Passport of Gazprom's Innovative Development Program until 2025

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Introduction

In the modern world, innovative development and the capacity to innovate are among the mainstays of long-term business success for any technologically advanced company.

Gazprom's development as a global energy company and a reliable energy supplier involves constant strategic, technological, economic and other challenges which require searching for, obtaining and applying new knowledge, along with continuously boosting the scale and effectiveness of innovative activities.

Today, Gazprom carries out its activities against the backdrop of deterioration in oil and gas markets, high volatility of the domestic currency exchange rate, and a number of restrictions on purchasing high-tech equipment and services for the implementation of the Company's promising projects. The effect of these factors is especially significant because the Company is for the most part a consumer of innovative products and technologies.

New external conditions, a rapid advance of technologies in all spheres of activities, and the domestic economic environment make it necessary to provide for the efficiency of innovative activities and update Gazprom's Innovative Development Program as the main tool for achieving said goal.

The Innovative Development Program is updated for the purpose of defining and streamlining the main directions and objectives of the Company's activities in the sphere of innovations, as well as for concentrating and optimizing the resources required for the implementation of the Program's main goal.

The Innovative Development Program has been updated with account taken of the following:

- Executive Order of the President of the Russian Federation No. 204 dated May 7, 2018 "On National Goals and Strategic Objectives of the Russian Federation through to 2024";
- the results obtained from the comparison of the level of technology and the current values of Gazprom's key performance indicators with the levels of technology and performance indicators of the leaders among similar companies, which was carried out by Lomonosov Moscow State University;
- the activities within and the target indicators of such national projects (programs) as "Science", "Education", "Digital Economy of the Russian Federation", "Environmental Protection", "International Cooperation and Export", "Small and Medium-Sized Enterprises and Support of Entrepreneurial Initiative", "Labor Productivity Enhancement and Employment Support", as well as the Strategy of scientific and technological development of the Russian Federation until 2035 and the plans of actions (roadmaps) within the National Technology Initiative.

The Innovative Development Program of Gazprom:

- is a long-term planning and management document integrated in the strategic development planning system of the Company;

- covers the gas, oil and power businesses of the Company;[1]
- stipulates a set of interconnected activities aimed at developing and implementing new technologies, innovative products and services that conform to international standards, as well as creating a favorable environment for the development of innovative activities both at Gazprom and in related domains of industrial production in Russia.

Gazprom's Innovative Development Program until 2025 is an effective tool to ensure that the Company achieves its strategic goal of becoming the leader among global energy companies through diversifying its sales markets, providing reliable supplies, enhancing the efficiency of operations, and employing sci-tech potential.

The Innovative Development Program is based on the following main principles:

- continuity with the preceding Innovative Development Programs of Gazprom;
- use of the previous experience in innovative development;
- use of the best (domestic and foreign) innovative development practices;
- rationality and viability (*inter alia*, from an economic point of view) of the Program's activities.

[1] The Program contains detailed information on the gas business only, whereas the information on the oil and power businesses is consolidated and can be found in more detail in the innovative development programs of Gazprom Neft and Gazprom Energoholding.

Section 1. Goals and key performance indicators of innovative development

Goals of Program

The main goal of the Program is to provide for a constant upgrade of technological and organizational development at Gazprom to maintain the Company's status as a global energy company and a reliable energy supplier.

With a view to reaching the main goal of the Program and on the basis of the analysis of and forecast for Gazprom's competitive ability in the sphere of innovations, as well as the results obtained from the comparison of the level of technology and the current values of Gazprom's key performance indicators with the levels of technology and indicators of the leaders among similar companies, along with the target indicators of such national projects (programs) as "Science", "Education", "Digital Economy of the Russian Federation", "International Cooperation and Export", "Small and Medium-Sized Enterprises and Support of Entrepreneurial Initiative", "Labor Productivity Enhancement and Employment Support", as well as the Strategy of scientific and technological development of the Russian Federation until 2035 and the plans of actions (roadmaps) within the National Technology Initiative, the following innovative development goals were defined:

- increased efficiency of the use of resources (energy, natural, labor and financial ones);
- reduced net cost of hydrocarbon production, as well as of products and services;
- economically efficient development of hard-to-recover and hard-to-reach hydrocarbon fields;
- increased labor efficiency;
- reduced negative environmental impacts during production activities;
- enhanced reliability and safety of production equipment;
- enhanced organizational development and implementation of modern managerial practices.

Key performance indicators of Program

The key performance indicators (KPIs) have been determined on the basis of Gazprom's innovative development goals, and are commensurate with and correspond to the areas which have undergone a technology audit. Table 1 contains the list of the Company's KPIs.

Table 1

List of Gazprom's key performance indicators

Code of indicator	Name of indicator
KPI_1	Share of R&D expenses in revenue
KPI_2	Effect from the implementation of innovative technologies in projects
KPI_3	Reduction of specific fuel and energy consumption for internal process needs and losses
KPI_4	Reduction of specific greenhouse gas emissions in CO_2 equivalent
KPI_5	Frequency of production accidents and incidents
KPI_6	Increase in the number of patents used
KPI_7	Labor efficiency

The planned target values of the KPIs have been determined on the basis of the Innovative Development Program's goals with the purpose of allowing the Company to achieve the technological and organizational level corresponding to that of its competitors, as well as the performance benchmarks established by federal regulatory and administrative documents (Table 2).

Table 2

Planned target values of the key performance indicators for the implementation of the Program until 2025

Areas for enhancing the efficiency of production processes	KPI No.	Indicator description	Unit of measurement	Target value					
				2020	2021	2022	2023	2024	2025
Innovative development	KPI_1	Share of R&D expenses in revenue	%	Not less than 0.11%	Not less than 0.11%	Not less than 0.11%	Not less than 0.11%	Not less than 0.11%	Not less than 0.11%
Introduction of innovative technologies	KPI_2	Effect from the implementation of innovative technologies in projects:							
		gas business: reduction of operational costs (in the form of savings) through introducing innovative technologies (vs the savings in the reference year 2018)	%	Increase in savings by 1–3% annually vs the reference year 2018					
		power business: fuel utilization factor	%.	60.34	60.95	61.50	61.50	61.62	61.79
Saving of energy resources during production	KPI_3	Reduction of specific fuel and energy consumption for internal process needs and losses (vs the reference year 2018)*	%	1.7	2.3	2.5	2.7	3.0	3.2
Greening of production process	KPI_4	Reduction of specific greenhouse gas emissions in CO_2 equivalent (vs the reference year 2018)*	%	1.2	1.5	1.9	2.3	2.7	3.1
Enhanced consumer properties of products manufactured; fewer failures and accidents during operation	KPI_5	Reduction of the frequency of production accidents and incidents (in per cent vs the average value of 2011–2014)	%	Reduction by 5% as measured within the period of 2016–2025					
Technology leadership	KPI_6	Increase in the number of patents used	pcs	Not less than 12 per year					
		Number of patents used	pcs	465	477	489	501	513	525
Production activities	KPI_7	Increase in labor efficiency	%	Reduction by 25.8% as measured within the period of 2016–2025					

* Specific indicators calculated for gas business.

Section 2. Innovative development priorities

Technological priorities of innovative development

In order to identify the innovative development areas which are of most relevance to Gazprom, the potential economic effect from the introduction of innovative technologies has been assessed for each type of activities. This way, the response of various indicators within types of activities to scientific and technological progress was determined. The calculations took into account the influence exerted by site conditions and geological conditions on the projected specific capital and operational expenses during the introduction of technologies.

The calculations became the basis for defining the key areas requiring technological improvements, i.e. the technological priorities (TPs), investment into which will result in a positive economic effect for Gazprom (Figure 1). Table 3, Table 4 and Table 5 show the list of the main areas of R&D activities in the context of technological priorities in the gas, oil and power businesses.

Among the R&D areas listed below, special attention is to be paid to research activities aimed at developing the technologies and technical solutions which will make it possible to achieve economically feasible development in difficult-to-reach regions and produce new readily marketable products and liquefied natural gas with the use of domestic technologies.

The vast majority of the innovative technologies and activities developed will be used in several types of activities, at subsidiaries, and at both active and future production facilities, which will provide a synergetic effect for Gazprom.

R&D organizations, higher education institutions (regardless of their form of ownership), medium and small innovation enterprises, and other organizations can submit their applications for the performance of R&D activities commissioned by Gazprom to the Department (Oleg Aksyutin).

The rules for the submission and consideration of the applications for R&D are stipulated by the Procedure for organizing scientific research, development and technological activities at Gazprom and its subsidiaries, which can be found on the website of Gazprom at https://www.gazprom.ru/about/strategy/innovation/research/ (in Russian).

Gazprom invites all interested organizations to participate in the open tenders announced for the performance of works on the below technological priorities. The topics are available at the electronic trading platform of Gazprom at https://etpgaz.gazprombank.ru (in Russian) after the announcement of the bidding procedures.

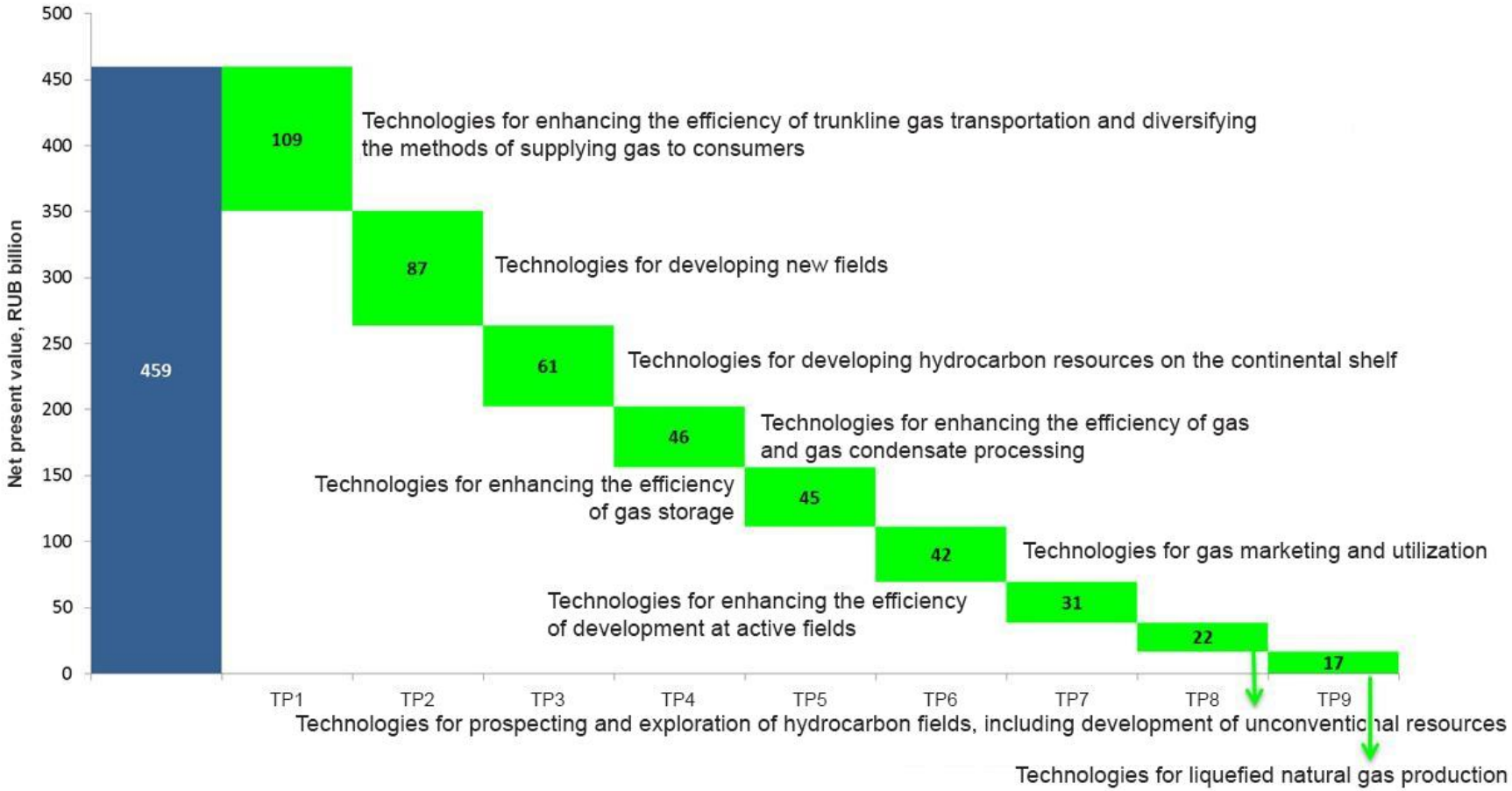

Figure 1. Technological priorities and their efficiency

Table 3

Main areas of R&D (gas business)

Item No.	R&D areas for technological priorities	Performance indicators
1.	**TP 1. Technologies for prospecting and exploration of hydrocarbon fields, including development of unconventional resources**	reduction of projected net costs during prospecting and exploration of fields in the Russian Federation
1.1	Technologies for identifying hydrocarbon prospects on the shelf and in transit zones through aerospace sensing of Earth (airborne gravity surveys, aero-magnetic mapping, optical-and-radar studies, etc.)	reduction of costs for hydrocarbon reserves increment through reducing the percentage of dry wells
1.2	Technologies for laboratory and field studies of formation systems (core, sludge, cuttings, fluids) aimed at enhancing the reliability of reserve calculation	reduction of costs for hydrocarbon reserves increment through reasonable identification of reservoirs in geological profiles
1.3	Technologies for identifying prospects and exploring them on the basis of geophysical data integration, including unconventional prospects	reduction of costs for hydrocarbon reserves increment through reducing the cost of field works
1.4	Technologies for geophysical and geotechnical studies of wells (including for unconventional gas resources)	reduction of costs for hydrocarbon reserves increment through reducing the cost of field works
1.5	Technologies for multi-level 3D digital geological-and-geophysical modeling of oil- and gas-bearing areas, gas production clusters, and hydrocarbon fields	reduction of costs for hydrocarbon reserves increment through reducing the cost of field works
1.6	Technologies for building prospecting & appraisal wells which allow increasing the volume and reliability of initial data, including in abnormal conditions and on the shelf	reduction of costs for hydrocarbon reserves increment through increasing the volume of initial information
2.	**TP 2. Technologies for enhancing the efficiency of development at active fields**	reduction of projected net operating costs during production
2.1	Technologies for repair and reconstruction of field facilities at active fields	extension of lifetime
		minimization of costs incurred during pre-

Item No.	R&D areas for technological priorities	Performance indicators
		development and reconstruction
2.2	Technologies for injecting sour gases into productive formations of hydrogen sulfide-containing fields in order to increase development efficiency	increase in condensate recovery ratio
		reduction of projected net operating costs during production
		utilization of hydrogen sulfide
2.3	Technologies and equipment for the operation of wells at the stage of their production decline	extension of wells' life
		production increase
2.4	Technologies for the operation of brownfields	increase in the efficiency of well operation and extension of the period of stable well operation
		additional production
2.5	Technologies for the operation of field equipment at fields with aggressive components	reduction of operating costs
2.6	Technologies for increasing the development efficiency of gas condensate deposits, including those with oil rims, as well as deep-lying deposits, including those with abnormal temperature-and-pressure conditions	increase of gas, condensate and oil recovery ratio
2.7	Technologies for increasing the reliability and productive capacity of wells, including in abnormal formation conditions	reduction of net operating costs during production
2.8.	Technologies for energy saving and reduction of losses during gas production	reduction of fuel and energy consumption for internal process needs and losses
		reduction of greenhouse gas emissions
		strengthening of technological advantage
3.	**TP 3. Technologies for developing hydrocarbon resources on the continental shelf**	reduction of projected net capital costs during gas production in the shelf zone of the Russian Federation
		reduction of projected net operating costs during gas production in the shelf zone of the Russian Federation

Item No.	R&D areas for technological priorities	Performance indicators
3.1	Technologies for year-round drilling of wells with the use of mobile ice-resistant aids (mobile ice-resistant drilling rigs, floating drilling rigs, drilling ships)	faster launch of hydrocarbon fields in the Ob Bay, the Taz Bay, the Kara Sea, and on the shelf of Sakhalin Island
3.2	Technologies for oil-and-gas development on the shelf with the use of floating processing facilities (gas treatment, transportation and liquefaction)	reduction of projected net capital costs during gas production in the shelf zone of the Russian Federation
		reduction of projected operating costs during gas production in the shelf zone of the Russian Federation
3.3	Technologies for identifying hydrocarbon prospects on the shelf and in transit zones through seismic methods	reduction of costs for hydrocarbon reserves increment through the use of new tools and enhanced reliability of data processing
		reduction of projected net capital costs during gas production in the shelf zone of the Russian Federation
3.4	Technologies for carrying out development activities on the shallow marine shelf of the Yamal Peninsula	reduction of projected operating costs during gas production in the shelf zone of the Russian Federation
3.5	Technologies for responding to spills of oil, oil products and gas condensate on the Arctic shelf	reduction of man-made impacts
3.6	Technologies for oil-and-gas development on the shelf with the use of subsea production systems (subsea production complexes, subsea process equipment)	reduction of projected net capital costs during gas production in the shelf zone of the Russian Federation
		reduction of projected operating costs during gas production in the shelf zone of the Russian Federation

Item No.	R&D areas for technological priorities	Performance indicators
3.7	Technologies for controlling the technical condition and performing remote corrosion monitoring of offshore pipeline systems	reduction of projected net capital costs during gas production in the shelf zone of the Russian Federation
		reduction of projected net operating costs during gas production in the shelf zone of the Russian Federation
3.8	Technologies for oil-and-gas development on the shelf with the use of subsea gas treatment systems	increase of gas recovery ratio
3.9	Technologies for using subsea robotic systems to control the technical condition of offshore field infrastructure facilities	reduction of projected operating costs during gas production in the shelf zone of the Russian Federation
3.10	Technologies for building wells with subsea wellheads	reduction of projected capital costs
4.	**TP 4. Technologies for developing new fields**	reduction of projected net capital costs during gas production
		reduction of projected net operating costs during gas production
4.1	Technologies for building process facilities in permafrost conditions	reduction of operating costs during gas production in permafrost areas
4.2	Technologies for developing small fields with the use of the GTL process at production sites	reduction of operating costs during gas production at small fields
4.3	Technologies for preventing exogenous (erosion) processes and restoring disturbed lands in the areas of hydrocarbon fields in the Extreme North	reduction of man-made impacts
		increase of operational reliability of facilities
4.4	Technologies for the operation of production equipment at fields located in the Extreme North (use of turbo-refrigerating equipment and alternative gas cooling methods in field-based gas treatment systems at hydrocarbon fields in the Extreme North)	reduction of the consumption of chemical agents
		enhancement of the technological reliability

Item No.	R&D areas for technological priorities	Performance indicators
		of CGTU operation
		steady compliance with high requirements to gas transmitted, including in the period of maximum high air temperatures
4.5	Technologies for increasing the extraction of hydrocarbons at fields with low temperature-and-pressure conditions and commercial reserves of helium	reduction of projected net capital costs during gas production in Eastern Siberia and the Far East
		reduction of projected net operating costs during gas production in Eastern Siberia and the Far East
		additional production
4.6	Technologies for building wells which ensure maximum deliverability of all types of reservoirs, including in abnormal temperature-and-pressure conditions	reduction of projected net operating costs during gas production
4.7	Technologies for ensuring operational reliability of wells at fields in the Extreme North	increase of operational reliability of wells
		reduction of capital costs for the construction of wells in permafrost areas
4.8	Technologies for drilling and casing of wells in the conditions of poly-salt action, extreme lost circulation, and salt brine flow	reduction of net operating costs during gas production
		reduction of net costs during repair of wells
		reduction of man-made impacts
4.9	Technologies for intelligent management of hydrocarbon production processes	reduction of net capital costs incurred for production growth
		reduction of projected net operating costs during production
		additional production
		savings on the operating costs of well

Item No.	R&D areas for technological priorities	Performance indicators
		construction in complicated geotechnical conditions
4.10	Technologies for extracting, producing and transporting gas hydrates	development of a new extensive resource base
		strengthening of technological advantage
5.	**TP 5. Technologies for enhancing the efficiency of trunkline gas transportation and diversifying the methods of supplying gas to consumers**	reduction of capital investments in the construction of linear parts
		reduction of capital investments in the construction of compressor stations
		reduction of operating costs
		reduction of reconstruction costs
5.1	Technologies for compression operations, as well as for increasing the efficiency of process and power generating equipment at compressor stations	reduction of capital investments in the construction of compressor stations
		reduction of operating costs
5.2	Technologies for developing and reconstructing gas transmission systems	reduction of capital investments in the construction of gas trunklines
		reduction of operating costs
		reduction of reconstruction costs
5.3	Technologies for the design, construction and repairs of next-generation gas trunklines	reduction of capital investments in the construction of linear parts
		reduction of capital investments in the construction of compressor stations
		reduction of operating costs
5.4	Technologies for the management of UGSS facilities	reduction of capital investments in the construction of linear parts
		reduction of capital investments in the construction of compressor stations

Item No.	R&D areas for technological priorities	Performance indicators
		reduction of operating costs
5.5	Technologies for enhancing the operational reliability of the GTS facilities	reduction of capital investments in the construction of linear parts
		reduction of capital investments in the construction of compressor stations
		reduction of operating costs
5.6	Set of technologies for enhancing the corrosion protection of the GTS facilities	reduction of capital investments in the construction of linear parts
		reduction of capital investments in the construction of compressor stations
		reduction of operating costs
		reduction of reconstruction costs
5.7	Technologies for temporary shutdown of the GTS facilities	reduction of operating costs
		reduction of reconstruction costs
5.8	Technologies for the generation and use of methane-hydrogen fuel for gas compressor units	reduction of fuel gas consumption (as compared to conventional GCUs)
		reduction of greenhouse gas emissions (as compared to conventional GCUs)
		achievement of target emission requirements
5.9	Technologies for energy saving and reduction of gas losses during gas transportation	reduction of fuel and energy consumption for internal process needs and losses
		reduction of greenhouse gas emissions
		strengthening of technological advantage
6.	**TP 6. Technologies for enhancing the efficiency of gas storage**	reduction of capital investments in underground gas storage

Item No.	R&D areas for technological priorities	Performance indicators
		reduction of operating costs for underground gas storage
6.1	Technologies for long-term storage of gas in adsorbed, hydrated and liquefied state	reduction of gas transportation costs during peak periods
6.2	Technologies for increasing the working storage capacity of UGS facilities (including through the replacement of cushion natural gas with non-hydrocarbon gases)	reduction of capital investments in underground gas storage
		reduction of operating costs for underground gas storage
6.3	Technologies for building UGS facilities in non-porous formations (salt and rock formations)	reduction of gas transportation costs during peak periods
		increase in the amount of gas sold
6.4	Technologies for increasing daily withdrawal volumes at UGS facilities (including in formations with low porosity & permeability and abnormally low formation pressure)	reduction of capital investments in underground gas storage
		reduction of operating costs for underground gas storage
7.	**TP 7. Technologies for enhancing the efficiency of gas and gas condensate processing**	reduction of capital investments in hydrocarbon processing
		reduction of operating costs for hydrocarbon processing
		production and marketing of new products
7.1	Technologies, chemical agents, and catalysts for hydrocarbon feedstock processing providing readily marketable fuel, petrochemical, and industrial products	reduction of capital investments in hydrocarbon processing
		reduction of operating costs for hydrocarbon processing
7.2	Domestic energy-efficient technologies for extraction of the required components from natural gas, including technologies for purification and production of commercial-grade helium	reduction of capital investments in hydrocarbon processing

Item No.	R&D areas for technological priorities	Performance indicators
		reduction of operating costs for hydrocarbon processing
7.3	Technologies for advanced processing of natural gas and gas condensate with the use of gas chemical processes aimed at producing new types of readily marketable products	reduction of capital investments in hydrocarbon processing
		reduction of operating costs for hydrocarbon processing
7.4	Technologies for the production of sulfur-based road-building and construction materials	production and marketing of new products
8.	**TP 8. Technologies for liquefied natural gas production**	reduction of projected net capital and operating costs for large-scale LNG production
8.1	Energy-saving technologies for LNG production	specific energy consumption for natural gas liquefaction, kWh/t: - in cold periods; - in warm periods
8.2	Technologies for using LNG as a motor fuel	reduction of operating costs
8.3	Technologies for small-scale LNG production, including at GDSs	reduction of operating costs
		reduction of hazardous emissions
8.4	Technologies for large-scale combined production of LNG and helium concentrate with the use of highly-efficient domestic equipment	reduction of capital investments in hydrocarbon processing
		reduction of operating costs for hydrocarbon processing
8.5	Technologies, absorbents, chemical agents, and catalysts for gas treatment before its liquefaction and cryogenic separation, and for ensuring compliance with export requirements to natural gas and its derivatives	reduction of capital investments in hydrocarbon processing

Item No.	R&D areas for technological priorities	Performance indicators
		reduction of operating costs for hydrocarbon processing
9.	**TP 9. Technologies for gas marketing and utilization**	increase in the amount of gas sold in Russia
		increase in the amount of gas sold in foreign markets
9.1	Technologies for increasing the operational efficiency of CNG filling stations through the use of new equipment	reduction of operating costs
9.2	Technologies for increasing the quality of gas motor fuel (to Euro 5 plus standard), including through the use of hydrogen-containing gas and antidetonators	reduction of hazardous emissions
9.3	Technologies for producing bioprotein from natural gas	expansion of gas utilization market; increase in the amount of gas sold
		reduction of costs for compressing low pressure gas to feed it into gas transportation system
9.4	Studies of the impact of climate change on production processes	reduction of natural and technology-related risks
		increase in the level of adaptation to changing climate and geocryological conditions
9.5	Technologies for reducing greenhouse gas emissions during production processes	reduction of specific greenhouse gas emissions in CO_2 equivalent
9.6	Development of methods for calculating and studying carbon footprint and toxic footprint of natural gas observed during its supplies to foreign countries	increase in the objectivity of estimates

Table 4

Main areas of R&D (oil business)

Item No.	R&D areas for technological priorities	Performance indicators
1.	**TP 1o. Technologies for oil production**	
1.1	Set of technologies for increasing deliverability of wells	reduction of the net cost of well drilling and completion; use of hard-to-recover reserves in development
1.2	Technologies for using unconventional oil reserves in development	additional oil production
		additional hydrocarbon reserves in the Khanty-Mansi Autonomous Area and Yamal-Nenets Autonomous Area
1.3	Technology for surfactant polymer flooding	increase in oil recovery factor
2.	**TP 2o. Technologies for oil refining and petrochemistry**	
2.1	Catalytic cracking catalysts	production volume of catalysts
2.2	Hydroprocessing and hydrocracking catalysts	production volume of catalysts
2.3	Aroforming process	conversion of stable gasoline into high-octane component of gasoline

Table 5

Main areas of R&D (power business)

Item No.	R&D areas for technological priorities	Performance indicators
1.	**TP 1p. Technologies for increasing the efficiency of heat-and-power equipment at CHPPs and SDPPs**	
1.1	Technologies for increasing the energy efficiency and enhancing the technical-and-economic parameters of steam-and-power, boiler, and auxiliary equipment in the power industry	life extension of equipment fleet
		reduction of average annual specific fuel consumption for power generation at gas- and coal-fired power plants (to reach the target value)
1.2	Technologies for enhancing the reliability of generating and auxiliary equipment in the power industry	reduction in the number of disturbances
1.3	Technologies for eco-friendly utilization of solid fuel in the power industry	reduction of average annual specific fuel consumption for power generation at coal-fired power plants (to reach the target value)
		reduction in greenhouse gas emissions at coal-fired power plants
		reduction in nitrogen oxide, sulphur oxide, and ash emissions at coal-fired power plants
2.	**TP 2p. Technologies for increasing the operational efficiency of heating networks**	
2.1	Technologies for increasing the reliability and energy efficiency of equipment and pipelines of heating networks	increase in average life extension of heating network sections
		reduction in failure rate of heating network pipelines in the areas treated with surfactants
		reduction in failure rate of expansion bellows without changing the scope of works on the replacement of expansion bellows
		reduction in failure rate of heating network pipelines
		reduction in heat losses in networks where shut-off valves have heat insulation
2.2	Technologies for upgrading end-of-life equipment	increase in fuel utilization effectiveness (efficiency)

Organizational innovations

Organizational innovations are implemented as a separate priority within the R&D Program of Gazprom, and are being driven by the necessity to additionally research or consider the matters concerning the use of new methods for the conduct of business, arrangement of workplaces, or establishment of external relations at Gazprom.

Gazprom sets out the following avenues under the "Organizational Innovations" priority within the R&D Program of Gazprom:

- enhancement of the long-term forecasting system;
- technical-and-economic modeling of UGSS;
- enhancement of the cost management system;
- enhancement of the sustainable development management system (including the development of programs for energy saving, environmental protection, etc.);
- elaboration of corporate governance methods;
- enhancement of the risk management system;
- creation of adaptive mechanisms for the management of investment activities;
- enhancement of the pricing system and the tariff policy;
- enhancement of the innovation management system.

The results of R&D activities and services that satisfy the objectives of the above-listed organizational innovation avenues can be implemented at any stage of Gazprom's added value chain (type of activity).

Gazprom has defined the following key effects to be achieved as a result of organizational innovations:

- less time required for the development, adoption and implementation of managerial decisions (namely, the reduction of operating time expenditure), which results in the reduction of time spent on analyzing possible alternative options, enhancement of personal competencies of employees, and enhancement of information processing efficiency thanks to organizational innovations;
- less uncertainty (increased reliability and objectivity of the information used as the basis for decision-making) during the development and adoption of managerial decisions, which means more precise identification of the situational factors that influence the development and implementation of managerial decisions owing to the use of regularly updated databases (knowledge bases);
- better quality of managerial decisions made (reduction of the number of incorrect managerial decisions made and reduction of losses incurred by Gazprom as a result of such decisions), which is facilitated by the use of scientifically valid methods of value engineering, forecasting, modeling, risk analysis, economic and legal

substantiation of the implemented innovations, as well as the extension of software use at all management levels in the management practices;

- enhanced labor productivity as a result of the improvement of management methods, use of state-of-the-art quality control systems, and introduction of corporate knowledge management systems;
- enhanced investment appeal of Gazprom as a result of its efficient operations, taking into account that long-term growth of the Company's revenue is impossible without a Company-wide transition to cutting-edge technologies, production development, adoption of various new forms of corporate governance, and optimization of business processes;
- scale of implementation which depends on the possibility of adjusting and scaling up the rational solutions offered as part of organizational innovations to cover the entire scope of the Company's activity.

Table 6 shows the main R&D areas as regards organizational innovations and their respective effects to be achieved which have been approved at Gazprom.

Gazprom invites all interested organizations to participate in the open tenders announced for the performance of works on the below priorities set out for organizational innovations.

Table 6

Main areas of R&D for organizational innovations

Item No.	R&D areas	Effects to be achieved
1	Enhancement of the long-term forecasting system	Better quality of managerial decisions made
2	Technical-and-economic modeling of the UGSS	Less uncertainty (increased reliability and objectivity of the information used as the basis for decision-making) during the development and adoption of managerial decisions
3	Enhancement of the cost management system	Better quality of managerial decisions made
4	Enhancement of the sustainable development management system (including the development of programs for energy saving, environmental protection, etc.)	Better quality of managerial decisions made
5	Elaboration of corporate governance methods	Enhanced labor productivity; better quality of managerial decisions made
6	Enhancement of the risk management system	Better quality of managerial decisions made
7	Creation of adaptive mechanisms for the management of investment activities	Less time required for the development, adoption and implementation of managerial decisions
8	Enhancement of the pricing system and the tariff policy	Enhanced investment appeal
9	Enhancement of the innovation management system	Less uncertainty (increased reliability and objectivity of the information used as the basis for decision-making) during the development and adoption of managerial decisions

Digital transformation of Company

Digital transformation is integral to the development of Gazprom and involves primarily the introduction of modifications to production and business processes under the influence of digital technologies.

The relevance of production digitalization and intellectualization is due to the fact that cutting-edge information technologies can be used to boost the competitiveness of the Gazprom Group companies through:

- creating integrated production chains which not only cover key procedures for gas and gas condensate production, transportation and processing, as well as underground gas storage, but also make it possible to use automation aids to draw up production plans and control their fulfilment with regard to both separate production processes and facilities and entire production chains,
- enhancing the capacity and energy efficiency of production chains by means of integrated process simulation, industrial analytics, testing of controlling actions on a digital twin and applying the most efficient of them at actual facilities,
- enhancing the efficiency of the operation, diagnostics, technical maintenance, repairs and reconstruction of production assets by means of creating their digital models and using these models for the simulation modeling, selection and application of the most efficient set of activities at actual assets.

When planning its production digitalization development, the Gazprom Group takes the following regulatory documents into account:

- Executive Order of the President of the Russian Federation No. 204 dated May 7, 2018 “On National Goals and Strategic Objectives of the Russian Federation through to 2024”;
- “The 2017–2030 Strategy for the Development of an Information Society in the Russian Federation” approved by Executive Order of the President of the Russian Federation No. 203 dated May 9, 2017;
- Passport of the “Digital Economy of the Russian Federation” program approved by the Order of the Government of the Russian Federation No. 195-r dated February 12, 2019;
- “Plan of actions for the implementation of cost-effectiveness analysis of investment feasibility studies and information modeling technologies at all lifecycle stages of a construction project” No. 2468p-P9 dated April 11, 2017, approved by Dmitry Kozak, Deputy Prime Minister of the Russian Federation.

Proceeding from the analysis of the above documents and the global expertise in the development of digital technologies, the following key technologies for production digitalization have been defined for the Gazprom Group companies:

- creation of a single corporate data bank containing the information on the operation modes and condition of production assets (in the terminology of Industry 4.0 – a “data

lake") to serve as a technology framework for the creation of the Integrated Information Environment,

- application of the "digital twins" technology to automate production control, integrated planning, monitoring of the technical condition of assets, scenario modeling, and optimization of production chains' modes,
- application of artificial intelligence technologies for the proactive management of production facilities and processes.

Information technologies have the most significant influence on Gazprom's core activities in the following areas: creation of competitive advantages for the sustainable development of Gazprom as a global energy company, creation of new products and services, entry into new markets, increase in the transparency of financial and business activities, improvement of corporate governance, and enhancement of the efficiency of core activities, including the provision of efficient gas supplies and high reliability of gas supplies.

The information on the actions aimed at achieving digital transformation in the gas, oil and power businesses can be found in the innovative development programs of Gazprom, Gazprom Neft, and Gazprom Energoholding.

Section 3. Developing Innovation Management System

Developing organizational structure and innovation management mechanisms

The management of Gazprom's innovative activities is carried out in close contact between the structural units of Gazprom, its subsidiaries and external partners in sci-tech cooperation. The management structure has three levels (Figure 2).

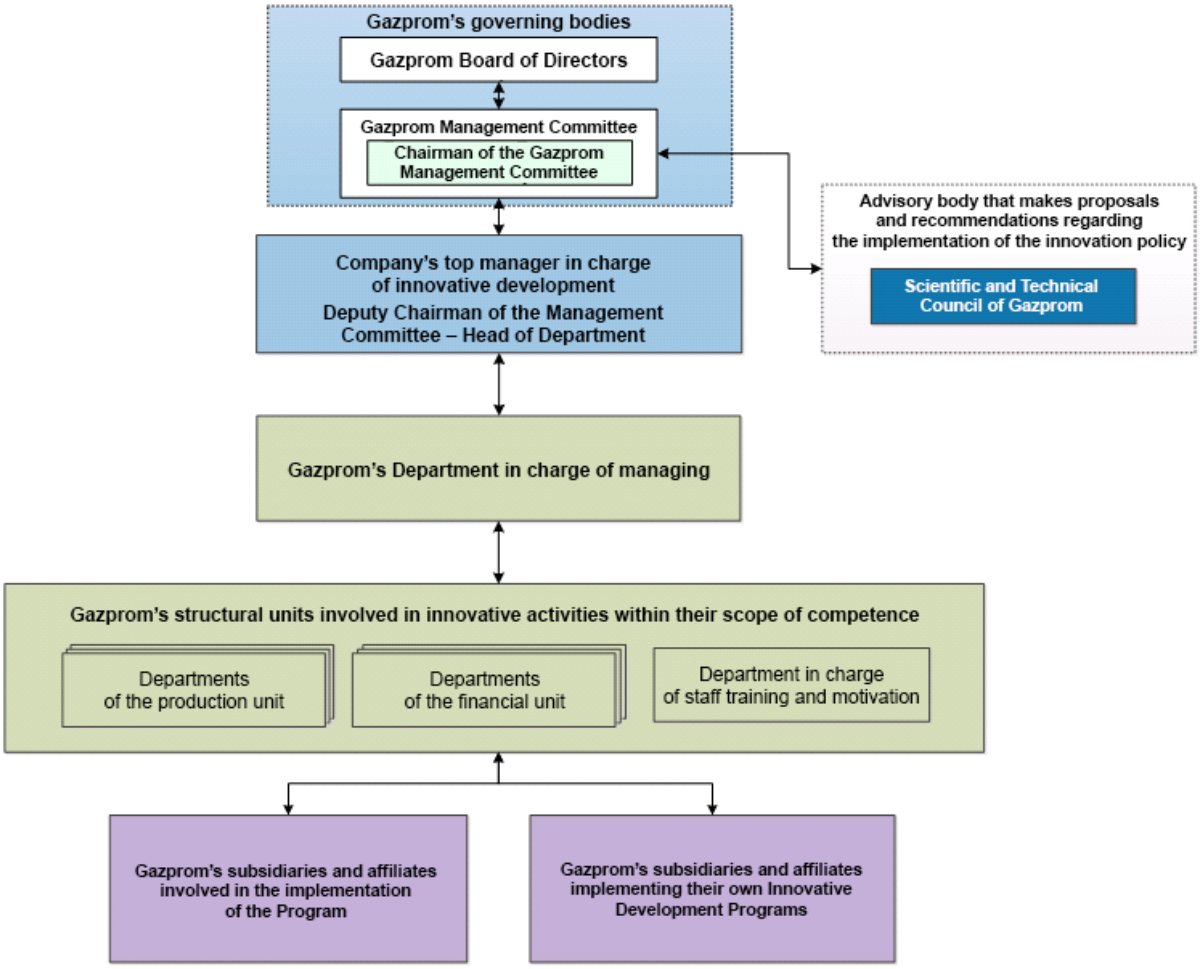

Figure 2. Innovation management structure at Gazprom

The first level includes:

- the governing bodies of the Company (Board of Directors, Management Committee, Chairman of the Gazprom Management Committee);
- the Company's top manager – Deputy Chairman of the Management Committee – Head of Department;
- the Scientific and Technical Council of Gazprom.

The second level includes:

- the Department responsible for organizing innovative activities (Oleg Aksyutin);

– the structural units involved in innovation activities within the scope of their competence.

The third level of management includes subsidiaries and affiliates, including those developing and implementing their own Innovative Development Programs.

The management of Gazprom's innovative activities is carried out through the implementation of the following processes:

– strategic management of innovative activities;
– monitoring of the external and internal environment;
– management of Innovative Development Programs;
– management of the R&D program;
– management of innovative projects;
– management of intellectual property (inventive, patenting and licensing activities, as well as creation and use of software and databases);
– management of interactions in the innovation sector;
– coordination of financing and budgeting for innovative activities.

Developing system for creation and implementation of innovative products and technologies

Gazprom views the introduction of innovations as a stage of innovative activities during which a set of specialized measures is implemented to employ innovative products in the conditions and within the timeframes sufficient to determine their actual effectiveness and adopt a reasonable decision on subsequent use or non-use of such products at Gazprom's facilities.

The inclusion of new requirements and tested innovative solutions into the technical policy of Gazprom is based on the principles of market relations with developers and manufacturers of innovative products.

In order to be able to acquire and use the equipment and technologies that satisfy the requirements of Gazprom to the maximum extent possible, the Company participates in the creation of new equipment prototypes and new technologies in conjunction with developers and manufacturers by investing funds, as well as by organizing and managing development activities. The main principle of Gazprom's participation in the development of new equipment and technologies is that the interests of the parties must be taken into account and mutual benefit must be achieved.

The extent and forms of Gazprom's participation in the creation of technological innovations are determined on a case-by-case basis following a feasibility study in which the following factors are analyzed and evaluated:

– availability of Gazprom's technical and economic requirements for the new type of equipment;

- estimated volume of supply of batch equipment confirmed by Gazprom's program documents;
- estimated supply period and supply plan for equipment;
- market availability of equipment that meets the requirements of Gazprom, and the conditions for its supply;
- availability of Gazprom's technical specifications for the development of equipment;
- availability of a developer with the sci-tech, technological and industrial potential sufficient to create the required equipment;
- estimated development period required to reach the batch production stage;
- possibility of certain forms of Gazprom's participation in the creation of new equipment and their inherent risks;
- effectiveness of various options for Gazprom's participation in the creation of new equipment, as well as the acquisition of the equipment available in the market (if any), determined for the full lifecycle of the equipment.

Innovations to be implemented are received by Gazprom from three sources:

- R&D results delivered at the request of the Company;
- developers' proposals that have been analyzed and selected through the Single Window System and require improvement;
- proposals from the owners of innovative products the production or supply of which has already been mastered.

In order to ensure the introduction of innovative products, expansion of their use, achievement of actual economic efficiency of Gazprom's financial investments in R&D, promotion of sci-tech development, and reduction of time and labor input required for the arrangement of innovative product introduction, the Regulation on the introduction of innovative products at Gazprom, including R&D results, was put into effect by Order of Gazprom dated March 2, 2018.

The Regulation is a fundamental document that governs the introduction of new technological solutions at production subdivisions of the Company and provides for the timely inclusion of new requirements and tested innovative solutions into the Company's technical policy for their subsequent use in procurement.

Within the framework of the implementation of the single policy in the field of identifying and introducing new or significantly improved products (goods, services) and processes, as well as results of scientific research, development and technological activities, the Regulation on the permanent Commission responsible for introducing innovative products at Gazprom was put into effect by Order of Gazprom dated May 29, 2018.

In order to achieve its goals, the Commission approves the implementation programs for R&D results carried out at the request of Gazprom or its subsidiaries and organizations, decides on the inclusion of ready-to-use innovative solutions and proposals received

through the Single Window System into the Register of innovative products for use at Gazprom, and approves the measures to introduce innovative products at Gazprom.

Gazprom developed and approved the Regulation on Single Window System for implementation of innovative products developed by small and medium-sized enterprises and consideration of innovative proposals from individuals and legal entities. The Regulation aims to streamline interactions between SMEs and Gazprom's structural units, subsidiaries and organizations involved in decision-making on the admission of innovative products for use in the Company.

The Regulation applies to innovative and high-tech goods, works, services and R&D results classified as completed innovative developments of small and medium-sized enterprises that are proposed for use (implementation, application, performance, delivery) by Gazprom and its subsidiaries, as well as to innovative proposals received by Gazprom from individuals and legal entities (including SMEs) that have not yet reached the stage of a ready product (technology).

Innovations recommended for introduction through the Single Window System may require revision, or may be introduced without revision.

Selection of the most advanced and effective technical and technological solutions for application in production processes is among the main objectives of conformity assessment and product approval.

Programs of sci-tech cooperation between Gazprom and pipe and metallurgical companies are an effective tool for mastering the development of innovative solutions in the field of pipe products. The Programs outline the future needs of Gazprom that can be met by pipe manufacturers within the next five years. The top priority areas are implemented through the following technological roadmaps of Gazprom:

- New-generation pipes made by laser welding (jointly with Chelyabinsk Pipe Rolling Plant, approved in 2016);
- Pipes and fittings from plated steels (jointly with OMK, approved in 2017);
- Mastering the production of pipe products with new-type integrated registering, processing and switching components (jointly with TMK, approved in 2018).
- Together with Severstal, the roadmap for mastering the production of electric-welded large-diameter longitudinal pipes of K80 (X100) strength class is being implemented, according to which it is planned to master the production of pipes of the increased K80 (X100) strength class by 2023.

Gazprom's Science and Technology Prize is one of the tools used to motivate the introduction of innovative products.

The Prizes are awarded annually for major developments in the spheres of production, transportation, storage, processing and use of natural gas, gas condensate and oil that have resulted in the effective application of samples of new technical devices, instruments, equipment and materials.

The Unified Innovation Management System for Subsidiaries (approved and put into effect by Order of Gazprom No. 581 dated August 17, 2017) operates with the aim of incorporating the unified corporate principles of innovation management at Gazprom's subsidiaries. One of the main objectives of subsidiaries as regards innovative development is to implement innovative projects and obtain a significant effect in the area of innovations. Subsidiaries are a place where technical and technological solutions are introduced directly and where economic effects from their use are achieved. In addition to analyzing and controlling the compliance of subsidiaries' innovative development activities with the requirements of the Russian legislation and Gazprom's internal documents on innovative activities, special attention is paid to the further use (distribution) of R&D results and protected results of intellectual activity that have produced positive and significant results for Gazprom, as well as to the commercialization of the rights to such results.

Delivery (adjustment) of new technological solutions to the level of Gazprom's production units, subsidiaries and organizations, assessment of technological readiness, and certification of new technologies are carried out in three main interrelated areas (Figure 3):

- setting requirements to products (works, services) for the market (Gazprom's Standardization System);
- conformity assessment in the form of:
  - corporate acceptance of prototypes of new products, works, services (permanent Commissions of Gazprom formed according to the functional purpose of products);
  - voluntary certification by a third party (INTERGAZCERT Voluntary Certification System) at the stage of procurement;
- ensuring stable quality in the long term (quality management systems).

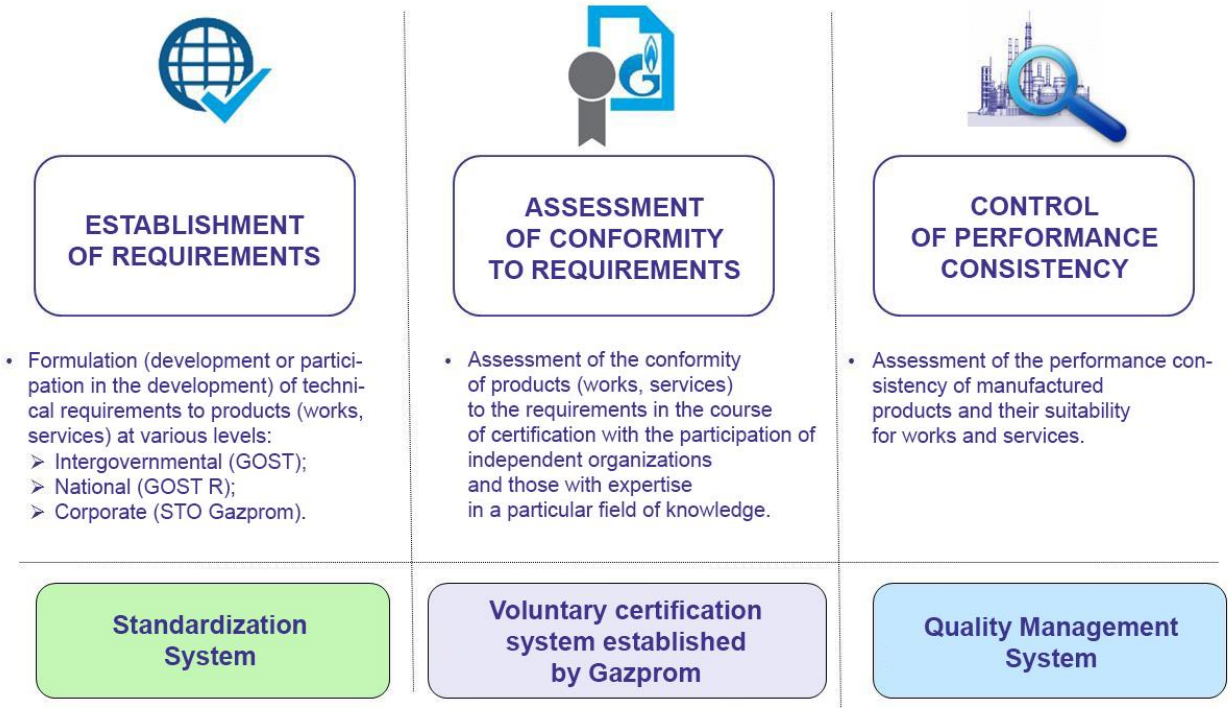

Figure 3. Main areas of delivery (adjustment) of new technological solutions

The above systems for the management (control) of the Company's activities are included, among others, in Gazprom's Quality Management System, the Regulation on which was approved by the resolution of the Gazprom Board of Directors No. 2651 dated December 29, 2015.

Standardization is an effective tool for implementing R&D results, as the introduction of new standards is an incentive for applying new technologies. Gazprom's corporate standards consolidate the results of intellectual activity, extending them to all subdivisions of the Company where these results are to be used. The unification achieved in this case makes it possible to establish the optimal product characteristics and requirements to production processes, which brings higher product quality, cost reduction, and resource saving.

Gazprom's Corporate Standardization System was established by Order of Gazprom No. 45 dated April 4, 2005 "On measures to implement the Federal Law on Technical Regulation at Gazprom, its subsidiaries and organizations". The mechanisms set out in the fundamental standards of the Standardization System ensure a full lifecycle of Gazprom's standardization documents (the Company's standards and recommendations) for their integration into the Company's production activities.

Gazprom's Standardization System makes it possible to develop regulatory documents at the corporate, national and international levels. These documents include, first of all, requirements to materials, equipment, technologies, and work methods.

One of the tasks of Gazprom's Quality Management System is to coordinate the development of the Company's existing conformity assessment systems.

Conformity assessment in the form of voluntary certification is one of the main types of quality confirmation with regard to supplied products and works (services), as well as confirmation of their compliance with the requirements stipulated by Gazprom's regulatory documents.

In order to pursue a unified technical policy to protect consumer interests and coordinate voluntary certification activities, Gazprom has in place the INTERGAZCERT Corporate Voluntary Certification System[2] (hereinafter the "INTERGAZCERT System"), which makes it possible to assess the conformity of products, works (services), management systems, and new equipment in demand at Gazprom. The System complements the state system of mandatory certification applicable to product safety indicators, is aimed at protecting Gazprom from low-quality products and unscrupulous suppliers, and contributes to improving the quality of products, works (services) and management systems.

At present, the most important task is to integrate the INTERGAZCERT System into the corporate system for the admission of material and technical resources for use at the Company's facilities, while significantly increasing the efficiency of activities carried out by all participants to the System, including the Central Bodies, certification bodies, testing laboratories, etc.

[2] The INTERGAZCERT Voluntary Certification System was created pursuant to Order of Gazprom No. 751 dated November 24, 2016, and replaced the GAZPROMCERT Voluntary Certification System that had existed since 1999.

The scope of the INTERGAZCERT System covers many homogeneous product groups – from natural gas and oil to a wide range of oil and gas engineering products, automation equipment, and software. For each of the homogeneous product groups, separate sets of standards are in force, and special rules and procedures for certification are established.

In various industries, competent organizations – specialized associations (unions, professional groups) of product manufacturers – are actively involved in addressing standardization and certification issues. Given the positive experience of such interactions, it was decided to form relevant subsystems by homogeneous product groups with the transfer of functions of the System's Central Bodies to specialized associations of equipment manufacturers.

The enhancement and development of the INTERGAZCERT System are to be carried out in the following main areas:

- development of new and updating of existing documents regulating the functioning of the INTERGAZCERT System in new organizational and legal conditions;
- development of the regulatory framework of the INTERGAZCERT System in the field of certification of innovative and high-tech types of products, works (services), processes and technologies (development of rules, methods, certification schemes, etc.);
- formation of a register of intergovernmental, federal and corporate regulatory documents containing requirements to products and works (services) consumed and produced by Gazprom;
- compilation of a list of products and works (services) (and their suppliers) certified in the INTERGAZCERT System that meet the requirements of Gazprom, and introduction of updates to the list;
- formation of a network of certification structures within the INTERGAZCERT System (certification bodies and testing laboratories) in the Russian Federation and CIS countries, taking into account, inter alia, the agreements (roadmaps) signed between Gazprom and the constituent entities of the Russian Federation;
- establishment of an automated control system for the INTERGAZCERT System and development of information support for the INTERGAZCERT System participants.

For certain types of new products supplied to the Company's market for the first time, a special form of conformity assessment by the second party, i.e. acceptance by Gazprom's permanent commission, has been adopted.

In order to ensure the stable quality of consumed products, works and services, the Company pursues a policy of implementing quality management systems at its suppliers based on a set of corporate standards of the STO Gazprom 9000 series.

These standards set more stringent requirements for international and national counterparts, as well as introduce additional requirements to ensure the quality of products, works and services, taking into account the specifics of safe operation of the Company's facilities.

Developing intellectual property management system

Gazprom established and successfully operates an intellectual property management system, the essence of which is the formation of uniform principles for organizing processes of creation, legal protection, accounting, and commercialization of the results of intellectual activity (RIA) at the Gazprom Group, as well as for monitoring the use of RIA at the Gazprom Group and creating a system of incentives to promote the creation of RIA among the Gazprom Group's employees.

Effective intellectual property management at the Gazprom Group is achieved through:

- the system of local regulations of Gazprom and its subsidiaries governing various aspects of intellectual property management (Intellectual Property Management Concept, standards within the Intellectual Property complex, etc.);
- organizational structure of intellectual property management (at the level of Gazprom and its subsidiaries).

Gazprom's intellectual property management system ensures the fulfillment of the following objectives, including those set forth by the Recommendations on Intellectual Property Rights Management (Instruction of the Russian Government No. ISh-P8–800 dated February 4, 2014):

- assistance in the creation and identification of potentially protectable RIA;
- provision of legal protection for RIA;
- recording of RIA in accounting documents as intangible assets;
- commercialization of RIA;
- inventorying, monitoring and protection of rights to RIA;
- formation of the RIA management structure;
- management of personnel engaged in the management of rights to RIA;
- financing of the RIA rights management system;
- monitoring of the efficiency of the RIA rights management system.

The development of the intellectual property management system is aimed at improving its efficiency and responsiveness with due consideration of changes in the current civil legislation of the Russian Federation and Gazprom's needs.

In 2019, the Patent Strategy of Gazprom until 2025, which forms part of the Gazprom Group's intellectual property management system, was developed and approved to provide legal protection for technical and technological solutions created at the Company. The goal of the Patent Strategy is to provide conditions for the effective achievement of objectives set in the field of intellectual property management.

Developing competencies of Company's personnel

The main mechanism for developing the competencies of Gazprom's personnel is a system of staff training and retraining that ensures effective knowledge management and builds

human resources capable of achieving the Company's innovative development goals. Based on periodic assessments of an employee using the competency model, it is determined what additional training he/she needs to perform his/her professional duties.

Personnel training and development is carried out through the existing and evolving system of continuous corporate professional education of the Company's personnel.

On the basis of its own network of educational organizations and in close cooperation with the country's leading higher education institutions, training workshops are held for Gazprom's managers and specialists, including in the following areas of innovative development:

- planning of production and innovation activities at oil and gas enterprises;
- innovation management;
- innovative methods of studying wells and reservoirs;
- innovative methods of diagnostics and repair of trunklines;
- innovative methods of diagnostics and repair of gas compressor stations' equipment;
- innovative technologies for maintenance and repair of process equipment for gas and liquid hydrocarbon production;
- innovative methods and technical capabilities for non-destructive defect detection;
- innovative approach to the development of automated dispatch control systems for gas transportation;
- digital transformation of the industry and strategic management of innovations;
- organization and management of R&D, high-tech programs and projects.

Personnel training programs on topical issues in the field of new technologies and innovations, energy supply and sustainable development are implemented for managers and specialists of Gazprom and its subsidiaries on an ongoing basis in close cooperation with foreign companies (jointly with UNIPER (E.ON SE), EDI – GASUNIE).

The development of digital economy competencies and skills for the application of end-to-end digital technologies among various employee categories in the context of the digitalization of all areas of production and the introduction of digital assistants in automated process control systems at Gazprom is implemented as part of the Schedule for advanced training and professional retraining of managers and specialists of Gazprom, its subsidiaries and organizations.

Gazprom has a long-standing tradition of educational partnership with higher education institutions and professional educational organizations.

Interaction with higher education institutions is aimed at creating and improving the conditions for high-quality professional training in the Company's core business areas.

Gazprom's anchor universities are:

- Kazan National Research Technological University;

- Bauman Moscow State Technical University (National Research University);
- Lomonosov Moscow State University;
- National Research Tomsk Polytechnic University;
- Higher School of Economics National Research University;
- St. Petersburg Mining University;
- Gubkin Russian State University of Oil and Gas (National Research University);
- St. Petersburg State Marine Technical University;
- Peter the Great St. Petersburg Polytechnic University;
- St. Petersburg State University of Economics;
- Industrial University of Tyumen;
- Ufa State Petroleum Technological University;
- Ukhta State Technical University.

Activities have been introduced to improve Gazprom's interaction mechanisms in the field of education (Table 7).

Gazprom annually prepares a 10-year forecast for manpower needs, including for engineering and technical specialists[3]. The annual need for engineering and technical personnel is 15,400 people on average.

In order to expand cooperation in the training and retraining of qualified personnel, Gazprom annually draws up a Schedule for advanced training and professional retraining of managers and specialists of Gazprom, its subsidiaries and organizations.

The handbook of relevant training topics, as well as documents for preparing applications for participation in competitive procedures, are published annually in accordance with the established procedure in open sources (on the website of the Unified Information System in the area of procurement and on the Electronic Trading Platform of Gazprombank).

[3] Engineering and technical specialists are employees in the category of managers and specialists occupying positions for which higher education in the Engineering, Technology and Technical Sciences group of specialties (areas of training) is required, as well as engineers with higher education in all categories and specialties within other groups of specialties (areas of training) (as per the Lists of higher education specialties and areas of training approved by the Order of the Ministry of Education and Science of the Russian Federation No. 1061 dated September 12, 2013).

Table 7

Activities for developing partnerships in the field of education

Scope of work	Timeframes
Inclusion of Youth Day events with the participation of students from Russian and foreign higher education institutions into the official program of the St. Petersburg International Gas Forum on a permanent basis	since 2016
Joint participation of the Gazprom Group companies and partner higher education institutions in the implementation of laws and regulations of the President of the Russian Federation and the Government of the Russian Federation for the creation and development of a system of professional qualifications in the oil and gas industry	since 2016
Organization of the Gazprom Industry Olympiad for schoolchildren with the aim of providing early vocational guidance for schoolchildren and attracting talented youth to the Gazprom Group companies	since academic year 2016/2017
Organization of the Gazprom Student Olympiad with the aim of attracting talented youth to the Gazprom Group companies	since academic year 2018/2019
Development and updating of regulatory and methodological documents governing work with schoolchildren, students of educational organizations and young specialists of subsidiaries and organizations	on a permanent basis
Organization of work internships at subsidiaries for students of secondary vocational and higher education institutions	on a permanent basis
Organization of internships at subsidiaries for teachers from higher education institutions	on a permanent basis
Organization and holding of the All-Russian Conference of Young Scientists, Specialists and Students “New Technologies in the Gas Industry” at Gazprom’s anchor universities	2019, 2021
Cooperation with partner higher education institutions in the development of teaching materials and training complexes for the system of continuous corporate professional education	annually
Holding of corporate professional skills competitions for workers and specialists of Gazprom’s subsidiaries and organizations	according to a separate plan
Holding of the Gazprom’s Best Young Innovator corporate contest	according to a separate plan

Developing investment mechanisms in innovations

Expenditures on the implementation of the activities performed under the Innovative Development Program in line with the stages of the innovation lifecycle are included in Gazprom's Budget and Investment Program in accordance with the procedure established by the Company.

Gazprom continuously monitors and evaluates the effectiveness of the existing mechanisms for organizing and financing innovative activities that can improve their performance. In the course of developing the Program, the Company analyzed the applicability of various mechanisms for investing in innovative activities, including:

- implementation of innovative projects based on the principles of public-private partnership;
- venture financing;
- various mechanisms of financing the development and mastering the production of new equipment:
  - establishment of "special-purpose vehicles";
  - signing of "contracts for the purchase of a future thing".

In order to accelerate sci-tech development, Gazprom plans to use state support measures for research in the priority areas for development. The main support mechanisms are considered to be as follows:

- interaction with the Russian Science Foundation;
- interaction with the Foundation for Assistance to Small Innovative Enterprises;
- interaction with the National Intellectual Development Foundation (Innopraktika) for the Support of Scientific Project Activities of Students, Postgraduate Students, and Young Scientists.

In order to improve the efficiency of financing for innovative activities, Gazprom is considering the possibility of attracting external financing for the implementation of innovative projects based on the principles of public-private partnership (PPP), in particular by receiving state subsidies for the implementation of complex projects to create high-tech production to be carried out with the participation of Russian higher education institutions and state scientific institutions, on the basis of:

- Directive of the Government of the Russian Federation No. 218 dated April 9, 2010 "On measures of state support for the development of cooperation between Russian higher education institutions, state scientific institutions and organizations implementing complex projects to create high-tech production";
- the "Institutional Development of the Research Sector" subprogram within the "Development of Science and Technology" state program of the Russian Federation for 2013–2020.

Pursuant to the resolution of the Gazprom Board of Directors No. 2051 dated September 4, 2013, on the organization of measures to introduce the principles of co-investment in Russian and international venture funds into Gazprom's practices, the Company has organized the assessment of the possibility of Gazprom's participation in Russian and international venture funds.

Proposals for participation in venture projects are analyzed by the Company in accordance with current regulatory and administrative documents on financial investments, Gazprom's current innovation policy, and the Principles of co-investment in Russian and international venture funds developed by the Ministry of Economic Development of the Russian Federation.

The main criterion for Gazprom's participation in venture funds is that innovative venture projects must meet the objectives of enhancing the Company's technological level and addressing technical and technological issues that arise during the implementation of Gazprom's projects in gas production, transportation and processing. At the same time, investments in diversified venture projects with a relatively high degree of risk solely for the purpose of profit generation are not consistent with Gazprom's strategic goals.

The Company continues assessing the feasibility of participation in Russian and international venture funds.

Gazprom considers the creation of "special-purpose vehicles" and the conclusion of "contracts for the purchase of a future thing" as effective mechanisms used to finance the development and production of new equipment.

Participation or establishment of a "special-purpose vehicle" as an initiator (beneficiary) for the implementation of specific projects enables Gazprom to attract interested co-investors to develop new equipment, create new production facilities, or upgrade them.

Pursuant to the analysis of the form of financing for the development of innovative and high-tech products, on the basis of the conclusion of a "contract for the purchase of a future thing", Gazprom introduced a new scheme of cooperation with Russian suppliers based on long-term contracts.

The contracts provide for the organization of batch production of products against guaranteed purchase volumes, subject to the achievement of the target technical and economic indicators.

In the course of implementing the Program, Gazprom will continue on an ongoing basis to monitor and assess the feasibility of applying various investment mechanisms in innovative activities.

Developing knowledge management system

Gazprom has a corporate scientific and technical information (STI) management system, which includes more than 30 services at the Administration and subsidiaries.

Gazprom's corporate information resources include STI reference collections and scientific and technical libraries of Gazprom and its subsidiaries, including the following:

- Collection of R&D reports;

- Collection of Gazprom’s standardization documents;
- Collection of Gazprom’s norms and standards;
- Database of Gazprom’s regulatory documents;
- and others.

Developing innovation infrastructure

Gazprom's scientific and innovation infrastructure facilities must be effectively integrated into the national innovation system and innovation systems of Gazprom's partners. Such integration is possible through the following processes:

- designing of corporate innovation infrastructure facilities complementary to those of the national innovation system;
- creation and management of innovation infrastructure facilities jointly with Gazprom's partners, subsidiaries and affiliates;
- use of the partners' innovation infrastructure facilities with the inclusion of complementary innovation infrastructure facilities of Gazprom or its subsidiaries and affiliates therein to ensure high-quality interfaces of interaction.

Innovation infrastructure facilities may be part of larger facilities and interconnected so as to form network structures. For example, technological parks include research and development centers or engineering centers, engineering centers may include joint laboratories, laboratories may be part of joint research and educational centers, which may form part of the partners' infrastructure, etc.

The experience accumulated by foreign companies in the creation and joint use of innovation infrastructure facilities should be implemented at Gazprom with due account of the following factors:

- presence of a corporate R&D complex;
- existing system of interactions with educational centers;
- established system of engineering and technical centers on the basis of production units.

Section 4. Cooperation and partnership in sci-tech and innovation sectors

Gazprom's participation in national projects and programs, as well as plans of actions (roadmaps) of National Technology Initiative

Taking into account the specifics of the Company's activities, Gazprom is planning to implement a set of measures developed on the basis of national and federal documents:

- Strategy of scientific and technological development of the Russian Federation until 2035.[4]
- National and federal projects (programs):[5]
    - "Science";
    - "Education";
    - "Digital Economy of the Russian Federation";
    - "International Cooperation and Export";
    - "Development of Small and Medium-Sized Enterprises";
    - "Labor Productivity Enhancement and Employment Support".
- Plans of actions (roadmaps) of the National Technology Initiative (NTI).

Gazprom will implement measures progressively as the interim and target outcomes of the objectives indicated in the aforementioned documents are achieved.

Gazprom Neft is actively participating in the National Technology Initiative as follows:

- a strategy for the use of UAVs at GN is being developed jointly with NTI representatives under the AeroNet roadmap as part of the "Distributed systems of unmanned aerial vehicles" objective;
- two icebreakers were built under the MariNet roadmap as part of the "Intelligent management system for marine transport and ocean exploration technologies" objective. The arctic fleet will be expanded;
- within the framework of Technical Committee 194 "Cyberphysical Systems" aiming to meet the following objectives:
    - "Safe and protected computer technologies and solutions in the field of data transmission, safety of information and cyberphysical systems" as part of the SafeNet roadmap;
    - "Distributed generation from personal power to smart grid, smart city" as part of the EnergyNet roadmap;
    - "Digital, smart, virtual factories of the future" as part of the TechNet roadmap.

[4] approved by Executive Order of the President of the Russian Federation No. 642 dated December 1, 2016.

[5] project passports approved by the Presidium of the Presidential Council for Strategic Development and National Projects of the Russian Federation, Protocol No. 16 dated December 24, 2018.

Developing procurement mechanisms and interactions with suppliers of innovative solutions

Procurements of goods, works and services, including procurements of innovative and high-tech products for Gazprom, are carried out in line with the Regulation on the procurement of goods, works and services by Gazprom and companies of the Gazprom Group, as approved by resolution of the Gazprom Board of Directors No. 3337 dated November 19, 2019. This Regulation is publicly available on Gazprom's website: http://www.gazprom.ru/tenders/ (in Russian).

Procurements of innovative and (or) high-tech products are governed by special requirements, as well as the bid evaluation criteria and procedure, which are established directly in the documentation on procurements of specific products.

The procedure for notifying potential suppliers of innovative technologies and products about Gazprom's needs for high-tech products, works and services includes the following:

- publication of the passport of the Innovative Development Program, the list of the Company's technological priorities, and the guidelines and regulations governing sci-tech and innovative activities on the official website of Gazprom https://www.gazprom.com/about/strategy/innovation/;
- publication of the Procurement Plan of Gazprom and the procurement plan for innovative and high-tech products on the all-Russian website www.zakupki.gov.ru;
- publication of the list of goods, works and services procured from small and medium-sized enterprises (SMEs) at the address: http://www.gazprom.ru/tenders/small-and-medium-business/ (in Russian);
- provision of information on the bidding plans for purchasing innovative products instead of conventional ones on the federal website for supporting and advancing small and medium-sized enterprises in the Russian Federation at the following address: www.smb.gov.ru;
- regular holding of supplier conferences;
- regular drafting of targeted requests for information and technical & commercial proposals for the potential suppliers of innovative solutions.

An automated e-procurement system (AEPS) is in use at Gazprom. The system provides for the registration of all current and potential suppliers of the Company and for notifying them about the procurements announced by the Company. Registered suppliers have direct access to information about the procurements of goods (works, services) carried out by Gazprom, including procurements of innovative and (or) high-tech products.

Third-party-owned innovative solutions and R&D outcomes are used by Gazprom and its subsidiaries for a fee subject to the current legislation of the Russian Federation and the internal documents of Gazprom.

For the purposes of information support, the procedure for joining the Program and the requirements for SMEs wishing to take part in the Program, as well as all requisite information related to the implementation of the Program, are published on the website of

Gazprom and in the SME Partnership Program section of the all-Russian website www.smb.gov.ru.

To streamline the procedure for cooperation between Gazprom and SMEs, Order of Gazprom No. 311 dated June 9, 2015, put in force the Regulation on Single Window System of Gazprom for implementation of innovative products developed by small and medium-sized enterprises and consideration of innovative proposals from individuals and legal entities (https://www.gazprom.com/about/strategy/innovation/one-window/).

The administrator responsible for the operation and development of the Single Window System is the Department (Oleg Aksyutin).

The Single Window System's operator is Gazprom VNIIGAZ.

Developing partnerships in education and science

Gazprom actively employs elements of the open innovation model in building its corporate innovation system. This model is predicated on proactive engagement of third-party organizations in the research and development of innovative products.

Gazprom is engaged in sci-tech cooperation and partnerships with federal executive authorities and governmental agencies of Russian constituent entities, local authorities, relevant agencies of foreign governments, as well as Russian, foreign and international companies and organizations and other partners.

The procedure for organizing and coordinating sci-tech interactions of Gazprom with Russian and foreign partners is established in the Regulation on sci-tech cooperation and partnerships of Gazprom (approved by Order of Gazprom No. 91 dated February 15, 2016).

The sci-tech cooperation between Gazprom and the higher education institutions that have received the status of Gazprom's anchor universities is carried out in accordance with the Regulation on interactions between Gazprom and its subsidiaries with anchor universities (approved by Order of Gazprom No. 422 dated September 4, 2014).

The signing of cooperation agreements and drafting of scientific research and development programs carried out by anchor universities in the interests of Gazprom are subject to the Regulation.

In order to be included in the list of anchor universities, a higher education institution has to undergo an expert evaluation that measures the potential outcome of cooperation with this institution taking into account the following parameters:

- relevance of the lines of research undertaken at the institution to the technological priorities of Gazprom;
- efficiency of research and innovative activities;
- competitive advantages in the area of education;
- degree of international recognition;
- operational efficiency and financial stability.

In 2016, the Scientific and Educational Inter-College Council of Gazprom (Council) started functioning as an advisory body for shaping a development strategy for interaction and cooperation in the areas of education and science between Gazprom and the partner universities.

Gazprom also has a Scientific and Technical Council that consists of 57 representatives of institutes of Russian academies of sciences (including 15 members of the RAS) and 30 representatives of leading higher education institutions. This form of organization allows the Company to employ the competences of scientific institutions in the drafting of recommendations for the sci-tech development of Gazprom.

With a view to enhancing the efficiency of the promising technologies and solutions that are incorporated in the Company's production activities, Gazprom initiated the creation of

technology integration centers on the basis of engineering centers at subsidiaries. Technology integration centers can be created in the following focus areas:

- testing of gas compressor units and compressor equipment;
- improvement of existing technologies for processing oil and gas condensate feedstock and creation of new ones;
- development of next-generation catalysts;
- creation of additions and reagents for the treatment, production and processing of oil and gas condensate feedstock;
- extraction of hydrocarbon materials (cokes, pitches, carbon fibers, carbon adsorbents) from the residue of oil refining and petrochemical products.

The interactions with small and medium-sized enterprises will advance in close contact with governmental development institutions supporting the implementation of innovative projects (Russian Venture Company (RVC), the Foundation for Assistance to Small Innovative Enterprises, RUSNANO, ROSATOM, VEB.RF, the Skolkovo Foundation, and others). To that end, Gazprom enters into agreements with development institutions to conduct joint programs with the purpose of selecting and financing innovative projects of small and medium-sized enterprises.

Participating in technological platform activities

Gazprom takes part in the activities of five technological platforms:

- Advanced processing of hydrocarbon resources;
- Hydrocarbon production and utilization technologies;
- Environmental development technologies;
- Small-scale distributed generation;
- Green and high-efficiency heat generation.

Gazprom Energoholding takes part in the activities of the following technological platforms:

- Green and high-efficiency heat generation at the All-Russia Thermal Engineering Institute;
- Small-scale distributed generation with support from Russia's State Duma Committee on Energy.

Gazprom continuously evaluates incoming proposals from technological platforms.

Gazprom sets out a list of avenues for further cooperation with innovation infrastructure that most closely correspond to the Company's goals and objectives in the area of innovative development taking into account the existing practice of facilitating cooperation and readiness of the innovation infrastructure.

Fulfilling innovative potential of regions

On a regional level, Gazprom pursues cooperation along two lines: engagement with regional authorities under the roadmaps signed, and engagement with innovative territorial clusters.

The mutually beneficial cooperation between Gazprom and constituent entities of the Russian Federation is based on the corresponding Agreements between Gazprom and constituent entities of the Russian Federation governing the implementation of highly efficient projects in the interests of Gazprom.

Gazprom continuously works to engage the industrial potential of the regions of the Russian Federation in achieving import substitution of products used or slated for use in the production activities of the Gazprom Group.

Roadmaps have been signed at Gazprom with the purpose of seeking, generating and implementing state-of-the-art technologies, technological equipment and materials arranged by types of equipment in order to replace their foreign equivalents to make Gazprom technologically independent. The roadmaps cover 23 constituent entities of the Russian Federation.

Participation in gas processing and gas chemistry clusters is a top priority in the development of territorial initiatives for Gazprom. The Company views the other industry clusters as partners in producing the required materials, equipment and technologies.

Gazprom is interested in developing partnerships with constituent entities of the Russian Federation and is ready to take part in new forms of cooperation if such cooperation is economically viable for the Company.

The decision to expand interactions and take part in Innovative Territorial Clusters is made by the Chairman of the Gazprom Management Committee upon thorough review and analysis of the practicality thereof.

Developing international cooperation in innovation sector

Gazprom closely interacts with leading international energy companies (Table 8).

Table 8

Gazprom's partners in international cooperation

Region	Country	Company name
Europe	Austria	OMV
	Germany	Uniper Holding GmbH, Wintershall Dea GmbH, VNG-Verbundnetz Gas AG
	Netherlands	N.V. Nederlandse Gasunie
	France	ENGIE, Schneider Electric
	Norway	Equinor
Asia	South Korea	KOGAS
	China	CNPC
	Vietnam	PetroVietnam
	Japan	Agency for Natural Resources and Energy at the Ministry of Economy, Trade and Industry of Japan

In order to regulate interactions with technological leaders in the sector, the Company enters into Agreements on sci-tech cooperation enabling sustainable transfer of innovative products and technological solutions, as well as joint efforts with Russian and foreign companies in the innovation sector.

The Agreements provide for the establishment of predominantly three-year Programs. The Programs reflect the entire technological chain of gas production, transportation, processing and use.

The Programs entail joint works and research in the following areas:

- preparation of internal and external market outlooks;
- effective exploration of gas and gas condensate fields;
- efficiency improvement during the operation and maintenance of gas trunklines and compressor stations;
- improvement of gas distribution and consumption efficiency;
- LNG transportation, storage and use;
- natural gas as a vehicle fuel;
- reliable and safe power supplies to production facilities;
- power- and resource-saving technologies;
- efficient management of large investment assets;

- digital transformation of production activities.

Gazprom actively participates in the work of technical committees for standardization at various levels by assuming the professional and financial responsibility for the drafting of such standards (Table 9).

Table 9

Gazprom's membership in international technical committees

International level	
Technical Committee ISO / TC 67 "Materials, equipment and offshore structures for petroleum and natural gas industries". Membership: 32 full member countries, 34 observer countries.	Gazprom: - oversight of subcommittee SC 2 "Pipeline transportation systems". Membership: 28 full member countries, 10 observer countries; - oversight of subcommittee SC 8 "Arctic operations". Membership: 12 full member countries, 2 observer countries. Participation in meetings of ISO TC 67, activities of working groups and subcommittees. Goals and priorities: leadership in governance bodies and working groups, harmonization of standards, and consideration of national specifics.
Intergovernmental level	
Technical Committee ITC 523 "Equipment and technologies for oil and gas production and processing". Membership: Russia, Armenia, Kazakhstan, Azerbaijan, Ukraine, Belarus, Kyrgyzstan, 62 Russian organizations.	Gazprom: chairmanship, control over secretariat. Goals and priorities: joint development of standards, facilitation of trade turnover between the Eurasian Economic Union and the CIS.
Technical Committee ITC 52 "Natural and liquefied gases". Membership: Russia, Armenia, Kazakhstan, Uzbekistan, Ukraine, Belarus.	Gazprom: chairmanship, control over secretariat. Goals and priorities: joint development of standards, facilitation of trade turnover between the Eurasian Economic Union and the CIS.

Contacts of unit responsible for interactions with potential partners as part of Gazprom's Innovative Development Program until 2025

Department (Oleg Aksyutin) – 2A Vnukovskaya St., St. Petersburg, 196210, Russia

E-mail: gazprom@gazprom.ru

Postal address: BOX 1255, St. Petersburg, 190900, Russia

Phone: (812) 641-35-03, fax: (812) 641-36-33

List of subsidiaries and affiliates involved in drafting and implementation of Innovative Development Program

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
1	LLC	Gazprom VNIIGAZ	Site 15 (Bldg. 1), Razvilka settlement, Razvilkovskoye rural settlement, Proektiruemy Proezd No. 5537, Leninsky District, Moscow Region, 142717, Russian Federation Local tel.: +7 (498) 657-42-06 Local fax: +7 (498) 657-96-05 E-mail: vniigaz@vniigaz.gazprom.ru	Director General, Scientific Secretary, Deputy Directors General for Science	
2	LLC	Gazprom Gaznadzor	65 Novocheremushkinskaya St., Moscow, 117418, Russian Federation Local tel.: +7 (495)631-52-42 Local fax: +7 (495)631-54-98 E-mail: gaznadzor@gaznadzor.gazprom.ru	Deputy Director General for Energy Saving and Environmental Protection, Head of the Environmental Inspectorate of Gazprom, Chairman of the Scientific and Technical Council of Gazprom Gaznadzor	Scientific and Technical Council of Gazprom Gaznadzor
3	LLC	Gazprom Gazobezopasnost	101/5, Gazoprovod settlement, Sosenskoye rural settlement, Moscow, 108814, Russian Federation Local tel.: +7 (495)719-25-54 Local fax: +7 (495)719-33-45 E-mail: G.Rybanova@gazbez.gazprom.ru	Chief Engineer – Deputy Director General	Engineering Support Division
4	LLC	Gazprom Nedra	65 Novocheremushkinskaya St., Moscow, 117418, Russian Federation Local tel.: +7 (495) 719-57-75 Local fax: +7 (495) 719-57-65 E-mail: office@nedra.gazprom.ru	Deputy Director General – Chief Engineer, Deputy Director General for Innovation	R&D and Patenting Division, Technological Innovation Support and Development Division
5	LLC	Gazprom Geotech	11/2 Pervaya Magistralnaya St., Moscow, 123290, Russian Federation Local tel.: +7 (499)940-02-68 Local fax: +7 (499)940-03-79 E-mail: mail@gazpromgeotech.ru	Deputy Director General for Science	Advanced Innovative Technology Development Division

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
6	LLC	Gazprom Dobycha Astrakhan	30 Lenina St., Astrakhan, 414000, Russian Federation Local tel.: +7 (8512) 31-60-39 Local fax: +7 (8512)39-11-33 E-mail: adm@astrakhan- dobycha.gazprom.ru	Chief Engineer – Deputy Director General, Deputy Director for Prospective Development – Head of the Engineering Center, Head of the Technical Division	Technical Division of the Administration, Engineering Center
7	LLC	Gazprom Dobycha Irkutsk	14 Nizhnyaya Naberezhnaya St., Irkutsk, 664011, Russian Federation Local tel.: +7 (3952)25-59-59 25-81-71 Local fax: +7 (3952)24-36-73 E-mail: mail@irkgazprom.irk.ru	Head of the Technical Division	Technical Division
8	LLC	Gazprom Dobycha Krasnodar	62 Kubanskaya Naberezhnaya St., Krasnodar, 350063, Russian Federation Local tel.: +7 (861)213-10-82 Local fax: +7 (861)213-10-97 E-mail: adm@kuban.gazprom.ru	Deputy Director General for Prospective Development	Technical Division
9	LLC	Gazprom Dobycha Kuznetsk	4 Oktyabrsky Ave., Kemerovo, 650991, Russian Federation Local tel.: +7 (3842)52-50-48 Local fax: +7 (3842)52-50-48 E-mail: inbox@gazpromdk.ru	Director General	Innovation Support Division
10	LLC	Gazprom Dobycha Nadym	14 Pionerskaya St., Nadym, Yamal-Nenets Autonomous Area, Tyumen Region, 629730, Russian Federation Local tel.: +7 (3499)56-77-00 for inquiries Local fax: +7 (3499) 56-71-41 E-mail: manager@nadym- dobycha.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
11	LLC	Gazprom Dobycha Noyabrsk	2 Sorok Let Pobedy St., Noyabrsk, Yamal-Nenets Autonomous Area, Tyumen Region, 629806, Russian Federation Local tel.: +7 (3496)36-86-07 Local fax: +7 (3496)36-85-14 E-mail: info@noyabrsk- dobycha.gazprom.ru	Head of the Technical Division	Engineering Center

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
12	LLC	Gazprom Dobycha Orenburg	1/2 Chkalova St., Orenburg, 460058, Russian Federation Local tel.: +7 (3532)73-00-09 Local fax: +7 (3532)31-25-89 E-mail: orenburg@gdo.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division, Engineering Center
13	LLC	Gazprom Dobycha Urengoy	8 Zheleznodorozhnaya St., Novy Urengoy, Yamal-Nenets Autonomous Area, Tyumen Region, 629307, Russian Federation Local tel.: +7 (3494)94-84-09 Local fax: +7 (3494)22-04-49 E-mail: gdu@gd-urengoy.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
14	LLC	Gazprom Dobycha Shelf Yuzhno-Sakhalinsk	4 Detskaya St., Yuzhno-Sakhalinsk, 693000, Russian Federation Local tel.: +7 (4242) 49-33-01 Local fax: +7 (4242)49-34-01 E-mail: office@shelf- dobycha.gazprom.ru	Chief Engineer – First Deputy Director General, Chairman of the Scientific and Technical Council, Head of the Prospective Development Directorate, Deputy Chairman of the Scientific and Technical Council, Head of the Technical Division, Deputy Chairman of the Scientific and Technical Council	Prospective Development Directorate, Technical Division, Scientific and Technical Council
15	LLC	Gazprom Dobycha Yamburg	9 Geologorazvedchikov St., Novy Urengoy, Yamal-Nenets Autonomous Area, Tyumen Region, 629306, Russian Federation Local tel.: +7 (3494)96-60-11 Local fax: +7 (3494)96-64-88 E-mail: yamburg@yamburg.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
16	LLC	Gazprom Inform	13 Bolshaya Cheremushkinskaya St., Bldg. 3, Moscow, 117447, Russian Federation Local tel.: +7 (495)719-45-88 (24-hour dispatch service) +7 (499)580-10-00 (reception office) Local fax: +7 (499)580-10-22 E-mail: gazprominform@inform.gazprom.ru	Head of the Directorate for Technology Development and IT Process Improvement	Directorate for Technology Development and IT Process Improvement

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
17	LLC	Gazprom Komplektatsiya	139/1 Moskovsky Ave., St. Petersburg, Russian Federation Local tel.: +7 (812) 613-00-67 E-mail: komplekt@komplekt.gazprom.ru	Deputy Head of the Directorate, Head of the Market Intelligence Division at the Petrochemical Equipment, Pipe Fittings and Mechanical Engineering Directorate, Head of the Analysis and Expert Opinion Division at the Engineering Directorate, Deputy Head of the Import Substitution Support Division at the Engineering Directorate	Technological Expertise Division at the Operations Control Directorate, Market Intelligence Division at the Petrochemical Equipment, Pipeline Fittings and Mechanical Engineering Directorate, Analysis and Expert Opinion Division at the Engineering Directorate, Import Substitution Support Division at the Engineering Directorate
18	JSC	Gazprom Space Systems	PO Box 1860, Shchelkovo-12 Post Office, Moscow Region, 141112, Russian Federation Local tel.: +7 (495)504-29-06, 504-29-07 Local fax: +7 (495)504-29-11 E-mail: info@gazprom- spacesystems.ru	General Designer, Head of the Main Design Bureau	Main Design Bureau
19	LLC	Gazprom Mezhregiongaz	24A Admirala Lazareva Emb., St. Petersburg, 197110, Russian Federation Local tel.: +7 (812)609-55-55 (front office) Local fax: +7 (812)609-52-10 (front office) E-mail: mrg@mrg.gazprom.ru	Head of the Strategic and Corporate Development Directorate, Deputy Head of the Directorate for Standardization, Sci-Tech Development and Efficiency Analysis of Gas Distribution Companies	Strategic and Corporate Development Directorate, Directorate for Standardization, Sci-Tech Development and Efficiency Analysis of Gas Distribution Companies
20	LLC	Gazprom Pererabotka	6/1 Smolyachkova St., Bldg. 1, St. Petersburg, 194044, Russian Federation Local tel.: +7 (812)609-88-88 Local fax: +7 (812)609-88-31 E-mail: gpp@gpp.gazprom.ru	Chief Engineer – First Deputy Director General, Deputy Director General for Prospective Development	Engineering Center, Technical Division
21	LLC	Gazprom Podzemremont Urengoy	10 Blagodatnaya St., St. Petersburg, 196128, Russian Federation Local tel.: +7 (812)609-67-00 Local fax: +7 (812)609-67-60 E-mail: info@urengoy-remont.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
22	LLC	Gazprom Proyektirovaniye	16/13A Suvorovsky Ave., St. Petersburg, 191036, Russian Federation Local tel.: +7 (812)578-79-97 (reception office) Local fax: +7 (812)578-79-97 E-mail: gazpromproject@gazpromproject.ru	Head of the Scientific and Technical Division, Chief Specialist of the Scientific and Technical Division	Scientific and Technical Division
23	LLC	Gazprom UGS	139/1 Moskovsky Ave., Bldg. 1, St. Petersburg, 196105, Russian Federation Local tel.: +7 (812)613-17-17 Local fax: +7 (812) 613-20-70 E-mail: phg@phg.gazprom.ru	Deputy Director General for Prospective Development, Head of the Innovative Engineering and Technology Directorate	Innovative Engineering and Technology Directorate
24	LLC	Gazprom LNG Vladivostok	78Б Svetlanskaya St., Vladivostok, 690091, Russian Federation Local tel.: +7 (423)249-36-50 Local fax: +7 (423)249-36-51 E-mail: office@gazprom-spgvlad.ru	Director General	
25	CJSC	Gazprom Telecom	16 Nametkina St., Moscow, 117420, Russian Federation Local tel.: +7 (495)428-40-40 Local fax: +7 (495)428-40-20 E-mail: info@gazpromtelecom.ru	Chief Engineer – First Deputy Director General	
26	LLC	Gazprom Transgaz Volgograd	58 Raboche-Krestyanskaya St., Volgograd, 400074, Russian Federation Local tel.: +7 (8442)93-12-74 (reception office) Local fax: +7 (8442)97-42-64 (front office) E-mail: adm@vlg.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
27	LLC	Gazprom Transgaz Yekaterinburg	14 Klary Tsetkin St., Yekaterinburg, 620000, Russian Federation Local tel.: +7 (343)359-75-30 (switchboard) Local fax: +7 (343)359-70-41 E-mail: Ural@ekaterinburg-tr.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
28	LLC	Gazprom Transgaz Kazan	41 Adelya Kutuya St., Kazan, Republic of Tatarstan, 420073, Russian Federation Local tel.: +7 (843)288-22-30 Local fax: +7 (843)288-22-34 E-mail: info@tattg.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
29	LLC	Gazprom Transgaz Krasnodar	Central control room, 36 Dzerzhinskogo St., Krasnodar, 350051, Russian Federation Local tel.: +7 (861)213-19-02 Local fax: +7 (861)213-19-03 E-mail: adm@tgk.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
30	LLC	Gazprom Transgaz Makhachkala	13 Tretiy Tupik Khadzhi Bulacha, Makhachkala, Republic of Dagestan, 367030, Russian Federation Local tel.: +7 (8722)51-93-43 Local fax: +7 (8722)51-95-53 E-mail: gaz@dgp.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
31	LLC	Gazprom Transgaz Moscow	16 Nametkina St., Moscow, 117420, Russian Federation Local tel.: +7 (495)817-93-30 Local fax: +7 (495)817-06-77 E-mail: info@gtm.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Directorate, Deputy Head of the Technical Directorate, Head of the Innovation Support Division, Head of the Engineering Center branch	Innovation Support Division at the Technical Directorate
32	LLC	Gazprom Transgaz Nizhny Novgorod	11 Zvezdinka St., Nizhny Novgorod, 603950, Russian Federation Local tel.: +7 (831)431-13-33 Local fax: +7 (831)430-81-28 E-mail: CEO@VTG.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
33	LLC	Gazprom Transgaz Samara	106A Novo-Sadovaya St., Bldg. 1, Samara, 443068, Russian Federation Local tel.: +7 (846)212-38-71 Local fax: +7 (846)212-37-55 E-mail: samstg@samaratransgaz.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
34	LLC	Gazprom Transgaz Saint Petersburg	3/2 Varshavskaya St., St. Petersburg, 196128, Russian Federation Local tel.: +7 (812) 455-12-00 Local fax: +7 (812) 455-10-32 E-mail: ltg@spb.ltg.gazprom.ru	Deputy Director General for Corporate Development and Property Management	Technical Development Division at the Prospective Development Directorate

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
35	LLC	Gazprom Transgaz Saratov	118a Pyatdesyat Let Oktyabrya Ave., Saratov, 410052, Russian Federation Local tel.: +7 (8452)30-66-00 Local fax: +7 (8452)30-64-59 E-mail: secr@utg.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
36	LLC	Gazprom Transgaz Stavropol	6 Oktyabrskoy Revolyutsii Ave., Stavropol, 355000, Russian Federation Local tel.: +7 (8652)22-90-02 Local fax: +7 (8652)26-30-45 E-mail: ooo@ktg.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division, Chief Engineer of the Engineering Center	Technical Division, Engineering Center
37	LLC	Gazprom Transgaz Surgut	1 Universitetskaya St., Surgut, Khanty-Mansi Autonomous Area – Yugra, Tyumen Region, 628412, Russian Federation Local tel.: +7 (3462)75-00-09 for inquiries Local fax: +7 (3462)28-37-68 E-mail: telegraf@surgut.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
38	LLC	Gazprom Transgaz Tomsk	9 Frunze Ave., Tomsk, 634029, Russian Federation Local tel.: +7 (3822)60-32-09 Local fax: +7 (3822)60-31-00 E-mail: office@gtt.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Division	Technical Division
39	LLC	Gazprom Transgaz Ufa	59 Zorge St., Ufa, Republic of Bashkortostan, 450054, Russian Federation Local tel.: +7 (347)237-35-84 Local fax: +7 (347)237-56-40 E-mail: info@ufa-tr.gazprom.ru	Director General (Chairman of the Scientific and Technical Council) Chief Engineer – Deputy Director General (Deputy Chairman of the Scientific and Technical Council), Head of the Technical Division	Scientific and Technical Council, Technical Division, Subdivision for Legal Protection of Intellectual Property
40	LLC	Gazprom Transgaz Ukhta	10/1 Gazovikov Emb., Ukhta, Komi Republic, 169300, Russian Federation Local tel.: +7 (8216)76-00-56 Local fax: +7 (8216)74-69-66 E-mail: sgp@sgp.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
41	LLC	Gazprom Transgaz Tchaikovsky	30 Primorsky Blvd., Tchaikovsky, Perm Territory, 617760, Russian Federation Local tel.: +7 (34241) 76-000 Local fax: +7 (34241)6-03-74 E-mail: 24310@ptg.gazprom.ru	Chief Engineer, First Deputy Director General, Head of the Technical Division	Technical Division
42	LLC	Gazprom Transgaz Yugorsk	15 Mira St., Yugorsk, Khanty-Mansi Autonomous Area – Yugra, Tyumen Region, 628260, Russian Federation Local tel.: +7 (34675)2-23-16 Local fax: +7 (34675)2-23-76 E-mail: Kans1@ttg.gazprom.ru	Chief Engineer – First Deputy Director General	Technical Division
43	LLC	Gazprom Flot	139/1 Moskovsky Ave., Bldg. 1, St. Petersburg, 196105, Russian Federation Local tel.: +7 (812)609-62-22 Local fax: +7 (812)609-62-99 E-mail: gazpromflot@gazpromflot.ru	Chief Engineer – First Deputy Director General	
44	LLC	Gazprom Export	2A Ostrovskogo Sq., letter A, St. Petersburg, 191023, Russian Federation Local tel.: +7 (812)646-14-14 Local fax: +7 (812)646-14-15 E-mail: info@gazpromexport.gazprom.ru	CEO	
45	LLC	Gazprom Energo	125 Profsoyuznaya St., Moscow, 117647, Russian Federation Local tel.: +7 (495)428-45-60 Local fax: +7 (495)428-45-70 E-mail: info@adm.energo.gazprom.ru	Chief Engineer – First Deputy Director General, Head of the Technical Directorate	Innovation Policy, Norm-Setting and Energy Audit Division
46	LLC	Gazpromtrans	House 101, Gazoprovod settlement, Sosenskoye rural settlement, Moscow, 108814, Russian Federation Local tel.: +7 (499)580-44-64 Local fax: +7 (499)580-19-35 E-mail: office@gptrans.gazprom.ru	Head of the Technical Division	Technical Division

No.	Legal form of subsidiary/affiliate	Name of subsidiary/affiliate	Contacts	Subsidiary/affiliate officials responsible for innovative development	Subsidiary/affiliate structural units responsible for innovative development (if any)
47	PJSC	Gazprom Neft Group (parent company – Gazprom Neft)	3-5 Pochtamtskaya St., St. Petersburg, 190000, Russian Federation Local tel.: +7 (812)363-31-52 Local fax: +7 (812)363-31-51 E-mail: info@gazprom-neft.ru	Head of the Department of Strategy and Innovation, Head of the Innovative Development Directorate at the Department of Strategy and Innovation, Director General of Gazpromneft STC, Head of the Department for Oil Refining and Petrochemistry Development at the Oil Refining Directorate, Head of the Directorate for Technical Policy and Innovation Activity at the Department for Oil Refining and Petrochemistry Development	Department of Strategy and Innovation, Innovative Development Directorate, Department of Strategy and Innovation, Department for Oil Refining and Petrochemistry Development at the Oil Refining Directorate, Directorate for Technical Policy and Innovation Activity, Department for Oil Refining and Petrochemistry Development
48	LLC	Gazprom Neftekhim Salavat Group (parent company – Gazprom Neftekhim Salavat)	30 Molodogvardeytsev St., Salavat, Republic of Bashkortostan, 453256, Russian Federation Local tel.: +7 (3476) 39-21-09 E-mail: snos@snos.ru	Technical Director, Chief Technologist, Head of the Chief Technologist Directorate	Chief Technologist Directorate
49	LLC	NIIgazeconomika	20 Staraya Basmannaya St., Bldg. 8, Moscow, 105066, Russian Federation Local tel.: +7 (499)265-24-20 Local fax: +7 (499)267-30-76 E-mail: econmg@gazprom.ru	Director General, Director of the Center for Corporate Governance Methodology, Director of the Center for Economics of Energy Saving, Environmental Protection and Technological Innovation, Director of the Center for Forecasting Gas Industry Development Rates	Center for Corporate Governance Methodology
50	Private institution	Gazprom's TSCC	20 Generala Galitskogo St., Kaliningrad, 236006, Russian Federation Local tel.: +7 (4012)57-30-02 Local fax: +7 (4012)57-30-02 E-mail: inform@onutc.ru	Director	

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51	LLC	Gazprom Energoholding and subsidiaries (parent company – Gazprom Energoholding)	16/2A Dobrolyubova Ave., St. Petersburg, 197198, Russian Federation Local tel.: +7 (812)646-13-00 E-mail: office@gazenergocom.ru	Head of the Long-Term Technical Development Division	Long-Term Technical Development Division
52	OJSC	Severneftegazprom	22 Lenina St., Krasnoselkup village, Yamal-Nenets Autonomous Area, 629380, Russian Federation Local tel.: +7 (3494)24-81-06 Local fax: +7 (3494)24-81-16 E-mail: sngp@sngp.com	Chief Engineer – First Deputy Director General	Operation and Technical Division