 2012 in the field of science and engineering technology is awarded to the following groups of authors:

— A.G. Ishkov, S.N. Pankratov (OAO Gazprom), G.S. Akopova, S.I. Kozlov, P.B. Popov, L.V. Strekalova (OOO Gazprom VNIIGAZ), V.V. Bystrykh, D.V.Panteleev, I.N. Pryskalov (OOO Gazprom dobycha Orenburg) for the paper entitled **"Theory and practice application of the petro-containing waste neutralization and recycling obtaining oil slime recycled product.**

The proposed method for oil-slime chemical recycling (of almost any petroleum products composition or content) produces no wastes, is environmentally safe and cost-efficient. It consists of transforming the oil-slime into hydrophobic non-toxic granules suitable to be used in road surface asphalt concrete mix.

The developed technology was optimized in terms of its composition and technological procedures. It went through all the research and development stages, pilot and industrial testing, unit sample development, and the commercial use of the product in the road surfaces. All the key elements of the technology and the unit for oil-slime chemical recycled products are protected by Russian patents and are using exclusively domestic materials and equipment. The recycled product has all the necessary environmental and hygienic certificates as well as the required documents and permits for road surface use.

This development is an example of the Russian best available technology that complies with current and forward-looking international requirements and is suitable for broad implementation. With no waste and almost no impact on the environment the costs of using the technology are two times lower than with the thermal oil-slime destruction. The unit with 405 tons-per-year capacity at the Orenburg gas-processing plant is already profitable.

In 2013—2014 it is planned to commission units on three plants as well as to create mobile units for recycling oil-slime pits and storages.

— O.P. Andreev, A.K. Arabsky, S.K. Akhmedsafin, S.A. Kirsanov (OOO Gazprom dobycha Yamburg), V.V. Cherepanov, I.A. Zinchenko (OAO Gazprom), D.N. Kobylkin (Yamal-Nenetsky AO), E.F. Bezmaternykh G.E. Krivitskiy (NIIMORGEOFIZIKA-SERVIS.KOM.), — awarded for a number of new control methods of the gas and condensate fields minimizing the man-made impact on the environment.

The implementation of the new control methods for the gas and condensate field development allows minimizing the environmental impact.

These methods include the use of technologies and equipment that give an opportunity to study the well conditions without gas releasing to the atmosphere. Another method is the implementation of subarctic region harsh conditions-adapted technology for monitoring the field development process. The application allows building fewer observation wells, use fewer all-terrain vehicles, and in the end minimize the impact on the tundra covering.

The new methods also include the way of controlling man-made consequences of gas extraction from the sub-soil based on the geodesic survey analysis and thus requiring no special survey land.

The new control methods are already actively used on the Zapolyarnoe highest-grade Russian field as well as on the biggest deposit of the country, the Yamburgskoe field. The actual economic effect after the implementation exceeded 2.6 billion rubles.

Gazprom Prize in Science and Technology Engineering

The Company holds an annual contest on the OAO Gazprom Prize in science and engineering technology. The OAO Gazprom prizes are awarded for breakthrough developments in natural gas production, transportation, storage, processing, and use followed by the creation or improvement, and most importantly by efficient application, of the new pilot units, devices, equipment or materials. Only OAO Gazprom subsidiaries and companies can nominate for the Prize.

The Prize contest results are considered and approved at the OAO Gazprom Board meeting. The Prize laureate receives a money reward, a commemorative diploma, and a badge of honor. The diploma is also granted to the institution that nominated the awardees. First prize work authors are awarded with special badges and diplomas. Gazprom awards not more than 10 Prizes per year. As a rule most of the nominated scientific and technical works are directly or indirectly related to the environmental effect.

In 2012 *Gazprom* Prizes in science and technology were awarded to several eco-efficient projects. The OAO Gazprom resolution as of September 24, 2012 N43 awards the Gazprom 2012 Prize in science and engineering technology to the group of authors comprising:

— S.A. Khan (team head, OAO Gazprom), A.P. Zoubarev, D.V. Pshenichny, S.V. Shilov (OOO Gazprom PKhG), A.A. Khripunov, V.I. Shamshin (OAO Gazprom), S.V. Vlasov, S.A. Egurtsov (OOO Energo-diagnostika), V.E. Dubenko (OAO SevKavNIPIgaz), V.N. Danilenko (ZAO NPF Gitas) — for the work entitled **"Development and implementation of the industrial safety review system and the diagnostic equipment for the safe operations lifetime extension of the gas-wells with different UGSF purposes"**.

In order to increase the efficiency of the industrial safety review system of the OAO Gazprom UGSF gas-wells the following was created and implemented: a new magnetic pulse set of equipment, bore zone remote sensing technology based on the modified nuclear methods, UGSF vacuum rating control technology using cross-borehole seismic tomography. The new geophysical equipment is unique and is capable of working in gas environment. It allows conducting technical evaluations of the wells through production strings without killing the former ones. The implementation allowed reducing the time-to-diagnostics of the wells technical conditions. It reduced the expenses on shutting down, killing and putting the well into operation. It also reduced accident probability rate.

— V.G. Khloptsov (team head), E.K. Kosnov, P.V. Soleshnikov, S.L. Speshilov, D.M. Chudnovsky (OOO Podzemgazprom), P.G. Tsybulsky (OOO Gazprom VNIIGAZ), V.I. Klishin, N.F. Lobanov (OAO VNIPIPromtekhnologii) awarded for the work entitled **"The development and implementation of a number of technical solutions as well as standards and regulations for OAO Gazprom radiologically dangerous objects disposal, the reduction of risks of radioecological effects on humans and the environment (using the example of the Vega case at the Astrakhan gas condensate field)"**.

A technology developed for land-burring liquid and solid radioactive wastes and hazardous substances in deep geological formations that provide reliable isolation thanks to a combination of natural and man-made barriers. For the first time the works on isolation and disposal were conducted at the radiologically dangerous Vega site disposal and are unique in the world. As the result of these isolation and disposal works the Vega site state now complies with the legislation requirements, regulations and rules in the area of radiological use as well as the protection of mineral resources, radiation, industrial and environmental safety.

— S.A. Vensko (team head), A.Y. Apanin, V.V. Zhimarinsky, V.A. Markov, M.L. Milkin, V.L. Plotnikov, A.A. Smetanin, V.Y. Khatkov (OOO Georesurs), A.V. Kalinkin, A.N. Kozintsev (OAO Gazprom) for the work entitled **"The development, manufacturing and commercialization of a technological set of units for conducting geophysical studies and works in gas, oil, and gas condensate wells with high well head pressure in complex mountain geological conditions"**.
A technological set of units is developed allowing to conduct geophysical studies and works in gas, oil, and gas condensate wells with excessive well head pressure. It has a unified design and is made as a set of parametrical ranges for working pressures from 14 to 105 MPa.
The lubricating units are part of this technological set of units and provide higher ecological and industrial work safety due to a lack of leakages of the well fluids into the atmosphere including when there is an abnormally excessive level of aggressive components in the well fluid.

— V.B. Solomakhin (team head), B.E. Dovbnya, T.A. Povtareva, I.A. Safonov (OOO Gazprom gazobezopasnost), D.G. Belsky (OAO Gazprom), S.T. Durmanov, A.G. Krasukov, G.V. Smirnov (FGUP GNTs RF TRINITI) awarded for the work entitled **"The development and implementation of a mobile laser technological set of units MLTK-20 for mitigating open gas and oil well blowouts"**.
A mobile laser technological set of units was created that allows conducting technological operations on up to 70 m distance wellhead, metal structures and other large-size elements severing, their subsequent dismantling and removal from the emergency wellhead blowing area without any personnel to be directly present in the hazardous environment. This development is unique and is 90 % made of Russia-manufactured components. The implementation of the mobile laser technological set of units MLTK-20 allowed when having gas and oil blowouts at the OAO Gazprom to reduce time of emergency operations, provide high-level safety to the operations personnel, and to reduce the volume of hydrocarbon losses as well as the pollutant emissions into the atmosphere.

– A.I. Titov (team head), I.Y. Alymov, A.I. Ivakov, A.S. Maslov, E.F. Osokin, B.A. Syarg (OOO Gazprom transgaz Tomsk), V.N. Baryshev, V.A. Markelov, A.V. Shagov (OAO Gazprom), N.I. Shalay (ZAO VO Mashexport) awarded for the work entitled **"Integrated reconstruction of electrically-actuated compressor stations using light-manned technologies and modern technical solutions and based on reliability and efficiency principles"**.
Integrated technical solutions developed on the reconstruction of electrically actuated compressor stations that allow increasing the operational reliability, safety, energy, and technological processes management efficiency. The application of electrically driven gas pumping unit (EGPU) using active magnetic suspension and frequency regulation allowed to increase the EGPU performance, improve the operational efficiency of the compressor stations gas dynamic parameters management, extend the technological equipment life as well as its fire and environmental safety levels.

Implementation of the best available technologies for environmental protection

The OAO Gazprom *Gazprom Group* companies' operations' environmental safety and energy efficiency improvement are due greatly to the implementation of innovative technical and technological solutions.

The main activities are aimed at reducing pollutant emissions into the atmosphere (partly due to the reduction of gas for own consumption and process losses), modernizing and optimizing the production facilities operations. The conversion of the *Group* vehicle fleet to the gas fuel continued. It also leads to a smaller negative impact on the atmospheric air from the production facilities.

In order to reduce the discharge of the insufficiently (relatively) treated wastewaters further reconstruction and modernization of WWTPs is being conducted.

OOO Gazprom dobycha Nadym as part of the 2010—2015 multifaceted program on reconstruction of OAO Gazprom facilities in 2012 introduced actions on reducing the methane emissions into the atmosphere. On the Medvezhie oil-gas condensate field different methods were introduced for reducing the number of well-blowing operations: plunger lift, gas-supply to the annular space, concentric lift, gas-collecting system optimization. Annual methane economy when using these methods and reconstructing the gas-collecting system on the Medvezhie field reaches 3.1 million m^3. The technological and technical solutions tested on the Medvezhie field will then be used when planning works on reconstructing wells and gas-collecting systems of the Urengoy and Yamburg natural gas fields currently at the stage of declining production.

As part of the actions on preventing the negative impact on the environment when constructing Bovanenkovo oil-gas condensate field facilities several design solutions are put in practice. These include a whole set of actions on minimizing the impact on the ecosystem during the drilling operations, inter alia, the drilling wastes treatment. For example, when performing the well site construction the pit-free waste treatment was actively used. It included the method of solidification obtaining a construction material "Mineral powder" "PUN" designated for public construction works when developing hydrocarbon field facilities. This technology is based on the method of drilling mud capsulation mixing it on a special unit with the Econaft formulation, which is mainly based on construction lime and a modifier. The absence of a negative impact on the environment from the drilling wastes recycled using this technology is proved by the IEM results.

OOO Gazprom dobycha Orenburg performed a reconstruction of boiling stations installing higher-performance boilers based on the integrated gas-conditioning units. It allows to reduce the per unit emissions of the nitrogen oxide into the atmosphere. The results of the process flow tests of the helium factory heater furnaces showed an increase in their performance together with a reduction of gas fuel consumed.

On the gas treatment plant (GTP) N15 at the gas production department a new primary raw hydrocarbon conditioning design was launched. Additional heating helps improving the quality of the primary conditioning, gas liberation, and oil condensate-from-water separation. The modernization allowed to significantly increase the quality of the raw hydrocarbon conditioning, i.e. to avoid, when transporting the oil, the creation in the condensate duct of the so called "gas-caps", as well as to avoid resistance and water accumulation in the low parts. Following the new design the oil and the condensate are transported together. This technology is very promising when using it in the production of liquid hydrocarbons.

In 2012 on the fourth condensate pipeline Orenburg — Salavat — Ufa infrasound pipeline monitoring system pilot tests concluded. The system allows real-time monitoring of all the technological parameters of the transported product on each of the pipeline segments. The main goal when implementing such system is to increase the technological and the ecological safety when operating the pipeline transportation. Such system was used at the OAO Gazprom for the first time. In order to study the experience obtained by the OOO Gazprom dobycha Orenburg experts from the OAO Gazprom and the subsidiaries were invited to participate in the multifaceted tests of this system.

OOO Gazprom dobycha Urengoy. The systematic and large-scale work on implementing cutting-edge technologies allows the Company to rationally use the material and technical as well as energy resources and to substantially reduce the negative impact on the environment.

The latest years innovational developments implementations at the OOO Gazprom dobycha Urengoi that had a significant environmental impact include the construction and commissioning of two compressor stations (CSs) for recycling the associated petroleum gas (APG). This allowed to substantially change the ways the APG is used as well as to reduce the volume of gas to be flared.

The technological solutions implemented at the first and second CSs (overall capacity reaching 48 MW) allow producing, compressing, preparing for transportation, and using up to 1.5 billion m^3 per year of the low-pressure APG.

This way of recycling the APG for the first time in the country required the design and construction of such compressing equipment, as:

— the turbo compressor units for compressing the gas in 3 stages from 0.3 MPa to 8 MPa, the supply of the APG to the gas-lift oil field system and the main gas pipeline;
— separation equipment for the APG conditioning before each compression stage;
— low-temperature separation unit with a 3 million m^3 per day capacity for conditioning the gas;
— this complex technological equipment is managed by a Russian automatized system — a multiprocessor integrated management system MSKU-5000.

The implementation of the set of technical solutions allowed to achieve several effects, for instance, to provide stability to the oil field gas-lift systems; to increase the active agent pressure required for well development; to supply to a multi profiled complex part of the APG (above 200 million m^3 per year) previously used for gas lift system operations at the Valazhnsk field in the amount of up to 600 million m^3 per year. It was possible to avoid the need to conduct costly actions on changing the layout of the underground well equipment; to reduce the downtime and time to reach the operating mode. Besides, it allowed avoiding flaring the low-pressure gas on flare facilities; to increase the recycling level of the APG from 78 to 95—98 %, which led to a reduction of the pollutants into the atmosphere by 115 tons per year, and thus decreased the payment for negative impact on the environment. According to the calculations starting 2012 the economic risk prevention will reach around 0.5 billion rubles each year.

In order to reduce the wastewater discharge into the surface waters at the Urengoi oil-gas condensate field these waters are disposed under the gas deposit in the Cenomanian layer (1300—1400), which is firmly isolated from the upper part of the geological profile containing water-bearing layers. Wastewaters before being pumped there receive a special treatment using innovational treatment facilities mainly by oil-separators and flotation units. This way it is possible to discharge underground 95 % of the overall wastewater volume. 11 GTPs were converted to use temporary joint discharge of industrial and domestic wastewaters. This technological solution on joint discharge of industrial and domestic wastewaters after implemented by the Company provided an ecologically safe way of wastewater disposal with no wastewater pollution to the environment.

OOO Gazprom transgaz Saint-Petersburg in order to optimize the system of industrial and domestic waste treatment as well as to reduce the amount of wastes intended for burial on all the CSs under construction on the North European gas pipeline installed thermal industrial and domestic waste neutralization with 50 and 1000 kg per hour capacity.

In 2012 pilot operations of the ASMO — Ecology automatized system started. The system is designated to automatize the process of negative environmental impact accounting. The automatized system is able to calculate the amount to be paid for the negative impact on the environment, keeping a centralized record of the legal and reference data, and consolidating the environmental information from the Branches in the company central database.

In Staroutkinsk village in 2012 OOO **Gazprom transgaz Yekaterinburg** commissioned the first modular boiling station fueled with LNG. The implementation of this project provided an alternative to building over 100 km of main pipeline. Apart from reducing capital expenditures by two times compared to the traditional gasification and decreasing the number of service personnel the non-pipeline gasification allows to reduce the impact on the environment related to the construction and use of the gas-pipeline. To commemorate the conclusion of such a unique project for Russia the company together with the Sverdlovsk oblast authorities conducted a ceremony of the symbolic flame ignition.

OAO Gazprom kosmicheskie sistemy in 2012 continued to work on implementing its own panchromatic multizone satellite imagery, unmanned aerial photography in optical and thermal imaging. The technology is used for remote monitoring and evaluation of facilities and territories with *Gazprom Group* infrastructure, including: pipeline routes control in order to promptly detect leaks from petroleum products, control on oil-contaminated land restoration, unauthorized

disposals and littering with wood slashes and metal junk detection along the pipeline, forest fire detection. The technology ensures record and registration of the information on the borders and volume of the mineral resources, on non-metallic materials, on affiliate loose components, on the state and dynamics of the open-casts and tailing ponds in order to evaluate and forecast its changes.

OAO Gazprom neft in 2012 obtained positive environmental effect from overhaul, reconstruction, and repair of the fixed assets inter alia the construction of the APG facilities of the Company, exploration and production unit, oil contaminated lands restoration program, restoration of the drilling sludge pits, recycling (neutralization) of the oil slime, pontoon equipment installation on the OAO Gazpromneft-ONPZ tank batteries, conversion of the diesel hydro-treatment units to the water blocks with closed oil separators at the OAO Gazpromneft-ONPZ, the construction of modern mechanical treatment facilities decommissioning the outdated old treatment facilities at the OAO Gazpromneft-MNPZ as well as the installation of the filters at the breathers of the gas tank batteries at OOO Gazpromneft-Tsentr.

KEY GAZPROM PROJECTS AND THE ENVIRONMENTAL PROTECTION

When putting in practice any kind of projects *Gazprom* intends to minimize the impact on the environment of economic and other activity already at the design concept development stage both during the construction and facility operation. A special attention is driven to the key large-scale projects.

Nord Stream. Upon the construction of the gas pipeline the impact on the environment of the Baltic Sea appeared to be below the expected level. The overall conclusion of the ecological monitoring conducted in 2010—2012 is that there is actually no substantial impact from the construction of the Russian segment of the Nord Stream sea pipeline on the different components of the Baltic environment.

The experience gained during the Nord Stream environmental design and construction follow-up will be used during the South Stream project implementation.

The Yamal megaproject. In 2012 the Bovanenkovo field was put into operation. The implementation of the Yamal megaproject on all the stages of its implementation foresaw, in order to fully comply with all the environmental requirements, the use of the utmost cutting-edge technologies including no water wastes discharge into the stream flows, the reduction of pollutants and greenhouse gases emission into the atmosphere as well as the impact on eternally frozen ground and biota. SIS-Yamal specialized informational system is implemented. It contains informational blocks that allow to find the best environmentally suitable solution during facilities construction and operation.

The example of the Bovanenkovo oil-gas condensate field showed the drilling waste neutralization and recovery layout, which allows increasing the quality and the works environmental safety.

Sakhalin-2 project. The technologies applied on the Molikpaq, PA-B, and Lun-A platforms make it impossible to contaminate the Okhotsk Sea waters with drilling waste both during drilling and during the sea platforms operations. In order to protect the pipeline sea segments from being damaged by an ice-cake it was decided to penetrate the pipes 5 m below the seabed on the landfalls.

The booster station on the land pipeline system segment is equipped with an air-gas emissions nitrogen oxide formation suppression system. Sakhalin river and stream crossings are built taking into account the salmon migration during the spawning season. Seismic monitoring is set up in order to minimize the risks of accidents caused by the earthquakes along the pipelines.

Sakhlin-2 LNG project is using an energy efficient Shell company technology for gas liquefaction. The key element of the plant safety system is the flare unit that allows avoiding unignited carbureted hydrogen gas emissions into the atmosphere. The isothermal tank for preliminary LNG storage design allows leading away and using the gas evaporations as a fuel. LNG is transported on liquefied gas tankers with double hull and energy efficient engines.

Permanent geological and ecological monitoring is set up in the influence area of the land pipeline system and the joint coastal technological facilities. Environmental boat monitoring is set up in the sea pipeline, platform, and LNG plant sea facilities influence areas. The program on monitoring and minimizing the effect on gray whales is being implemented. This program is coordinated with the Gray Whale Preservation Consultancy Group.

The experience in providing environmental safety used in the Sakhalin-2 project can be then applied to the implementation of other possibly similar projects in field developments in Russia and abroad.

Gazprom abroad

Republic of Belarus. In 2012 the production of the OAO Beltransgaz went together with organizational and technical activities aimed at complying with the current legislation requirements as well as the regulations on the company activity in the environmental protection.

When the production output went up, works on the efficient use of the natural gas allowed preventing 2.5 thousand tons of methane emission and impeding the emission of methane during the technological operations. Due to a significant increase of the repair works on the line gas-pipes the total methane emission comparing to last year increased by 19 % reaching 12.6 thousand tons.

In separate subdivisions works were conducted on decreasing the amount of pollutants in the wastewater discharge in the surface waters. Disposal fields were placed in operation on the Minsk gas-main pipeline management. Treatment facilities setting-up and adjustment tests conducted of the treatment facilities.

In order to minimize the impact of the mobile emission sources 32 own vehicles and 139 third-party vehicles were converted to use gas fuel.

The X Republican Environmental Forum hosted a contest for the best haulage contractor in terms of the atmospheric air pollution reduction and awarded the third place to Solonimsk gas-main pipeline management, the OAO Beltransgaz branch.

In 2012 the Ministry of natural resources and environmental protection of Republic of Belarus put the OAO Beltransgaz facilities to the first multifaceted assessment on the compliance with the environmental regulations requirements. In case an exceeding of the admissible pollutant discharge level is detected as part of the utility wastewater a fine will applied in the amount of 1,400 thousand Belarus rubles. In order to correct the infringements actions were taken to adjust and tune the treatment equipment.

In 2012 the company executives decided to develop and implement on the OAO Beltransgaz an environmental monitoring system complying with the standards series ISO 14001:2004 and the OAO Gazprom corporate regulations. As part of the plan implementation on putting in operation the environmental monitoring system trainings were conducted for the top managers, heads of business units and separate subdivisions, environmental protection engineers on the ISO 14000 basics and internal audits. The management decided (Minutes as of 03.09.2012 N41) to approve the OAO Beltransgaz environmental policy and prepare projects of standards according to the eco-management system.

Republic of Latvia. In the reported period the **ZAO Kaunas Combined Heat and Power Plant** pollutant emissions into the atmospheric air dropped due to the reduction of the fuel consumption caused by the decrease in energy production by 2 %. The water discharge to the surface waters grew due to the lay-off of the electrical power plant. The thermal power station did not operate and there was no possibility to supply water to the cycle. Comparing to the 2011, expenditures went up on the ecological monitoring due to a larger monitoring of the power plant off-gases.

ZAO Gazprom zarubezhneftegaz being an operator of the OAO Gazprom is performing projects on searching, exploring, and developing oil and gas fields as well as on building oil and gas industry facilities outside of the Russian Federation. These projects include geologic exploration: on the Socialist Republic of Vietnam continental shelf, block 112 (considering the enlargement of the area) and blocks 129—132, in Republic of Uzbekistan in the Shakhpakhtinsk licensed block, in the Republic of Tadzhikistan in the licensed blocks in Sarikamysh and West Shokhambary, in the Republic of Kirgizstan in the licensed areas in Kugart and East Maylisu—VI.

In the Socialist Republic of Vietnam actions were taken on environmental protection and sea-water quality monitoring to detect the presence of petroleum products in the area of the well development. Vietnam fishing industry was compensated while conducting these works. The total expenditures on the environmental protection in 2012 amounted 4.36 million rubles.

In the Republic of Uzbekistan works were conducted on the soil restoration after the well development. The total expenses on the environmental protection in 2012 reached 0.40 million rubles.

In the Republic of Tadzhikistan in 2012 environmental protection actions were taken on removing and recycling drilling wastes. Compensational ecological payments planned for 2013.

COOPERATION IN THE AREA OF ENVIRONMENTAL PROTECTION

Regional environmental projects and programs participation

The *Gazprom Group* companies target to promote the economic development and the social and ecological problems solution of the regions these companies are operating at and have conventions or agreements on cooperation with the Russian Federation subjects' authorities. Conventions or agreements on cooperation foresee a number of actions on creating and developing socially and ecologically safe production infrastructure while extending the activity in the regions. This activity includes an IEM system development, decrease of the existing footprint load, preservation of the natural entities and areas, insurance of the conditions for traditional ecosystem exploitation and indigenous culture of the inhabitant people.

OAO Gazprom and the Yamalo-Nenets Autonomous Okrug (YNAO) Government signed in 2011 the Program on scientific and technical cooperation which foresees joint activity in developing the raw material sources, environmental safety, and social and economic development of the Yamalsky districts. The Program implementation foresees a number of actions for conducting geological and exploration works in promising areas, evaluating the economic feasibility study on processing free and associated gas in the YNAO. It also includes the development of environmental protection actions that provide a high-level protection for the Yamal ecosystem during a multifaceted field development; the creation of a highly-efficient potable water supply system of the Yamalsky and Tazovsky districts, the development of a program for converting the municipalities vehicles into the gas fuel as well as an integrated concept for developing energy supply in the YNAO.

As part of the cooperation with Yamal regional innovation and investment fund in 2012 OOO Gaprom VNIIGAZ experts conducted research for defining qualitative and heath indicators of the YNAO's Yamalsky and Tazovsky districts water supply sources, assessing the technical conditions of the existing water supply engineering facilities as well as assessing the compliance of the actual water supply volume with the real needs. Experts prepared their proposals on choosing the promising water supply sources of the settlements and the field camps of the Yamal peninsula main field developments as well as on providing water quality at the future water supply sources of the Yamalsky and Tazovsky districts of the YNAO according to the regulations requirements.

As part of the cooperation with the Yamal regional innovation and investment fund different studies were conducted, i.e. on-site investigations to define the existing way of treating wastes in the Yamalsky and Tazovsky districts areas, analysis of regulations on treating industrial and consumer wastes in the YNAO as well as of existing project solutions on treating household waste, mid-term forecast for new industrial and consumer wastes based on the industrial dynamics and demographical situation. Proposals are prepared on improving the waste treatment based on the best available technologies.

The **OOO Gazprom dobycha Yamburg** share of Russian gas production reaches 30 %. On all the stages of raw hydrocarbons field development and facilities construction the company uses engineering solutions and technologies with an "environmental effect". For 20 years the company has been working together with the Tazovsky district authorities. A General Agreement on Cooperation, signed up to 2015, gives a special place to joint actions in the field of environmental protection. Annually agreements are signed with the Nadymsky and Purovsky districts reflecting all the aspects of cooperation in the area of environmental protection.

OOO Gazprom dobycha Nadym in 2012 conducted large-scale activities in the area of environmental protection facilities construction and the implementation of the new technologies for protecting the environment during the Yamal peninsula field facilities construction. Investment expenditures for building and reconstructing environmental protection facilities reached 172.497 million rubles.

OOO Gazprom dobycha Urengoy in 2012 cooperated with the YNAO Government on the Program for Yamal peninsula and the adjacent waters integrated field development in terms of

compensational payments for environmental damage caused by the facilities construction and operation, payments for resettling the population from the field development areas.

Together with the higher and secondary education schools of the Novy Urengoy city municipality (Tumen State University, Novourengoy gas industry secondary technical school, Yamal oil and gas university) in 2012 an event was set up to clean the littered area in the Novy Urengoy green spaces. The contest entitled "Nature is a home where we live", set up by the Day of the Ecologist, gathered 100 participants including children from kindergartens, schools as well as the "Children's ecological station" students of the Novy Urengoy city. All contest participants were awarded with diplomas; winners were given memorable prizes and gifts.

OOO Gazprom dobycha Astrakhan together with the OOO Gazprom VNIIGAZ participated at the creation of the "Integral program for the development of the oil and gas producing industry of the Astrakhan region" aimed at ecologically balanced development of the raw hydrocarbon resources. The Company participates in a number of OAO Gazprom investment projects intended to improve the Astrakhan oblast environmental conditions.

The OOO Gazprom dobycha Astrakhan environmental policy is targeted at putting in practice environmental and resource saving programs that improve the environmental conditions in the region of operations. During the meeting with the Astrakhan oblast governor it was stated that a stable work and the company production indicators are linked inter alia with the environmental safety technological solutions and waste disposal. OOO Gazprom dobycha Astrakhan signed contracts on sulfur supply for using it in the construction materials and road covers.

OOO Gazprom dobycha Astrakhan became primary sponsor and in August 2012 actively participated in the fourth expedition entitled "The Delta Operation" — beat back the plastics invasion". More than 200 km of rivers and flows in the Astrakhan oblast were cleaned from plastic wastes.

The Ministry of natural resources, ecology, and property relations of the Orenburg oblast and the **OOO Gazprom dobycha Orenburg** upon the former's initiative in 2011 signed a multilateral Agreement on ensuring environmental safety on territories that are adjacent to the Orenburg gas chemical production facilities. The Agreement is targeted at providing environmental safety in the region as well as improving the operational cooperation in situations related to the negative effect on the environment. According to the Agreement on territories adjacent to the Orenburg gas and oil production facilities the company fully participated at joint activities inter alia on improving the operational cooperation in case of situations related to the negative effect on the environment. In particular, actions were agreed with the Ministry of natural resources, ecology, and property relations of the Orenburg oblast on reducing the emission of hazardous substances (pollutants) into the atmosphere in times of unfavorable weather conditions.

The Company will actively participate in implementing oblast earmarked programs entitled "Improvement of the environmental conditions of the Orenburg oblast in 2011—2015", "Wastes in 2011—2016". The "Program of actions on improving environmental conditions and increasing the radiation safety on the Orenburg gas chemical facilities in 2012" was developed and put into practice.

Upon the Economy leader-2012 annual Orenburg oblast contest OOO Gazprom dobycha Orenburg was pronounced the winner in the category "Environmental responsibility".

OOO Gazprom geologorazvedka prioritizes among others the compliance with the requirements of the federal laws on environmental protection as well as the requirements of the OAO Gazprom environmental policy. The company pays great attention to the environmental safety. All the licensed blocks are under environmental monitoring, geological exploration sites are under industrial environmental control.

In September 2012 OOO Gazprom geologorazvedka and the Administration of the YNAO Yamalsky district municipality signed an Agreement that fore-sees the implementation of a number of environmental protection activities.

In November 2012 in the YNAO Yamalsky municipal district hearings were held on the location of the sludge pits during the development of four exploration wells planned to begin in 2013 as part of the OOO Gazprom geologorazvedka geological and exploration works on the licenced blocks.

Municipal district residents were given full information on the foreseen actions when setting up the sludge pits in order to minimize the environmental risks. In particular, when using land to develop the site, a number of actions is foreseen to preserve natural cryosolic characteristics of

the soil and the vegetation cover as well as to reduce the footprint load. Drilling wastes are planned to be placed in hydro-isolated sludge tanks. Their further technical and biological remediation is foreseen.

Such hearings were conducted in the urban settlement of Nogliki (Sakhalin oblast) on the subject of the construction in 2013 of an exploration well (N5) at the Yuzhno-Kirinsky field in the Okhotsk Sea waters. The community members of the urban settlement were given full information on the foreseen actions during the well development in order to minimize environmental risks on the Okhotsk Sea continental shelf. In particular, the use of low-toxic drill fluids, no wastewater and wastes discharge into the sea environment. Upon the public hearing results a positive conclusion is received. It is stated that the foreseen by the project technical and technological solutions will ensure minimum impact on the ecosystems conditions.

OOO Gazprom dobycha Irkutsk sees its environmental protection activity as an important part of the whole production process and comprises a number of actions on complying with the environmental protection legislation requirements. The company considers its main task in the area of environmental protection as not only to minimize the negative man-made impact on the environment but also to assume all possible measures to preserve the unique Siberian nature, its flora and fauna.

In September 2012 the workers of the Magistralny settlement field development base camp and their families as well as the representatives of the heads of the OOO Gazprom dobycha Irkutsk materials and machinery procurement and completing department carried out an ecological event on collecting household waste from the Kirenga river-bank. As the result 5 tons of garbage were collected and recycled on a landfill. The litter-pick coincided with the professional holiday, the Day of the oil and gas industry workers, the road to the river-bank was cleaned from the wind-fallen trees.

In 2012 **OOO Gazprom transgaz Moscow** (Orlovsky, Yefremovsky, Istyinsky, Voronezhsky, Poutyaninsky, Kursky, Bryansky line production departments of main pipelines) cleaned up the territories, eliminated unauthorised landfills, bedded ornamental tree and shrub nursery plants, redeveloped the natural landmark (Gromovoy kolodets). Voronezhsky local operations and maintenance department for main gas pipelines together with the Center of environmental policy, a Voronezh regional civil society organization in September 2012 conducted a large-scale event entitled "Lets do it!" Branch office workers cleaned-up a part of the city area from the litter.

In 2012 **OOO Gazprom transgaz Stavropol** together with the Ministry of industry, energy, transport, and communication of Stavropol krai participated in implementing a krai target program entitled "The use in Stavropol krai of compressed natural gas as a fuel in 2011—2013". During the Program implementation the following facilities construction design projects were created: NGV-refuelling compressor stations in the cities of Zelenokumsk, Budenovsk, Neftekumsk, etc. as well as re-equipment and technical service station of the compressed gas vehicles.

Besides, in order to fulfill the environmental protection requirements and reduce the impact on the environment OOO Gazprom transgaz Stavropol developed and put in practice: the Program of environmental activities for 2012—2015; Program for reducing the greenhouse gas emissions till 2015; Program for energy saving and energy efficiency improvement for 2013—2015; Program for optimizing the company's waste treatment operations. In 2012 the development of an integrated program for the efficient use of the energy and fuel resources till 2020 started.

The branches of the OOO Gazprom transgaz Stavropol, i.e. the Georgievsky, Mozdoksky, Svetlogradsky, Izobilnensky, Nevinnomyssky linear production unit of main gas pipelines (LPUMP) actively interact with the executive power authorities of the subjects of the Russian Federation and the district administrations in places where the production facilities are located providing reports on the environmental protection, informing on the implementation of the environmental protection activities. They also interact with the city administrations on matters concerning restoration and lawning of the land used, gas pipeline area warning signs installation.

OOO Gazprom transgaz Tomsk annually expands its geographical presence creating conditions for the development of a chain of NGV-refuelling compressor station (NGV RCS). In 2011 in the city of Novokuznetsk 130 vehicles were converted into CNG-methane. At a new service station in the city of Kemerovo 40 vehicles were converted into natural gas fuel, 70 — in the city of Tomsk and Novosibirsk, 11 of them were Kamaz production vehicles. OOO Gazprom transgaz Tomsk for many years has been an example of an active participation of an OAO Gazprom subsidiary in the regional environmental protection activity. For example, the workers of the Primorsky

LPDMP on the first of April, in the International Bird Day were installing birdhouses and bird-tables, in August they organized a litter-pick at the protected spring-well area (Banevurovo village of the Ussuriysk city district of the Primorsky krai). The Sakhalin branch of the Company not only provided financial support but also directly participated in the Maple parkway tree-planting in the city of Yuzhno-Sakhalinsk.

For **OOO Gazprom transgaz Ukhta** the environmental management is one of the corporate priorities. Environmental protection and safety responsibility concerns also the branches and the company business units. All the OOO Gazprom transgaz Ukhta branches participated in the River band environmental promotional event that took place in September 2012 as part of the social activity entitled "Waters to have clean banks and hythes" aimed at protecting rivers and basins from the accumulated litter. Personnel of the branches and the company business units working within the Komi republic boarders gathered and recycled on landfills almost 75 m^3 of litter.

Upon the results of the River band environmental promotional event **OOO Gazprom transgaz Ukhta** was awarded with a Thank-you letter from the Komi Republic Rosprirodnadzor department and the Ministry of natural resources and environmental protection of the Komi republic, and a number of branch offices was granted certificates of merits and thank-you letters from the heads of the local administrations.

OOO Gazprom transgaz Yugorsk conducts environmental protection activity in close contact with the regional and district authorities. The Program of the support of the shared participation of the OOO Gazprom transgaz Yugorsk in social and economic development of the YNAO for 2011—2015 and the Agreement on cooperation of the Government of the KhMAO-Yugra for 2011—2014 foresee the construction of a total of 11 waster disposal sites. In 2012 the Company developed design specifications and estimates for Sorum and Piozerny settlement landfills. The districts administration provides the Company with annual information on man-made loads for social and economic territory evaluation.

OOO Gazprom pererabotka. During the last two years OOO Gazprom pererabotka plants managed to reduce the overall emissions of methane by 19 %, decrease the amount of water evacuated or collected by 9 %, the one discharged by 13,3 % as well as to reduce the total nitrogen oxide emission by 31 % and the above admissible level water pollutants discharge by 26 %. The recultivated land area increase by 5 % last year. The total environmental protection activities expenditures amounted over 430 million rubles.

The Company actively participated in annual spring events on collecting and cleaning-up urban and rural areas where the company branch offices and subdivisions are located. Branch offices personnel removed from the municipal area over 50 m^3 of wastes. Sosnogorsky gas treatment plant planted 750 trees, 600 acacia, 100 lilac. A cedar garden was created in the Saygatina settlement, Surgutsky settlement.

OOO Gazprom pererabotka became one of the winners of the All-Russian contest The best Russian companies. Dynamics, efficiency, responsibility 2012 in the segment of Social and environmental responsibility in category For environmentally responsible business.

The VII All-Russian conference "Ecology and production. Future development of the economic mechanisms of the environmental protection" upon the 2012 results acknowledged the Company to a laureate of the "100 best companies in Russia. Environment and environmental management" contest. The Company CEO Y.I. Vazhenin was awarded with the "Ecologist of the year" badge.

The environmental protection and education activity of the OOO Gazprom pererabotka youth association was awarded by a 1st degree Diploma at the company, professional unions, and public organizations working youth young specialists contest of the KhMAO-Yugra.

OAO Gazprom neft has always signed agreements with the subjects of the RF and the municipalities in the regions of its operations. The agreements include mutual responsibilities of the company and the regions; describe cooperation principles in achieving social and environmental goals.

The General Agreement on cooperation with the Yamalo-Nenets Autonomous Okrug in 2011—2013 foresees joint activities on complying with the environmental legislation requirements and respecting interests of the indigenous ethnic minorities of the North when conducing geological studies and developing sub-soil resources. Following this Agreement cooperation agreements are

signed with the YNAO Krasnoselkupsky and Nadymsky districts authorities. OAO Gazprom neft along the year 2012 participated in the Yamalo-Nenets Autonomous Okrug administration activities on alerting and responding to emergencies, creating material resources reserves for responding to emergencies, management and operations personnel training on emergency situation actions, management tools, manpower and resources possible emergency ability test.

The Agreement with the Government of the Khanty-Mansi Autonomous Okrug-Yugra is aimed at stimulating investments on the autonomous okrug territory and creating conditions for further geological studies of the subsoil resources. Parties agreed on joint environmental program implementation as well as the putting in practice projects on the region's scientific and technical potential development.

Following the existing regional and federal legislation the OAO Gazprom neft production facilities in 2012 developed programs of environmental protection and restoration activities approved by the representative executive power bodies in the regions of operations. As part of these programs in 2012 a field environmental monitoring was conducted; inventory count made of the pollutant and greenhouse gas emissions (methane and carbon dioxide) into the atmospheric air.

Sakhalin Energy. When completing the Sakhalin-2 project together with the Government of the Sakhalin oblast and the Regional Council of the Authorized Representatives of Indigenous Minorities of the North in the Sakhalin oblast the company puts in practice the "Plan for promoting the development of the indigenous minorities of the North in the Sakhalin oblast". The five-year plan for 2011—2015 is the second stage of the implementation of strategy for improving the life quality of the indigenous minorities of the North in the Sakhalin oblast. The plan was prepared according to the principles of free prior and informed consent (FPIC) stated by the Declaration of the UN on indigenous peoples' rights (2007) and is now an example of a successful application of this principal within the company and the society cooperation.

OAO OGK-2 sits on the Intergovernmental committee on cooperation between the Russian Federation and the Republic of Kazakhstan in the subcommittee on cooperation in the fuel and energy industry and the subcommittee on regional and near-border cooperation. The branch office of the OAO OGK-2 Serovskaya SDPP based on the 2011-signed Agreement cooperates with the Government of the Sverdlovsk oblast when implementing mid- and long-term programs of region's strategic development including the reduction of the SDPP negative impact on the environment. Environmental protection activities of the branch office are part of the program entitled "Environment and the natural resources of the Serovsky urban district in 2012—2014". For many years Stavropol SDPP has sat on the Ecological council under the Ministry of natural resources and environment protection of the Stavropol krai.

International cooperation

In 2012 the Company actively collaborated with international organizations, interstate cooperation bodies, leading international companies and scientific centers in the area of energy efficiency and environmental protection.

In the course of the International Gas Union (IGU) activity OAO Gazprom participated in the work of the 25th International Gas Congress (IGC) in Kuala Lumpur (Malaysia). For the IGC OAO Gazprom participated in industry-guide development entitled "The reduction of greenhouse gas emissions" on best practices for the whole gas industry supply chain.

Besides that, during the 25th IGS OAO Gazprom and its subsidiaries representatives spoke on the following environmental topics:

- Greenhouse gas emissions on the OAO Gazprom facilities: registering, controlling, best available emission reduction technologies ("Sustainable development" Program committee A meeting);
- Ways of reducing fugitive emissions on gas distribution networks ("Gas distribution" Working committee 4 meeting);
- Future of the biogas production and use in the Russian Federation ("Sustainable development" Program committee A meeting).

At the RIO+12 sustainable development UN conference (Rio de Janeiro) the UN Secretary General's High Level Panel on Global Sustainability prepared a report entitled "Resilient People,

Resilient Planet: A Future Worth Choosing" that includes OAO Gazprom materials on the Nord Stream gas pipeline contribution to the environmental protection in Europe.

In the course of the 2012 the Committee of the European business congress "Industry and construction" presided by the OAO Gazprom Board Member, Head of the Gas Transportation, Underground Storage and Utilization Department O.Y. Aksyutin examined the energy efficiency and innovative technologies of gas production, transport, and distributions as well as the matters concerning energy supply using local and non-conventional energy sources.

In order to promote the natural gas as en environmentally safe energy source as well as to gather experience and understanding of the future use of the innovative technologies in the area of renewable energy sources (RES) including those combined with the natural gas, OAO Gazprom conducted in 2012 an international conference entitled "Future of the low-carbon and renewable energy sources development". During the three conference panels representatives of federal and regional authorities, Russian and foreign energy companies and scientific communities, OAO Gazprom and its subsidiaries experts discussed the relevancy of an active development, implementation, and improvement of energy generation technologies from the RES as well as the possible areas for cooperation and the current challenges energy companies already face with.

At the conference the examples of a successful use of RES were specially mentioned, for instance, at the Yamburg OAO Gazprom fields and at the Dzuarikau — Tskhinval main pipeline, showing that the use of RES on distant facilities when there is no centralized grid energy supply is economically viable and environmentally suitable.

In 2012 Gazprom paid special attention to the cooperation when putting in practice key international project like Nord Stream, South Stream, and Eastern Gas Program.

Following the existing agreements work continued on scientific and technical cooperation with international oil and gas companies: Gasunie, GDF-Suez E.ON Ruhrgas, and the Agency for Natural Resources and Energy under the Japan Ministry of Economy, Trade and Industry.

In 2012 as part of the three-year scientific and technical cooperation program with BASF/Wintershall parties held negotiations on energy efficiency improvement issues.

In autumn 2012 joint field tests where conducted of the Bioros biological product intended for the environment treatment from hydrocarbon pollutions on one of the Wintershall plants showing high recycling speed for both light and heavy petroleum products with low positive temperatures of the environment air. The protocol made by the parties upon the field tests completion stated a high efficiency of the microbiological products use when treating the environment and suggested to consider the possibility to apply the Bioros product on BASF/Wintershall facilities in Russia.

By the 20th anniversary of scientific and technical cooperation of the OAO Gazprom with E.ON and BASF/Wintershall Russian and German specialists prepared anniversary articles. The article entitled "Greenhouse gas emissions registration, control, and reduction technologies" presented the results of international cooperation between OAO Gazprom and E.ON Ruhrgas with the participation of OOO Gazprom VNIIGAZ experts on issues concerning greenhouse gases following the scientific and technical cooperation program that has been taking place for more than 10 years.

The results of a joint research as well as the informational exchange between OAO Gazprom and E.ON Ruhrgas on key issues in the area of underground gas storage, operational and environmental safety of the storage facilities were presented and analysed in the article entitled "The experience and future of the international cooperation on environmentally safe underground gas storage problem".

The international cooperation experience of the OAO Gazprom and Wintershall Holding GMBH on environmental protection activity for gas underground storage industrial facilities is used when putting in practice technical and environmental activities as well as when conducting environmental auditing for defining the compliance of the environmental management system and the environmental protection with the national legislation requirements. The obtained data were reflected in the article "Results and future of the international cooperation in the area of environmental auditing".

In order to implement the Agreement on strategic cooperation with the Project Delta Group Foundation in 2012 expert meeting were conducted on technologies for well drilling and field development in permafrost soils; underground gas storage; natural gas transportation, energy efficiency and the environmental protection.

Information disclosure

Following the Russian legislation requirements the *Gazprom Group* companies develop and submit to the Russian Federation executive power state bodies reports on operations impact levels on the environment, activities conducted and the scope of funding used. The data is then used when preparing annual State reports on the environment conditions and protection in the Russian Federation as well as when preparing statistical and analytical documents.

Informational openness provisions are stated in OAO Gazprom Code of Corporate Ethics and the Environmental Policy. OAO Gazprom on its official website (www.gazprom.ru) under the section "Environmental protection" publishes detailed information on environmental protection policy, environmental aspects of current and future projects, environmental safety insurance provision, rational environmental management and energy saving.

The annually published OAO Gazprom Annual Report foresees sections on environmental protection and energy saving issues. Since 1995 OAO Gazprom Environmental Report is published annually. Since 2010 the Corporate Report on activity in the area of sustainable development is published. Its "Safety" section provides wide information on the company's strategy and tactics in the area of rational environmental management and protection, and the climate change.

Information on the *Gazprom Group* Environmental activity is provided in the corporate reports, it is systematically covered by federal, regional, and corporate media, and is submitted to the State power bodies and the general public. Annual meetings of the Gazprom top management with central and regional editors-in-chief media prove a movement towards informational openness.

Many of the *Group* companies for several years now have been publishing report on sustainable development activity with serious attention paid to the environmental safety and protection issues.

The society and the media following them are constantly interested in the OAO Gazprom activity on gas infrastructure development in the Russian Federation as part of the Eastern Gas Program as well as on international projects including Nord Stream, Sakhlin-2 and Sakhalin-3, South Stream, and the project for developing the Sochi region.

The completion in 2012 of the GP-2 Bovanenkovo oil-gas condensate field development and commissioning attracted attention to the OOO Gazprom dobycha Nadym. The mandatory component of the OOO Gazprom dobycha Nadym is the prioritized environmental safety. In the course of 2012 corporate media exclusively covered the environmental issues.

OOO Gazprom transgaz Tomsk in 2012 published over 400 media materials on the Company's website and in the regional media. Almost all publications on the OOO Gazprom transgaz Tomsk concern the Company's environmental activity on implementation on reconstruction and technical re-equipment of the gas transport facilities.

In order to show how reliable, safe, and highly technological OAO Gazprom facilities are, press-tours where conducted for the journalists on the Volodino CS (Tomsk Oblast), Dalnee GDS (Sakhalin oblast), Kayancha GDS (Altai krai).

Leading regional media inter alia Krasnoye Znamya (Tomsk), Kusnetsky Rabochiy (Novokuznetsk), Trendy.Sobytiya.Rynki manazine (Yekaterinburg), Delovaya Rossiya (Yekaterinburg) prepared publications. It is worth mentioning that the topics of the gas motor fuel, fuel economy, and environment-friendly characteristics of the compressed gas have been traditional for the media.

In August 2012 CNG Filling Station opening in the city of Gorno-Altaysk became a meaningful news hook and was broadly covered in the regional, corporate, and federal media.

OOO Gazprom dobycha Krasnodar in 2012 was ranked first on environmental impact and protection informational transparency list made by the Environmental and Energy Rating Agency Interfax-ERA.

OOO Gazprom transgaz Yugorsk provides annual information on man-made loads to the districts' administrations for territories social and economic evaluation. The information on environmental aspects of the Company's activity will be then transmitted to the general public through Nord ICTC TV channels, the Gas Transport newspaper.

In 2012 **PAO YUZHNIIGIPROGAZ** took part in public hearings on the materials on environmental impact assessment, which were part of the facilities design documentation. The construction will carried out on the territory of YNAO, KhMAO-Yugra, Komi Republic, Sverdlovsk Oblast and

others. In order to ensure informational openness even before the public hearings the materials developed by the institute on environmental impact assessment were uploaded to the Internet and published in federal, regional, and municipal media. The Company carries out two-way cooperation with representatives of the State power and regional administrations as well as with a number of public organizations in the subjects of the Russian Federation. The main tasks for such cooperation is solve inside the design projects under development some of the issues on preserving natural sites and ecosystems, ensuring conditions for traditional environmental management and conservation of the local communities' original culture (especially the one of the indigenous minorities of the North).

OAO Gazprom neft developed a policy in the area of industrial, work and environmental safety in 2008. It was then published on the Company websites and uploaded to the publicly accessible websites of all the subsidiaries. The OAO Gazprom neft sustainable development reports include information on ensuring environmental safety, environmental protection, environmental protection actions implementations, and indicators dynamics in the environmental protection area. Information is constantly provided on Company subsidiaries and affiliates environmental activity in corporate and regional media.

YNAO, KhMAO-Yugra, and Tumen oblast administrations in 2012 upon the OAO Gazprom neft initiative successfully hosted public hearings on "Recycling drilling sludge into the ground coat to form soil". The hearings were about the new method for decreasing the hazardous characteristics of the drilling sludge generated by the oil and gas well drilling and its future use as a soil-forming mix for cluster pad restoration. Administration representatives and municipality residents participated in the public hearings. The community approved the project. The overall opinion was that it promotes the fragile ecosystem conservation and its implementation will positively and significantly influence on the future development of the region.

OAO Gazprom neft interacts with the World Wildlife Fund, Bellona environmental NGO, the Russian Bird Conservation Union, an all-Russian NGO, on issues concerning the safety of Arctic continental shelf development.

In 2012 the number of positive *Gazprom group* environmental activity related publications in the media and internet grew by 17 % compared to last year and reached 1,180 releases, among those 978 on OAO Gazprom, the number of negative ones decreased by 55 % and amounted 103 releases.

CONCLUSION

Social and environmental responsibility principals are an important part of the *Gazprom Group* business strategy and today are a crucial condition for stable and efficient business development.

The strategic areas of the *Gazprom Group* activity in the environmental protection with the country-wide high environmental impact were and currently are:

— energy and resource efficient use;
— use of the best available technologies to modernize and expand production capacities;
— environmentally friendly motor fuels production, including the gas fuel market development;
— scientific research and activities participation on natural areas restoration, biodiversity preservation, and sea protection;
— prevention of accidents and incidents with environmental impact and full damage compensation to the environment;
— development and implementation of corporate programs, participation in regional and federal programs that provide environmental safety;
— environmental monitoring system improvement.

Currently the *Gazprom Group* share in the negative impact on the Russian Federation environment for atmospheric air emissions amounts around 16 %, for wastewater discharge into surface water — around 10 % (out of these not less than 0.1 % from the oil and gas facilities), for the amount of industrial and house-hold waste — around 0.1 %.

The *Group* companies not only comply with the environmental legislation protection requirements but are currently widely using almost all self-imposed environmental responsibility mechanisms, such as the development of a ISO 14001:2004 compliant vertically integrated environmental management system, adoption of an environmental policy, development and implementation of environmental goals, voluntary information disclosure on current and foreseen impact on the environment, preventive control mechanisms implementation, i.e. the corporate environmental review of materials and environmental inspection, development and implementation of OAO Gazprom corporate targeted environmental programs.

Following the Decree of the President of the Russian Federation as of August 10, 2012 N1157 the year 2013 is declared "The year of the environment in the Russian Federation". To support this initiative *Gazprom* as an environmentally responsible organization declared 2013 to be the year of Ecology in the OAO Gazprom and developed a plan of actions required.

GLOSSARY

APG — associated petroleum gas — mixture of gases and non-hydrocarbon and hydrocarbon vapors coming from oil wells and oil separation.
Biodiversity (biological diversity) — diversity of living organisms in all spheres including onshore, marine and other water ecosystems, which determine their ecological complexes.
Booster compressor station — Gas production site station which provides for the gas compression to prepare it in accordance with the project quantitative and qualitive indicators of the given field and projected pressure of gas main pipeline.
CHP — cogeneration heat and power plant.
CNG — compressed natural gas.
CNG FS — compressed natural gas filling station.
CS — compressor station.
EIA (Environmental impact assessment) — identification, analysis and accounting of direct and indirect effects of environmental impact of projected economic or other activity aimed at supporting the decision about the possibility of implementation.
EMS — environmental management system.
Environment — combination of natural, natural and anthropogenic and anthropogenic objects.
Environmental Approval (Environmental expertise) — establishment of relevant documents and (or) the documentation of the planned in connection with the implementation object of ecological examination economic and other activities, the 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 Audit — independent, comprehensive, documented compliance assessment of economic and other activities requirements, including standards and regulatory documents in the field of environmental protection requirements of international standards and make recommendations to improve such activities.
Environmental control — system of measures of prevention, identification and avoidance of environmental legislation violation, ensuring the conformity of entities and economic facilities with the requirements, including norms and guiding documents in environmental protection.
Environmental damage — negative change in environment caused by pollution which resulted in degradation of natural ecosystems and deficit of natural resources.
Environmental management — part of the corporate management system, which has a well designed structure, aimed at achieving objectives enumerated in the environmental policy.
Environmental monitoring — complex system of observing the environmental state, assessment and projecting of changes in environment under natural and anthropogenic factors.
Environmental protection requirements (also — nature protection requirements) — conditions, restrictions or their combination applicable to economic and other activities, which are set by laws, other legal acts, environmental norms, state standards and other guiding documents on environmental protection.
Environmental risk — probability of an event that may cause negative environmental effect associated with economic or other activities, natural and anthropogenic catastrophic situation.
Energy saving — implementation of legal, organizational, scientific, production, technical and economic measures aimed at efficient (rational) use (spending) of fuel energy resources and involving renewable energy into the process. Energy saving is an important objective in conservation of natural resources.
Environmental security — nature and paramount human values exposure to threats of negative impact initiated by economic and other activities natural and technogenic catastrophic situations.
EP (environmental protection) — activity aimed at preservation and restoration of nature environment, rational use and reproduction of natural resources, prevention of negative impact initiated by economic or other activity and liquidation of its effects (also — nature protection).
FER — fuel energy resources.
HPS — heat and power station.
JI project — joint implementation project
Gazprom Group, the Group, Gazprom — OAO Gazprom refers to the heading company of Gazprom Group, i.e. Open Joint Stock Company Gazprom with its 100 % subsidiary companies and

organizations. This report refers to the list of subsidiaries, based on the environmental reporting principle endorsed by OAO Gazprom.
GCF — gas condensate field.
GCU — gas compressor unit.
GDS — gas distribution station.
GHG — greenhouse gases — are assumed to cause the global warming effect. The greenhouse gases are the following (in the order of Earth warming potential): water steam, carbon dioxide, methane, ozone, sulfurylfuoride, halocarbons and nitrogen oxide.
GTS — gas transport system.
LNG — liquefied natural gas.
LPUMG — linear production unit of main gas pipeline.
MAC — maximum allowable concentration
Natural complex — complex of functionally interconnected natural objects, which have common geographic and other correspondent features.
Natural object — natural ecosystems, landscape and their components, which sustained their properties.
Natural resources — environmental components, natural, natural and anthropogenic objects, which are or can be involved in economic or other activities as energy sources, manufacturing and consumption as well as have consuming value.
Negative environmental impact — economic or other activities, which initiate negative
OEC — operational environmental control
OEM — operational environmental monitoring
OGCF — oil gas condensate field.
Pollutant — pollutant substance — a substance or mixture which initiates negative environmental impact in case it amount and/or concentration exceeds the preset limit values for chemicals, radioactive components and others and microorganisms.
Quality of environment — state of the environment specified with a number of indicators such as physical, chemical, biological and others.
R&D — research and development
SDPS — state district power station.
SPA — special protected area. A part of land, water and air space territory of a great value for nature protection, science, recreation, health and others, which is subject to a special protection regime and fully or partially subtracted from the lands available for business activities as per the decision of governmental authorities. Special protected areas refer to the national endowments.
UGS — underground gas storage.
UGSS of Russia — Unified Gas Supply System of Russia
VOCs — volatile organic compounds
Waste allocation object — a facility specifically designed allocation of waste (landfill, sludge storage, tailing pond, rock dump etc).
Waste management — activity on waste collection, accumulation, utilization, neutralization, transporting and allocating.

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