GAZPROM
ENERGOHOLDING

2018
2019

Gazprom Energoholding Group Sustainability Report

PAO Mosenergo | PAO TGC-1 | PAO OGK-2 | PAO MIPC

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Report Profile

This is the fourth sustainability report of Gazprom Energoholding Group (Sustainability Report), Report for the calendar years 2018 and 2019.

In this report, PAO Mosenergo, PAO TGC-1, PAO OGK-2 and PAO MIPC are referred to as Mosenergo, TGC-1, OGK-2 and MIPC, respectively.

REPORT PREPARATION

This Report has been prepared in accordance with the requirements, recommendations and guidance of the GRI Standards, including the sector-specific Electric Utility Sector Supplement, and is in accordance with the GRI Standards: Core option in terms of its level of disclosure. This report also highlights the UN Sustainable Development Goals prioritised by Gazprom Energoholding Group.

For a full list of aspects covered by this Report and the relevant page number in the report, please see the GRI Content Index section.

As there were no significant changes from the previous reporting period in the list of stakeholders or other relevant business drivers and context of Gazprom Energoholding Group, to identify the Report's material topics, we relied on the previous stakeholder surveys conducted for Gazprom Energoholding Group Sustainability Report 2016–2017[1].

REPORT CONTENT AND TOPIC BOUNDARIES

We have chosen a biennial reporting cycle for the Sustainability Report. This Report focuses mostly on the data for two calendar years (2018–2019); however, it also discloses information about the more significant corporate events of 2020.

This Report details the performance of Gazprom Energoholding Group's three electricity generating companies, Mosenergo, TGC-1, and OGK-2 [these companies are listed on the Moscow Exchange], and a heat supply company, MIPC [a non-listed company][2].

All data on Mosenergo, TGC-1, OGK-2, and MIPC, except financials, are provided excluding their subsidiaries and affiliates unless stated otherwise.

All financials are given as per IFRS consolidated financial statements. Non-financial information on the Group's subsidiaries and affiliates is not included as its internal corporate data collection frameworks need further refinement. Going forward, the Group plans to gradually extend non-financial reporting to include all subsidiaries and affiliates of Mosenergo, TGC-1, OGK-2, and MIPC covered by consolidated financial statements[3].

SOURCES OF INFORMATION

The key sources of information used to detail Gazprom Energoholding Group's performance in this Report include management reports and audited IFRS financial statements as well as the data provided by relevant units of Gazprom Energoholding Group companies.

The Report presents the Group's mid-term and long-term plans. Their implementation is subject to inherent risks and uncertainties including factors beyond the control of Gazprom Energoholding Group companies.

1 For more details on the materiality process, a full list of topics and materiality assessment see Appendix 1.1.
2 For the names, legal forms and addresses of the companies covered in this Report see Appendix 1.2.
3 For the full list of subsidiaries and affiliates covered by consolidated financial statements see Appendix 1.3.

PERFORMANCE 2007–2019

Denis V. Fyodorov

Head of Directorate,
PJSC Gazprom;
CEO, OOO Gazprom
Energoholding

Gazprom Energoholding Group companies ensure an uninterrupted supply of heat and electricity to industrial and residential customers across Russia, including its megacities, Moscow and St Petersburg. Our operations place a heavy focus on reliability, safety, energy efficiency and the mitigation of environmental impact. Our key sustainability priorities that help us address the above tasks include:

- ☑ optimising our generation capacity mix by reducing the load on obsolete and deteriorated capacities of the Group's generating companies, as well as decommissioning and replacing them with new, high-performing power units;
- ☑ efficiently using energy resources by optimising our fuel mix, as well as developing and adopting energy saving technologies;
- ☑ enhancing environmental safety and mitigating the environmental footprint of our power plants.

Over the past few years, we have achieved tangible results in these areas, including the completion of the CSA investment programme and the commissioning of new, innovative capacity.

203-1
G4-DMA
earlier EU8

COMPLETION OF THE CSA INVESTMENT PROGRAMME

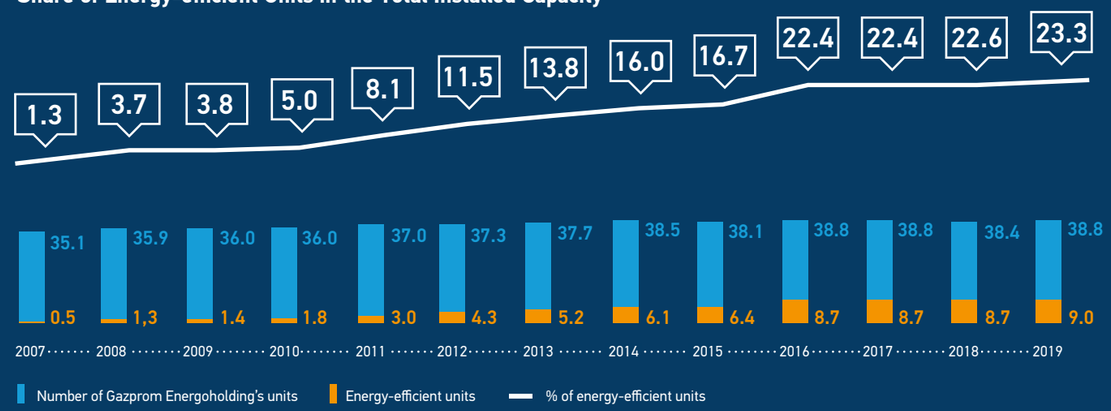
2007 — 2019

In 2019, Gazprom Energoholding completed the ambitious construction and upgrade investment programme to build about 9 GW of generating capacity under capacity supply agreements (CSA).

THE CSA INVESTMENT PROGRAMME HAS COVERED:

- **17** combined cycle gas turbines (CCGT)
- **5** steam turbine units (STU)
- **8** hydropower units
- **6** gas turbine units

Share of Energy-efficient Units in the Total Installed Capacity



2018 — 2027

New units have boosted the power plants' technical, economic and environmental performance. Gazprom Energoholding Group's further growth is linked to PJSC Gazprom's latest 10-year Power Generation Strategy (until 2027) approved in June 2018.

For more details on PJSC Gazprom's Power Generation Strategy for 2018–2027 see the Gazprom Energoholding Group's Development Strategy section.

203-1
G4-DMA earlier EU8

COMMISSIONING INNOVATIVE NEW CAPACITY

Gazprom Energoholding has completed two projects that are unique for Russia

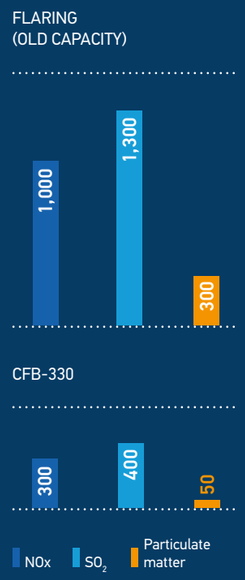
STU at Troitskaya GRES

660 MW

STU using circulating fluidised bed (CFB) technology at OGK-2's Novocherkasskaya GRES

330 MW

Emission reduction with CFB compared to coal firing, mg/cubic metre



1

With an improved cycle design and steam parameters raised to the supercritical level, the STU-660 power unit at Troitskaya GRES demonstrated an increase in efficiency from the average 33 %–36 % of standard coal-fired units to 41 %, an improved environmental performance and a shorter cold start-up time of less than 9 hours (compared to 12 hours on average).

2

The CFB-330 project at the 330 MW STU unit of Novocherkasskaya GRES became Russia's first commercial electricity-generating project with circulating fluidised bed technology and demonstrated significantly lower pollutant emissions as compared to traditional coal firing.

3

Gazprom Energoholding Group continues the innovative project to upgrade and replace the T-250/300-240 steam turbine at Generating Unit 9 of Mosenergo's CHPP-22 with a new T-295/335-23.5 model. The four-cylinder T-295 turbine was made specifically for the project and has the capacity of up to 335 MW – the highest of all turbines ever manufactured by Ural Turbine Works. This type of turbine is globally unique in terms of reliability, design and technical parameters. The turbine will become the flagship of a new model range and its widespread use is expected in the grids of cities with more than one million inhabitants.

The most vivid result of these initiatives is Gazprom Energoholding Group's improved technical, economic and environmental performance.

REDUCTION IN SRFC SINCE 2012

NEW CAPACITY COMMISSIONED UNDER THE CSA PROGRAMME

2007 — ~ +9.0 GW — 2019

THE AVERAGE SPECIFIC REFERENCE FUEL CONSUMPTION (SRFC) FOR ELECTRICITY GENERATION, CALCULATED PROPORTIONALLY, DECREASED BY

2012 — -10.4 % — 2019

324.8 g/kWh **290.9 g/kWh**

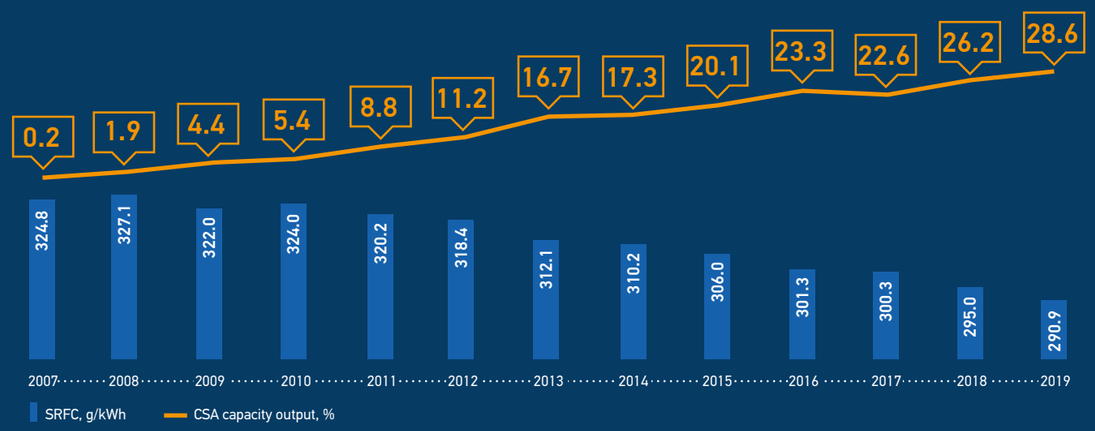
226.3 g/kWh

SRFC for electricity supply for CSA units

28.6 %

new units accounted of the total electricity output

SRFC Decrease Rate vs Growth in the Share of Output by CSA Capacity



EMISSION REDUCTION

The decrease in the total amount of pollutant emissions was primarily driven by consistent fuel efficiency improvements. By reducing coal as a fuel due to its severe environmental impact as compared to natural gas, we were also able to curtail sulphur dioxide, fly ash and nitrogen oxide emissions.

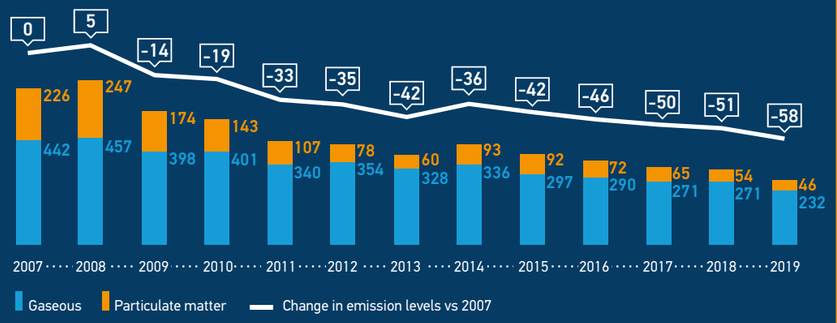
With heat and electricity output down by only 3 %, GHG and pollutant emissions decreased by 18 % and 58 %, respectively.

3 % reduction of heat and electricity output

Generation vs 2007

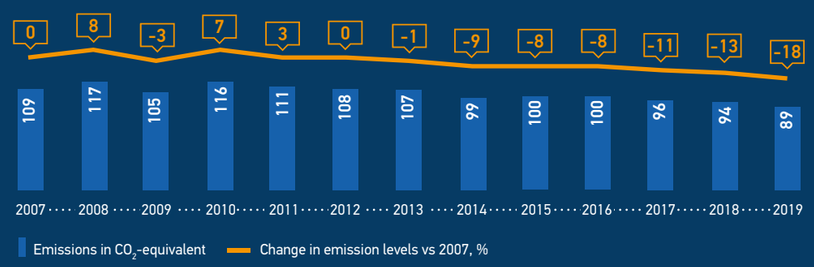
Pollutant emissions reduced by **390** tonnes or **2,4** times

Pollutant Emissions, thousand tonnes



GHG emissions reduced by **18 %** or **20** mm tonnes of CO_2 equivalent per year

GHG Emissions, mm tonnes of CO_2-equivalent



REDUCTION OF WATER CONSUMPTION AND UNTREATED WASTEWATER DISCHARGE

2010 — 2019

Efforts to increase water efficiency and reuse treated wastewater in generation

40 %
Reduction of water consumption

43 %
Reduction of water discharge

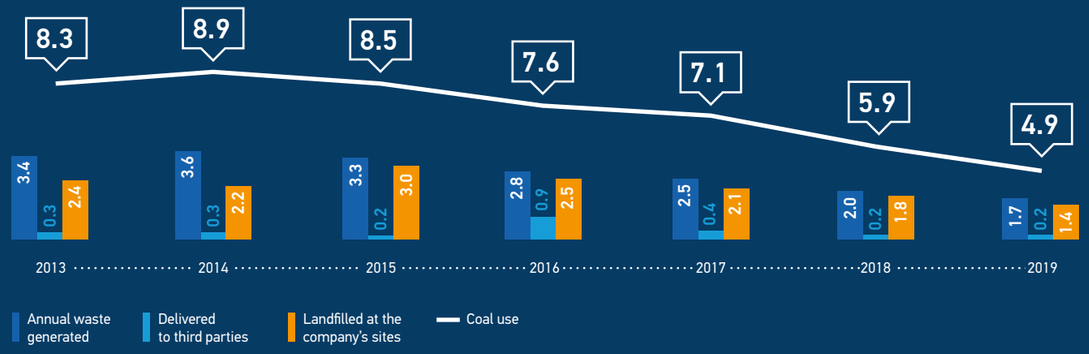
REDUCTION OF COAL ASH STORAGE

2013 — 2019

Reduction in coal ash volumes as a result of efforts to reduce the use of solid fuel

2 times
Waste generation and disposal

Coal Ash Disposal, mm tonnes



102-14 103-2 103-1 103-3 Statement from the CEO of Gazprom Energoholding Group

Dear colleagues,

In 2018, PJSC Gazprom approved its Power Generation Strategy for 2018–2027, which outlines key development areas for Gazprom Energoholding Group companies over the reporting period and forthcoming years, including sustainability.

Our key priorities remain as follows: ensuring the reliability and safety of our energy supply to consumers, providing employees with decent working conditions and opportunities for professional development, and supporting social and economic growth across our operating regions.

Our team's efforts have improved our operational and fuel efficiency, and reduced our environmental footprint.

By streamlining the load on power units and adopting cutting-edge technology in the construction and upgrade of equipment, we have substantially reduced our fuel consumption and emissions, and improved environmental performance. We have also considerably reduced the share of coal in OGK-2's fuel mix by divesting the Krasnoyarskaya GRES-2 power plant and decommissioning Phase 1 equipment at the Serovskaya GRES. We are pushing on with our plans to fully phase out coal in favour of gas and fuel oil at CHPP-22 – Mosenergo's only coal-firing power plant. Furthermore, TGC-1 has been strengthening its hydro generation by carrying out a large-scale revamp and increasing the capacity of hydropower units at Verkhne-Tulomskaya HPP. Work towards our programme to shift heat generation from MIPC's boilers to Mosenergo-operated combined generation CHP plants is also ongoing.

By commissioning Unit 2 at the Grozny TPP, Gazprom Energoholding Group has fully discharged its obligations under the CSA investment programme.

The construction of the Svobodnenskaya TPP is approaching completion. The power plant will supply energy to the Far Eastern Amur GPP, one of PJSC Gazprom's largest projects.

In February 2020 the Government of the Russian Federation approved projects under the program of modernization of TPPs with commissioning in 2025. Among the 41 modernization projects included in the list are two projects of PJSC Mosenergo, one project of PJSC TGC-1 and three projects of PJSC OGK-2.

Previously, six objects of the Gazprom energoholding Group of companies successfully passed the selection for modernization projects for 2022-2024. After modernization, the capacity of these facilities will be delivered to the wholesale market in 2022 and 2024.

Participation in the capacity modernization program allows you to extend the service life and at the same time improve the technical and economic characteristics of the generating equipment.

Over the reporting period, MIPC improved its performance as Moscow's Single Heat Supply Company, having consolidated a range of heat supply assets, including PAO Mezhregionteplosetenergoremont (a repair company) and OOO TSK Novaya Moskva (a heat supplier for the Troitsky and Novomoskovsky Districts).

We are maintaining our focus on creating safe and comfortable working conditions while offering our employees competitive salaries and a wide range of opportunities for training and professional development.

The COVID-19 pandemic has become the key challenge for any business across the globe. Due to the profile of our operations, negative dynamics of industrial production and overall slowdown in economies of regions of our operations significantly affected our electricity output. Nevertheless, Gazprom Energoholding Group companies managed to retain business sustainability. Our previous efforts to foster online customer services have given us an important advantage in this context. A number of employees at Gazprom Energoholding Group companies were asked to work remotely during the pandemic. Measures were taken to ensure the safety of other employees who needed to stay at the workplace to support a stable and safe energy supply to consumers. We would like to thank all our employees for their smooth and effective teamwork in these challenging times!

Despite the currently volatile macroeconomic situation, Gazprom Energoholding Group companies retain their strong competitive positions, maintain consistently solid financial and operational performance and continue to upgrade their generating capacities and improve related technology, all while increasing the safety of their operations for the environment, personnel and local communities across our footprint.
The strong performance of our large team is at the heart of the investment case and sustainability of Gazprom Energoholding Group companies.

Denis V. Fyodorov
CEO, OOO Gazprom Energoholding

Gazprom Energoholding Group is one of Russia's largest owners of electricity generating assets and the leader in heat generation in Russia

1,087 RUB bn

The total cost of assets (+14.4 % for 2019)

~ 39 GW

The Group's total installed electricity capacity

~ 67 thousand Gcal/h

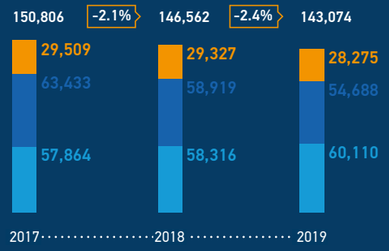
Total installed heat capacity

Overview of the Group

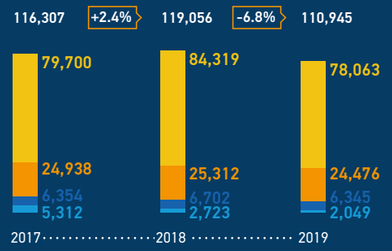
102-7 Key Highlights of the Reporting Period

OPERATIONAL PERFORMANCE

Electricity Output, mm kWh

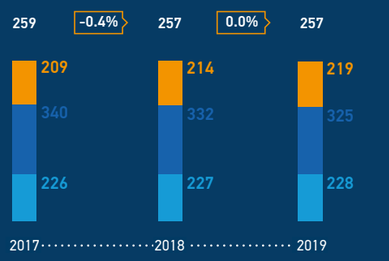


Net Supply to Captive Consumers, thousand Gcal*

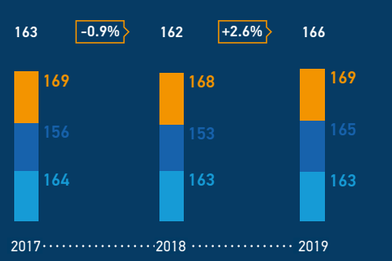


* Including TSK Mosenergo and AO Murmanskaya CHPP.

SRFC for Electricity Supply, g/kWh**



SRFC for Heat Supply, kg/Gcal**

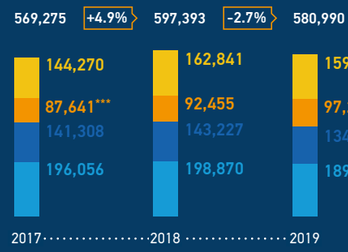


** Excluding AO Murmanskaya CHPP.

Mosenergo OGK-2 TGC-1 MIPC

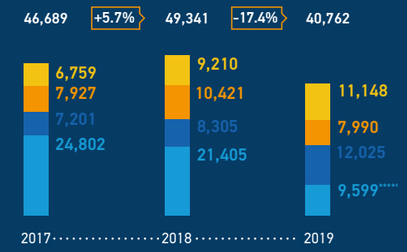
ECONOMIC PERFORMANCE

IFRS Revenue, RUB mm****



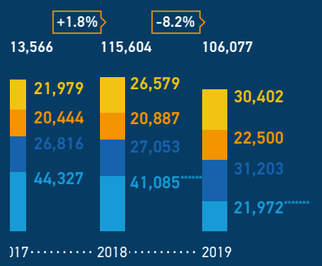
**** Performance figures for 2017 have been restated due to Government Subsidies and Lease Income now recognised as revenue instead of other operating income.

IFRS Profit, RUB mm



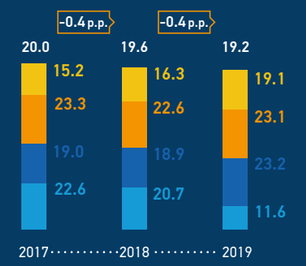
*****Corrected profit for 2019 totalled 22,610 bln RUB.

IFRS EBITDA, RUB mm

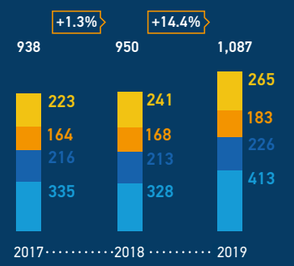


****** Corrected EBITDA for 2018 totalled 43,782 bln RUB.
******* Corrected EBITDA for 2019 totalled 34,983 bln RUB.

EBITDA Margin, %



Total Asset Value, RUB bn********

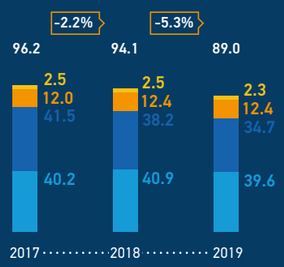


******** Based on data from certain IFRS consolidated financial statements of the Group's generating companies for 2017–2019.

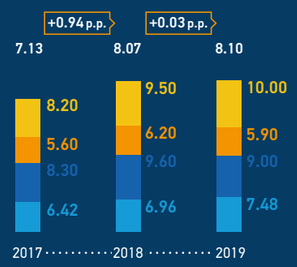
Mosenergo OGK-2 TGC-1 MIPC

SUSTAINABILITY

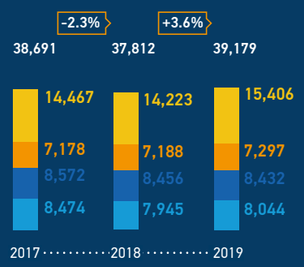
GHG Emissions, CO_2-equivalent, mm tonnes



Employee Turnover, %

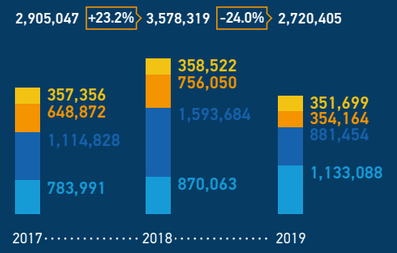


Headcount, Employees***

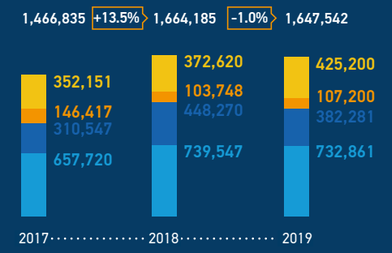


*** Including contractors employed under independent contractor agreements and part-time employees as at year end.

Environmental Protection Costs, RUB thousand



Occupational Health Costs, RUB thousand



Mosenergo OGK-2 TGC-1 MIPC

102-2

Gazprom Energoholding Today

ООО Gazprom Energoholding is a vertically integrated holding company (a wholly owned subsidiary of PJSC Gazprom) that operates Gazprom Group's electricity generating companies to uniform corporate standards.

Gazprom Energoholding Group owns one of Russia's largest generation fleets with a combined installed capacity of approximately 39 GW, or close to 16 % of the installed capacity of the entire Russian electricity industry.

Gazprom Energoholding Group is the largest heat generator in Russia. Group companies supply heat to at least 20 million people, with Moscow and St Petersburg (cities of federal significance) accounting for a significant share of the market. ООО Gazprom Energoholding is Europe's number one heat producer.

Gazprom Energoholding Group companies offer their heat and electricity under the Gazprom brand. Mosenergo, TGC-1, OGK-2 and MIPC use the Gazprom trademark registered in Russia under license and sublicense agreements. ООО Gazprom Energoholding uses the Gazprom trademark in the Republic of Serbia under a supplementary agreement to the license agreement with PJSC Gazprom on the use of trademarks.

EU4

CORE ASSETS OF GAZPROM ENERGOHOLDING GROUP

GAZPROM
100 %
GAZPROM ENERGOHOLDING

MOSENERGO 53.5 %
15 CHPPs in Moscow and the Moscow Region
12.8 GW Specific capacity (electricity)
43.2 thousand Gcal/h Specific capacity (heat)

TGC-1 51.8 %
40 HPPs + 12 CHPPs in St Petersburg and in the North-West
6.9 GW Specific capacity (electricity)
13.5 thousand Gcal/h Specific capacity (heat)

OGK-2 77.1 %
10 GRESs + 2 TPPs in 13 regions of Russia
19.0 GW Specific capacity (electricity
4.0 thousand Gcal/h Specific capacity (heat)

MOEK 98.9 %
16.6 thousand km of heat networks in Moscow
6.7 thousand Gcal/h Specific capacity (heat)

GAZPROM ENERGOHOLDING SERBIA 51.0 %
construction of an approximately 200 MW advanced, efficient and clean thermal power plant in Pančevo, Republic of Serbia

For a list of subsidiaries included in consolidated financial statements of Mosenergo, TGC-1, OGK-2 and MIPC see Appendix 1.3.

COMPETITIVE ADVANTAGES

- Generation and supply of heat and electricity across the most industrialised regions of Russia: Moscow, Saint Petersburg, south of Russia and the Urals
- New, high-performance capacity bringing 66 % of operating EBITDA in 2019
- Gazprom Group's gas consumption – 27 bcm
- High-performing generation by TGC-1's hydro power plants

Investment Case

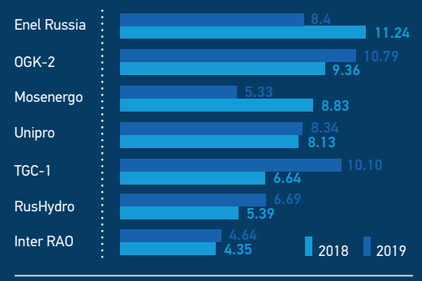
Market Capitalisation as at 31 December 2019, RUB bn:

MOSENERGO **89.8**

TGC-1 **49.7**

OGK-2 **62.2**

Dividend Yield for 2018–2019, %



Source: https://www.moex.com/ru/listing/dividend-yield.aspx

DIVIDENDS: HISTORY / LEVERAGE OF GAZPROM ENERGOHOLDING GROUP COMPANIES

Gazprom Energoholding's Dividend Policies

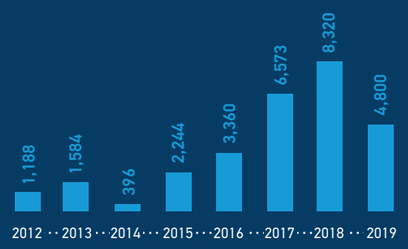
Leverage
Maintaining a balance between debt servicing and dividend payout

Investment Programme
Gazprom Energoholding takes into consideration investments expected in the coming two or three years

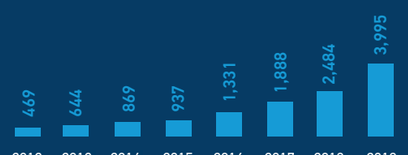
Debt / EBITDA, IFRS (2019)

Dividends, RUB mm

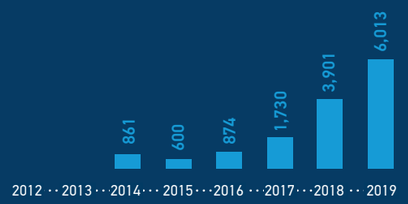
MOSENERGO **0.7x**



TGC-1 **0.8x**



OGK-2 **1.7x**



Cash distributed as dividends has been increasing annually

Outlooks for Entering International Markets

As part of PJSC Gazprom's Power Generation Strategy for 2018–2027 as it relates to international expansion, ООО Gazprom Energoholding analyses foreign electricity markets to identify the highest potential regions, including Central and Eastern Europe, Latin America, South-East Asia and the Middle East.

ООО Gazprom Energoholding plans to increase the installed capacity of its international facilities by constructing new generating capacities, participating in joint projects with energy companies in its operating countries and consolidating assets within the Group so as to boost electricity generation and natural gas supplies as well as increase revenue in foreign currency.

ООО Gazprom Energoholding's strategy focuses on developing a robust international foothold for Gazprom Energoholding Group through addressing priority tasks such as: improving business profitability of the Group companies, entering new international markets and achieving synergies with Gazprom Group companies.

REPUBLIC OF SERBIA:

- **TPP in Pančevo** (200 MW). The thermal power plant in Pančevo (Serbia) is being constructed under a shareholder agreement between PAO Tsentrenergoholding (Gazprom Energoholding Group) and NIS a.d. Novi Sad to enhance the reliability of heat supply to Pančevo Refinery as well as to generate and sell electricity in the Republic of Serbia and neighbouring countries. In October 2017, SHANGHAI ELECTRIC GROUP Co. Ltd. won a bidding process to provide sub-contractor services for the turnkey construction of a 200 MW CCGT unit. The CCGT unit will comprise two Ansaldo Energia gas turbines (AE 64.3A, 67.5 MW), two waste heat water boilers (a total of 209 t of steam per hour) and a 60 MW steam turbine by Shanghai Electric Power Generation Group Co. Ltd.

  The work completed as part of the project includes: metallic structures installed in turbine buildings, waste heat boilers and output diffusers of gas turbines assembled and two AE 64.3A gas turbines and auxiliary equipment delivered and installed. The installation of the Shanghai Electric Power Generation Group Co. turbine is approaching completion, while activities are ongoing to install flue stacks and underground service lines.

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Operating Regions

MOSENERGO

Russia's major territorial generating company

15 Power plants

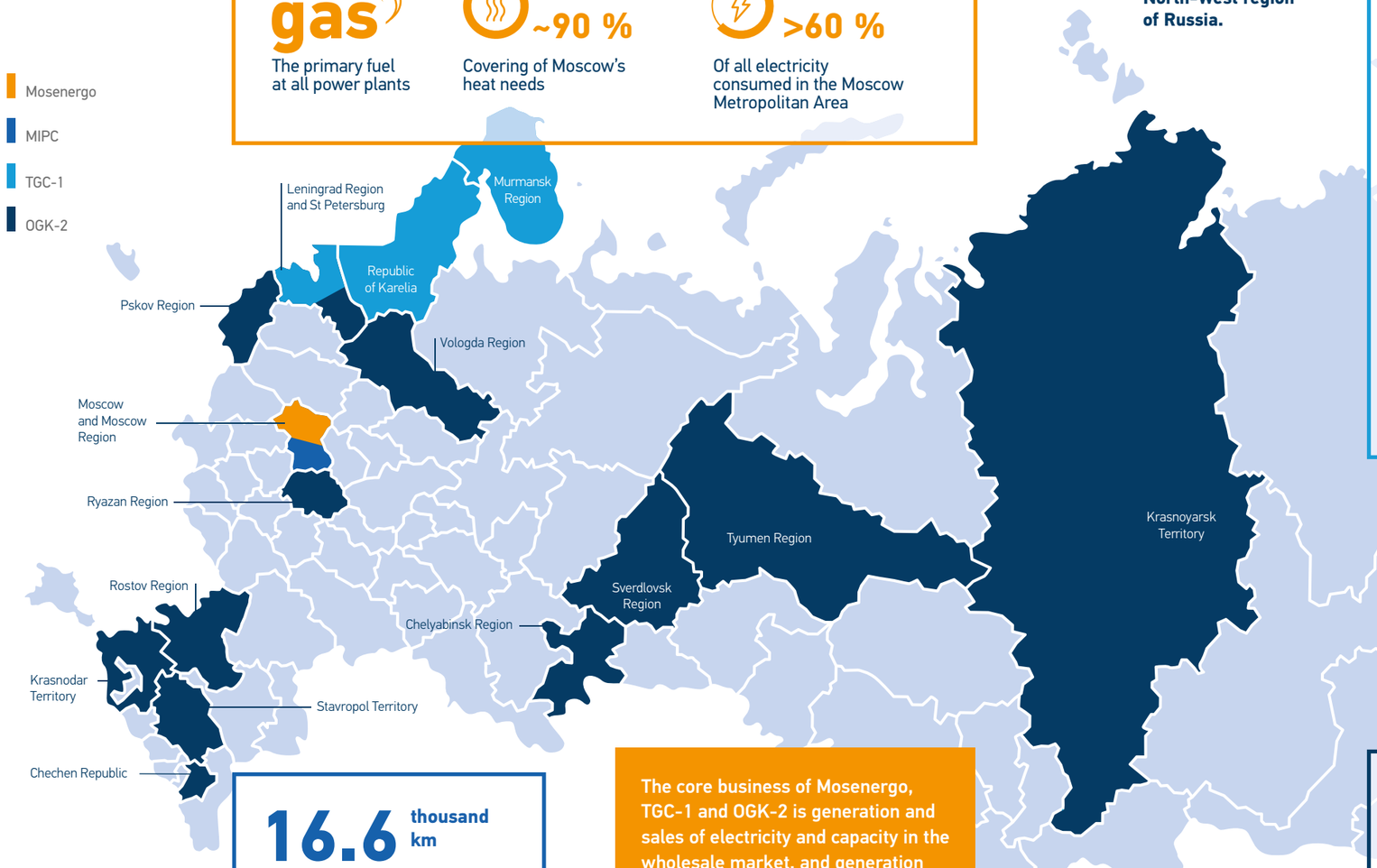
12.8 thousand MW Combined installed electricity capacity

43.2 thousand Gcal/h Combined installed heat capacity

gas The primary fuel at all power plants

~90 % Covering of Moscow's heat needs

>60 % Of all electricity consumed in the Moscow Metropolitan Area



MOEK

The leading infrastructure company in Moscow operating the world's longest heat distribution system

16.6 thousand km of heat networks

16.6 thousand Gcal/h Combined installed heat capacity

The core business of Mosenergo, TGC-1 and OGK-2 is generation and sales of electricity and capacity in the wholesale market, and generation and distribution of heat to end consumers, while MIPC focuses primarily on transmitting, distributing and marketing heat, as well as on maintaining and developing the centralised heat distribution system of Moscow.

TGC-1

Leading producer of electric and heat energy in the North-West region of Russia.

52 Power plants in Saint Petersburg, the Republic of Karelia and the Leningrad and Murmansk Regions

6.9 GW Combined installed electricity capacity

13.5 thousand Gcal/h Combined installed heat capacity

~75 % Of Murmansk's heat supply is managed by the AO Murmanskaya CHPP, a subsidiary company

TGC-1 stands out for its high share of hydro generation in installed capacity mix.

The generated electricity is supplied to the domestic wholesale electricity and capacity markets and also exported to Finland and Norway

A strategic heat supplier for Saint Petersburg, Petrozavodsk, Murmansk, as well as Apatity and Kirovsk (Murmansk Region)

For more details on regions in which Gazprom Energoholding Group companies generate and sell their products see Appendix 1.4.

OGK-2

One of the largest electricity generating companies in Russia

13 Branch power plants

19.0 GW Combined installed electricity capacity

4.0 Gcal/h Combined installed heat capacity

The structure of fuel balance in 2019

gas 74.3 %

coal 25.5 %

fuel oil <1 %

Business Model

Our Resources

	2018	2019	Δ, %
Headcount, employees	37,772	39,071	+3.4
Fuel consumption, mm toe	54.1	51.6	-4.6
• Gas	47.7	46.2	-3.1
• Coal	5.9	4.9	-16.9
• Fuel oil, diesel fuel and other	0.5	0.43	-20.0
Water consumption, mmcm	3,968	3,534	-10.9

Competitive Advantages

- Fuel mix diversification and optimisation depending on the environment in the fuel markets;
- Efficient use of energy and other natural resources (including higher utilisation of efficient CCGT units);
- High personnel qualification level and continuous upskilling;
- Achieving and maintaining the Group's status as a top employer to stimulate long-term employment and employees' effective work;
- Synergetic cooperation with Gazprom Group.

Our Assets

Installed electricity capacity, MW	38,576	38,754	+0.5
Installed heat capacity, Gcal/h	67,906	67,318	-0.9
Heat networks, km	15,932	16,580	+4.1

- Branch power plants across Russian regions;
- Russia's largest heat generating company (9.2 % of the country's output);
- Reliable, incident-free and efficient power plant operations;
- Improving operational efficiency and increasing market capitalisation by replacing worn-out fixed assets and decommissioning low-performing capacities;
- In 2019, the Group discharged its liabilities under CSAs and considers joining CSA-2 (Competitive Selection of Capacities for Modernisation) and the state program backed by the CSA mechanism for renewable projects.

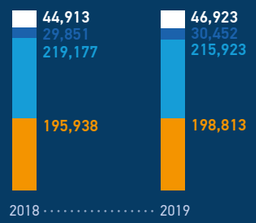
Our Generation

Electricity output, mm kWh	146,562	143,073	-2.4
Heat supply from TPPs, thousand Gcal	124,362	115,256	-6.4
Electricity sales, mm kWh	157,757	151,461	-4.0
Capacity sales, MW	33,789	34,134	-1.0
Net heat supply, thousand Gcal	119,056	110,945	-6.8

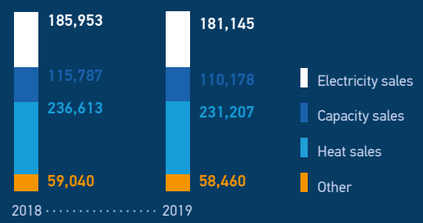
- Heat and electricity supply to Russia's most developed regions, including Moscow and St Petersburg, which ensures a stable demand for heat and electricity and regular payments;
- Various operating modes at different power plants and regional competitive advantages: some supply heat and electricity to industrial facilities in fast-growing regions and some function as backbone enterprises and suppliers to residential areas;
- Electricity export to Finland and Norway, potentially also to Georgia and Azerbaijan (Stavropolskaya GRES), Belarus and Baltic countries (Pskovskaya GRES).

EBITDA Structure

Cost Breakdown, RUB mm



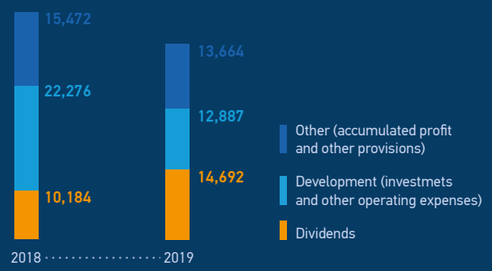
2019 Revenue Breakdown, RUB mm



In 2019, EBITDA was RUB 119,088 million (down 0.7 % year-on-year).

Revenue Generation and Distribution

Net Profit, RUB mm



Development Priorities

- Generating capacity upgrades;
- Decommissioning of over 2 GW of low-performing capacity by 2022;
- Implementation of operational efficiency and cost optimisation initiatives;
- Import substitution projects and priority of Russian-made equipment;
- Use of plants and boiler houses to reduce gas transmission system stress;
- Development of the power generation business in the foreign markets.

Stakeholder Value in 2018–2019, RUB mm

	MOSENERGO	TGC-1	OGK-2	MIPC
For heat, electricity and capacity consumers:				
• Reduction of electricity supply disruptions	No disruptions	No disruptions	No disruptions	The Company is not an electric energy producer.
• Reduction of heat supply disruptions	No disruptions	No disruptions	No disruptions	-16.5 %
For shareholders and investors:				
• Dividends for 2018–2019	RUB 13,119 mm	RUB 4,372 mm	RUB 5,608 mm	The decision to pay out dividends was not taken.
• Year-on-year change in capitalisation	+9.0 %	+61.6 %	+78.8 %	Not calculated as the company is not listed.
For the state:				
• Taxes • Cooperation with executive governing bodies in Russian regions to plan and implement regional development programmes	RUB 32,426 mm	RUB 18,008 mm	RUB 16,345 mm	RUB 14,090 mm
For employees and trade unions:				
• Remuneration	RUB 22,439 mm	RUB 17,137 mm	RUB 13,521 mm	RUB 34,007 mm
• Occupational health and safety	RUB 107 mm	RUB 242 mm	RUB 680 mm	RUB 240 mm
• Education and retraining	RUB 106 mm	RUB 50 mm	RUB 76 mm	RUB 68 mm
For lenders:				
• Timely interest payments	RUB 589 mm	RUB 2,064 mm	RUB 7,671 mm	RUB 3,654 mm
• Timely principal repayment	RUB 20,534 mm	RUB 37,006 mm	RUB 65,052 mm	RUB 48,991 mm
• Credit rating at 2019-end				
• Fitch	BBB (stable outlook)	BBB (stable outlook)	BBB- (stable outlook)	-
• Expert RA (at the time of the Report publication the Mosenergo's rating is withdrawn)	ruAAA (stable outlook)	-	ruAA+ (stable outlook)	ruAA+ (stable outlook)
• Standard & Poor's	BBB- (stable outlook)	BBB- (stable outlook)	-	-
• ACRA	-	AA (RU) (stable outlook)	-	-
For local communities and environmental organisations:				
• Philanthropy	RUB 29 mm	RUB 30 mm	RUB 14 mm	-
• Environmental protection and energy efficiency	RUB 94 mm	RUB 28 mm	RUB 2,475 mm	RUB 27 mm
• Ensuring industrial safety	RUB 251 mm	RUB 56 mm	-	RUB 1,092 mm
• Compliance with international standards	OHSAS 18001:2007, ISO 14001:2015	OHSAS 18001:2007, ISO 14001:2015	OHSAS 18001:2007, ISO 14001:2015	OHSAS 18001:2007, ISO 14001:2015

* Data according to RAS statements.

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Key Events Across the Group Companies in the Reporting Period

2018

June

PJSC GAZPROM'S POWER GENERATION STRATEGY FOR 2018–2027

PJSC Gazprom's Board of Directors approved its Power Generation Strategy for 2018–2027. Ensuring steady profit growth while maintaining highly reliable power supply to consumers is the Company's key strategic goal from 2018 to 2027. The Strategy provides for projects to build new or upgrade existing generating facilities and decommission economically unviable ones, placing a special emphasis on further enhancing operational efficiency, driving technological advances, using import-substituting equipment. PJSC Gazprom also aims at diversifying the power generation business by entering promising markets in Russia and abroad.

November

CONSOLIDATION OF MIPC'S ASSETS

MIPC shareholders approved the measures to consolidate Moscow's heat supply assets into the Single Heat Supply Company:

- reorganisation of MIPC in the form of a merger with OOO TSK Novaya Moskva;
- an additional issue of MIPC ordinary registered shares to increase the Company's share capital. The issued securities were transferred to OOO Gazprom Energoholding which contributed its heat networks assets to the share capital as payment (parts of the heat network, heating units and other facilities in Moscow).

> These decisions will enhance the transparency of the Company's activities, simplify the Moscow's heat supply system management structure within the framework of the Single Heat Supply Company, and streamline our communication with the Moscow Government to ensure reliable heat supplies.
>
> **Denis Bashuk**
> MIPC's Managing Director

2019

June

COMPLETION OF AN AMBITIOUS CAPEX PROGRAMME TO BUILD NEW GENERATING CAPACITY UNDER CAPACITY SUPPLY AGREEMENTS (CSAS)

The launch of two Groznenskaya TPP's units (360 MW) in 2019 will mark the completion of OOO Gazprom Energoholding's obligations under the CSA programme. In 2007–2019, the Group companies have commissioned and upgraded a total capacity of about 9.0 GW under the programme.

August

DEALS WITH MOSENERGO AND OGK-2 TREASURY SHARES

As part of its capital management plans, Gazprom Energoholding Group completed the deals to transfer OGK-2 treasury shares (3.889 % of share capital) to Mosenergo and Mosenergo treasury shares (0.35 % of share capital) to OGK-2. The terms of the deals were determined by Mosenergo and OGK-2's boards of directors.

The market value of the transferred OGK-2 and Mosenergo shares was RUB 2,137,170 thousand and RUB 318,952 thousand, respectively. Both companies disclosed the relevant changes in their own share capital structures. No retained earnings were used to cover losses. The deals have not influenced the companies' 2019 financial performance, in line with the interests of OGK-2's and Mosenergo's shareholders and Gazprom Energoholding Group's strategy to enhance property and asset management.

September

GAZPROM ENERGOHOLDING PLACED ITS MAIN GENERATING COMPANIES UNDER A SINGLE GOVERNANCE SYSTEM

TGC-1 shareholders agreed to delegate the sole executive body's powers to OOO Gazprom Energoholding as the management company.

OOO Gazprom Energoholding already acts as such for Mosenergo, MIPC and OGK-2, which helps to manage these companies more effectively.

2019

December

GAZPROM ENERGOHOLDING GROUP'S GENERATING COMPANIES JOINED GAZPROM GROUP'S CENTRALISED LIQUIDITY MANAGEMENT SYSTEM

By resolution of their boards of directors, TGC-1, OGK-2, Mosenergo and MIPC decided to join Gazprom Group's centralised cash flow and liquidity management (cash pooling) system. PJSC Gazprom acts as the leader of the system. PJSC Gazprom (borrower) signed loan agreements with TGC-1 on 13 December 2019, OGK-2 and Mosenergo (lenders) on 19 December 2019, and MIPC (lender) on 27 December 2019. The cash pooling system[4] involves reverse loans with TGC-1, OGK-2, Mosenergo and MIPC as borrowers and PJSC Gazprom as the lender.

December

ACQUISITION OF AO REP HOLDING BY GAZPROM ENERGOHOLDING GROUP

By acquiring AO REP Holding, Gazprom Energoholding will become a major player in the power machine building market.

Gazprom Energoholding Group completed the deals to acquire 100 % of AO REP Holding's share capital. The deals involved ООО GPB Asset Development – a subsidiary of Gazprombank, ООО GEH Industrial Assets – the buyer of AO REP Holding, and OGK-2 and Mosenergo, which provided financial support to restructure AO REP Holding's leverage. The acquired assets include ZAO Nevsky Zavod (100 %) and ООО Electropult-Sistema (51 %). The parties agreed that AO Plant ELECTROPULT will not be covered by the deal and remain under the control of previous shareholders.

AO REP Holding Today

Development, production and supply of power generating and electric equipment.

Development Areas

- Ensure a higher local manufacturing content
- Enter new equipment distribution markets
- Increase competitiveness
- Introduce and develop new production technologies
- Develop after-sale services

80 %

Share of Gazporom Group's orders in portfolio of AO REP Holding

Leveraging of REP Holding's potential will enable local manufacturing of power generating equipment in Russia, including high-power gas turbines.

[4] Cash pooling system is used globally for finance management in major holding companies. As an additional financial support tool, it will help TGC-1, OGK-2, Mosenergo and MIPC to enhance liquidity management and enable a higher interest income from free cash flow provided.

Events After the Reporting Date

2020

January

OGK-2 AND SIBERIAN GENERATING COMPANY SIGNED AN AGREEMENT TO SELL THE KRASNOYARSKAYA GRES-2

The RUB 10 billion deal (excluding VAT) covers the movable and immovable property of Krasnoyarskaya GRES-2, coal reserves, spare parts and other inventories. After the re-registration of property rights OGK-2 operates the GRES on the right-of-use basis until Siberian Generating Company obtains all the necessary licences and permits to operate Krasnoyarskaya GRES-2. For the employees of Krasnoyarskaya GRES-2, the terms of employment will remain the same.

Optimisation of Moscow's Heat Supply System in 2018–2019

MIPC and Mosenergo's joint programme to optimise the utilisation of generating capacities allowed to reduce GHG and nitrogen oxide emissions by 868 thousand tonnes of CO_2-equivalent and 660 tonnes, respectively, in 2018 and 749 thousand tonnes of CO_2-equivalent and 571 tonnes, respectively, in 2019. Under the programme, the network load is redistributed from boiler houses to combined heat and power plants. The emission reduction is enabled by switching between the more efficient plants depending on the season and increasing the power-to-heat ratio.

March

CHANGE OF THE MURMANSKAYA CHPP NAME

On 5 March 2020, the company changed its name from PAO Murmanskaya CHPP to AO Murmanskaya CHPP.

The Group's strategic goal is ensuring steady profit growth while maintaining highly reliable power supply to consumers

On 19 June 2018

PJSC Gazprom's Board of Directors approved its Power Generation Strategy for 2018–2027

Gazprom Energoholding Group companies are committed and contribute to the UN's Sustainable Development Goals

Sustainability Management

Corporate Sustainability Values

Gazprom Energoholding Group operates in line with Gazprom Group's corporate responsibility principles:

- Consideration for public interest
- Promoting social and economic development and improving the business environment in Russian regions
- Ensuring suitable working conditions and contributing to social well-being of both employees and local communities in the Group's operating regions

The ООО Gazprom Energoholding has in place the Code of Corporate Ethics which sets out the corporate values and covers issues such as conflict of interest, nepotism, gifts, competitor and counterparty relations, anticorruption and other rules of business conduct. The Code is written in the Russian language and applicable to all the Company's subsidiaries and affiliates[5].

[5] The Board of Directors of TGC-1 approved the Code of Corporate Ethics of PAO TGC-1 on 17 September 2019 (Minutes No. 9 dated 18 September 2019). The Board of Directors of MOEK approved the new edition of the Code of Corporate Ethics of PAO MOEK on 25 September 2019 (Minutes No. 121 dated 27 September 2019).

102-16 OUR VALUES

Professionalism	A deep understanding of one's specialisation, prompt and high-quality completion of tasks and continuous development of professional knowledge and skills
Proactiveness	A proactive and self-reliant approach taken by employees in streamlining the production process
Lean thinking	A responsible and lean approach when using the Group companies' assets, one's own work time and that of fellow employees
Mutual respect	Team spirit in the workplace, as well as a confident, friendly and collaborative approach to addressing tasks
Openness to dialogue	Open and fair exchange of information and willingness to develop the best solutions through joint efforts
Succession	Respect for the accomplishments and experience of industry veterans, and their active communication, professional training and mentoring with younger employees
Image	The use of techniques and strategies to help build a positive image of the Group

All employees of Gazprom Energoholding Group companies are familiarised with the Code of Corporate Ethics. The Corporate Ethics Commission is responsible for ensuring the Group's compliance with ООО Gazprom Energoholding's Code of Corporate Ethics. The Group companies' Corporate Ethics Commissions supervise compliance with the Code's provisions and requirements. The Commissions comprise such executive managers as heads of HR management, corporate governance, legal, corporate security and other.

The Group employees put a signature that they are familiar with the Code of Corporate Ethics when signing the employment contract and when the Code is updated. The corporate principles, standards and norms of behaviour are incorporated in online and offline onboarding programmes for new employees. In 2019, ООО Gazprom Energoholding developed the Code of Corporate Ethics online course.

G4-DMA earlier EU8

EU10

Gazprom Energoholding Group's Development Strategy

Ensuring steady profit growth while maintaining highly reliable power supply to consumers is the Group's strategic goal.

RUSSIA'S LARGEST VERTICALLY INTEGRATED POWER GENERATION HOLDING COMPANY

PJSC Gazprom entered the power generation business in 2007 as it established a 100 % subsidiary – OOO Gazprom Energoholding, the largest vertically integrated power generation holding company in Russia that consolidates assets in electricity and heat generation as well as heat transmission and distribution. The holding also consolidated the assets of Mosenergo, TGC-1, OGK-2 and MIPC.

In 2019, Gazprom completed the ambitious construction and upgrade investment programme to build about 9 GW of generating capacity under capacity supply agreements (CSA). The programme has covered 17 combined cycle gas turbines (CCGT), 5 steam turbine units (STU), 8 hydropower and 6 gas turbine units.

OUTLOOK FOR THE POWER GENERATION MARKET

Capacity supply agreements (CSA) are key drivers of the Russian power generation market. The government practically guarantees a revenue of 14 % per annum in the next 15 years for construction under CSA.

The next market development stage after CSA is upgrading and decommissioning of excess capacity.

14 %
expected IRR of CSA projects

15 years
guaranteed payback period

4x
higher capacity charges than in the competitive market

1/3
of capacities is commissioned by Gazprom Energoholding Group companies

PARTICIPATION OF GAZPROM ENERGOHOLDING GROUP COMPANIES IN THE CSA PROGRAMME

	CSA Results 2007 — 2019	CSA-2 Outlook 2018 — 2027
IMPLEMENTATION COSTS	446 RUB bn	140 RUB bn
CAPACITY COMMISSIONING UNDER THE PROGRAMME	+8.9 GW	+5.0 GW
DECOMMISSIONING UNDER THE PROGRAMME	–4.3 GW	–4.3 GW*

* Including the 0.6 GW decommissioned in 2018–2019.

PJSC GAZPROM'S POWER GENERATION STRATEGY FOR 2018–2027[6]

On 19 June 2018, PJSC Gazprom's Board of Directors approved PJSC Gazprom's Power Generation Strategy for 2018-2027. Ensuring steady profit growth while maintaining highly reliable power supply to consumers was set as the Company's key strategic goal. The updated strategy provides for projects to build new or upgrade existing generating facilities and decommission economically unviable ones, placing a special emphasis on further enhancing operational efficiency, driving technological advances, using import-substituting equipment. PJSC Gazprom aims at diversifying the power generation business by entering promising markets in Russia and abroad.

[6] Background information for the PJSC Gazprom's Power Generation Strategy press conference (20 May 2019): https://energoholding.gazprom.ru/d/textpage/3f/63/background-press-conf-2019-05-20-ru_1.pdf

NEW STRATEGY OF GAZPROM GROUP FOR 2018–2027

STRATEGY IN THE DOMESTIC MARKET

- **Generating capacity upgrades (CSA-2)**
  Commissioning of **up to 5 GW** of capacity
- **Operational efficiency improvements**
  Decommissioning of **up to 4.3 GW** of low-performing capacity
  Savings gained via cost cutting: **RUB 9.9 bn** in 2017–2019
- **Investment in the heat supply infrastructure**
  Replacing **up to 1,800 km** of heat networks

TECHNOLOGY

- **Measures to ensure a reliable electricity supply to Gazprom Group facilities**
  Construction of two major power generating plants to supply Gazprom's processing facilities: 160 MW Svobodnenskaya TPP, 200 MW Pančevo CHPP (Serbia)
- **Import substitution**
  Priority of Russian equipment is a strategic goal as it helps capture opex savings from capex projects
- **Embedding more innovative technology in operations**

INTERNATIONAL EXPANSION

- **Synergies with Gazprom Group's core business – production and distribution of natural gas – is key to successful international business development**

  KEY PROJECTS:
  - Construction of Pančevo CHPP in Serbia – about **200 MW**
  - Construction of TPP in Serbia – about **200 MW**
  - Construction of Quảng Trị TPP in Vietnam (jointly with Gazprom EP International) **350 MW**
  - Potential joint projects with CNPC in China – **up to 1.5 GW**

- **Gazprom Energoholding Group's target position in international markets by 2027:**
  3.9 GW – installed capacity of non-Russian assets
  ~23 bn kWh – annual electricity output
  ~4 bcm – annual consumption of natural gas

DIVERSIFICATION

- **Entering adjacent segments synergetic with the core business**

  THE STRATEGIC GOAL IS TO BOLSTER DEMAND FOR ELECTRICITY AND HEAT:
  Business clusters at GRES' territories can give businesses sites to locate production facilities near a source of energy

- **Effective communication within Gazprom Group**
  - Efficient use of natural gas in the UGSS of Russia – load optimisation during peak consumption periods in winter (re-allocation of **up to 9 mmcm** of natural gas a day with no environmental impact)
  - Potential controlling stakes in other companies for non-payment for supplied natural gas

SUSTAINABLE DEVELOPMENT AGENDA

The 2018–2019 Sustainability Report discloses 20 material topics[7]

UNDERSTANDING SUSTAINABLE DEVELOPMENT AND CORPORATE SOCIAL RESPONSIBILITY

Gazprom Energoholding Group understands sustainable development as defined by the United Nations: "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Corporate social responsibility is understood as defined by ISO:26000: "Social responsibility is the responsibility of an organisation for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour."

Corporate Governance and Remuneration Policy

MEMORANDUM OF INTENT OF PJSC GAZPROM

Power generation sector is a strategic line of business for Gazprom Group. In the last 10 years, PJSC Gazprom has established Russia's largest vertically integrated power generation holding company consolidating electricity and heat generating assets, heat transmission and distribution assets, as well as assets in related segments.

Gazprom Group's power generation assets are consolidated within its 100 % subsidiary ООО Gazprom Energoholding which has controlling stakes in PAO Mosenergo, PAO TGC-1 and Moscow's single heat supply company – PAO MIPC. PAO Tsentrenergoholding, a subsidiary of ООО Gazprom Energoholding, holds the controlling stake in PAO OGK-2.

PAO Mosenergo, PAO TGC-1, PAO OGK-2 and PAO MIPC are integrated in Gazprom Group's business and are not viewed as disposable assets.

PJSC Gazprom's priority in power generation is to steadily develop the generating companies and ensure their stable financial growth while maintaining a reliable power supply to consumers.

PJSC Gazprom follows a unified set of corporate standards in managing the companies, recognises the importance of improving the corporate governance at subsidiaries and affiliates and strives to ensure openness and transparency of their activities.

[7] For more details see Appendix 1.3.

CORPORATE GOVERNANCE CODE[8]

Gazprom Energoholding Group continuously improves and develops its corporate governance practice while tracking and complying with the principles and best Russian standards of the Corporate Governance Code recommended by the Bank of Russia's Letter No. 06-582/2463 dated 10 April 2014.

102-18 CORPORATE GOVERNANCE BODIES

Gazprom Energoholding provides management of subsidiaries and affiliates in line with the procedures set out by applicable laws, statutes and internal regulations of the companies.

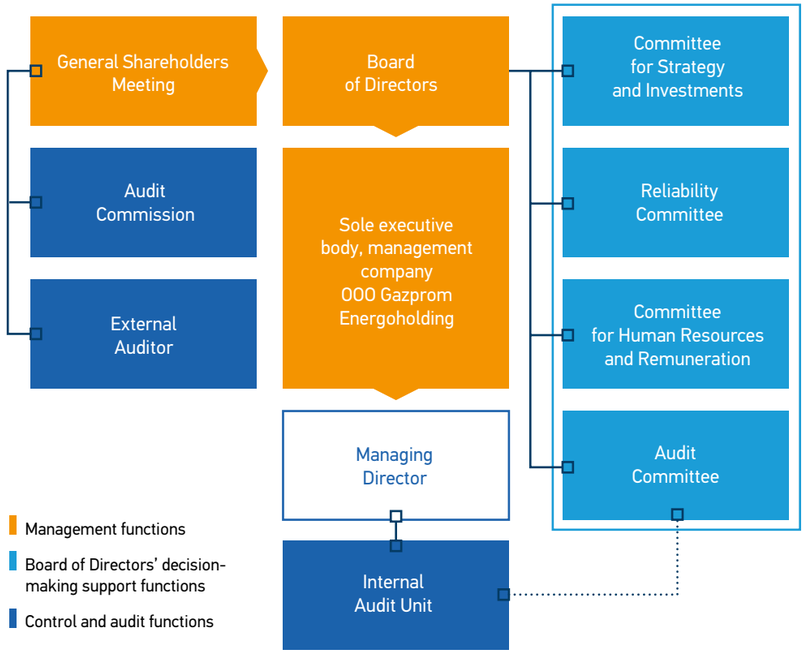
The governance structure of the Group's generating companies is built to uniform standards. The corporate governance bodies are the General Shareholders Meeting, the Board of Directors and the management company as the sole executive body. At the generating companies, executive powers are delegated to ООО Gazprom Energoholding, with positions of managing directors added to the governance structure (Mosenergo since May 2015, MIPC since November 2016, OGK-2 since July 2018 and TGC-1 since September 2019).

The Board of Directors and the sole executive body manage the Company in strict compliance with the principles of shareholder and investor right protection, transparency and openness.

Roles and responsibilities for day-to-day economic, environmental, and social matters may be partially delegated and re-distributed within the corporate structure of the Group's generating companies.

For more details on governing bodies, their powers, membership and activities see the 2018-2019 Annual reports of the generating companies.

CORPORATE GOVERNANCE STRUCTURE



[8] For more details on compliance with the Bank of Russia Corporate Governance Code see the 2018-2019 annual reports of the generating companies.

GAZPROM ENERGOHOLDING

Economic matters	Social matters[9]	Environmental matters
• Production Directorate • Wholesale Electricity and Capacity Market (WECM) Forecasting and Methodology Directorate • Economics Directorate • Internal Audit Directorate • Treasury Directorate • Heat Generation Business section	• Human Resources Directorate • Staff Training and Organisational Development Directorate	• Director for Production section • Coordinating Committee for Environmental Protection

MOSENERGO

Economic matters	Social matters[9]	Environmental matters
• Efficiency and Control section • Marketing section • Production section • Development section	• Benefits and Compensations Office • Personnel Development Office • Public Relations and Government Relations section • Training Centre	• Head of the Occupational Health, Safety and Environment Directorate • Environmental Service (a business unit within the General Directorate, part of the Occupational Health, Safety and Environment Directorate) • Officers responsible for environmental protection across the company's branches • Environmental Team responsible for on-site day-to-day environmental protection activities across branches (as part of the Branch Standards Service)

MOEK

Economic matters	Social matters[9]	Environmental matters
• Economics and Finance section • Strategy section • Marketing section • Chief Engineer section	• Human Resources Directorate • Training Centre	• The production section, represented by the Ecology and Environmental Protection Office (within the Production Directorate of the Administrative Office, directly reporting to the First Deputy General Director – Chief Engineer) • Production offices at branches have environmental engineers reporting to the chief engineers of the branches

[9] Social matters may be partially delegated to other functions.

Economic matters	Social matters	Environmental matters

TGC-1

- Chief Engineer section
- Marketing and Sales section
- Economics and Finance section
- Karelsky Branch Economics and Finance Director section
- Kolsky Branch Economics and Finance Director section

- Remuneration and Employment Office: social benefits and guarantees
- Social and Labour Relations Directorate: voluntary health insurance (VHI), accident insurance, and private pension plans; employee health and recreation programmes, including for families; the Veterans Council; and the housing policy
- Joint permanent commission for developing and monitoring the Collective Bargaining Agreement
- Public Relations Department: charitable and sponsorship activities
- Committee for Charitable and Sponsorship Support
- Training Centre

- Deputy General Director – Chief Engineer
- Environmental Service (administratively reporting to the Director of Yuzhnaya CHPP, Nevsky Branch; functionally reporting to the Head of the Power Plant Operation Department)
- Environmental functions of Karelsky and Kolsky Branches (reporting to the chief engineers of relevant branches)
- Environmental officers in business units (typically, chief engineers)
- All business units have environmental engineers reporting to the chief engineers of relevant units

OGK-2

- Production Directorate
- Energy Distribution Directorate
- Economics Directorate
- Quality Management System (QMS) and Business Solution Assessment Project Centre, Business Project Centre

- The Human Resources Directorate of the Executive Office
- Commission on the Regulation of Social and Labour Relations
- Commission for Charitable Sponsorship Support

- The Environmental Team within the Production Directorate
- Environmental protection branch offices

102-35 REMUNERATION POLICY

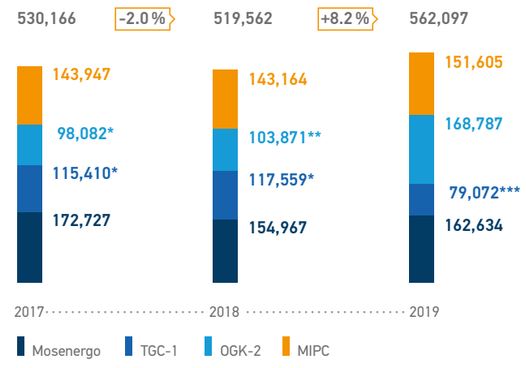
The amounts of remuneration and compensations to board members at generating companies are set forth by the Regulations on the Guidelines on Remuneration and Compensations of the Board of Directors. As stipulated by the Federal Law On Joint Stock Companies and the Regulations above, remuneration to Board members is paid by resolution of the General Shareholders Meeting and depends on both the generating companies' general and Board members' individual performance in the reporting period.

For more details on the remuneration and compensation policy to board members see the 2018-2019 Annual reports of the generating companies.

Remuneration to Members of the Boards of Directors at Generating Companies in 2017–2019, RUB thousand

Financial incentives to the sole executive body of the Group companies – the management company (OOO Gazprom Energoholding) are regulated by agreements on delegating the powers of a sole executive body.

Remuneration to the Management Company (Members of the Management Board) of Generating Companies in 2017–2019, RUB thousand including VAT



* Remuneration to the General Director and members of the Management Board before delegating the powers of a sole executive body.

** By the resolution of the Annual General Shareholders Meeting of OGK-2 dated 26 June 2018, the powers of the General Director of OGK-2 were delegated to the management company – OOO Gazprom Energoholding, on 28 June 2018. By the resolution of the Board of Directors of OGK-2 dated 21 May 2018 (Minutes No. 195 dated 22 May 2018), the powers of the Management Board were terminated on 26 June 2018.

*** By the resolution of the Extraordinary General Shareholders Meeting of TGC-1 dated 27 September 2019, the powers of the General Director of TGC-1 were delegated to the management company – OOO Gazprom Energoholding, on 30 September 2019. By the resolution of the Board of Directors of TGC-1 dated 17 September 2019 (Minutes No. 9 dated 18 September 2019), the powers of the Management Board were terminated on 29 September 2019.

102-15 Risk Management

APPROACH TO RISK MANAGEMENT

The Risk Management and Internal Control System (RMICS) operating across Gazprom Energoholding Group's generating companies covers a range of interrelated activities and processes, the organisational structure, local regulations, other documents, methodologies and procedures (regulations, rules, standards and guidelines), corporate culture standards and initiatives implemented across all governance levels at the Group companies, and involves risk identification, assessment and prioritisation, as well as developing risk mitigants and controls, monitoring risks and implementing risk management and internal control initiatives to provide reasonable assurance that strategic and operational goals are met. This process involves concerted efforts from both managers and employees across all corporate governance levels at Gazprom Energoholding Group companies.

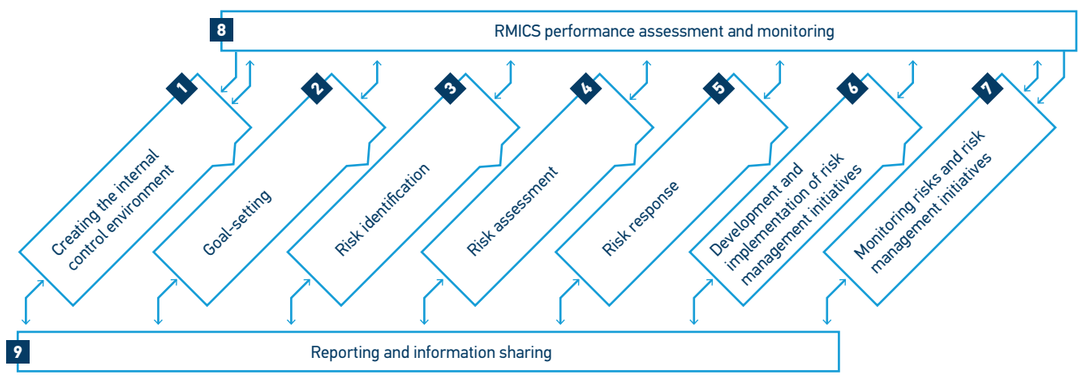
ООО Gazprom Energoholding has in place the Risk Management and Internal Control Policy approved by Order No. 95-GEH dated 5 November 2019.

In 2019, the Group's generating companies approved their respective Risk Management and Internal Control Policies outlining the shared principles and approaches to the risk management and internal control system, detailing related goals and objectives and assigning respective roles.

Risk Management and Internal Control Policies

Company	Document
Mosenergo	PAO Mosenergo's Risk Management and Internal Control Policy approved by resolution of the Board of Directors (Minutes No. 70 dated 5 August 2019)
TGC-1	PAO TGC-1's Risk Management and Internal Control Policy approved by resolution of the Board of Directors (Minutes No. 6 dated 19 August 2019)
OGK-2	PAO OGK-2's Risk Management and Internal Control Policy approved by resolution of the Board of Directors (Minutes No. 223 dated 30 September 2019)
MIPC	PAO MIPC's Risk Management and Internal Control Policy approved by resolution of the Board of Directors (Minutes No. 119 dated 16 August 2019)

Key Components of the Corporate Risk Management and Internal Control System (RMICS)



THREE LINES OF DEFENCE

Risk Management and Internal Control Policies provide for three lines of defence.

First line of defence – risk management and internal control at the business process level. Implemented by business process owners in business units of the Company and owners (co-owners) of risks and internal control procedures.

Second line of defence – providing implementation guidelines for a unified risk management and internal control policy, and coordinating risk management and internal control activities at business units of the Company. Implemented by the Risk Management and Internal Control Centre.

Third line of defence – internal assessment of the RMICS performance. Performed by the Company's business unit responsible for duly organising and conducting internal audits of the RMICS.

102-29 Participants of the Corporate Risk Management and Internal Control System

Participants	Key powers
Board of Directors	Approves the overall risk management and internal control policy, including the principles and approaches to organisation, functioning and development of the RMICS. Establishes upper tolerable and threshold limits of risks. Reviews matters pertaining to RMICS organisation, functioning and effectiveness, including the results of RMICS assessment and self-assessment, and provides recommendations to improve the RMICS as necessary.
Audit Committee of the Board of Directors	Monitors the reliability and effectiveness of the RMICS, engages in preliminarily reviews and provides advice to facilitate decision-making of the Board of Directors on matters related to the RMICS.
Sole executive body (management company)	Ensures the functioning of the RMICS.
Managing Director of the Company	Facilitates the functioning of the RMICS, follows up decisions of the Board of Directors related to the organisation of the RMICS and approves reports on key risks and risk management initiatives.
Risk Management and Internal Control Centre (RMICC)	Coordinates risk management and internal control activities at business units, defines guidelines to handling risk management processes and internal control procedures and prepares consolidated reports on the RMICS for governing bodies. The activities of the RMICC are functionally separated from the internal audit function, supervisory units and economic security unit.
Owners of business processes	Ensure the functioning of the RMICS within their respective business processes.
Owners (co-owners) of risks	Implement risk management stages.
Owners (co-owners) of internal control procedures	Ensure the implementation, execution and continuous monitoring of the effectiveness of internal control procedures.

To identify, assess and manage risks, the RMICC of ООО Gazprom Energoholding engages with owners (co-owners) of risks at the Company, with risk coordinators (Risk Management Centres) at subsidiaries and affiliates and the Risk Management and Internal Control Unit of PJSC Gazprom.

In 2019, the risk management function at Gazprom Energoholding Group was performed by risk coordinators (Risk Management Centres):

- ООО Gazprom Energoholding – Risk Management and Internal Control Office (2 persons);
- Mosenergo – Head of Risk Management| (1 person);
- TGC-1 – Head of Risk Management Projects (1 person);
- OGK-2 – Chief Expert of the Economic Directorate (1 person);
- MIPC – the Operational Risk Management Centre (4 persons).

In 2020, the Group's generating companies also set up risk management and internal control units.

The RMICS covers all operations of the Group's generating companies.

Gazprom Energoholding Group is committed to the ongoing development of its risk management system. Employees across Gazprom Energoholding Group companies are provided with regular training to improve their risk management skills.

We recognise that apart from being exposed to internal and external risks, Gazprom Energoholding Group's generating companies also expose their stakeholders to potential risks, therefore a similar policy is applied when managing stakeholder risks related to operations of Gazprom Energoholding Group companies.

KEY RISKS OF GAZPROM ENERGOHOLDING GROUP COMPANIES

Risk	Description	Risk management / mitigation
INDUSTRY-SPECIFIC RISKS		
Risk of lower demand for electricity (or demand being replaced by rivals)	Lower sales of electricity / heat.	Optimise the equipment mix. Decommission economically unviable equipment. Redistribute heat loads among sources.
Risk of higher corporate expenses due to a rise in energy prices	A significant increase in energy prices. Fuel cost growth rates considerably exceed the forecasts.	Diversify the supplier base. Accumulate fuel stock. Monitor the fuel market.
Risk of lower prices in the Day-Ahead Market (DAM)	Lower margins from electricity sales in the wholesale market due to pricing headwinds in the Wholesale Electricity and Capacity Market (WECM).	Use the most suitable trading strategies in the WECM. Streamline the supply schedule based on WECM prices depending on the time of day. Decrease Pmin. Improve technical and economic performance.
STRATEGIC RISKS		
Risk of lower effectiveness of initiatives due to poor business decisions	Incorrect evaluation of the effectiveness of business decisions. Lower share of effective initiatives within the Company's production programmes. Higher share of non-core loss-making businesses.	Run a variance analysis for the largest Performance projects completed in the previous year. Regularly hold career enhancement courses on Performance Management and Enterprise Valuation. Approve the share of costs allocated for Performance initiatives in production programmes. Create a special employee bonus fund. Maintain the most cost-efficient operating mode for the equipment used non-core loss-making businesses.
Risk of failure to implement production programmes	Shortage of repair capacity. Failure to comply with project stage deadlines. Failure to commission equipment on time. Insufficient funding for scheduled service / maintenance of new generating facilities.	Service contracts to provide for liability for completing the work with a delay or with faults that result in defects. Request documents from the Customer on personnel and engineers engaged (qualification certificates, similar experience). Schedule worker mobilisation. Develop an activity progress chart for equipment (materials) supply and construction and installation work. Design targeted initiatives and technical programmes tailored for specific plant or equipment units based on process sheets.
OPERATIONAL AND TECHNICAL RISKS		
Risk of failure of capital equipment	Risk of equipment breakdowns, heating emergencies or process disruptions.	Carry out repairs, upgrades, revamps and retrofits on a timely basis. Brief, train and upskill the personnel (including special training using simulators). Regularly run preventive inspections of equipment and identify equipment that requires replacement (repair) on a priority basis. Identify equipment that has design defects, remove defects or replace the equipment. Implement an investment programme to replace outdated capacity with new capacity. Run exercises (drills) to build emergency skills. Brief the personnel and contractors.
Fire risk or risk of non-compliance with statutory requirements for civil defence and emergency response being identified by regulatory audits	Non-compliance with the requirements or initiatives related to civil defence; non-compliance with the requirements, standards or rules for emergency response and prevention, civil defence and protection of populations and territories against emergencies.	Timely take measures related to civil defence. Comply with the requirements, standards and rules for emergency response and prevention. Set up local fire services at major power plants to be provided with necessary equipment, inventory and personnel. Timely and fully finance civil defence and emergency response initiatives. Follow up the implementation of requirements for civil defence and emergency response. Train and upskill personnel at specialised training centres and directly at TPPs. Train and certify employees for safety of industrial, energy and hydraulic facilities. Develop, test and regularly review emergency response and prevention plans and emergency containment and response plans for hazardous industrial facilities.
Risks of work-related injuries	Violation of occupational health and safety requirements by employees.	Brief employees on the need to use personal protective equipment. Check the (correct) use of personal protective equipment by employees. Check availability of personal protective equipment to employees. Timely issue personal protective equipment to employees. Provide accident and health insurance for the personnel. Run special assessments of working conditions, minimise occupational hazards and harmful factors. Provide the personnel with necessary personal and collective protective equipment and raise awareness of the personnel on safe behaviours. Deploy industrial safety, occupational safety and environmental protection systems. Run regular performance audits for these systems.
Risk of project cost overruns	Works or services overcharged based on labour costs quoted when determining the guaranteed maximum price.	Analyse the pricing environment in the relevant procurement market more thoroughly. Expand the range of information sources to collect data for determining guaranteed maximum prices. Use bidding procedures to contract works and services. Train employees of the procurement initiating unit on advanced pricing techniques.
Risk of inventory failure / becoming outdated	Improper storage of inventories in warehouses, resulting in their losing their consumer properties, extra costs to acquire new inventories and delays in implementing the production programme / improper maintenance of plant and equipment (roof leaks, poor heat insulation or waterproofing of windows, etc.).	Tighten the monitoring of inventory storage quality by the branch's procurement managers. Plan the necessary repair / maintenance required for correct operation of plant and equipment in a more focused way. Ensure that the branch's technical service tightens its monitoring of the quality of maintenance of equipment and energy networks and plant and equipment repairs at the branch's warehousing facilities. Insure inventories against force majeure.

Risk	Description	Risk management / mitigation
LEGAL RISKS		
Risk of the Company's deteriorating performance as a result of statutory regulations adopted / modified to regulate the activities of power generation entities, including the Rules of the Wholesale Electricity and Capacity Market or regulations for electricity or heat supply	Changes in legislation on electricity or heat supply and other related energy sectors have a material impact on the Company's performance since: • As a business entity operating in the Russian Federation, the Company must operate within the existing legal framework and comply with federal, regional and municipal requirements; • The Company's areas of operation are considered to be socially significant and as such are monitored and regulated by the government, resulting in the government's impact on operations of business entities within the existing legal environment. Therefore, the role of monitoring and appropriate timely responses to legislative changes becomes increasingly important in securing the Company's interests or defending its business.	Regularly monitor and analyse changes in the regulatory framework. Prepare and submit positions to minimise the risks impacting the industry. Design alternative projects to address identified issues. Upskill the personnel.
Non-compliance of existing processes with statutory requirements	Processes can be discontinued as a result of supervisory inspections until they are brought in compliance with statutory requirements. An emergency can arise with damage to equipment and threats to lives and health of employees or third parties.	Monitor legislative changes related to power generation, the environment, etc. Include initiatives in the investment programme to bring processes in compliance with legislation. Organise timely repair of equipment. Make financial provisions to address non-compliances.
Risk of a court decision giving rise to liabilities	Complaints and claims (to recover debt, indemnify for losses or protect property rights) against / by the Company being upheld / dismissed by the court.	Participate in training workshops, roundtables and forums. Hold meetings to discuss legislative changes and changes in judicial practice.
Risk of delay in receiving / suspension of permits (licenses)	Changes to requirements for the licensing of the Company's core activities or expiry of licenses.	Thoroughly examine the requirements of document drafting rules and changes to licensing requirements Thoroughly prepare the package of documents in line with the requirements of licensing authorities. Monitor the validity terms of licenses and licensing requirements. Ensure timely payment of state duties.
FINANCIAL RISKS		
Credit risk (risk of an increase in accounts receivable due to untimely or incomplete performance of financial obligations by counterparties)	Increase in accounts receivable under WECM contracts for heat and heat carriers.	Monitor counterparties in the WECM. Monitor timely discharge of obligations by counterparties (following up payment timelines). Ensure that contracts signed provide for payment timelines and terms. Educate consumers on payment requirements describing liabilities for delay in payment under applicable laws. Adopt direct payment by end consumers of energy. Manage claims to recover debt in court, initiate bankruptcy of the Company's debtors and limit (or outage) of heat supply to them.
Foreign exchange risk	Risk of adverse change in the fair value of liabilities denominated in a foreign currency as a result of change in foreign exchange rates. Risk of changes in expenses denominated in a foreign currency as a result of change in foreign exchange rates.	Monitor the exchange rate and where necessary: • make a liquidity provision in a foreign currency to secure corporate liabilities linked to such currency; • enter into hedging transactions using financial derivatives under existing forward and future contracts in financial markets (RISDA). Ensure regular (quarterly) assessment of the foreign exchange risk. In case of strong exposure to the foreign exchange risk, amend contractual terms, including entering currency clauses into agreements and changing terms of payment thereunder. Optimise the currency mix of the deposit / investment portfolio.
Risk (tariff risk) of the regulator making adverse changes in capacity tariffs	Increases in tariffs for heat generation as a regulated activity are limited by maximum allowable indices for changes in retail utility fees payable in municipalities and indices for changes in retail utility fees payable on average across Russian regions. The growth rates for electricity tariffs under regulated contracts and must-run generation is approved at the level specified in the Forecast of Russia's Socio-economic Development drafted by the Russian Ministry of Economic Development.	Develop tariff strategies (for each branch) to mitigate the risk. Monitor legislative initiatives, develop positions and reports on identified risks of adverse impact.
Interest risk	Risk of changes in interest gains or losses due to volatile interest rates.	Hedge (interest swap).
Liquidity risk	Inability to discharge obligations in time and in full.	Maintain a liquidity chart, payment schedule and a liquidity cushion.
Tax risks	Risk of an additional property tax charge.	Potentially take measures to settle claims in court depending on the results of a field tax audit after the decision is received.
ENVIRONMENTAL RISKS		
Risk of sanctions from supervisory authorities for breaching the requirements of environmental laws	The number of breaches of environmental laws identified by environmental supervision authorities, which have not been timely remedied through the fault of the risk owner.	Follow up timely implementation of measures to remedy breaches of environmental laws.
RISKS OF SUPPORTING PROCESSES		
Risk of IT system failure	Failure of IT systems related to the operation of desktop PCs, installed software and electronic signature keys.	Procure additional mains-independent laptops with long battery life and unlimited high-speed connectivity in case of IT or software failures at the Company's office.
Compromised data integrity, accessibility or confidentiality	Unauthorised access to or unauthorised activities with information that violate the access rights based on standard tools offered by hardware or automated systems. Unauthorised disclosure of protected data to persons not entitled to access such data.	Protect IT infrastructure using technical means. Take organisational measures (including personnel training).

Risk	Description	Risk management / mitigation
COUNTERPARTY (PROCUREMENT) RISKS		
Violation of delivery terms for inventory or equipment	Delays in delivering inventory or equipment can delay scheduled repairs or disrupt equipment operation.	Improve the system for preliminary counterparty risk analysis before deciding on contracting with them (before awarding them procurement tenders). Streamline the follow-up of obligations.
PERSONNEL AND SOCIAL RISKS		
Risk of process failures and accidents caused by personnel errors	Personnel errors committed when operating core and auxiliary equipment resulting in its shutdown or damage.	Ensure highly qualified training and establish levels for admission to unsupervised work with equipment. Effectively balance work and rest. Organise workplaces ergonomically. Run emergency drills, analyse emergency-related data.
Asset loss risk	Unlawful interference at a generating facility.	Organise and maintain the necessary level of the facility's physical security (install and maintain a security system, engage physical security services and maintain access control at the facility).
Reputational risk	Deterioration of the Company's image.	Align the positions on information materials between responsible business units and the information function. Draft a regulation outlining the procedure for aligning and disclosing information to media.
Shortage of qualified personnel	Reliance on and loss of key employees. Lack of new hires.	Building and developing a talent pool under a comprehensive programme. Implement joint programmes with educational institutions. Educate and retrain personnel. Run youth engagement initiatives. Analyse and provide attractive working conditions and competitive wages. Monitor the age and skills mix of personnel, analyse personnel rotation and staffing levels.
Corruption risk	Abuse of office or other unlawful abuse of position by individuals.	Take comprehensive measures to prevent and detect corruption.

SUSTAINABILITY RISK MANAGEMENT

The RMICS of Gazprom Energoholding Group covers, among other things, identification, monitoring and management of sustainability risks.

The Group's identified risks include environmental, social, reputational and other sustainability risks.

Gazprom Energoholding Group companies are committed and contribute to the UN's Sustainable Development Goals (SDGs), including through timely identification, assessment and response to sustainability risks.

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CLIMATE CHANGE RISK

Climate change can impact the productivity, efficiency, and costs of electricity producers.

Higher air temperatures can give rise to the following risks for generating companies:

- Warmer cooling water reduces turbine efficiency and, accordingly, the overall cycle efficiency;
- Lower CCGT performance;
- In summer, higher cooling air temperatures limit available capacity;
- An increase in average annual temperatures results in the redistribution of electricity and heat generation, with more electricity occasionally required for air conditioning in summer and lower heat consumption in winter;
- Higher air temperatures increase thermal pollution of water bodies.

A risk analysis run by an expert team comprising representatives from the Group's generating companies, has shown the following:

- Higher average air and water temperatures will not have a significant negative impact on the Group's electricity generation efficiency;
- Where climate change leads to reduced availability of cooling water, the Group's power plants can be upgraded to reduce water intake or switch to a closed water loop. Exposure to such risk is also low, with most power plants operated by the Group already using a closed cooling water loop;
- Warmer winters decrease the likelihood of switching to the backup fuel (fuel oil), resulting in an extra positive effect – lower emissions – in case of gas restrictions.

The analysis shows that no special initiatives to manage these risks or costs to implement preventive measures are currently required.

The Programme for Adapting ООО Gazprom Energoholding to Climate Change for 2017–2020 has been developed to preclude other climate change risks. The programme provides for measures to be taken by Gazprom Energoholding Group companies to reduce GHG emissions. Key mechanisms under the emission reduction programme include:

- Taking environmental aspects into account (including GHG emission reduction) and assessing the footprint of operations when planning, developing and implementing investment projects;
- Environmental oversight and monitoring of operations, assessing the environmental impacts of the Group's operations;
- The Group's involvement in environmental programmes and sustainability projects across its operating regions;
- Encouraging research and implementing innovative projects in energy efficiency, renewables and alternative energy sources;
- Using the best available technologies at different phases of operations, including procurement of technologies, materials and equipment.

A survey covering the sites of certain facilities of Gazprom Energoholding Group potentially located within permafrost areas is planned for 2021 and 2022 to assess the hazards related to changes in permafrost conditions, including: AO Murmanskaya CHPP, Surgutskaya GRES-1, an OGK-2 branch, and Apatitskaya CHPP, TGC-1 Kolsky Branch.

BIODIVERSITY RISKS

One of the environmental aspects exposed to risks from the operation of power plants includes the impact on aquatic biological resources during withdrawal of natural water from surface water bodies and during the operation of hydro power plants.

Risks of damage to aquatic habitats across the Company's footprint are managed and monitored across all phases of Gazprom Energoholding Group's operations.

Fish-protection systems are installed at the Group's power plants withdrawing water to reduce negative impacts on aquatic biological resources. Hydro power plants also feature fishways.

Facilities with the highest potential environmental impacts are subject to independent biodiversity assessments. For example, a global research study has been undertaken by Kola Science Centre of the Russian Academy of Sciences at TGC-1, which will cover the period from 2018 to 2021. The research focuses on the condition of fish stocks, the biology and changes in the amount of aquatic resources within the area of the spillway gate (currently being revamped) of Nizhne-Tulomskaya HPP of the Kolsky Branch to assess the impact on fish stocks and prepare recommendations on preventing damage to fish stocks. Reports for 2018 and 2019 conclude that the spillway gate revamp does not have any additional impact on aquatic biological resources and their habitats. However, further revamp of Nizhne-Tulomskaya HPP up to the project's completion will require annual monitoring of the condition of the fish fauna, other hydrobionts and their habitats.

Power plants are stocking fish into local water bodies. In 2019, OGK-2 stocked the Krasnoyarsk Reservoir in the Yenisey River basin with 12,789 young sturgeon as part of a restoration initiative to recover damage to aquatic biological resources. Young zander were released into the reservoir on the Shelon River in the Dedovichsky District. The initiative aimed at restoring the fish populations of the reservoir, which feeds Pskovskaya GRES. Troitskaya GRES, an OGK-2 branch, released 1,020,443 young carps to stock the Troitskoye Reservoir.

INFORMATION SECURITY RISK

Information security is an integral part of Russia's national security, which is becoming increasingly important as technological and business processes are digitised globally. Deploying cutting-edge technology, including automation, computerisation and digitisation across the Group's operations will increase its reliance on the correct and efficient performance of information systems and information security systems.

The Group's generating companies are guided in this area by applicable federal regulations, Gazprom Group's standards and import substitution programmes. The Group's generating companies have in place relevant policies, rules, instructions and action plans guiding their personnel how to act in case of failure of IT infrastructure or automated process control systems, including failures caused by computer attacks.

All new hires are briefed and introduced to applicable local regulations in this area, while information security employees are trained under related programmes on a regular basis.

The Group companies strive to maintain an open dialogue with all stakeholders

Positive credit ratings from the leading credit rating agencies

MOSENERGO

«Expert RA»

«ruAAA»
STABLE OUTLOOK
(at the time of the Report pulication the rating is withdrawn)

S&P Ratings

«BBB-»
STABLE OUTLOOK

Fitch Ratings

«BBB»
STABLE OUTLOOK

TGC-1

ACRA

«AA(RU)»
STABLE OUTLOOK

Fitch Ratings

«BBB»
STABLE OUTLOOK

S&P Ratings

«BBB-»
STABLE OUTLOOK

OGK-2

Fitch Ratings

«BBB-»
STABLE OUTLOOK

«Expert RA»

«ruAA+»
STABLE OUTLOOK

MOEK

«Expert RA»

«ruAA-»
POSITIVE OUTLOOK

Stakeholder Engagement

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Stakeholder Map

The sustainable development of Gazprom Energoholding Group companies is directly linked to the quality of its stakeholder relations. The Group companies strive to maintain an open dialogue with all stakeholders as we believe that all parties equally influence each other, and regard responsibility, transparency and taking account of all stakeholders in decision-making as essential elements to effective stakeholder relations.

STAKEHOLDERS MOST RELEVANT TO GAZPROM ENERGOHOLDING GROUP COMPANIES' ACTIVITIES

SHAREHOLDERS AND INVESTORS

LENDERS AND RATING AGENCIES

HEAT, ELECTRICITY AND CAPACITY CONSUMERS

Including suppliers of last resort and major industrial consumers

THE GOVERNMENT OF THE RUSSIAN FEDERATION, INDUSTRY REGULATORS, MINISTRIES AND AGENCIES, REGIONAL EXECUTIVE AUTHORITIES

LOCAL COMMUNITIES

Including residents, civil society organisations and local authorities

ENVIRONMENTAL GROUPS

EMPLOYEES, TRADE UNIONS AND INDUSTRY-ORIENTED UNIVERSITIES

SUPPLIERS OF GOODS AND SERVICES

Main principles for defining stakeholder groups:

- shared interests in, and expectations from, the Group companies;
- their contribution to achieving the Group companies' strategic goals;
- stakeholder engagement tools used by the Group companies.

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Regular Stakeholder Engagement

SHAREHOLDERS AND INVESTORS

Topics

- financial and operational results;
- investment programmes;
- dividend policy;
- shareholder value growth;
- operational efficiency improvement and cost reduction;
- business development strategy;
- M&A activities.

Events and their frequency

General shareholders meetings of Mosenergo, TGC-1, OGK-2 and MIPC to discuss critical operational matters:

- annual general shareholders meetings are held once a year;
- extraordinary general shareholders meetings have been held once by Mosenergo and by MIPC and three times by TGC-1 in 2018–2019.

The Boards of Directors and their committees at Mosenergo, TGC-1, OGK-2 and MIPC function as platforms for continuous communication between the representatives of major shareholders to consult, search for a compromise and reach agreements on the most urgent issues.

Preparations to the meetings of the governing bodies and committees include discussions and collecting proposals from major shareholders on matters to be discussed and candidates to participate. Meetings are convened on a regular basis and conducted in line with established corporate procedures.

Regular IR events where top managers of OOO Gazprom Energoholding, Mosenergo, TGC-1 and OGK-2 meet shareholder representatives, investors and analysts:

- PJSC Gazprom's Investor Day;
- PJSC Gazprom's Energy Day;
- Gazprom Energoholding Group's Analyst and Investor Day.

Regular conference calls have been held in 2018–2019 to present the 1H and FY IFRS results of Mosenergo, OGK-2 and TGC-1.

One-off individual and group conference calls and meetings with shareholders, analysts and investors of OOO Gazprom Energoholding, Mosenergo, TGC-1, OGK-2 and MIPC as part of events by investment funds and banks.

Timely disclosures on the corporate websites of OOO Gazprom Energoholding, Mosenergo, TGC-1, OGK-2 and MIPC in line with the Russian legislation and provision of all the information required by the relevant foreign legislation to depository banks.

Publication on the corporate websites of OOO Gazprom Energoholding, Mosenergo, TGC-1, OGK-2 and MIPC, as well as newsletters to shareholders, analysts and investors with presentations, informational and explanatory materials whose disclosure is not required by law.

Phone conversations, meetings with the management and informing shareholders, analysts and investors upon their request (up to several times a week).

PROVIDERS OF CAPITAL (lenders and rating agencies)

Topics

- financial and operational results;
- investment programmes;
- debt ratios and debt portfolio structure;
- credit policy;
- business development strategy;
- M&A activities.

Events and their frequency

Meetings between the management of Mosenergo, OGK-2 and TGC-1 and representatives of rating agencies, providing all the necessary information upon their request to change or confirm ratings:

MOSENERGO:

- **«Expert RA»**
  «ruAAA», stable outlook (at the time of the Report pulication the rating is withdrawn)
- **«S&P Ratings»**
  «BBB-», stable outlook
- **Fitch Ratings**
  «BBB», stable outlook

OGK-2:

- **Fitch Ratings**
  «BBB-», stable outlook
- **«Expert RA»**
  «ruAA+», stable outlook

TGC-1:

- **ACRA**
  «AA(RU), stable outlook
- **S&P Ratings**
  «BBB-», stable outlook
- **Fitch Ratings**
  «BBB», stable outlook

MIPC:

- **«Expert RA»**
  «ruAA-», positive outlook[10]

Negotiations to place bonds and secure bank loans.

Publication of annual and quarterly reports on the Group companies' financial performance, liabilities and potential risks.

[10] Changed to ruAA– with a stable outlook on 11 August 2020.

LOCAL COMMUNITIES (residents, civil society organisations and local authorities)

Topics

- uninterrupted heat and electricity supply;
- compliance with environmental regulations and standards;
- energy saving and energy efficiency;
- compliance with safety standards and rules;
- job creation and wage levels;
- taxes;
- philanthropy;
- joint activities with NGOs and local authorities;
- participation in local infrastructure development;
- business development.

Events and their frequency

Regular participation in expert discussions, meetings and working groups for regional development at municipal governing bodies.

Regular informational meetings with the governments in the regions of the Group companies' operation.

Public hearings every time the construction of a new industrial facility begins.

Publication of annual and quarterly reports on the Group companies' performance, investment and social projects, including those to develop the regions of their facilities operation.

At least once a month – outreach events that help educate local residents on:

- electricity and heat generation;
- activities of the Group companies in the region;
- ways to increase energy efficiency and safe energy use;
- action plan in case of an emergency at the Group's facilities.

Participation of the Group employees in events by local authorities and NGOs.

Regular reports to local authorities and consumers upon request on emission levels, measures to reduce emissions in case of unfavourable weather, quality of hot water and energy indirect emissions.

Publication on the corporate websites of ООО Gazprom Energoholding, Mosenergo, TGC-1, OGK-2 and MIPC and circulation through the media of information affecting the interests of local communities, other companies and local authorities in the regions of the Group companies operation – when necessary due to certain events.

CUSTOMERS (including wholesale heat, electricity and capacity consumers, suppliers of last resort and major industrial consumers)

Topics

- uninterrupted heat and electricity supply;
- operating indicators;
- investment programmes;
- connection terms;
- efficiency improvement;
- business development strategy.

Events and their frequency

Interactions with wholesale buyers on matters relating to the connection, sale and purchase of heat, electricity and capacity under standard contracts or under free bilateral contracts through the intermediary Trading System Administrator and System Operator – on an ongoing basis under existing contracts.

THE GOVERNMENT OF THE RUSSIAN FEDERATION, INDUSTRY REGULATORS, MINISTRIES AND AGENCIES AND REGIONAL EXECUTIVE AUTHORITIES

Topics

- uninterrupted heat and electricity supply;
- financial and operational results;
- investment programmes;
- efficiency improvement;
- business development strategy;
- M&A activities.

Events and their frequency

Participation in meetings of the Government Commission on the Development of the Electric Power Industry and meetings of the Ministry of Energy Conciliation Committee, the Energy Working Group of the State Council of the Russian Federation, the Interdepartmental Working Group on Utilities headed by Dmitry Kozak / Vitaly Mutko / Marat Khusnullin, State Duma expert panels and committees.

Interaction with organisations that regulate the Russian heat and electricity market (the Russian Federal Antimonopoly Service, the Ministry of Economic Development, etc.), as well as with the Trading System Administrator and System Operator.

Cooperation with NP Market Council, Council of Power Producers and Strategic Electricity Investors, commissions and committees of RSPP.

The ongoing cooperation is aimed at enhancing the existing regulations and developing the heat and electricity market.

ENVIRONMENTAL GROUPS

Topics

- compliance with environmental regulations and standards;
- reductions and increases in all environmental impacts from operations;
- environmental protection programmes and measures;
- investment programmes;
- energy efficiency enhancement;
- business development strategy.

Events and their frequency

Gazprom Energoholding Group companies develop their corporate environmental and energy management systems, comply with ISO 9001:2015 and ISO 14001:2015 and regularly undergo recertification audits.

Participation in environmental contests:

- The Reliable Partner – Ecology national competition of the best local environmental protection practices which was set up to support the implementation of the National Ecology Project (in 2019, MIPC's project to supply Moscow residents with quality hot water won the first prize as the Best Project to Supply Clean Drinking Water)
- The Moscow Government's contest Leaders of Sustainable Development in Environmental Protection

Public hearings, which involve representatives of environmental organisations, every time the construction of a new industrial facility begins.

SUPPLIERS OF GOODS AND SERVICES

Topics

- creditworthiness;
- procurement policies and transparency;
- environmental, technical and other regulations and standards for supplier selection;
- investment programmes;
- business development strategy.

Events and their frequency

Full disclosure of information on each procurement by any Gazprom Energoholding Group company and supplier selection procedure equally for all potential suppliers - at http://zakupki.gov.ru/, the GazNeftetorg.ru online trading system (http://www.gazneftetorg.ru/) and the company's corporate website.

Gazprom Energoholding Group companies **comply with OHSAS 18001:2007 and ISO 14001:2015,** particularly in procurement.

All Gazprom Energoholding Group companies establish tender committees to select suppliers of goods and services when making procurements for critical lines of business.

All information on the previous procurement contracts, including the amount and total price of goods and services, is publicly available at Gazprom Energoholding Group companies' websites.

EMPLOYEES, TRADE UNIONS AND INDUSTRY-ORIENTED UNIVERSITIES

Topics

- uninterrupted heat and electricity supply;
- compliance with environmental regulations and standards;
- compliance with safety standards and rules;
- job creation and wage levels;
- social security and healthcare;
- professional growth and development opportunities;
- corporate culture;
- business development.

Events and their frequency

Gazprom Energoholding Group companies have in place:

- collective bargaining agreements;
- personnel incentive schemes;
- employee professional training and upskilling;
- occupational health and safety measures: compulsory medical examinations, special health and safety assessments, briefings on occupational safety;
- sports and cultural activities;
- employee social security: VHI, accident insurance, recreation for employees and their families, and corporate pension schemes.

The Group communicates with trade unions on an ongoing basis.

102-12 102-13 Memberships in Associations and Organisations

ASSOCIATIONS AND THEIR LINE OF ACTION	GAZPROM ENERGOHOLDING	MOSENERGO	TGC-1	OGK-2	MOEK
Regulation of the power generation market					
• NP Market Council	✗	✓	✓	✓	✗
• Council of Power Producers and Power Industry Strategic Investors	✓	✗	✗	✗	✗
Enhancing the efficiency and reliability of heat supply in Russia					
• Russian Heat Supplying	✗	✗	✗	✗	✓
Protection of the interests of the renewable energy sector					
• Russia Renewable Energy Development Association	✗	✗	✓	✗	✗
• Hydropower of Russia Association	✗	✗	✓	✗	✗
Protection of employer interests					
• Russian Industry Association of Energy Supply Employers	✗	✓	✓	✓	✗
• Leningrad Region Union of Industrialists & Entrepreneurs	✗	✗	✓	✗	✗
Promotion of natural gas as motor fuel					
• National Gas Vehicles Association	✗	✓	✓	✓	✓
Business development in regions					
• Russian Union of Industrialists and Entrepreneurs	✓	✓	✓	✓	✗
• Chamber of Commerce and Industry of the Leningrad Region	✗	✗	✓	✓	✗
• Chamber of Commerce and Industry of St Petersburg	✗	✗	✓	✗	✗
Regulation and joint responsibility in the design and construction markets					
• SRO Construction Association STROY ALLIANCE	✗	✓	✗	✗	✗
• SRO Engineering Association StroyAllianceProject	✗	✗	✗	✓	✗
• SRO Interregional Association of Engineering Designers	✗	✗	✗	✗	✓
• SRO Construction Companies Association Interregional Construction Complex	✗	✓	✗	✗	✗
• Moscow Region Construction Alliance	✗	✗	✗	✓	✗
• Self-Regulatory Regional Organization of the Builders of the North Caucasus	✗	✗	✗	✗	✓
Enhancing property management					
• Corporate Owners Club	✗	✓	✗	✗	✗
Consolidation of PR efforts					
• RPRA – Public Relations	✗	✗	✓	✗	✗

Reliable energy supply
is an essential aspect of social sustainability in the regions in which the Group's power plants operate

204.4 RUB mm net of VAT

The actual amount of successful R&D in 2019 (+69 % vs 2018)

Sustainability in the Energy Industry

G4-DMA
earlier EU6

Reliable Energy Supply and Consumer Safety

Reliable energy supply is an essential aspect of social sustainability in the regions in which the Group's power plants operate. Therefore, Gazprom Energoholding Group's generating companies conduct repairs and preventive maintenance on a regular basis.

Public holidays, including the lengthy New Year and Victory Day holidays (in January and in May, respectively), are particularly demanding on the Group's power plants. Time off work and vacations are not planned for these days, on which a procedure is in place for calling backup operating personnel: 24-hour duty watches by repair personnel who are available at all times and are on call.

Servicing gas turbines of Groznenskaya TPP

On 7 June 2019, during the St Petersburg International Economic Forum 2019, Denis Fyodorov, CEO of OOO Gazprom Energoholding, and Sergey Milto, CEO of OOO TER-Service, signed an agreement for long-term service of Siemens gas turbines and generators at Groznenskaya TPP. Under the agreement, OOO TER-Service will provide a range of services covering ongoing maintenance (minor inspections), intermediate maintenance (hot gas path inspections) and overhauls (major inspections).

OOO TER-Service already independently services gas turbines at power plants of Gazprom Energoholding Group under programmes of minor and hot gas path inspections as well as runs relevant trainings and certifies its personnel for performing major inspections.

IMPORT SUBSTITUTION AND LOCALISATION PROGRAMMES

Gazprom Energoholding Group prioritises the use of domestic products in its operations. The successful implementation of the import substitution policy has resulted in Gazprom Energoholding Group's projects having been selected for the Competitive Selection of Capacities for Modernisation programme, a pre-requisite for which includes a sufficient level of equipment production localisation, i.e. a high share of domestic components and materials used for upgrades.

In 2019, in order to substitute local products for imports in a high-tech sector such as industrial equipment for power generation and to develop its own production, OOO Gazprom Energoholding acquired REP Holding – a developer, manufacturer and supplier of power generating equipment, including industrial gas turbines ranging between 16 MW and 32 MW, steam turbines, centrifugal and axial compressors, gas pumping units, electrical equipment, etc. The Group will develop production of equipment for both generators and gas transmission systems. Leveraging the technology, innovations and talents available to REP Holding will drive technological advances at Gazprom Energoholding Group while reducing its reliance on imported technology, components and materials going forward.

G4-DMA
earlier EU21

Emergency Planning and Response

During the reporting period, measures to protect the employees and generating assets of Gazprom Energoholding Group companies from natural and industrial emergencies were planned and implemented, taking into account the requirements, instructions and recommendations by the EMERCOM of Russia, the Russian Ministry of Energy and PJSC Gazprom.

OOO Gazprom Energoholding's effort was focused on improving the Group's civil protection system during the reporting period. Regulations and instructions specifying measures to protect the employees and generating facilities from the impacts of potential emergencies were developed, approved and implemented.

Coordination of emergency response and prevention measures at the Group's facilities is done by respective commissions for emergency response and prevention, and fire safety.

Courses have been developed at Gazprom Energoholding Group companies to educate employees in civil defence and emergency response, while new employees undergo civil defence briefings. Gazprom Energoholding Group companies focus on practising emergency scenarios and procedures to further enhance the employees' ability to properly and adequately respond to hazards and emergencies that may arise in the areas in which the power facilities are located.

Exercises and drills are also run to improve employees' practical emergency response skills, involving Gazprom Energoholding Group's employees, volunteer emergency response teams, emergency service representatives and the teams and equipment of EMERCOM's local units. During the course of the exercises and drills, Gazprom Energoholding Group's emergency response management teams proved their ability to promptly make reasonable decisions while employees acted in an organised way and demonstrated well-developed practical skills.

Emergency Response and Prevention Exercises and Drills in 2017–2019

	2017	2018	2019
Mosenergo	65	72	47
TGC-1	136	132	156
OGK-2	34	82	54
MIPC	56	78	125

The number of interruptions is down by 110 cases year-on-year (-16.5 %)

2018

664 heat supply disruptions

…including…

559 hot water supply

105 district heating

2019

554 heat supply disruptions

…including…

459 hot water supply

95 district heating

Cooperation with Public Authorities and Stakeholders on Industry Development

Gazprom Energoholding Group is always open to discussion of proposed legislation affecting the Group companies' business. To this end, experts of the Group companies are actively involved in discussions held on various platforms to ensure the Group's interests are taken into account.

In the reporting period, Gazprom Energoholding Group's representatives upheld the Group's corporate interests during the discussion of proposed amendments to legislation related to:

- Improving the procedures for taking generating equipment out of service for maintenance or decommissioning;
- Launching the Competitive Selection of Capacities for Modernisation programme to upgrade thermal power generation;
- Improving the mechanisms of the wholesale electricity and capacity markets;
- Paying for electricity transmission services with due consideration of payments for reserved maximum capacity;
- Establishing a common electricity market of the Eurasian Economic Union;
- Stimulating the development of renewable energy sources in the retail electricity market;
- Developing a mechanism to support voluntary demand for renewable energy (introduction of green certificates);
- Extending the mechanism stimulating the development of renewable energy sources until 2035;
- Developing Russia's Energy Strategy to 2035.

The Group actively cooperates with federal executive authorities by participating in consensus meetings and working groups dealing with heat supply regulations. In recent years, the more important efforts to safeguard the Group's interests included:

- Drafting and approving Federal Law No. 59-FZ On Amendments to the Housing Code of the Russian Federation, dated 3 April 2018, with regard to adopting new contractual relations between owners of blocks of flats and resource suppliers as well as drafting legal regulations in furtherance of the above law;
- Improving legislation on connection to heat supply systems;
- Continuing the work on the draft Federal Law On the Fundamentals of State Price (Tariff) Regulation;
- Building the concept for a new heat supply regulation method based on benchmarks and supporting legal acts;
- Drafting the Guidelines on Developing Heat Supply Plans;
- Participating in the development of the Utilities Development Strategy to 2035;
- Determining the legal framework for recovering overdue debt from individuals;
- Drafting and facilitating an Action Plan to streamline the policies for assessing and applying hot water tariffs;
- Preparing the positions on legal frameworks developed by federal executive authorities as part of the Regulatory Guillotine administrative legal reform.

Innovative Development

Gazprom Energoholding Group's innovation policy is aligned with the Russian national policy on innovation, which aims to accelerate the transition of the country's economy towards innovation-driven development.

The Program for Innovative Development of ООО Gazprom Energoholding till 2025, developed and adopted by Expert Technical Council on 3 March 2019 serves as key guidance for the development and implementation of R&D and technical policies of the Group companies. The key objective of the Group's technical policy is set out in the Concept, which is to increase the competitiveness of the Group's generating companies in the energy sector by optimising the operating and technological capabilities of its power plants. To achieve this goal, the Group's R&D efforts are focused on the following areas:

- Minimising specific fuel consumption for heat and electricity generation by implementing cutting-edge technology and advanced, high-efficiency equipment;
- Streamlining plant repair and maintenance of property, plant and equipment at power plants;
- Complying with environmental requirements in line with international commitments and national standards;
- Increasing automation in heat and electricity generation to reduce process management costs and production costs.

In 2018–2019, Gazprom Energoholding implemented innovation initiatives as part of the innovation policy developed for the Group's generating companies. Innovative technologies currently applied by the Group include:

- Upgrading the existing equipment through streamlining the cycle design for power units, turbines, boilers and auxiliary equipment;
- Using CCGTs with efficiencies over 55 %;
- Revamping boilers and gas turbines leveraging leading-edge solutions and replacing individual heating surfaces and turbine cylinders.

In 2018–2019, our generating companies explored opportunities to improve energy and fuel efficiency, develop innovative solutions, test equipment, draft methodologies, etc. under 41 R&D contracts. In 2019, the amount of completed R&D rose by 42 % compared to 2018 to RUB 258.4 mm net of VAT and by 76 % compared to 2017 (2017: RUB 146.5 mm net of VAT). The actual amount of successful R&D in 2019 totalled RUB 204.4 mm net of VAT (2018: RUB 121 mm net of VAT).

Engagements between generating companies and researchers have resulted in the implementation of the following R&D solutions:

2018

- "Developing a pilot model of a static separator for air heating / cooling and moisture removal at the inlet air filter unit of the gas turbine at CHPP-21 (Mosenergo)";
- "Studying the processes of additional steam reheat by gases at the experimental unit for Turbine T-25-90-4PR-1, No. 2, at CHPP-16 (Mosenergo)";
- "Key R&D solutions for turbine and transformer digital protection systems piloted on Unit 8 of CHPP-21 (Mosenergo)";
- "Developing technical solutions to prevent failure of expansion joints" at MIPC.

2019

- "Developing a method for testing air filters; developing and manufacturing a pilot model of filter test bed for a gas turbine inlet air filter unit" at Mosenergo;
- "Manufacturing and testing an additional gas-based steam reheat unit for Turbine T-25-90-4PR-1, No. 2, at CHPP-16 (Mosenergo)";
- "Developing R&D solutions to compensate voltage falls on buses of 6–10 kW switchgear at district and subdistrict heating stations of Mosenergo: developing technical requirements for the prototype model";
- "Creating a pilot water treatment unit based on advanced membrane technology to produce desalinated water to supply power boilers and determining optimal operating modes for Russian membrane units at CHPP-11 of Mosenergo";
- "Research on improving protection of heat network pipelines against electrochemical corrosion at MIPC".

580,990 RUB mm

The Group's IFRS revenue in 2019

19.2 %

EBITDA margin in 2019

40,752 RUB mm

The Group's IFRS net profit in 2019

Economic Performance

103-2
103-3

Approach to Economic Performance Management

Since our generating companies are the principal heat and electricity suppliers to both households and industrial consumers in our operating regions, their economic sustainability and performance affects not only their shareholders and investors, but also lenders, suppliers and employees. Therefore, the economic sustainability and performance of our companies has an important social effect on all heat and electricity consumers.

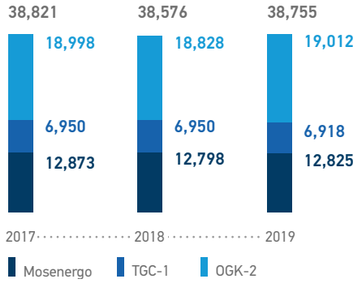
KPIs are central to tracking economic sustainability and performance metrics by top management of Gazprom Energoholding Group companies. The annually updated KPI targets of top management include, among others, indicators reflecting both the current status and potential economic performance of the Group companies. Most of the targets were achieved or even significantly exceeded during the reporting period.

Financial and Operating Results

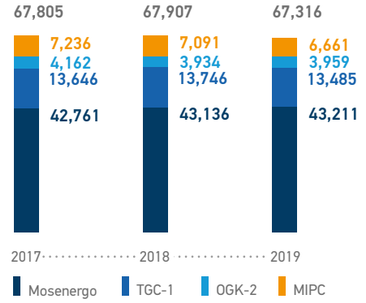
OPERATING PERFORMANCE

Sustainable performance of power plants and heat networks of Gazprom Energoholding Group's generating companies (Mosenergo, TGC-1, OGK-2 and MIPC) ensured reliable heat and electricity supply to consumers in their operating regions, including Moscow and St Petersburg.

Installed Electricity Capacity, MW



Installed Heat Capacity, Gcal/h



Total installed electricity capacity of Gazprom Energoholding Group companie[11] was 38,576 MW as at year-end 2018 and 38,755 MW as at year-end 2019, while their total installed heat capacity was 67,907 Gcal/h as at year-end 2018 and 67,316 Gcal/h as at year-end 2019. Installed capacity was affected throughout the reporting period by the following opposing factors:

Factors that Affected Installed Capacity in 2018–2019

MOSENERGO

- Decommissioning of the turbine unit at Unit 4 of CHPP-17, T-75–90;
- Commissioning of two peak water boilers at CHPP-20;
- De-mothballing of the Frezer district heating station;
- Upgrading the CCGT at CHPP-20;
- Commissioning an automated modular boiler at the gas turbine unit of CHPP-30 at Pavlovsky Posad;
- Decommissioning KTS-24 and KTS-26 subdistrict heating stations.

TGC-1

- Decommissioning a GM-50 boiler of Unit 2 at Tsentralnaya CHPP;
- Re-rating the desuperheating and pressure reducing unit at Vyborgskaya CHPP;
- Re-rating water boiler No. 12 at Pravoberezhnaya CHPP;
- Replacing boilers at the boiler houses of the Karelsky Branch in the Prionezhsky and Pryazhinsky Districts;
- Re-rating PTVM boiler No. 8 at AO Murmanskaya CHPP;
- Decommissioning of the turbine unit at Unit 5 of ES-2 at Tsentralnaya CHPP;
- Decommissioning of auxiliary hydropower units VG-1 and VG-2 at Volkhovskaya HPP;
- Decommissioning the water boiler of Unit 1 at Avtovskaya CHPP;
- Decommissioning the water boiler of Unit 5 at Vyborgskaya CHPP;
- Decommissioning the Pryazha-3 boiler house of the Karelsky Branch.

[11] Only for Mosenergo, TGC-1 and OGK-2, as MIPC does not have installed electricity capacity.

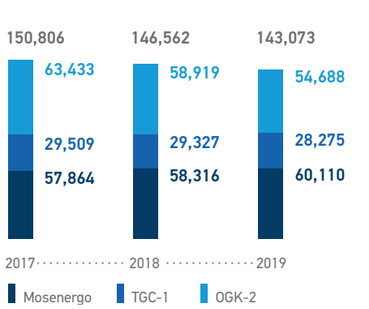
ОГК-2

- Upgrading the CCGT of Unit 9 at Serovskaya GRES;
- Upgrading Unit 4 at Cherepovetskaya GRES;
- Commissioning Units 1, 2 at Groznenskaya TPP;
- Decommissioning of the K-100-90M steam turbine at Unit 5 and K-100-90 steam turbines at Units 6, 7 and 8;
- Decommissioning the T-85-90-2.5 steam turbine at Unit 2 of Troitskaya GRES;
- Re-rating of CCGT-1 at Adlerskaya TPP;
- Re-rating of K-210-130-3 turbines of Units 1–11, 13 and 16 at Surgutskaya GRES;
- Commissioning three electric boilers at Pskovskaya GRES.

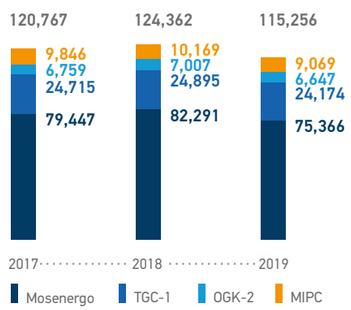
МОЭК

- Decommissioning five cost-ineffective minor boiler houses;
- Taking over 54 heat sources in the Troitsky and Novomoskovsky Administrative Areas (due to the consolidation of ООО TSK Novaya Moskva);
- Taking over four heat sources formerly owned by the Russian Ministry of Defence[12];
- Decommissioning of the 2nd subdistrict heating station;
- Retrofitting three heat sources (two minor boiler houses and one subdistrict heating station).

Electricity Output, mm kWh



Net Heat Supply, thousand Gcal



Gazprom Group companies generated[13] a total of 146,562 million kWh in 2018 and 143,073 million kWh in 2019.The changes in electricity generation were due to the following opposing factors:

Factors Affecting Electricity Generation in 2018–2019

МОСЭНЕРГО

- Reduced standby time of generating equipment as requested by the System Operator and reduced night load shedding during the heating season of 2018;
- Increasing the scope of equipment involved as requested by the System Operator to maintain reliable operation of the energy system during the summer of 2019;
- Streamlining equipment configuration by reducing condensing mode generation, putting the least cost-effective steam turbine units on standby and using CCGTs as core generation capacities during the summer of 2018 and the heating season of 2019.

ТГК-1

- Increasing electricity generation by thermal power plants in 2018 and 2019 amid favourable conditions in the wholesale electricity and capacity market;
- Reducing electricity generation by hydro power plants due to low water flow in 2H 2018 and throughout 2019.

ОГК-2

- Reduced operating time of non-marginal generating equipment at Ryazanskaya GRES, Novocherkasskaya GRES and Stavropolskaya GRES by preparing price bids when selecting the configuration of operating and standby generating equipment;
- Reducing the utilisation of equipment at Krasnoyarskaya GRES-2 and Troitskaya GRES as requested by the System Operator due to a lower demand for generation within the Integrated Power Systems;
- Increased equipment repair time at Adlerskaya TPP.

Heat production by Gazprom Group companies totalled 124,362 thousand Gcal in 2018 and 115,256 thousand Gcal in 2019 as heat production is seasonal and highly contingent on weather. Key factors affecting it in the reporting period across Gazprom Energoholding Group companies included the colder 2018 and warmer 2019, while Mosenergo's and MIPC's performance was also affected by consistent switching from boiler houses to CHPPs for heat production and connection of new consumers in the Moscow region.

201-1 FINANCIAL PERFORMANCE

Gazprom Energoholding Group's financial performance is disclosed in the Sustainability Report in accordance with GRI Standards and based on the audited consolidated financial statements of Mosenergo, TGC-1, OGK-2 and MIPC, prepared in accordance with IFRS.

Direct economic value generated includes the following components:

- ☑ Revenue (net sales) – gross sales minus returns, discounts and allowances
- ☑ Revenue from financial investments – cash received as interest on financial loans, as dividends from shareholdings, as royalties and as direct income generated from assets (such as property rental)
- ☑ Income from sale of assets – cash received from sale of physical assets and intangibles

RUB mm	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Revenue	196,056	198,870	189,777	87,641	92,455	97,256	141,308	143,227	134,579	144,270	162,841	159,378
Income from financial investments	3,694	2,897	4,493	161	145	239	445	465	1,074	476	94	105
Income from sale of assets	471	71	253	226	137	159	198	46	10	531	4,086	4,438
Direct economic value generated	**200,221**	**201,838**	**194,523**	**88,028**	**92,737**	**97,654**	**141,951**	**143,738**	**135,663**	**145,277**	**167,021**	**163,921**

[12] On 3 February 2020, maintenance of heat sources formerly owned by the Russian Defence Ministry was taken over by the Moscow Energy Directorate.
[13] Mosenergo, TGC-1 and OGK-2 only, as MIPC does not generate electricity.

Economic value distributed includes the following components:

- Operating costs – cash payments made to counterparties for materials, product components, facilities and services purchased, property rental, licence fees, facilitation payments, royalties, payments for contract workers, etc.
- Employee wages and benefits – employee salaries, payments to government on behalf of employees (taxes and levies) as well as contributions to pensions and insurance and private health, redundancy payments and other employee support
- Payments to providers of capital – dividends to all shareholders, plus interest payments made to providers of loans
- Payments to government – all of the organisation's taxes, except for deferred ones, plus related penalties[14]
- Community investments – contributions to charities, NGOs and research institutes, funds to support community infrastructure and direct costs of social programmes, including arts and educational events

RUB mm	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Operating costs	163,953	172,437	179,290	53,789	77,429	85,599	103,161	127,388	116,285	108,132	144,730	146,109
Employee wages and benefits	10,623	10,953	11,540	7,620	8,067	9,070	8,135	8,824	9,375	16,266	17,069	16,938
Payments to providers of capital	4,139	7,265	9,063	3,117	2,909	4,019	6,380	5,664	7,576	2,131	2,030	3,980
Payments to government	6,667	7,932	5,388	4,371	4,216	4,162	4,886	5,604	6,467	1,756	3,097	3,708
Community investments / philanthropy[15]	11	9	20	16	15	15	10	7	7	18	0	0
Economic value distributed	**185,393**	**198,593**	**205,297**	**68,912**	**92,635**	**102,864**	**122,570**	**147,485**	**139,709**	**128,283**	**166,908**	**170,693**

Economic value retained is calculated as "Direct economic value generated" less "Economic value distributed"

RUB mm	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Direct economic value generated	200,221	201,838	194,523	88,028	92,737	97,654	141,951	143,738	135,663	145,277	167,021	163,921
Economic value distributed	159,015	198,593	205,297	68,912	92,635	102,864	122,570	147,485	139,709	128,283	166,908	170,693
Economic value retained	**14,828**	**3,245**	**–10,774**	**19,116**	**102**	**–5,210**	**19,381**	**–3,747**	**–4,046**	**16,994**	**113**	**–6,772**

[14] For more details on penalties and non-financial sanctions imposed on Gazprom Energoholding Group companies for non-compliance with legislative and regulatory requirements set by government authorities see Appendix 1.5.
[15] Data for Mosenergo according to RAS statements.

Procurement

102-9
301-1

SUPPLY CHAIN

Fuel is the key resource in generating heat and electricity. Fuel costs also dominate the variable cost structure[16] of each of the Group's generating companies, excluding MIPC.

	2018			2019		
	Fuel costs, RUB mm	Variable costs, RUB mm	Share of fuel costs in variable costs, %	Fuel costs, RUB mm	Variable costs, RUB mm	Share of fuel costs in variable costs, %
Mosenergo	114,406	127,542	89.7	113,985	127,536	89.4%
TGC-1	34,816	47,907	72.7	36,437	49,519	73.6%
OGK-2	62,353	75,488	82.6	58,620	67,879	86.4%
MIPC	7,602	96,445	7.9	6,881	100,277	6.9%

The structure of the Group's fixed costs is dominated by personnel, maintenance and repair, and tax costs.

Gazprom Energoholding Group's fuel procurement strategy is aimed at optimising the fuel mix to minimise costs.

Diversifying supplies to Gazprom Energoholding Group's generating companies depends on their fuel mix and the distances between generating facilities. For example, low supply diversification levels at Mosenergo and TGC-1 are due to the high regional concentration of their generation fleets as well as the use of gas as a primary fuel by the majority of power plants operated by the companies. One exception is Apatitskaya CHPP of TGC-1, which sources coal under long-term contracts from the Kuznetsky coal basin, Sayano-Partizanskoye field (Krasnoyarsk Territory) and Chernogorskoye bituminous coal field of the Minusinsky coal basin (Republic of Khakassia).

OGK-2's generation fleet is spread across 13 regions of Russia (including Groznenskaya TPP), therefore the Company is focused on partnerships with regional coal suppliers to optimise fuel costs by sourcing gas and various types of coal as feedstock for its power plants. Different OGK-2 branches source coal from Kansko-Achinsky, Podmoskovny and Kuznetsky coal basins, Borodinsky, Pereyaslovsky and Ekibastuzsky open-pit coal mines as well as from Eastern Donbass under long-term supply contracts.

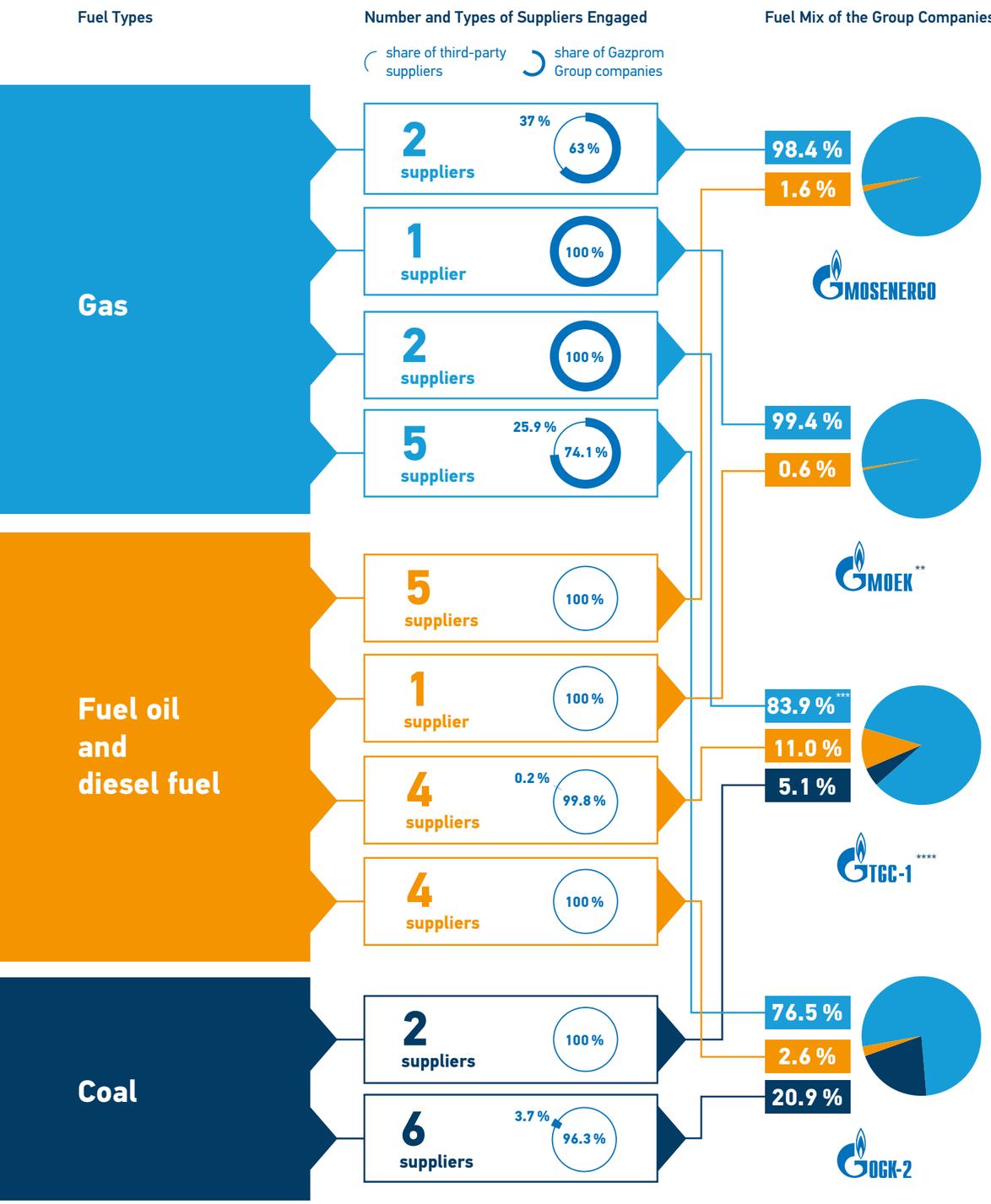
There were no material changes in the supply chain of Gazprom Energoholding Group companies in the reporting period (2018–2019).

All supplier relations are based on a responsible partnership approach, regardless of their share in the supply chain structure. Gazprom Energoholding Group is committed to maintaining long-term, stable and mutually beneficial relations with its suppliers. To this end, all Group companies continuously work to ensure more stable supplies and more transparent pricing. Gazprom Energoholding Group selects suppliers and contractors mostly through competitive bidding. Counterparties enjoying excellent reputation and complying with legislation as well as corporate and business ethics are given unconditional priority.

The procurement practices are governed by the Regulations on Procurement of Mosenergo, TGC-1, OGK-2 and MIPC. All procurement procedures comply with the Constitution of the Russian Federation, the Civil Code of the Russian Federation, Federal Law No. 223-FZ On Procurement of Goods, Works and Services by Certain Types of Legal Entities, dated 18 July 2011, other federal laws and regulations of the Russian Federation, as well as the generally accepted principles of global procurement practices and other mandatory regulations, including local regulations.

[16] The table data includes subsidiaries covered by IFRS reporting.

SUPPLY CHAIN*



* The supply chain diagram above shows major suppliers and their shares in the Group's purchasing costs for key fuels (natural gas and coal) used for power generation in 2019. The Group used a materiality threshold to identify major suppliers: the diagram shows suppliers whose share in the Company's costs for any given fuel exceeds 5 %.
** Including subsidiaries and affiliates.
*** Including agreements signed following trading on the Saint Petersburg International Mercantile Exchange.
**** Including AO Murmanskaya CHPP, a subsidiary.

204-1 **SUPPLIER SELECTION**

In 2015, the Regulations on the Procurement of Goods, Works and Services by PJSC Gazprom and Gazprom Group Companies were amended to provide small and medium businesses (SMEs) with exclusive access to certain procurement opportunities and to introduce procurement tenders that require bidders to ensure engagement of SMEs as subsuppliers (subcontractors or cocontractors).

The Share of SMEs in All Procurement Contracts Awarded During the Year, %

	2018	2019	Statutory minimum
Mosenergo	28	25	10
TGC-1	24	27	18
OGK-2	19	22	15
MIPC	59	59	18

Share of fuel procured from local suppliers across the operating regions[17] of Gazprom Energoholding Group companies in 2018 and 2019 stood at 96 % and 95 %, respectively.

102-17 ## Anti-Corruption

Gazprom Energoholding Group's generating companies have embedded and foster a culture of zero tolerance for corruption. Employees of the Group's generating companies, both in Russia and abroad, abide by established requirements and restrictions of anti-corruption laws.

The Group's generating companies have a zero tolerance for any forms of illegal influence on the decisions of government agencies, including bribes, unacceptable gifts, employing family members of public officials, and charitable support and sponsorship upon the request of public officials employed at the government agencies that make decisions affecting the Group's generating companies.

[17] Local suppliers in the operating regions mean suppliers based (having a legal address) in the operating regions of OGK-2's branches and territorial companies of TGC-1, Mosenergo and MIPC.

205-3

No confirmed corrupt practices involving employees of Gazprom Energoholding Group's generating companies were identified in the reporting period (2018–2019). There were no instances of non-renewal or termination of contracts with business partners due to corruption, nor corruption-related legal action against Gazprom Energoholding Group companies or their employees in the reporting period.

Gazprom Energoholding Group takes active and consistent measures to prevent corrupt practices involving its employees. Anti-corruption policies and methods have been included in the Group's internal documents and communicated to employees at all levels. Specific business units and officers were assigned corruption prevention responsibilities. New hires are required to provide a signed acknowledgement of reading the Code of Corporate Ethics which covers, inter alia, anti-corruption issues.

Procurement, contracting, and receiving inspections of goods and materials are monitored in line with the corporate procedures of relevant functions within the Group companies. These efforts rely on an ongoing cooperation with departments responsible for internal audit, corporate cost management, property management and corporate relations, and with the law enforcement agencies of the Russian Federation.

In 2019, OOO Gazprom Energoholding developed a career enhancement programme, training materials and an electronic course on Anti-Corruption at Gazprom Energoholding Group covering Russian legislation, corporate regulations and key anti-corruption and corruption-prevention measures.

Training with a wider coverage of certain employee categories at corporate training centres is planned for 2020.

All anti-corruption efforts at Gazprom Energoholding Group companies are implemented in strict compliance with applicable Russian laws. Employees of the Group's generating companies are guided by Federal Law No. 273-FZ On Combating Corruption, dated 25 December 2008, Executive Order of the Russian President No. 309 On Measures to Implement Certain Provisions of the Federal Law On Combating Corruption, dated 2 April 2013, Instruction of the Russian Prime Minister No. VP-P13-9308, dated 28 December 2011, as well as industry-specific and local regulations.

Since 2014, PJSC Gazprom has operated a whistleblowing hotline to report incidents of perceived fraud, corruption or embezzlement within Gazprom Group. Reports received through the hotline are thoroughly investigated and analysed. 102-17

Documents Governing the Anti-Corruption Policy at the Group Companies

Documents	Adopted / amended on
MOSENERGO	
Regulations on the Procurement Committee	20 December 2011
Regulations on Procurement	29 December 2018, amended on 21 February 2020
Code of Corporate Ethics	14 November 2019
Regulations on the Internal Audit Directorate	30 September 2016
Internal Audit Policy	30 September 2016
TGC-1	
Regulations on the Procurement Committee	9 November 2011
Regulations on Procurement	27 December 2018, amended on 16 December 2019
Procedure for Engaging Counterparties for Information on the Chain of Ownership, including Beneficiaries (and Ultimate Beneficiaries) and/or Members of the Counterparty's Executive Bodies	16 November 2018
Regulations on the Conflict of Interest Commission	16 November 2018
Regulations on the Internal Audit Service	3 October 2016
Internal Audit Policy	3 October 2016
Risk Management and Internal Control Policy	15 August 2019
Code of Corporate Ethics	4 December 2019
Regulations on the Corporate Ethics Commission	4 December 2019
OGK-2	
Code of Corporate Ethics	14 October 2019
Procedure for Engaging Counterparties for Information on the Chain of Ownership, including Beneficiaries (and Ultimate Beneficiaries) and/or Members of the Counterparty's Executive Bodies	22 September 2014
Regulations on the Procurement Committee	28 August 2014
Regulations on Procurement	26 December 2018, amended on 28 February 2020
Regulations on the Internal Audit Directorate	30 September 2016
Internal Audit Policy	30 September 2016
Risk Management and Internal Control Policy	30 September 2019
Risk Management Policy	27 June 2018
MIPC	
Code of Corporate Ethics	27 September 2019
Regulations on the Procurement Committee	2 December 2019
Regulations on Procurement	26 December 2018, amended on 10 March 2020
Regulations on the Risk Management and Internal Control	16 August 2019
Regulations on the Internal Audit Directorate	31 December 2019

In January 2020, OGK-2 and the Siberian Generating Company signed an agreement to sell Krasnoyarskaya GRES-2, which will considerably decrease the share of coal in OGK-2's fuel mix

5,029,687
t of CO_2-equivalent

Emissions reduction in 2018–2019 (1.383 times more than in 2018–2017)

15 %

Reduction in coal ash waste generation in 2019 vs 2018

Environmental Protection

103-2

Management Approach to Environmental Topics

ENVIRONMENTAL POLICY

Gazprom Energoholding Group is committed to sustainability principles based on a socially acceptable balance between maintaining economic growth whilst preserving a healthy environment for future generations. These commitments are part of the Policy of OOO Gazprom Energoholding as approved by its Research and Development Council on 31 March 2017.

The Environmental Policy outlines the official position of Gazprom Energoholding Group on its role and commitments regarding the preservation of healthy environment in its operating regions.

Operations of generating companies involve direct use of natural resources and have environmental impacts. Our generating companies are primarily involved in electricity and heat generation, which are inherently associated with adverse impacts on the environment, including:

- emissions of pollutants and greenhouse gases (GHG);
- wastewater discharge into water bodies;
- industrial waste generation and disposal;
- physical factors: noise, heat, vibration, electromagnetic fields.

Being fully aware of its responsibility for preserving a healthy environment and environmental safety towards society, Gazprom Energoholding Group made certain commitments in line with its Environmental Policy goals.

Environmental Policy Goals and Commitments

Legal compliance	Ensure compliance with the legal requirements of international environmental laws, Russian laws, laws of the Company's operating regions and internal rules of the Company and its subsidiaries related to the environment
Precautions and prevention	Prevent negative environmental impacts, which means that prevention takes precedence over response to such impacts
Mitigation	Mitigate negative environmental impacts, make best efforts to preserve biodiversity
GHG emission commitments	Reduce specific GHG emissions
Effectiveness and efficient use of resources	Improve the energy efficiency of production processes Use natural and energy resources efficiently
Use of advanced technology	Use the best available technology throughout production processes
Precautionary approach to investment projects	Embed environmental risk mitigation measures across all stages of investment project implementation, including for impacts on vulnerable natural sites and sites whose protection and conservation are of special importance
Employee engagement	Engage employees in environmental risk mitigation Commitment to continuously improve environmental performance
Training	Build employee environmental protection skills and awareness
Transparency	Ensure transparency and availability of information on environmental protection activities and decisions

102-11

In its activities, the Group applies the precautionary principle as approved by the 1992 United Nations Conference on Environment and Development[18].

The environmental policies of the Group's generating companies take into account the specifics of existing generating facilities and their regions of operation.

MOSENERGO

Mosenergo's Environmental Policy as approved by its Managing Director on 5 December 2016 defines the company's objectives in negative impact mitigation and its environmental protection commitments.

TGC-1

TGC-1's Environmental Policy was approved by resolution of the Board of Directors on 20 March 2017. The key objectives of the Environmental Policy are reducing the company's environmental footprint and increasing its level of social responsibility.

OGK-2

OGK-2's Environmental Policy was updated and introduced by an order of its Managing Director on 31 August 2020. Its key objectives are reducing the company's negative environmental impacts and increasing its level of social responsibility in doing business in its regions of operation.

MOEK

MIPC's Environmental Policy was updated and introduced by an order of its Managing Director on 1 March 2020. The document defines key focus areas for improving the efficiency of using non-renewable resources and minimising potential negative impacts.

[18] Principle 15. "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental function teams manage environmental protection in the regions of operations across all stages of production in accordance with the Environmental Policy and uniform environmental standards, and in coordination with the Director for Production section.

The Director for Production section of ООО Gazprom Energoholding is in charge of environmental protection management. Activities include providing supervision, methodological support, timely notification of changes in environmental laws and analysis of risks associated with legislative changes to support well-informed managerial decision-making, as well as responding to information requests from the Russian Ministry of Energy and Ministry of Natural Resources and Environment, gathering reports from Gazprom Energoholding Group companies and preparing the Group's summary and consolidated reports. The negative impacts of Gazprom Group's power generation business segment are monitored.

A standing Coordinating Committee for Environmental Protection was set up in 2016 to ensure a holistic approach to environmental protection and coordination of efforts within Gazprom Energoholding Group. Also in 2016, the Group established regular annual meetings of extended leadership teams of technical managers and heads of environmental units of ООО Gazprom Energoholding subsidiaries.

!

In 2006, Mosenergo's was also certified for compliance with ISO 14001 Environmental management systems. The certificate was renewed by the Certification Association Russian Register in November 2019. Mosenergo's environmental management system (EMS) was inspected for compliance with ISO 14001:2015.

CROSS-AUDITS

Since 2017, environmental safety audits have been conducted on Gazprom Group companies in the power generation business segment in accordance with the Rules for Technical Cross-audits. Eight cross-audits were completed in 2019 with another eight scheduled for 2020. The cross-audits focus on facility-specific compliance: availability of necessary permits, in-process control, timely reporting, conformity with requirements for primary records of negative environmental impacts: air emissions, discharges into water bodies, procedure for temporary storage and disposal of waste, site inspections, temporary waste storage areas, water withdrawal by plants.

The audits reduce the risk of supervisory authorities identifying areas of environmental non-compliance, promote best practice sharing, improve the environmental engineers' work process and drive further development.

ENERGY MANAGEMENT SYSTEM

Gazprom Energoholding Group continues to roll out its energy management system (EnMS) in its companies in accordance with GOST R ISO 50001-2012 Energy management systems – Requirements with guidance for use.

The EnMS purpose is to support faster managerial decisions to achieve energy saving and energy efficiency targets set by energy saving programmes.

Mosenergo was the first Gazprom Energoholding Group company to have its EnMS certified to ISO 50001:2011.

102-12

EXTERNAL INITIATIVES

Representatives of Gazprom Energoholding Group companies participate in the activities of multiple environmental protection working groups:

- environmental protection working group of the Council of Power Producers and Power Industry Strategic Investors;
- working group of the Russian BAT bureau for the development of a Guide to Discharge Limits
- the Ministry of Industry and Trade working group for energy efficiency programmes development.

Representatives of the companies also take part in the activities of the Environmental Protection Section of the Scientific and Technical Council of the Unified Power System.

307-1

ENSURING COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Gazprom Energoholding Group companies operate in accordance with environmental laws, taking appropriate measures to prevent damage to the environment and seeking to minimise potential issues identified by supervisory authorities conducting environmental inspections.

For this purpose, the Group conducts cross-audits, with environmental compliance in one generating company audited by environmental engineers from other generating companies.

The Group companies also run internal environmental compliance inspections. Inspection results are summarised and communicated to all companies of the Group, and a gap analysis is run to prevent similar issues from occurring again in other companies of the Group.

Environmental Compliance Inspections by Supervisory Authorities

	Mosenergo		TGC-1		OGK-2		MIPC	
	2018	2019	2018	2019	2018	2019	2018	2019
Total inspections, including	15	11	40	38	14	16	7	13
Scheduled inspections	2	2	0	0	9	11	0	2
Unscheduled inspections	13	9	40	38	5	5	7	11
Identified non-compliances	9	7	26	21	20	17	7	15

Information on the administrative fines imposed on Gazprom Energoholding Group companies for environmental violations can be found in Appendix 2.1.

Environmental Complaints Received by the Group Companies in the Reporting Period and Resolution Thereof

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Total number of public complaints	7	15	19	2	2	9	1	3	-	-	-	-
Complaints for which corrective actions were started in the reporting period, number / percentage of total	7 / 100	15 / 100	19 / 100	2 / 100	2 / 100	9 / 100	1 / 100	3 / 100	-	-	-	-
Complaints resolved within the reporting period, number / percentage of total	7 / 100	15 / 100	19 / 100	2 / 100	2 / 100	9 / 100	1 / 100	3 / 100	-	-	-	-

NEGATIVE IMPACT MITIGATION TARGETS

Targets for GHG emission reduction in 2017–2020 were set in 2017. Target for 2020 is 96,221 thousand tonnes CO_2-equivalent, a reduction of 7,756 thousand tonnes of CO_2-equivalent from a 2014 baseline.

The Group implements projects to switch to less carbon-intensive fuels, including the decommissioning of the coal-fired units of Cherepovetskaya GRES, an OGK-2 branch, phase one of Troitskaya GRES, an OGK-2 branch, and the coal-fired units of Mosenergo's CHPP-22.

Fuel combustion efficiency is improved by reducing the share of equipment with inferior technical, economic and environmental performance in the generation mix, and programmes are implemented to reduce energy consumption and improve energy efficiency, with increased utilisation of the CCGT fleet.

Gazprom Energoholding Group's Generating Companies – Environmental Performance vs Targets in 2018 and 2019

Metric	2014 baseline	2019 target	2018 actual	2019 actual	Progress against targets
Reduction of specific NOx emissions in 2019 (vs a 2014 baseline) by 0.02 tonnes / million kWh	0.41	0.39	0.37	0.34	–0.07 tonnes / million kWh Target achieved
Reduction of the landfill share in 2019 (vs a 2014 baseline) by 2.11 %	95.4 %	93.3 %	94.6 %	88.1 %	–7.3 % Target achieved
Reduction of the above-limit negative environmental impact charges in 2019 (vs a 2014 baseline) by 8.38 %	23.6 %	15.3 %	25.9 %[19]	11.5 %	–12.2 % (vs baseline) Target achieved

[19] The increase in above-limit charges is attributable to the use of multipliers in the calculation of charges due to temporary unavailability of permits caused by delays in project review by supervisory authorities.

ENVIRONMENTAL PROTECTION COSTS

Gazprom Energoholding Group companies fully finance environmental costs as required by environmental laws, including the development of regulatory and permitting documents, environmental operational control, waste disposal as well as water consumption and discharge. Adequate investments are made to make sure equipment parameters are in line with best available technology (BAT), regulatory limits are met and environmental performance improvement notices (if any) issued by supervisory authorities are complied with. Significant environmental impacts of our facilities include nitrogen oxides, petroleum product discharges and noise pollution. Necessary investments are made to comply with regulatory limits for nitrogen oxide emissions, petroleum product discharges and noise levels with adequate funds allocated for this purpose.

Environmental protection cost breakdown at Gazprom Energoholding Group companies can be found in Appendices 2.2 and 2.3.

308-1

MONITORING OF SUPPLIER AND CONTRACTOR ENVIRONMENTAL COMPLIANCE

Our standard-form contracts stipulate that all counterparties of the Group's generating companies comply with the environmental laws of the Russian Federation. Counterparty environmental assessments are conducted at the bidding and expert bid review stages.

Mosenergo, TGC-1, OGK-2 and MIPC communicate the Companies' Environmental Policy to their respective counterparties. The Environmental Policy establishes the principle that its provisions shall be complied with by both the Group companies and their partners, contractors and counterparties.

All products supplied to the Group companies are accompanied by applicable safety data sheets describing potential product handling hazards and necessary precautions.

Service contracts contain a waste management clause. Appendices to contracts contain information on fines for environmental non-compliance. Environmental engineers inspecting production sites monitor contractor compliance with waste management requirements.

The Group companies do not conduct environmental audits of their suppliers.

Energy Efficiency and Resource Conservation

302-4 302-5

ENERGY SAVING AND ENERGY EFFICIENCY PROGRAMMES

ООО Gazprom Energoholding's energy efficiency and energy saving policy is a package of measures to create organisational, legal, financial, physical and other conditions for the rational use and efficient consumption of fuel and energy resources.

All companies of Gazprom Energoholding Group have in place Energy Saving and Energy Efficiency Programmes, which regulate their energy saving goals, objectives and key focus areas. The Programmes aim to save fuel and energy resources and improve energy efficiency of production processes through energy saving initiatives.

Gazprom Energoholding Group is one of Russia's largest producers of electricity and heat, which emphasises the importance of its energy saving and energy efficiency efforts.

Economic benefits of the above initiatives arise both from the economic impact from energy saving investments and as a by-product of upgrades, revamps and overhauls.

TOTAL SAVINGS OF FUEL AND ENERGY RESOURCES ACHIEVED ACROSS GAZPROM ENERGOHOLDING GROUP THROUGH ENERGY SAVING PROGRAMMES IN 2019

1,615 thousand toe

1,375.6 thousand toe
savings of fuel, including 1,182 mmcm of natural gas saved

670.8 million kWh
savings of electricity

297.6 thousand Gcal
savings of heat

THE COST OF SAVED FUEL AND ENERGY RESOURCES TOTALLED RUB 7,391 MILLION

For more details on energy saving and energy efficiency efforts by Gazprom Energoholding Group and its performance against the energy saving programme targets in 2018–2019 see Appendices 2.4 and 2.5.

Key energy saving initiatives at power plants include optimisation of combined cycle equipment operation as well as initiatives to increase the share of cogeneration at the companies' plants.

ENERGY SAVING INITIATIVES AT POWER PLANTS:

MOSENERGO

Shifting heat loads from district and subdistrict heating stations to Mosenergo's CHP plants in 2019
- **487.4 thousand toe** energy saving

Fluid couplings
- **~ 224 million kWh** electricity saving per year

Energy efficiency initiatives at ООО TSK Mosenergo in 2019
- **0.84 thousand Gcal** heat saving
- **0.13 million kWh** electricity saving

OGK-2

The overhaul of the condensing unit of the turbine generator at Unit 5 of Surgutskaya GRES
- **3.9 thousand toe** fuel saving

Replacement of heat exchange elements in regenerative air heaters at Unit 2 of Kirishskaya GRES
- **> 2 million kWh** electricity saving

TGC-1

The retrofit of core equipment contributed to additional fuel
- **22,383 toe** fuel saving
- **29,301 Gcal** heat saving
- **13,132 thousand kWh** electricity saving

(including AO Murmanskays CHPP and AO St Petersburg Heating Grid)

MOEK

The upgrade of heat networks and central heating units in 2019
- **82.07 thousand Gcal** heat saving
- **543 million kWh** electricity saving

302-1

FUEL USE

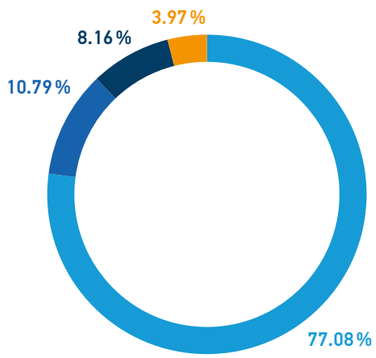
The heat and electricity generation process requires various fuels (gas, fuel oil and coal) as the main feedstock and considerable water consumption for process and auxiliary purposes. All feedstocks and materials fully meet the existing national standards and do not contain polychlorinated biphenyls (PCB) or similar substances.

Energy consumption and energy efficiency management at the Group's generating companies is in line with the requirements of Federal Law No. 261-FZ On Energy Saving and Enhanced Energy Efficiency as well as Amendments to Certain Legislative Acts of the Russian Federation, dated 23 November 2009. All generating companies of the Group have complied with Part 1 of Article 16 of Federal Law No. 261-FZ (for organisations generating and/or transporting water, natural gas, heat, electricity, producing natural gas, crude oil, coal, petroleum products, processing natural gas, refining crude oil, transporting crude oil or petroleum products) and completed energy audits of their facilities.

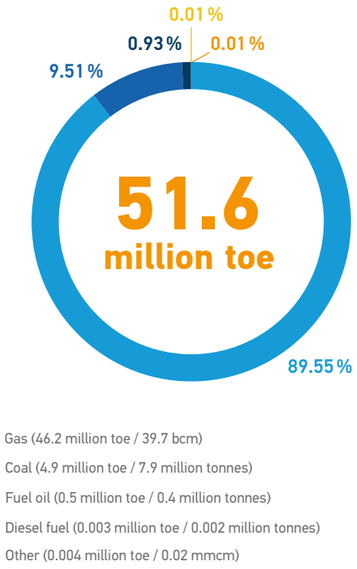
Energy Performance Certificates Issued After Audits

	Issued by	Certificate No.	Issue date
Mosenergo	OOO MEKOM	2017-E-038-079-17	November 2017
TGC-1	OOO A-1 Energo	019-012-1172/400	October 2016
Murmanskaya CHPP	OOO Megapolis	EP 26/02-18	February 2018
OGK-2	OOO Technology Centre	428-GPE/16	November 2016
MIPC	OOO Closed Analytical Association Yurenergo	E-015/006-17	May 2017

Generation by Fuel Type in 2019:

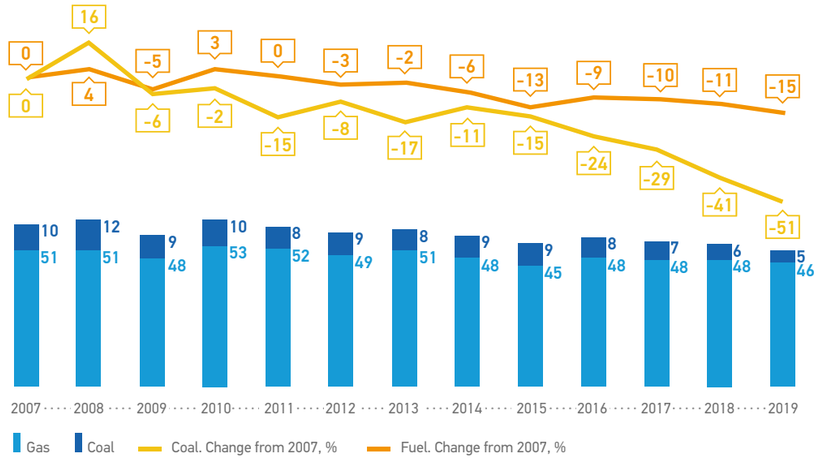


Fuel Mix of Gazprom Energoholding Group in 2019:



The share of coal in the Group's fuel mix was halved, down by 5.1 million toe

Share of Coal Dynamics in the Group's Fuel Mix, million toe



Total Energy Consumption for Operations by Gazprom Energoholding Group Companies

	2017	2018	2019
Total electricity consumption, mm kWh	12,186	11,815	11,590
Total electricity consumption, thousand toe	3,597	3,448	3,352
Total heat consumption, thousand Gcal	10,152	11,087	9,907
Total heat consumption, thousand toe	1,491	1,631	1,455
Total gas consumption, mmcm	0.67	0.03	0.02
Total gas consumption, thousand toe	0.78	0.04	0.02
Total, thousand toe	5,089	5,078	4,806

For more details on fuel consumption and SRFC of Gazprom Energoholding Group companies see Appendices 2.6 and 2.7, respectively.

Emissions of Greenhouse Gases (GHG) and Pollutants

POLICY FOR REDUCTION OF GHG AND POLLUTANT EMISSIONS

Air pollutants with concentrations above natural levels and regulatory limits are harmful for people and the environment. Therefore, we believe it is important to monitor the environmental impacts of our business and take measures to cut emissions.

The Group's Environmental Policy includes commitments to reduce negative environmental impacts and specific GHG emissions.

Every year, the Group's generating companies approve future environmental targets, including GHG and pollutant emissions.

Targets of Generating Companies for GHG Emission Reduction, tonnes of CO_2-equivalent /mm kWh[20]

Company	2020 target	Reduction vs a 2018 baseline
Mosenergo	0.266	–0.001
TGC-1	0.212	–0.001
OGK-2	0.569	–0.011
MIPC	0.216	–0.001

The thermal power plants of the Group's generating companies have in place automated systems to monitor the content and amount of pollutant emissions. The data captured by the system are used for internal control and informed management decision making, and are also submitted to specialised supervisory and regulatory authorities responsible for management of natural resources and environmental protection.

In the event of meteorological conditions conducive to dangerous air pollution levels, the thermal power plants of Gazprom Energoholding Group companies take emergency measures to reduce pollutant emissions.

Apart from emergency pollutant emission cuts, our power plants also install low NOx burners, flue gas recirculation circuits, two-stage combustion circuits and implement other high-performance technologies in their power and water boilers.

In addition to the automated pollutant emission monitoring system, our power plants regularly monitor the content and amount of pollutant emissions in line with the schedule approved by supervisory authorities for monitoring compliance with emission standards for each source of emissions. Accredited environmental laboratories regularly monitor the air quality in the areas affected by our power plants, both at emission sources and at selected points within relevant urban areas.

Our generating companies analyse data on the intensity and composition of pollutant emissions, the condition of instruments and equipment, implemented initiatives and the best available technologies to inform planning of air protection measures.

In the reporting period (2018–2019), our companies did not buy or sell any carbon quotas as the country has no domestic carbon quota market and Russian companies have no access to the international quota trading market.

[20] Specific emissions are calculated as a ratio of CO_2-equivalent emissions to total electric energy output.

EMISSIONS OF GREENHOUSE GASES (GHG) AND POLLUTANTS

In response to growing consumer demand, we are implementing ambitious investment projects on an annual basis by launching new high-performance generating facilities and decommissioning outdated and low-performance units. As a consequence, our generation becomes more environmentally friendly and uses less fuel. For this reason, we are also studying changes in the total emissions per output unit.

Each of the Group's generating companies implements environmental initiatives on a regular basis to reduce pollutant and greenhouse gas emissions by old facilities. To measure our progress in this area, we separately track changes in emissions from the base year (2008) for the facilities that had been owned by the Company in the base year and are owned today.

305-1 305-4

The weight of emissions is calculated in accordance with Appendix No. 2 to the Methodological Guidance on the Quantification of Greenhouse Gas Emissions by Entities Engaging in Business and Other Activities in the Russian Federation approved by the Russian Ministry of Natural Resources and Environment of the Russian Federation by its Order No. 300 dated 30 June 2015.

All generating facilities operated by Mosenergo, OGK-2 and MIPC generate electricity and heat by firing hydrocarbon fuel. By contrast, TGC-1 relies on hydrogeneration for a considerable share of its output.

For more details on changes and intensity of GHG emissions from Gazprom Energoholding Group companies see Appendix 2.8.

305-5 **Reduction in GHG Emissions Achieved by Gazprom Energoholding Group Companies, tonnes of CO_2-equivalent**

	Metric	Emission reduction		
		2017–2016	2018–2017	2019–2018
Gazprom Energoholding (total)	Total GHG emissions, including	–4,338,704	–2,111,243	–5,029,687
	CO_2	–4,344,641	–2,105,306	–5,029,685
Mosenergo	Total GHG emissions, including	–1,851,793	777,793	–1,295,072
	CO_2	–1,851,806	777,806	–1,295,070
OGK-2	Total GHG emissions, including	–3,048,157	–3,319,496	–3,465,016
	CO_2	–3,054,081	–3,313,572	–3,465,016
TGC-1	Total GHG emissions, including	413,767	348,521	11,104
	CO_2	413,767	348,521	11,104
MIPC	Total GHG emissions, including	147,479	81,940	–280,703
	CO_2	147,479	81,940	–280,703

305-6 Gazprom Energoholding Group companies do not produce or use ozone-depleting substances (ODS) in their operations.

Main pollutants from fuel combustion:

- nitrogen oxides (from combustion of any organic fuel)
- sulphur dioxide (from combustion of coal and fuel oil)
- fuel oil ash (from combustion of fuel oil)
- ash (from combustion of coal)

For more details on emissions of NO_x, SO_x and other significant pollutants see Appendix 2.9.

INITIATIVES TO REDUCE GHG AND POLLUTANT EMISSIONS

COAL PHASED OUT FROM MOSENERGO'S CHPP-22

CHPP-22 (a Mosenergo branch) is located in Dzerzhinsky, Moscow Region, 200 metres from the Moscow Ring Road. This is Mosenergo's only power plant using coal as the primary fuel source along with natural gas.

The share of coal in the fuel mix of CHPP-22 is steadily declining:

2016

~ 21 %

2017

< 15 %

2018

8 %

At Mosenergo overall in 2018:

coal

0.78 %

gas

98.9 %

Mosenergo is currently implementing a project to convert CHPP-22 to gas and fuel as and fully phase out coal. Today, CHPP-22 accounts for over 40 % of total emissions from Mosenergo's generating facilities. Impacts from coal combustion consist in the emission of fuel-specific combustion products: ash, sulphur dioxide and nitrogen oxides (found to be increasing). Coal ash is disposed at ash dumps.

Phasing out coal will reduce nitrogen oxide emissions from CHPP-22 by three times; sulphur dioxide will only be produced by fuel oil combustion, with fly ash emissions completely eliminated. This will materially reduce man-made impacts on the South-Eastern Administrative District of Moscow and the town of Dzerzhinsky. Coal phase-out will also allow freeing up and rehabilitating land currently used for ash dumps.

We work to further reduce GHG and polluting emissions from our generating facilities. Emission reduction across all Gazprom Energoholding Group's generating companies was driven by the following initiatives:

- Troitskaya GRES, an OGK-2 branch, is implementing flue gas desulphurisation. The branch has also implemented an air protection initiative to reduce dusting at an ash dump in the Republic of Kazakhstan by sowing perennial herbs on the dam slopes of Section 2 of the ash dump, planting shrubs and trees on the dams of Section 2 of the ash dump and sowing perennial herbs in the ash storage areas of Section 3 of the ash dump;
- Krasnoyarskaya GRES-2, an OGK-2 branch, completed the overhaul of internal cyclone elements of multiple-cyclone ash separators of Boilers 9B, 10A and 10B as well as the dust extractors of the fuel supply system;
- Four minor boiler houses (MK-323, MK-110, MK-136 and MK-319) decommissioned under MIPC's Long-Term Programme for Decommissioning Minor Boiler Houses;
- FEED for installing gas analysers at Mosenergo's GRES-3 to monitor and control hazardous emissions;
- Oil-and-gas burners replaced at peak water boiler No. 7 at Mosenergo's CHPP-8;
- Burners replaced at peak water boilers PVK-3 and PVK-4 (FEED) at Mosenergo's CHPP-25;
- GDS-100 gas burners replaced at peak water boilers PVK-3 and PVK-5 at Mosenergo's CHPP-26.

First prize for the best performance in reducing GHG emissions among industrial organisations with emissions over 150 thousand tonnes of CO_2-equivalent per year.

The 2nd All-Russian Contest Climate and Responsibility sponsored by the Russian Ministry of Economic Development and Ministry of Natural Resources and Environment for Russian regions, municipalities and organisations was held in 2017, recognised as the Year of the Environment, to draw attention to climate change, identify best practices for GHG emission reduction and showcase corporate culture and achievements in this area.

The award ceremony was held in Moscow on 6 November 2018 during International Exhibition and Forum of the Best Available Technologies GREENTECHexpo – 2018.
OOO Gazprom Energoholding won the first prize for the best performance in reducing GHG emissions among industrial organisations with emissions over 150 thousand tonnes of CO_2-equivalent per year.

Waste Generation and Disposal

WASTE MANAGEMENT POLICY AND INITIATIVES

The Group's Environmental Policy includes commitments to reduce negative environmental impacts.

Even a single instance of unauthorised industrial waste disposal can result in a real environmental problem. Therefore, all business units of the Group companies closely control waste management. Each type of industrial waste is placed in designated containers or at designated temporary waste storage areas. Waste is collected by duly licensed contractors in accordance with environmental requirements. Subsequently, Hazard Classes 1, 2 and 3 wastes and certain types of Hazard Class 4 waste are disposed of or recycled by specialist companies. Most Hazard Classes 4 and 5 wastes are disposed of at municipal solid waste landfills. Waste disposal sites have been approved by the Federal Supervisory Natural Resources Management Service.

Most waste from our operations is represented by Hazard Classes 4 and 5 wastes. Ash from coal combustion also belongs to this group of waste. Coal ash is placed at our own ash dumps operating under separate permits. Out of all the waste we generate, only used-up fluorescent lamps are of Hazard Class 1. They are carefully collected and delivered to specialist companies for disposal (neutralisation).

The Group companies have in place action plans to reduce waste landfilling and increase the share of recycled and disposed waste.

The following new documents were developed in 2018–2019:

- Waste Paper Management Procedure at Mosenergo (approved on 14 February 2019);
- Instructions on Waste Management at Mosenergo (approved on 8 October 2019);
- Order of the General Director of OGK-2 No. 178 dated 14 May 2018.

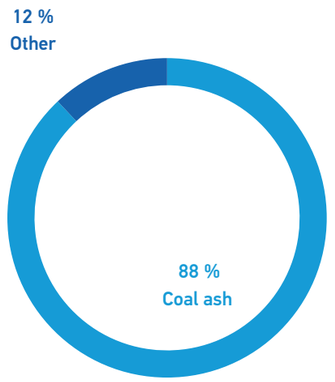
These documents regulate waste management, including waste the landfilling of which is prohibited, and provide, in particular, for separate temporary storage of waste by waste type, waste group, similar waste group, as well as the collection of waste paper and cardboard from paperwork and document management activities for disposal by third-party entities.

306-2 **WASTE GENERATION**

Impacts from the disposal of Hazard Classes 1–5 wastes, including coal ash, on lands and soils is an important environmental aspect of power plant operation. All power plants allocated areas for temporary storage of waste, signed contracts for waste collection and disposal, keep records of waste generation, and monitor waste collection and management. Scrap metal- and mercury-containing waste, the landfilling of which has been prohibited since 2018, are sent for recycling under relevant contracts. Separate collection of mercury-containing waste, petroleum-contaminated waste, rubber waste and used office equipment had been introduced long before the Federal Law on Waste Management was amended.

Waste generated by the Group in 2019 totalled 1.66 million tonnes, with coal ash accounting for about 88 % (1.47 million tonnes). Coal ash is conveyed by hydraulic transport to waste storage facilities listed in the Stage Register of Waste Storage Facilities. All fly ash removed by dry systems is sold to consumers as a product.

Waste Structure of Gazprom Energoholding Group's Generating Companies

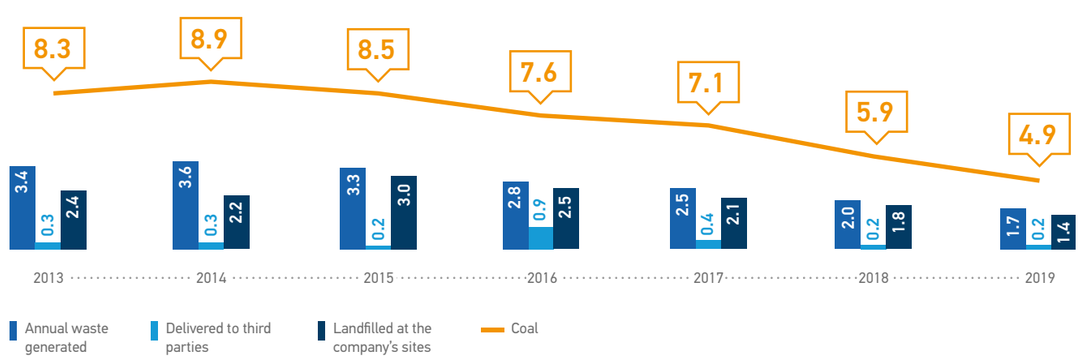


Coal ash waste (recycled coal ash) of Ryazanskaya GRES is sold since 2008; ash of Novocherkasskaya GRES, Troitskaya GRES, Cherepovetskaya GRES of OGK-2, ash of Mosenergo's CHPP-22 and Apatitskaya CHPP of TGC-1, since 2009.

2.9 times

Coal ash waste generation in 2019 was down from 2010

Coal Ash Disposal, mm tonnes



In order to mitigate negative impacts of coal ash waste on the environment, a coal ash management working group was set up (Order No. 6-GEH dated 6 February 2018) to coordinate coal ash waste disposal and recycling into valuable materials.

In order to be able to use existing ash dumps without their expansion, Gazprom Energoholding Group currently uses accumulated coal ash for the following purposes:

- As a component for concrete, dry mixes and foam concrete blocks (Ryazanskaya GRES, Krasnoyarskaya GRES, Novocherkasskaya GRES of OGK-2);
- MSW landfill remediation (Apatitskaya CHPP, Ryazanskaya GRES);
- Own operation (Krasnoyarskaya GRES-2, Cherepovetskaya GRES);
- Remediation of Borodinsky open-pit coal mine with coal ash from Krasnoyarskaya GRES-2;
- Road construction (Mosenergo's CHPP-22, Novocherkasskaya GRES of OGK-2).

Best Project for Effective Industrial Waste Management

In 2019, OOO Gazprom Energoholding won the Reliable Partner – Ecology national competition of the best local environmental protection practices in the Best Project for Effective Industrial Waste Management category. The Company presented its best practices for the disposal and effective management of coal ash waste at the Group's power plants.

The competition was held to help federal and regional authorities in the effective implementation of the National Ecology Project by identifying the most successful and effective local environmental practices and projects for roll-out and upscaling across the nation.

A large number of OGK-2's power plants are coal-fired, therefore coal ash storage issue is particularly important for this company. In order to reduce the number and maintain the useful capacity of existing ash dumps, OGK-2 branches using coal-fired generation (for example, Novocherkasskaya, Ryazanskaya, Cherepovetskaya and Troitskaya GRES) look for opportunities to ship coal ash from ash dumps or to ship dry ash directly from under electrostatic precipitators. Storage of coal ash from Krasnoyarskaya GRES-2 in the abandoned workings of Borodinsky open-pit coal mine is currently under review.

Coal ash from OGK-2's Troitskaya GRES is taken to an ash dump at the salt lake of Shubarkol. Since it is located in the Kostanay Region, across the border in the Republic of Kazakhstan, all relevant environmental measures are taken in accordance with the Environmental Code of the Republic of Kazakhstan. In particular, experts from the Group companies monitor emissions from the ash dump on a regular basis as well as conduct environmental operational control of environmental impacts from the ash dump, slurry and water pipelines of Troitskaya GRES which are also located in the Republic of Kazakhstan.

The following air protection measures have been taken to reduce dust emissions from the ash dump:

- Sowing perennial herbs on the dam slopes of Section 2 of the ash dump;
- Planting shrubs and trees on the dams of Section 2 of the ash dump;
- Sowing perennial herbs on ash storage areas of Section 3 of the ash dump.

All measures are taken in accordance with the Troitskaya GRES, an OGK-2 Branch, Plan to Mitigate Negative Environmental Impacts of the Ash Dump at Lake Shubarkol in 2018–2019 approved by the Ministry of Environmental Protection of the Republic of Kazakhstan. At the end of its term, a similar plan will be adopted for 2020–2021 (and further on until the ash dump closure).

The condition and pollution of the environment within waste storage and landfill facilities (ash dumps) and impacted areas are monitored on a regular basis in accordance with applicable monitoring programmes at all ash dumps of Gazprom Energoholding Group's power plants.

Waste of Hazard Classes 1–4 is collected, used, neutralised, transported, stored and landfilled in accordance with the following documents:

- Perpetual licence No. 077 121 dated 6 August 2018 for storage / landfilling of Hazard Class 4 waste in Mosenergo;
- Perpetual licence No. (78)-8333-TR dated 20 September 2019 for collection, transport, treatment, disposal, neutralisation, storage and landfilling of Hazard Classes 1–4 waste in TGC-1;
- Perpetual (unlimited) licence No D 26 00003/P dated 26 August 2018 for neutralisation of Hazard Class 2–4 waste and storage / landfilling of Hazard Class 3–4 waste in OGK-2;
- Perpetual (unlimited) licence dated 26 June 2020 for collection, transportation, treatment, disposal, neutralisation, storage and landfilling of Hazard Classes 1–4 waste in MPIC.

Each branch of Gazprom Energoholding Group's generating companies developed Proposed Waste Generation Rates and Waste Storage/ Landfilling Limits (Permits) and got them approved by governmental supervisory agencies. The documents specify waste neutralisation methods applied and waste storage / landfilling locations. Waste is sent to other companies for neutralisation, re-use or landfilling at municipal solid waste (MSW) landfills.

For more details on waste generation and disposal see Appendix 2.10.

By setting up an ash dump at salt lake Shubarkol, we noticeably changed the local environment. Some of these changes are negative, but some are positive for the local flora and fauna. E.g. meltwater from the eastern water intake area of the dump was obstructed by a dam, which resulted in a new water reservoir, Vostochny. It lies in the path of seasonal bird migration. Currently, the new lake hosts ducks, nettas, herons, cranes, coots and swans, with many of the species featured in the Red Data Book. An increase in the fowl population led to higher numbers of birds of prey (kites, golden eagles, falcons and snowy owls) and carnivorous animals (foxes, corsacs and weasels). Desalination of the surface waters in the ash dump vicinities created favourable living and spawning conditions for carps. Gudgeons, which also appeared in the lake, are a sign that the water is relatively clean. Moreover, grain crops on the land around the dump have increased, while the area of saline soils has shrunk, creating more agricultural lands.

LAND REMEDIATION

Solid fuel combustion at power plants requires storage of ash waste in ash dumps. Total area of dumps (disturbed lands) of Gazprom Energoholding at year-end 2019 stood at 1,181.7 ha. When an ash dump is filled to capacity, it should be remediated to restore disturbed ecosystems.

In the reporting period, remediation was carried out at the ash dump of Troitskaya GRES, an OGK-2 branch. The ash dump of Troitskaya GRES is located at Lake Shubarkol, Republic of Kazakhstan. Two sections of the ash dump were under remediation, with the third section still in use.

Remediation includes several stages. Technical remediation is completed at the early stages. The last stage is biological remediation which includes sowing perennial grasses and legumes or local hardy, most viable herb species: bushgrass, Koeleria cristata, white and red goosefoot, smooth brome, wheatgrass, medick, Oxytropis glabra and melilot. These plants create thick sod preventing wind erosion of the ash dump surface. The stage also includes planting trees and shrubs, care of vegetation, application of mineral and organic fertilisers to ash dump soil. After biological remediation, ash dumps are quickly populated by local fauna.

As at year-end 2018, 121.404 ha had been remediated (technical remediation completed in accordance with the technology).

For ash dump (disturbed land) areas of Gazprom Energoholding Group see Appendix 2.11.

Water Efficiency

APPROACHES TO WATER MANAGEMENT

We use water resources in accordance with applicable Russian and international laws and strive to minimise impacts of our generating companies on water resources. All our operating processes are compliant with the following approved regulations aimed to reduce water consumption, water disposal and effluent discharges:

- Water Code of the Russian Federation No. 74-FZ, dated 3 June 2006;
- Water Strategy of the Russian Federation to 2020, dated 27 August 2009.

The process of heat and electricity generation is associated with heavy water consumption and discharge of wastewater.

At thermal power plants operated by our companies, process water is mostly consumed by cooling systems, where it is used to condense steam. Steam power plants obtain high-pressure water steam from desalinated water by burning fuel. Steam energy is transformed into mechanical energy by spinning the turbine rotor, which is then transformed into electricity via an electric generator. The steam exiting from the turbine is condensed by cooling water.

Process water is also needed to cool down auxiliary equipment. Once processed in water treatment facilities, process water is used to compensate for steam losses in the principal cycle of the power plant and the heat supply system. Water is also used to wash heating surfaces of boilers and clean equipment (mainly boilers) of deposits. Coal-fired power plants use water to remove fly and bottom ash from generating facilities, which is disposed of at ash dump sites.

Most thermal power plants draw process water from surface water bodies, while some power plants use process water pipelines. Water from municipal water pipelines is used for sanitary purposes.

Gazprom Energoholding Group facilities have necessary permits for water withdrawal from natural sources with limits set by the laws of the Russian Federation.

The following was done to ensure compliance of power plants with water protection laws:

- Water use contracts were signed with authorised bodies in accordance with Resolution of the Russian Government No. 165 On Water Use Contract Drafting and Conclusion, dated 12 March 2008;
- Decisions on Granting a Water Body for Use were issued in accordance with Order of he Russian Ministry of Natural Resources and Environment No. 56 On the Approval of a Template for Granting a Water Body for Use, dated 14 March 2007;
- Discharge Limits were issued and Pollutant Discharge Permits were obtained in accordance with Order of the Russian Ministry of Natural Resources and Environment No. 333 On the Approval of the Methodology for Developing Limits for the Discharge of Substances and Microorganisms into the Environment, dated 17 December 2007;
- Records are kept of natural water consumption, wastewater discharge into water bodies and the amount of discharged pollutants in accordance with Order of the Russian Ministry of Natural Resources and Environment No. 205 On the Approval of the Procedure for Keeping Records of the Volume of Water Resources Withdrawal (Intake) from Water Bodies, as well as Wastewater and / or Drainage Water Discharge and the Quality Thereof by Owners of Water Bodies and Users of Natural Resources, dated 8 July 2009;
- Circulation cooling systems – cooling towers, cooling ponds and spray ponds – were set up at 13 branches of PAO Mosenergo, 6 power plants of PAO TGC-1, and 7 power plants of PAO OGK-2 in accordance with construction design documents to enable rational water use and reduce wastewater discharge into water bodies;
- Oily and greasy wastewater collection systems and local treatment facilities were set up at the Group's generating facilities in accordance with construction design documents to reduce wastewater discharge into water bodies.

Surface water bodies used by power plants, in particular water withdrawal and discharge points, are not classified as protected areas or indigenous territories. Fishery value categories (premium to second) were assigned to all surface water bodies.

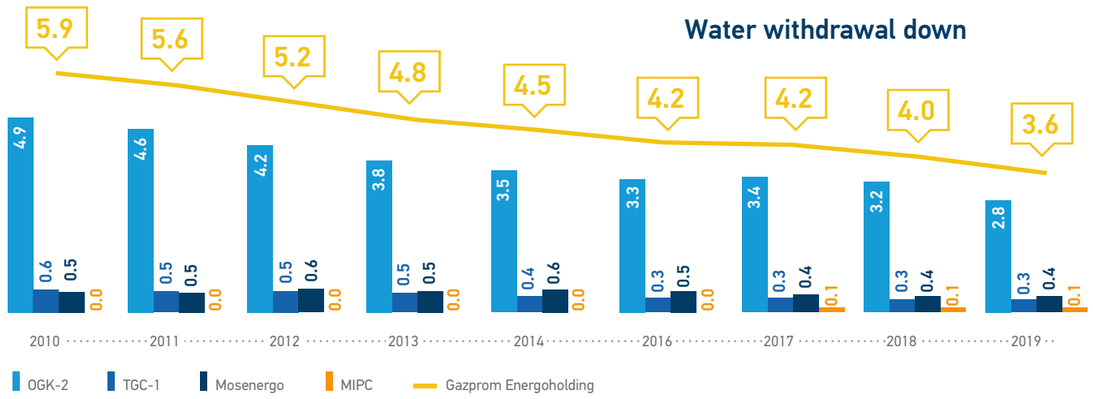
Projects implemented in 2018–2019 were aimed at water resource protection and conservation:

- Completion of construction and installation works to upgrade sewage networks, installation of chemical water treatment liquid residue dewatering facility, construction of local treatment facilities at the point of discharge to the city sewer at TGC-1's Pravoberezhnaya CHPP;
- Continued construction of water treatment facilities at TGC-1's Centralnaya CHPP;
- FEED for sewage network upgrade with wastewater treatment facility construction at TGC-1's Vasileostrovskaya CHPP;
- AO Murmanskaya CHPP upgraded water treatment facilities at discharge outlets 2 (KC-1), 3 (KC-2) and 1 (KTC);
- FEED for industrial stormwater runoff metering units at Mosenergo's CHPP-11;
- Installation of water metering equipment at the Southern and Northern water discharge outlets of Mosenergo's CHPP-16;
- FEED for the separation of municipal and firewater pipelines due to the transfer of the fire-fighting system at Mosenergo's CHPP-23 from municipal to circulation water;
- Installation of stormwater runoff metering units at Mosenergo's CHPP-25 (equipment, construction and installation);
- Installation of process water metering units at the onshore pumping station of Mosenergo's CHPP-26;
- Replacement of orifices and a differential pressure gauge comprising a KSD recorder with ultrasonic pipeline water flow meters at the Northern Intake of Mosenergo's CHPP-26;
- Installation of metering units (equipment, construction and installation, start-up and commissioning) at industrial stormwater sewers at Mosenergo's CHPP-26;
- Completed minor repair of petroleum-contaminated wastewater treatment facilities at Krasnoyarskaya GRES-2, an OGK-2 branch. The branch also took measures to reduce water use in its operations: reuse of wastewater from the discharge channel, including to heat the supply channel in winter; reuse of wastewater from the discharge channel to prepare makeup water for the boilers of generating units 1–8; reuse of wastewater as makeup water for coal ash handling;
- In order to ensure rational use of water resources, Novocherkasskaya GRES, an OGK-2 branch, performed metrological certification and maintenance of the SIRENA cooling water metering system. The branch also takes measures to reduce water use in operations, i.e. by reusing wastewater from the discharge channel.

303-1 WATER CONSUMPTION AND WITHDRAWAL

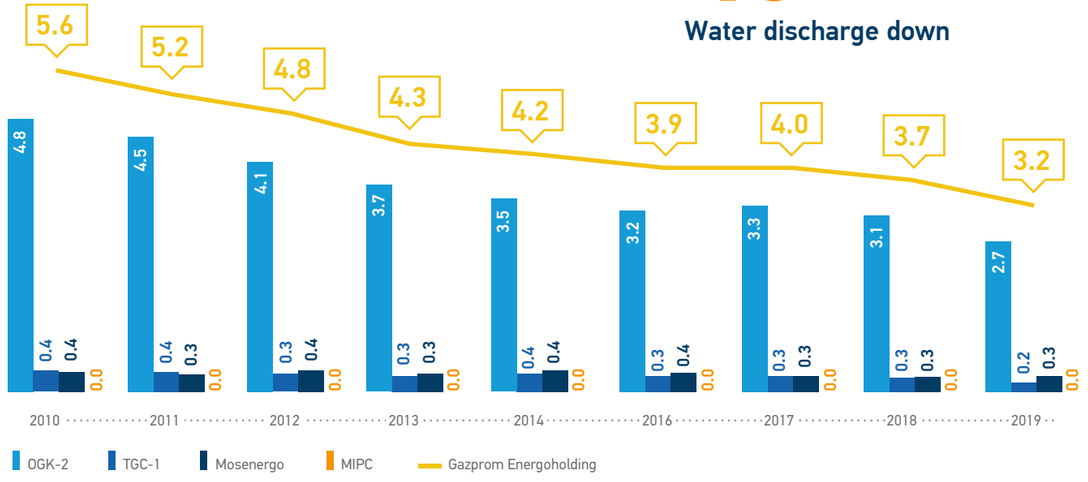
Water Withdrawal, bcm

40 %
Water withdrawal down



Water Discharge, bcm

43 %
Water discharge down



Records of water resources are kept in accordance with the following regulations:

- Procedure for Keeping Records of the Volume of Water Resources Withdrawal (Intake) from Water Bodies, as well as Wastewater and/or c Discharge and the Quality Thereof by Owners of Water Bodies and Users of Natural Resources approved by Order of the Russian Ministry of Natural Resources and Environment No. 205 dated 8 July 2009;
- Instructions on filling in Form 2-TP (water management) approved by Order of Rosstat No. 230 On the Approval of Statistical Tools for the Federal Water Resources Agency to Organise Federal Statistical Monitoring of Water Use, dated 19 October 2009.

For details on total water withdrawal by source and water reuse see Appendix 2.12.

306-1 **WASTEWATER DISCHARGE**

Wastewater Treatment System at Pravoberezhnaya CHPP, TGC-1 Nevsky Branch

Design volume of 120 cubic metres per hour of treated wastewater (1,051.2 thousand cubic metres per year) is recirculated as makeup water for the plant's circulating water system to improve the efficiency of water use and reduce the amount of discharged pollutants.

Construction of local treatment facilities reduced actual concentrations of pollutants in CHPP 5's wastewater.

Annual decrease in the amount of discharged pollutants:

~ 450 kg	~ 260 kg	~ 20 kg
aluminium	iron	manganese

For details on water discharge by quality and destination see Appendix 2.13.

304-2 # Biodiversity Protection

One of the environmental aspects of power plant operations includes the impact on aquatic biological resources during withdrawal of natural water from surface water bodies and during the operation of hydro power plants.

Fish-protection systems are installed at the Group's power plants withdrawing water to reduce negative impacts on aquatic biological resources.

Fish hatcheries rearing young fish were built to mitigate negative impacts of hydro power plant operation by replenishing fish stocks. Power plants are also stocking fish into local water bodies.

Sections, which are functional units of Gazprom Energoholding Group, are responsible for preserving biodiversity in the Company's areas of operation across all phases of operations.

Management of aquatic biological resource preservation is distributed among the following functional units:

- Chief Engineer section
- Industrial Safety section
- Occupational Safety and Environment section

Managers and authorised personnel of the above sections plan activities, set tasks and monitor their achievement. Tasks are then assigned to capital construction and repair sections.

Environmental activities of the sections do not affect animals listed in Red Data Books of various levels or their habitats.

MOSENERGO

All power plants of Mosenergo withdrawing water from rivers (HPP-1, CHPP-9, CHPP-12, CHPP-16, CHPP-17, CHPP-20, CHPP-21, CHPP-22, CHPP-26 and GRES-3) have fish protection systems.

Most fish protection systems at Mosenergo's power plants use aerator-based bubble curtains. Repelling signals affect practically all fish receptor organs: hearing, sight, tactile. These fish protection systems are highly reliable, economical and effective: 72 % to 85 % with a regulatory requirement of 70 %.

TGC-1

TGC-1's Nizhne-Tulomskaya HPP maintains the efficient operation of a fish ladder, a unique hydraulic structure which is one of its kind in the North-West. The structure is designed for seasonal passage of spawning salmon. The ladder has been in operation since 1937. Its design copies the bed of a mountain river: a 513-meter long man-made stream with a level difference of 20 metres, featuring rapids and 66 wells. The fish ladder allows salmons to swim to the upper reaches of the Tuloma river to spawn and return to the sea with the new generation of fish at the end of summer. An average of 6 to 7 thousand fish pass through the fish ladder annually, with a record high of 11,800 fish observed in 1980. The company reinforces the ladder structures every year through a range of activities, including concrete pouring and other solutions. The ladder operation was resumed in June 2018 following a regular repair.

The Karelsky Branch has a fish ladder on the Shuya River at Ignoyla HPP, extensively used during the autumn high water when salmon from Lake Onega swim up the river for spawning.

In some cases, fish ladders do not produce desired results due to a large difference in elevation (70 m) between headwater and tailwater levels. For example, a fish ladder was built at **Verkhne-Tulomskaya HPP** (the Tuloma River) to facilitate seasonal salmon migration, with experts from Finland involved in its design. However, very few fish actually swim through this ladder.

TGC-1 has contracted Kola Science Centre of the Russian Academy of Sciences to conduct research focusing on the condition of fish stocks, the biology and changes in the amount of aquatic resources within the area of the spillway gate (currently being revamped) of **Nizhne-Tulomskaya HPP of the Kolsky Branch** during 2018–2021 in order to assess the impact on fish stocks and prepare recommendations on preventing damage to fish stocks. Report for 2018 concludes that the spillway gate revamp does not have any additional impact on aquatic biological resources and their habitats. However, further revamp of Nizhne-Tulomskaya HPP up to the project's completion will require annual monitoring of the condition of the fish fauna, other hydrobionts and their habitats.

Water intake facilities of CHP plants are equipped with fish protection systems consisting of physical screens.

A PIRS electric fish screen installed in 2014 at **Ryazanskaya GRES**, an OGK-2 branch, has not only ensured environmental compliance but also helps protect biological resources. The PIRS screen operates by exposing fish to electric current and synchronous orienting acoustic signals. Fish response to passage of electric current through its body is called galvanotaxis and is well known. An electric field which is repellent to fish is created by an array of electrodes. The array is installed across the water intake flow, with electrodes arranged so as to create electric field in the water to ensure fish protection. The array is powered from the grid through a control module via charging cable and a switch. It creates a repelling effect which makes fish leave the area immediately and prevents the fish from entering the water intake.

Cherepovetskaya GRES, an OGK-2 branch, uses ZhEGS and RKVS fish protection systems. ZhEGS (louver screen with water wash) consists of water intake with louver screens allowing water passage and highly turbulent water jets to drive away young fish. Louver screens are not prone to clogging, and water wash continuously removes floating trash and plants. Jet parameters and the screen length not exceeding regulatory limits prevent injury to repelled fish. This fish protection system consists of water intake with removable louver screen sections, jet generator, pressure pipeline connected to the jet generator, and gravity-flow suction pipelines leading to the existing water intake of the 1st stage pump station.

Water Intake No. 2 uses RKVS (fish protection system with vertical fish separation) which consists of the following:

- two lines of fish-protection concentrating system with vertical fish separation, each for a flow rate of 10 cubic metres per second (which can be exceeded by 1.5 cubic metres per second), so the maximum total flow rate is 23 cubic metres per second, 1,987.2 thousand cubic metres per day, 725.3 million cubic metres per year;
- two water intakes with two rows of slots for maintenance barriers and trash racks; water flow rate in the fish bypass is 2 to 2.5 cubic metres per second when ejecting water is supplied from a cooling pond (0 4 to 0.5 cubic metres per second);
- two fish bypass routes with hydraulic acceleration used to create flow in the routes;
- fish bypass channel connecting the fish bypass routes to the river.

The design of fish protection concentrators with vertical separation takes into account the ability of young fish to swim up and down and resist vertical flow. The RKVS supplies water to the hydraulic accelerators (ejectors) through water intake openings beneath the bottoms of the fish concentrators designed as narrowing trays with sloping bottom. This results in water withdrawal at a large angle to the horizontal (30° to 50°), with young fish actively resisting to this flow with relatively low vertical component of velocity and the horizontal flow pushing fish towards the bypass. The bypass route with hydraulic acceleration takes young fish to the fish bypass channel leading to the bypass of Cherepovetskaya GRES and on to the Suda River.

As the RKVS system does not have any mechanical barriers and filter screens (meshes, louvers, etc.), rotating or moving parts that can injure fish, all protected young fish remain viable and active. At the same time, the system ensures reliable water supply.

To ensure fish protection, the existing river-bank pump stations BNS 1 and 2 of **Serovskaya GRES**, an OGK-2 branch, use rotating screens with a mesh size of 4 by 4 mm and periodic wash to prevent living organisms from entering the pump chambers.

Stavropolskaya GRES, an OGK-2 branch, with a design capacity of 2,423 thousand kW uses two river-bank pump stations (BNS-1 and BNS-2) to withdraw turbine condenser cooling water from the bottom of Novotroitskoye Reservoir, at water depth of 12 meters. The pump stations are identical, each with 8 circulation pumps with a flow rate of 5 cubic metres per second (18,000 cubic metres per hour). The intake chambers of the circulation pumps are equipped with TL-3000 rotating screens with a mesh sized of 6 by 6 mm to remove solid matter from water. Intake chambers of each of the 8 rotating screens of BNS-1 and BNS-2 are equipped with experimental fish protections systems: fish concentrating containers designed by Vedeneev VNIIG and manufactured by Kamsky Plant of Hydrosteelconstruction. The containers are installed upstream of the mesh. Fish protection for mesh with frontal water flow uses container design. It uses flow disturbance or turbulisation in front of the mesh. The fish-protection container reciprocates vertically along the mesh plane.

Fish-concentration containers are lifted mechanically and tip over to spill fish into a fish route where water moved by gravity takes fish back to Novotroitskoye Reservoir. The design is unique in that it offers simple and reliable operation. The fist experimental fish protection system at BNS-1 was accepted by a commission established under Order No. D-148-1A of the USSR Ministry of Energy, dated 11 June 1990, with representatives of 11 interested parties. The installation of fish protection systems at BNS-1 was completed by 1996. Fish protection systems at BNS-2 were installed between 1997 and 2003.

Currently, fish protection systems at BNS-1 and BNS-2 are operated on a regular basis with timely maintenance to reduce mortality of Novotroitskoye Reservoir fauna.

Nine MIPC facilities distribute hot water (heat) in the buffer zones of the following regional protected areas:

- Tushinsky natural-historical park
- Tsaritsyno natural-historical park
- Kuzminki-Lyublino natural-historical park
- Moskvoretsky natural-historical park
- Setun River Valley natural reserve
- Bitcevsky Les natural-historical park
- Teply Stan landscape reserve

Total affected area is 0.2314 ha.

Generation facility	Protected area	Protection status	Protected area type	Location (in the buffer zone of the protected area / within the protected area)	Activity	Plan (programme) for biodiversity conservation in place (yes / no)	Impacted area, ha
District heating substation CTP-207	Tushinsky NHP	regional	Natural-historical park	buffer zone	35.30.3 – Hot water (heat) distribution	no	0.0153
District heating substation CTP-70	Tsaritsyno NHP	regional	Natural-historical park	buffer zone	35.30.3	no	0.031
District heating substation	Kuzminki-Lyublino	regional	Natural-historical park	buffer zone	35.30.3	no	0.0424
District heating substation	Moskvoretsky NHP	regional	Natural-historical park	buffer zone	35.30.3	no	0.0218
Pavilion No. 140	Tsaritsyno NHP	regional	Natural-historical park	buffer zone	35.30.3	no	0.0121
Pavilion No. 436	Tsaritsyno NHP	regional	Natural-historical park	buffer zone	35.30.3	no	0.0243
District heating substation CTP No. 08-04-043	Setun River Valley natural reserve	regional	Natural reserve	buffer zone	35.30.3	no	0.0384
Pavilion No. 817	Bitcevsky Les NHP	regional	Natural-historical park	buffer zone	35.30.3	no	0.0172
District heating substation	Teply Stan landscape reserve	regional	Landscape reserve	buffer zone	35.30.3	no	0.0289
							0.2314

District heating substations do not harm the biodiversity of the above parks. No plans (programmes) for biodiversity conservation in the protected areas have been developed.

District heating substations operate in full compliance with environmental laws.

The following mitigation measures are implemented:

- land cleaning and upkeep (+5 m around the perimeter) in accordance with sanitary regulations;
- beautification, construction and restoration in accordance with a project pre-approved by the Department for Environmental Management and Protection;
- participation in the city's cleanup events;
- contract in place for regular waste collection;
- interactions with inspectors of Mospriroda and the Department for Environmental Management and Protection.

Promoting corporate social responsibility among Gazprom Energoholding Group environmental engineers

Gazprom Energoholding Group's total headcount is over 45,000, including 142 environmental engineers.

Gazprom Energoholding holds contests and business games to raise corporate social responsibility among the Group's environmental engineers, build up the environmental talent pool, foster relations between employees and companies and develop team spirit.

In 2017, the Year of the Environment in Russia, ООО Gazprom Energoholding organised and held a vocational skills competition for environmental protection specialists (environmental engineers).

The contest included two stages. More than 120 environmental engineers of the Group (80 %) took part in the first stage via the training portal of ООО Gazprom Energoholding. The first stage winners were teamed up for the final, which was held at Adlerskaya TPP, an OGK-2 branch, in the environmental team quiz game format.

The initiative enhanced our talent pool, formed a team capable of agile and professional responses to changes in legislation, in part due to unconventional and informal approach to their formal duties in order to achieve improved corporate social responsibility among the Group's environmental engineers.

Given the positive feedback from colleagues and the overall experience of the event, it was decided to hold a business game and environmental team quiz game in 2018 during an environmental engineers' meeting. ООО Gazprom Energoholding also took part in PJSC Gazprom's Labour Festival with a similar project.

In 2019, the competition was also held in two stages: environmental engineers developed challenges for the first stage contestants, with winners teamed up to compete in the second stage.

All participants gave positive feedback on the environmental competitions. The competition materials are also used in events held in the classical or game format for employees from other backgrounds, university students and schoolchildren as part of environmental education and career guidance efforts.

The universal, creative approach allows the competitions to be held by employees in any region, in various companies and in groups of various levels of training.

Our strategic goal
is zero injuries in the workplace

1,626 RUB mm
Occupational health costs

468 RUB mm
Industrial safety spending

Occupational Health and Safety

103-2

Occupational Health and Safety Management System

People's life and health are the Group's top priority, and our strategic goal is zero injuries in the workplace. To this end, we pursue health and safety activities across several areas: strict compliance with federal occupational health and safety regulations and own initiatives to improve the safety culture and raise safety awareness in the workplace.

403-1 403-8 103-2

Occupational Health and Safety Management

Occupational health and safety issues are addressed in line with Russian laws, the principle document being the Labour Code (No. 197-FZ dated 30 December 2001), and both industry and local regulations.

Each company has in place OHS management system regulations that take account of the company's organisation, key processes and separation of duties.

The regulations cover all the Company's business units, employees and persons on its territory, in buildings and facilities.

The OHS management system principles:

- A process-based approach;
- Compliance with the statutory occupational health regulations and standards;
- Systematic training of operating personnel in safe work methods and techniques;
- Regular monitoring and appraisal of occupational health performance;
- Employees' commitment to safe working conditions;
- Logistical support for occupational health events;
- The responsibility of each employee for safety at the workplace.

The OHS management system is part of a corporate-wide management system, responsible for workplace health and safety.

The OHS management system aims at:

- Protecting employees from hazards, reducing safety and health risks in the workplace;
- Implementing an occupational health and safety policy in line with relevant statutory requirements;
- Coordinating and supporting occupational health efforts of heads of branches and business units to create a safe working environment;
- Strengthening the company's image by improving working conditions and occupational health and safety.

The OHS management system comprises functions that implement the management's decisions on legal, social and economic, organisational, technical, health, healthcare, rehabilitation and other measures to ensure occupational health and safety and favourable working conditions of the Company employees who operate generating units, provide maintenance, organise and conduct construction, installation, commissioning, repairs, tests and measurements.

The OHS management system involves planning and tracking occupational health and safety indicators, measures to prevent injuries and occupational diseases, monitoring the OHS performance, analysis of the results and continuous improvement. The regulations also establish the occupational health and safety roles of officers and business units within the governance framework of the Company.

Employee Participation, Consultation and Communication on Occupational Health and Safety

The employee–employer cooperation in occupational health and safety is an important part of the Group's occupational health and safety policy. To actively engage employees and their representatives in occupational health and safety management, the Group companies have in place occupational health and safety committees (commissions).

The chairman of each company's committee is its Chief Engineer, and the occupational health and safety commissions in branches are chaired by their directors or chief engineers.

The occupational health and safety committees (commissions) are governed by the relevant regulations on occupational health and safety committees (commissions), which, in turn, are based on the standard regulations on occupational health and safety committees (commissions) approved by Order of the Ministry of Labour and Social Protection of the Russian Federation No. 412n, dated 24 June 2014.

The committees (commissions) comprise, on a parity basis (50 % / 50 %), representatives of the employer and the elected governing body of the primary trade union organisation or another employee representation body.

Local occupational health regulations and acts based on the labour legislation are approved, taking into account the substantiated opinion of the trade union organisation's elected governing body. Employees and their representatives are motivated to actively participate in occupational health and safety activities.

403-4

Employee Health

Although the Group's industrial safety and occupational health and safety measures are fully compliant with Russian laws, these commitments are additionally set out in the collective bargaining agreements of its generating companies.

The occupational health section of collective bargaining agreements contains occupational health provisions aimed at protecting the lives and health of employees at work.

Focus Areas in Protecting the Health and Safety of Employees:

ADMINISTRATIVE AND FINANCIAL SUPPORT

- Supporting specialised services responsible for occupational health and fire safety
- Financing occupational health measures for compliance with applicable laws

MONITORING EMPLOYEE HEALTH

- Mandatory preliminary, periodical, pre-shift and pre-trip medical examinations and inspections for certain categories of employees at the expense of the employer
- Preventing the involvement in any work for employees who have failed to pass the mandatory medical examination on time
- Preventing the involvement of employees, including with their consent, in any work that is contraindicated for them for health reasons
- Recording and analysing occupational diseases of employees; developing and implementing relevant preventive measures

HEALTHY AND SAFE WORKING ENVIRONMENT

- Creating a healthy and safe working environment at every workplace, which are assessed based on measured metrics
- Provision of certified protective clothing, footwear and other personal protective equipment; detergents, disinfectants (soaps and creams) and milk and other dairy products to employees operating in harmful or hazardous working conditions, extreme temperatures or climatic conditions, or in a polluted environment, in line with the existing standards

EMPLOYEE TRAINING AND BRIEFING

- Organising occupational safety training, briefings and knowledge tests for employees in line with the established procedure

OCCUPATIONAL AND INDUSTRIAL SAFETY CONTROL AND AUDIT

- Organising and exercising in-process control in line with statutory procedures
- Running a supplementary cross-audit of occupational and industrial safety at operating facilities

ACCIDENT INVESTIGATION, REGISTRATION AND PREVENTION

- Ensuring unbiased accident investigations and registration, analysing the causes and preparing targeted measures to prevent similar accidents in the future

403-5

Training and Testing on Occupational Health and Safety

The Group companies continuously train employees of all categories on occupational health and safety. The training is tailored to the specifics of a given employee category. Occupational health and safety training and testing (briefings, training in safe work methods and techniques, apprenticeship, etc.) are integrated with other forms of education. Employees' training in occupational health and safety is based on the specifics of their work profile, as well as the qualification and competencies required to perform their duties safely.

Occupational Health and Safety Training, people

	Mandatory			Additional		
	2017	2018	2019	2017	2018	2019
Mosenergo	4,680	2,186	2,995	1,047	941	1,653
TGC-1	4,356	4,076	4,834	48	590	379
OGK-2	2,068	6,525	6,158	36	695	36
MIPC	2,969	4,210	4,742	32	107	480
Total	**14,253**	**16,997**	**18,729**	**1,163**	**2,333**	**2,548**

Assessment and Elimination of Occupational Safety Risks

In 2018–2019, the Group implemented a comprehensive set of measures to identify, assess and eliminate occupational safety risks. The unified occupational health and fire safety risk management system covers all the Group's operating sites to proactively and consistently identify, assess and eliminate the risk of injuries. All the Company's branches have appointed and trained responsible officers. Risk assessment results were included in roadmaps. The identified risks were prioritised by severity of impact and consequences and are addressed accordingly.

The most serious risks are to be eliminated first. Most of the risks are eliminated within one calendar year, and the rest of them are mitigated. The companies' repair and investment programmes will help to eliminate them completely.

403-2

Work-Related Injuries at the Group's Generating Companies

Injury Rate

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
FIFR[21]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.004	0.00	0.00
LTIFR[22]	0.21	0.07	0.07	0.46	0.28	0.36	0.34	0.21	0.07	0.12	0.45	0.08
ODR[23]	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00
LDR[24]	10.80	0.76	2.85	27.08	34.90	26.53	23.92	11.31	0.92	16.07	29.24	5.73
Total hours worked by all personnel, thousand hours	13,983.11	14,541.17	13,673.93	10,857.34	10,715.70	11,006.27	14,505.11	14,150.49	14,084.71	24,391.59	24,178.04	25,647.12

EU25

No cases of injuries inflicted to third parties when interacting with the Group assets were registered.

In 2018–2019, the Group has recorded 15 accidents due to fault of employees and 11 accidents with no person at fault identified.

Accidents resulting in work-related injuries are investigated in line with the requirements of Articles 227 to 231 of the Russian Labour Code and Resolution of the Russian Ministry of Labour No. 73 On the Approval of Forms of Documents Required for Investigation and Registration of Workplace Accidents and the Regulations on Specific Requirements to Investigation of Workplace Accidents in Certain Sectors and Organisations dated 24 October 2002.

For more details on work-related injuries by type and the lost time across Gazprom Energoholding Group's generating companies see Appendices 3.1–3.2.

403-2

Injury Rate, Occupational Health and Safety of Contractor Employees

Certain types of activities related to the construction and operation of generating facilities of Gazprom Energoholding Group's generating companies are performed by contractor employees. Contract agreements signed with them include a mandatory appendix stipulating the contractor's responsibility for violation of occupational health, fire safety and environmental requirements, based on which fines may be imposed, and serious offences may have a contractor's pass to the power plants' premises revoked. Requirements are also in place for the availability and presentation of occupational and industrial safety documents authorising contractor employees to work at the Group's power plants.

Regular supervision of contractors' employees includes:

- Checking the availability of employees' certificates in occupational, fire and industrial safety during operations at generating facilities, as well as authorisations to conduct special operations with core and auxiliary equipment;

[21] Fatal Injury Frequency Rate (FIFR) = the number of work-related fatalities / total hours worked by all personnel * 1,000,000.
[22] Lost Time Injury Frequency Rate (LTIFR) = the number of injuries / total hours worked by all personnel * 1 000 000.
[23] Occupational Disease Rate (ODR) = the frequency of new occupational diseases / total hours worked by all personnel * 1,000,000.
[24] Lost Days Rate (LDR) = the total lost days / total hours worked by all personnel * 1,000,000.

- Introductory (primary, targeted) briefings;
- Joint Occupational and Fire Safety Days;
- Unscheduled workplace inspections (including at nighttime) by in-house occupational health experts;
- Workplace inspections as part of internal and external technical audits;
- Joint meetings between the Group's occupational health services and contractors to address occupational and industrial safety issues;
- Joint field visits and in-process inspections at HOFs.

Gazprom Energoholding Group does not maintain statistics on the number of injuries and fatalities among contractor employees when interacting with the Group assets, but plans to include contractors into the Group's occupational health and industrial safety system.

403-2

Occupational and Industrial Safety Spending

Occupational health and safety spending covers:

- Periodical medical checks (examinations);
- Training in occupational health and safety;
- Purchase of protective clothing and footwear, personal protective equipment, detergents and disinfectants;
- Storing, cleaning, washing and drying protective clothing;
- Special health and safety assessments;
- Operational control over compliance with sanitation rules and healthcare (preventive) measures, including measurements and analysis of occupational hazards and harmful factors;
- Other measures, including those covered by programmes (agreements) to improve labour conditions.

Industrial safety spending covers:

- Purchase of licences for certain activities;
- Registration of HOFs;
- Industrial safety assessments;
- Third-party liability insurance against injuries resulting from accidents at a HOF;
- Employee training and certification in industrial safety;
- Other purposes.

Allocation of Occupational and Industrial Safety Spending, RUB thousand

		2017	2018	2019
Mosenergo	Occupational Health and Safety	657,720	739,547	731,308
	Industrial safety	94,561	122,344	150,125
TGC-1	Occupational Health and Safety	99,305	103,748	107,200
	Industrial safety	37,907	32,139	13,343
OGK-2	Occupational Health and Safety	310,547	317,638	362,413
	Industrial safety	56,585	39,211	44,119
MIPC	Occupational Health and Safety	352,151	372,623	425,242
	Industrial safety	17,168	24,240	259,991
Total	**Occupational Health and Safety**	**1,419,723**	**1,533,556**	**1,626,163**
	Industrial safety	**206,221**	**217,934**	**467,579**

The Group believes that respect for its employees' rights is key to driving consistent performance and growth, and guarantees employees' rights to work and rest, and to retirement and disability benefits

~ 8 %

Average employee turnover at the Group in 2018–2019

> 99 % of employees

Is covered by collective bargaining agreements

Personnel Development and Social Security Policy

103-2

HR policy

The HR policy and personnel management system of Gazprom Energoholding Group's generating companies are aligned with the strategic goal of PJSC Gazprom: to become a leader among global energy companies. They are aimed at building a team of professionals capable of delivering their objectives efficiently. The Group's HR policy primarily focuses on achieving and sustainably maintaining the status of a preferred employer that attracts committed and highly efficient people.

KEY HR POLICY PRINCIPLES

- Transparency and openness
- Pursuing industry leadership
- Effective investments in personnel
- Continuous improvement
- Organisational discipline

The Human Resources Management Policy of PJSC Gazprom, Its Subsidiaries and Entities (approved by Resolution No. 49 of PJSC Gazprom's Management Committee dated 7 November 2006) is the underlying document for HR management across Gazprom Energoholding Group's generating companies. The Group companies' corporate documents were drafted in strict compliance with the aforementioned Human Resources Management Policy and the requirements of the Russian laws.

HR management issues are assigned to the Group companies' dedicated functional sections and business units, while a particular functional section of ООО Gazprom Energoholding provides methodological support for HR activities at the Group's generating companies, as well as organises and controls them. ООО Gazprom Energoholding representatives sit on the governing and advisory bodies of its subsidiaries, which are authorised to make decisions approving the companies' organisational structures and staffing, management compensation plans, key performance indicators (the list of KPIs, evaluation methods, target values, and progress reports) and collective bargaining agreements. This enables the Company to pursue a uniform policy in terms of organisational development, goal-setting, and compensation paid to top managers.

Key HR management documents effective across Gazprom Energoholding Group include:

- HR Management Policy;
- Code of Corporate Ethics;
- Regulations on Competency-Based Personnel Management at ООО Gazprom Energoholding's Subsidiaries and Entities;
- ООО Gazprom Energoholding's unified competency model;
- Regulations on Managing the Talent Pool to Fill Management Positions at ООО Gazprom Energoholding, Its Subsidiaries and Entities;
- Regulations on the Certification of Managers, Specialists and Other Employees of ООО Gazprom Energoholding;
- Regulations on Personnel Training at ООО Gazprom Energoholding;
- Rules for Personnel Relations at Companies of the Russian Electricity Industry;
- Guidelines on Implementing Professional Standards across PJSC Gazprom;
- Action Plan to Introduce Professional Standards across ООО Gazprom Energoholding, its Subsidiaries and Entities.

From 2018 to 2019, the Group continued integrating professional standards. These consistent efforts are guided by annual plans of PJSC Gazprom and ООО Gazprom Energoholding. In total, Gazprom Energoholding Group uses over 72 professional standards, including:

16
Mandatory professional standards

56
Non-mandatory professional standards

HR MANAGEMENT SYSTEM AT GAZPROM ENERGOHOLDING GROUP'S GENERATING COMPANIES

HR POLICY

Key principles:
- ☑ Transparency and openness
- ☑ Pursuing industry leadership
- ☑ Effective investments in personnel
- ☑ Continuous improvement
- ☑ Organisational discipline

REGULATORY FRAMEWORK

- Human Resources Management Policy of PJSC Gazprom, Its Subsidiaries and Entities
- Regulations on Managing the Talent Pool to Fill Management Positions at ООО Gazprom Energoholding, Its Subsidiaries and Entities
- Personnel Management Policy
- Code of Corporate Ethics
- Labour Code of the Russian Federation
- Rules for In-Process Control over Compliance with Industrial Safety Requirements at Hazardous Operating Facilities
- Federal Law On Industrial Safety of Hazardous Operating Facilities (HOF)
- Occupational Safety Management System (OSMS)

OCCUPATIONAL HEALTH AND SAFETY

Human Resources

102-8 PERSONNEL STRUCTURE

As at 31 December 2019, the headcount of Gazprom Energoholding Group's generating companies was 39,179 employees (including those employed under independent contractor agreements and part-time employees) versus 37,812 employees as at 31 December 2018. Between 31 December 2018 and 31 December 2019, the headcount grew by 3.6 %, or 1,367 employees.

102-8 Total Number of Employees by Employment Contract and Gender

	Permanent employees												Temporary employees					
	Employment contract with a permanent employee						Employment contract with a part-time employee						Independent contractor agreement					
	2017		2018		2019		2017		2018		2019		2017		2018		2019	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Mosenergo	2,505	5,402	2,509	5,436	2,550	5,494	9	7	8	9	9	11	30	62	31	50	25	44
TGC-1[25]	2,187	4,947	2,241	4,947	2,294	5,003	4	15	5	18	9	19	13	12	13	21	9	19
OGK-2	2,859	5,673	2,773	5,643	2,756	5,655	2	28	4	34	8	11	3	7	-	2	-	2
MIPC	4,836	9,567	4,733	9,490	5,271	10,135	18	26	12	35	3	16	12	8	14	7	12	12
Total	**12,387**	**25,589**	**12,256**	**25,516**	**12,869**	**26,289**	**33**	**76**	**29**	**99**	**29**	**57**	**58**	**89**	**54**	**80**	**46**	**77**

405-1 Total Number of Employees by Position, Age Group and Gender

	Managers		White collar		Blue collar	
	Female	Male	Female	Male	Female	Male
2017						
Under 30 years old	124	430	901	735	317	2,612
30–50 years old	1,200	3,629	3,203	2,111	2,190	6,904
Over 50 years old	690	2,123	1,370	785	2,420	6,292
Total	**2,014**	**6,182**	**5,474**	**3,631**	**4,927**	**15,808**
2018						
Under 30 years old	124	430	901	735	317	2,612
30–50 years old	1,200	3,629	3,203	2,111	2,190	6,904
Over 50 years old	690	2,123	1,370	785	2,420	6,292
Total	**2,014**	**6,182**	**5,474**	**3,631**	**4,927**	**15,808**
2019						
Under 30 years old	127	376	802	718	297	2,487
30–50 years old	1,257	3,917	3,586	2,260	2,173	7,305
Over 50 years old	690	2,056	1,348	859	2,602	6,336
Total	**2,074**	**6,349**	**5,736**	**3,837**	**5,072**	**16,128**

The headcount reduction was mainly due to optimising organisational structures at the Group companies, which included centralising business processes, outsourcing support functions, changing the organisational structure of operating branches, disposal of non-core assets and sales optimisation. Growth was driven by commissioning new facilities and insourcing certain functions.

For more details on human resources see Appendices 4.1–4.3.

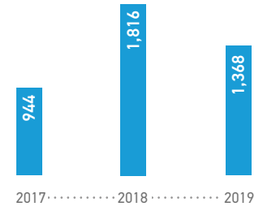
[25] Including AO Murmanskaya CHPP

404-3 PERFORMANCE REVIEWS

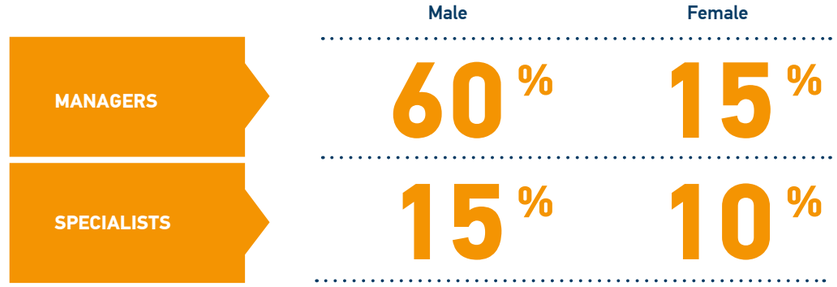
The performance of all the Group employees is reviewed against reward targets / KPIs and individual goals and objectives. We also review the performance of employees from the talent pool and/or engaged in other development programmes. From 2018 to 2019, about 400 people were reviewed through aptitude tests at the Review and Development Centre and then trained in line with individual plans.

The slight reduction in the number of Gazprom Energoholding Group employees who passed the competency tests and were certified in 2019 is linked to the tests' frequency.

Number of Employees Who Passed the Efficiency (Performance) Review



Employees Who Passed the Competency Tests and Were Certified in 2019, by Gender and Position



EMPLOYEE SATISFACTION SURVEY

From 2018 to 2019, the Group companies ran an employee satisfaction and engagement survey covering about 17 thousand employees across all personnel categories (4,587 employees at MIPC, 5,494 employees at Mosenergo, and about 7,100 employees at OGK-2). Action plans were prepared to improve employee satisfaction and address issues identified by the survey. These efforts will be continued in 2020.

401-1 EMPLOYEE TURNOVER

From 2018 to 2019, the average employee turnover (the ratio of employees who have resigned or have been dismissed due to absenteeism or consistent breaches of labour discipline to the average headcount over the reporting period) at Gazprom Energoholding Group's generating companies was about 8 %.

Some of the Group companies plan to take additional measures to retain employees and reduce employee turnover in 2020.

For more details on employee turnover see Appendix 4.4.

Our methods for sourcing and retaining personnel include providing decent pay and social security in our operating regions, as well as non-financial incentives such as:

- Corporate health insurance programmes and pension plans;
- Personnel training and development programmes;
- Engaging third-party credit organisations to provide services to employees, such as special loan terms and both property and life insurance;
- Corporate entertainment events (including sporting contests);
- Health and recreation for employees and their family members.

In sourcing employees and selecting candidates for management positions, Gazprom Energoholding Group companies focus exclusively on individual professional skills, without regard for social status or maintaining statistics on their socio-demographics. The majority of the personnel of the Group's generating companies live in regions where the respective power plants are located, with the exception of a small number of employees engaged for the construction or operation of new generating facilities.

All new employees undergo an induction and onboarding programme. Employees on probation are given a job assignment for the probation period and are assessed based on their performance.

412-2 412-3 405-2 406-1

RESPECT FOR HUMAN RIGHTS AND EQUAL OPPORTUNITIES

Respect for Human Rights is set forth in Russian laws, particularly in the Constitution of the Russian Federation. Gazprom Energoholding Group believes that respect for its employees' rights is inherent to stable performance and development. The Group companies guarantee employees' rights to work and rest, retirement and disability pensions. Labour rights are provided in line with the Labour Code of the Russian Federation and the industry agreement on wages and salaries, and social guarantees to employees.

In 2018–2019, the Group did not conduct a specialised (wide-coverage) training for employees in human right policies or procedures. In 2018, nine employees of the Group received formal training in human rights policies or procedures (200 hours) versus 13 employees (152 hours) in 2019.

Four security employees were trained in human rights policies or procedures in 2019.

In 2017–2018, no training was conducted. No specialised (wide-coverage) training in human rights policies or procedures for security employees was conducted.

The Company has a zero tolerance for gender, age, nationality, creed and other types of discrimination. The Group employees are a multinational team whose members treat each other with respect.

The Group companies apply equal principles for men and women in all labour aspects:

- Positions (including the possibility to take managerial positions)
- Remuneration
- Social benefits, etc.

The working conditions at Gazprom Group Energoholding entities are not gender-differentiated. As at 31 December 2019, women accounted for 8.9 % of senior management (9.3 % as at 31 December 2018).

No cases of discrimination by gender, ethnic origin or other aspects across Gazprom Energoholding Group companies were identified in 2018–2019.

Employee Remuneration

Employee remuneration at Gazprom Energoholding Group's generating companies is based on the employee's qualifications, job complexity and individual performance as well as the performance of their business unit and the Group company in general. The forecasted consumer price index growth is also considered when planning payroll costs for future periods.

401-2

The remuneration system at Gazprom Energoholding Group's generating companies comprises a fixed part and a variable part. The nominal ratio of fixed to variable remuneration varies from 80:20 for core personnel such as operators and specialists to 40:60 for managers. Fixed remuneration payable to employees includes compensation payments depending on working conditions and the nature of the specific job. Variable remuneration comprises increments and incentive payments, including bonuses accrued at the end of the reporting period (for the month, quarter or year) subject to performance measured against individual and corporate KPIs. KPIs typically include financial and economic targets, operational efficiency, safety and reliability metrics, as well as performance against investment programmes and individual priority investment projects. The KPIs are continuously refined to accommodate for the current and strategic objectives of each of the Group's generating companies, and serve as a tool to appraise employee performance and motivation.

Mosenergo's remuneration system includes a system of job grades that reflect the differences among employees depending on their scope of duties, level of responsibility and other factors that are used to calculate fixed remuneration. TGC-1, OGK-2 and MIPC calculate fixed remuneration using a wage rate system (or a wage rate scale), which reflects the differences among employees depending on the complexity of their job duties and individual performance against work targets.

202-1

Under Russian law, the regions where our generating companies operate employ the unified minimum wage rate (MWR), which remains the same for all employees regardless of gender. The wage rate for entry-level positions with the Group companies is above the MWR in each region and is not affected by an employee's gender or age. The average wage rate at our generating companies is also maintained at a level above the regional average.

For more details on entry-level wage ratios (including compensation and incentive payments) compared to local minimum wage rates see Appendix 4.5.

THE ELIGIBILITY CRITERIA AND AGREEMENTS SIGNED BY THE GROUP'S GENERATING COMPANIES WITH SUPPLIERS AND CONTRACTORS DO NOT STIPULATE MINIMUM WAGE RATES FOR PERSONNEL.

Development and Education

404-2

The Company offers its employees extensive opportunities to unlock their personal potential and achieve career growth. Key focus areas:

- Onboarding programme for new hires and a mentoring scheme;
- Implementing unified approaches and methods in personnel training and appraisal;
- Maintaining a talent pool (consisting of about 1,100 employees as at the end of 2018 and about 1,600 employees as at the end of 2019) and relying on transparent principles of talent promotion;
- Corporate skills and innovative project competitions;
- Continuous education and training system.

Continuous education is essential to achieving the Group companies' goals and objectives and ensuring their future development. The Regulations on the Continuous Vocational Education and Training System govern the relations between OOO Gazprom Energoholding and its generating companies in personnel education and development across the Group companies. **The Educational and Methodological Council (EMC) determines key development areas for continuous corporate education and training and comprises five sections:**

- Mandatory industrial and technical training
- Operating personnel development
- Educational methodology
- Capability building
- Innovative training

Our companies have specialised programmes for their management, talent pools and high-potential employees, providing training in developing effective management tools, improving personal efficiency and business communication skills, and motivating own employees to improve their professional level. The programmes include:

- targeted and regular competency-based training programmes for management and the talent pool
- accelerated development programmes for high-potential employees and the talent pool
- joint programmes with higher education institutions.

We would like to make a special mention of the Management Academy, the Chief Engineer School, and the Corporate Safety School.

Distance education is actively developing through the Corporate Education Portal (over 60 thousand online training courses were scheduled for 2018–2019). Distance education comprises both mandatory (managers and specialists) and project training.

Additionally, approximately 22 thousand man-courses are attended annually under more than 150 programmes by corporate training centres (Mosenergo Training Centre, MIPC Training Centre, TGC-1 Training Centre, the private Electrical Staff Training Centre institution of continued professional education) located in the immediate vicinity of power plants and equipped with modern material and technical resources as well as all the necessary simulators, laboratories, and highly qualified educators. The Training Centres are licensed to conduct educational activities in the relevant professions and additional education for all professions, required within the companies of the Group.

The Group cooperates with the leading Russian higher education institutions including National Research University Moscow Power Engineering Institute, Moscow State University, St Petersburg Polytechnic University, St Petersburg State Institute of Technology, Moscow State University of Railway Engineering, St Petersburg State University of Economics, State University of Management, and Kutafin Moscow State Law University. Gazprom Energoholding Group's generating companies also maintain relations with regional educational institutions in the regions where they operate. Training is provided in the form of career enhancement, vocational retraining, short-term workshops and trainings.

100 % of personnel training costs are covered by Gazprom Energoholding Group. In 2018–2019, financing of personnel training and development totalled over RUB 300 million, of which about 75 % were invested in trainings for managers, specialists and other employees of Gazprom Energoholding Group's generating companies. In line with Russian laws, long-term training programmes provide job-protected study leaves. In making decisions on enrolling managers and specialists on training courses, the Group companies take account of the training's scheduled duration, current and future development plans in respective companies, and the annual consolidated personnel development plan in Gazprom Energoholding Group's generating companies.

404-1

Average Hours of Training per Year, per Employee, by Employee Category

	Managers			White collar			Blue collar		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Mosenergo	62	144	168	62	144	168	31	85	89
TGC-1	55	38	44	55	38	44	66	49	88
OGK-2	23	35	51	11	46	28	39	34	52
MIPC	39	42	81	35	34	42	40	31	66

Average Training and Professional Development Costs per Employee, RUB

	2017	2018	2019
Mosenergo	3,019.00	2,415.00	2,735.00
TGC-1	3,502.70	3,689.14	3,653.33
OGK-2	5,289.00	5,450.00	5,310.00
MIPC	1,407.70	1,443.91	1,476.14

Gazprom Energoholding Group holds skills contests for our operating personnel on an annual basis. The key objectives of the contests are to improve the operating personnel's professional skills in ensuring the energy system's reliability, sharing best corporate practices in organising and running day-to-day management of thermal power plant equipment, and improving the forms and methods of ensuring high quality, reliable equipment maintenance.

YOUNG TALENT ACQUISITION AND MANAGEMENT

The Company's HR policy aims at maintaining an optimal age mix and ensuring the succession of employee generations as a strategic objective. The Group's key methods for attracting young talent to its generating companies:

- Regular contact with educational institutions to attract and recruit high-potential graduates; contracted targeted training programmes;
- Traineeships and internships for students of relevant higher and specialised education institutions, diploma project contests among students of higher education institutions;
- Company Days and round tables with the Group's leading specialists;
- Participation in Career Fairs and posting information about career opportunities for graduates on information boards at higher education institutions, on social networks, and in the mass media;
- Targeted onboarding and development programmes for young talent.

Onboarding programmes at the Group companies focus on corporate values, the Group's corporate ethics and etiquette, and energy industry basics. Onboarding (induction) courses and mentoring programmes are also provided to young specialists and new employees. Tours to the Group's museums and generating facilities are organised for all new hires.

Protection of Employee Interests and Rights

RESPECT FOR EMPLOYEE'S INTERESTS AND RIGHTS, AND SOCIAL SECURITY

The social security of employees is a key priority of Gazprom Energoholding Group's HR policy. The concept of social partnership that underpins the policy provides for various social payments, personal insurance, healthcare benefits, and private pension plans offered to employees.

KEY AVAILABLE SOCIAL BENEFITS AND PAYMENTS

- **VOLUNTARY HEALTH INSURANCE**
- **ACCIDENT INSURANCE**
- **RECREATION FOR EMPLOYEES AND / OR THEIR CHILDREN**
- **PRIVATE PENSION PLANS**
- **SUPPORT FOR WAR AND HOMEFRONT VETERANS OF THE GREAT PATRIOTIC WAR (WWII)**

TRADE UNION RELATIONS AND COLLECTIVE BARGAINING AGREEMENTS

Relations with trade unions are crucial to protecting the interests of employees and maintaining a social partnership between management and personnel. The primary trade union organisations at TGC-1 and OGK-2 branches are part of the All-Russian Electric Trade Union, while the primary trade union organisations at Mosenergo branches are part of the Moscow Electric Trade Union, and MIPC's trade unions are part of the NGO Moscow Municipal Workers Trade Union.

Although the main objective of trade unions is protecting the professional, labour, and social and economic rights of employees against violations by the employer, the Group believes that their benefit to employers should not be underestimated.

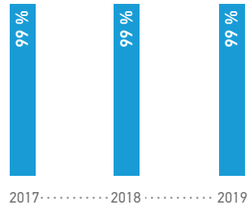
Special committees regulating social and labour relations are in place at the Group, which closely collaborates with trade unions to implement its social security policy and host cultural, sporting and recreational events for employees.

The Group's generating companies have active collective bargaining agreements and are committed to the mutual obligations contained in them. Collective bargaining agreements have been extended through 2020. When developing contractual relations between social partnership stakeholders, the Group aims to secure the social and economic rights of, and guarantees for, employees, increase labour efficiency and productivity, improve the quality of work, and comply with established labour and process procedures as well as occupational health, safety and hygiene standards.

102-41 Collective bargaining agreements cover over 99 % of employees, while other internal regulations apply for administrative office employees.

All stakeholders are involved when the Group monitors compliance with collective bargaining agreements via periodical (quarterly, biannual or annual) reports and conferences. The companies' collective bodies discuss matters related to collective bargaining agreements and include representatives of employers, employees (through trade unions) and representatives of OOO Gazprom Energoholding in some cases.

Share of Employees Covered by Collective Bargaining Agreements



Collective bargaining agreements with the Group employees include the following key elements:

- Standard work and rest hours: working hours per week, statutory leave and extra leave;
- Minimum monthly wage rates for Grade 1 blue-collar workers are determined taking account of the consumer price index for past periods and the company's balance sheet capabilities;
- Occupational safety: employer's commitments on safety, medical examinations, supply of working clothes / footwear, accident insurance, etc.;
- Benefits, guarantees and compensations.

402-1 The Group's generating companies also comply with the Russian Labour Code in providing employees a minimum two months' notice on material changes. Additionally, the Group's collective bargaining agreements state that trade unions are to be informed of any forthcoming reorganisation within 20 days following the General Shareholders Meeting at which the relevant decision was made.

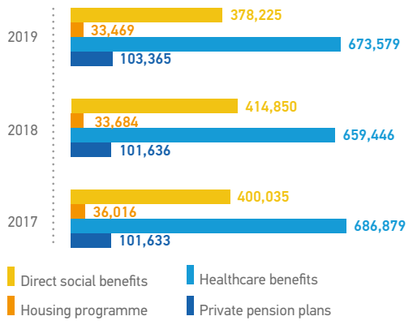
201-3 ## SOCIAL SPENDING AND PENSION BENEFITS

Gazprom Energoholding Group engages NPF GAZFOND as its main non-state pension fund and maintains pension schemes provided by NPF Otkritie earlier.

The Group companies apply both corporate and parity pension programmes (schemes). The corporate pension programmes covered about 20 % of employees in 2018–2019.

Gazprom Energoholding Group's pension liabilities totalled RUB 101.6 million in 2018 and RUB 103.4 million in 2019.

Social Spending by Gazprom Energoholding Group, RUB thousand



The Group companies actively engage with municipal authorities, not-for-profit organisations and local communities and take account of their interests in decision-making

42 RUB mm

Directed to philanthropy in 2019 (+35.5 % vs 2018)

Philanthropy and Support for Regions of Operation

Gazprom Energoholding Group's Efforts to Develop Regions of Its Operation

103-2
203-1

Social aspects are an important focus area of Gazprom Energoholding Group, in addition to financial and operational performance. The generating companies actively engage with municipal authorities, not-for-profit organisations and local communities and take account of their interests in decision-making. The Group companies are regular sponsors and participants of charitable projects. The Group management makes sure that all donations went to social and humanitarian causes.

415-1

Gazprom Energoholding Group does not engage in politics or make contributions to political parties and organisations. However, the Group management sets no restrictions on its employees' social and political life unless it needs their attention during work time or the use of the generating companies' resources.

Power plants and the Group's other generating facilities are large industrial enterprises that affect the environment and society in the regions of its operation, despite all measures to prevent negative impacts. Construction under the generating companies' infrastructure investment projects always causes inconvenience to local residents. Each time the construction of a new industrial facility begins, the Group companies hold public hearings, which involve representatives of public and environmental organisations, industry regulators, federal and municipal authorities.

Philanthropy

The Group companies participate in charitable projects on a constant basis, helping organisations and individuals in the following areas:

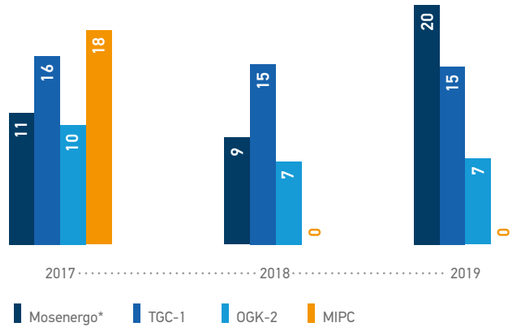
- Targeted medical aid (purchasing medicines and medical equipment)
- Supporting children with disabilities as well as orphans and children from low-income families
- Supporting environmental and recreational projects
- Supporting non-governmental organisations, ex-service personnel and veterans
- Cultural projects
- Supporting initiatives for children and youth
- Supporting science and education
- Supporting sports
- Supporting religious organisations

The funds directed to philanthropy:

2018 **31 RUB mm**

2019 **42 RUB mm**

Charitable Expenditures, RUB mm



* Data according to RAS statements.

Recognising their social responsibility and being committed to the principles of sustainability, Gazprom Energoholding Group companies consistently support organisations and individuals in need across their regions of operation through philanthropy and sponsorship.

Projects

Supporting not-for-profit and non-governmental organisations of people with disabilities in implementing regional charitable inclusive projects

Targeted medical aid to children with disabilities (purchasing medicines and rehabilitation and medical equipment, financing rehabilitation – upon request from individuals and funds – for institutions and residents in the regions of operation of TGC-1)

Linkage to a UN SDG

Contributes to UN SDG 3 Good Health and Well-Being

Performance results in 2018–2019

In 2019, OGK-2 supported not-for-profit and non-governmental organisations of people with disabilities in holding inclusive events for children from special needs boarding and general education schools in the Stavropol Territory and Ryazan Region, involving representatives of regional authorities, NGOs and mass media.

In 2018–2019, TGC-1 provided targeted aid to about 40 severely ill children and three rehabilitation healthcare institutions.

Projects

Energy efficiency project (financing the State Hermitage Museum's project to switch from traditional to energy-efficient lighting in the Museum)

Linkage to a UN SDG

Contributes to UN SDG 12 Responsible Consumption and Production

Performance results in 2018–2019

In line with the letter of intent that defines the main aspects of a three-year programme of collaboration for the preservation of cultural heritage and the development of the State Hermitage, TGC-1 finances a programme to upgrade the lighting of the Museum's permanent displays and restoration laboratories and an energy efficiency programme.

Projects

Support for science and education (providing the Kazarov Scholarship, financing a profession-oriented Gazprom Class)

Support for children and youth sports institutions

Linkage to a UN SDG

Contributes to UN SDG 4 Quality Education

Performance results in 2018–2019

In 2018–2019, TGC-1 paid RUB 5,000 a month per recipient of the special Kazarov Scholarship. Six teachers and ten students receive the scholarship every year.

In 2018–2019, OGK-2 financed the repair of a sports hall's roof and the purchase of a rowing boat for the only children sports school in the Dedovichsky District of the Pskov Region (the Children and Youth Sports School). The school has more than 380 pupils and covers such sports as football, karate, rowing, chess. The pupils' stable strong performance allows them to participate in regional and national competitions.

MIPC provides internship and pre-graduation practice opportunities to at least 400 students of Moscow universities annually. MIPC sets up or updates career enhancement and retraining programmes including in Industrial Heat Supply, every year jointly with top universities of Moscow, and regularly holds career guidance events for students.

[26] Due to the coronavirus lockdown, in the first eight months of 2020, the Company provided internship to about 120 students.

Socially Significant Projects and Volunteering Programmes

Socially significant projects and volunteering programmes are a key focus area for the Group's young specialist and veterans councils. The Group young specialists participate in the annual Donor Day campaign, regularly visit special care institutions – orphanages, social rehabilitation centres for children and youth, family centres, nursing homes, regional hospitals and comprehensive social service centres, helping their residents of all ages. The Young Specialist Council and Veterans Council traditionally congratulate the veterans and homefront veterans of the Great Patriotic War (WWII) who worked for the Group, on Victory Day (9 May).

Supporting the Regions of Operation

203-1

The Group's generating companies are major employers and taxpayers in its operating regions and thus have an overall positive impact on communities and local economies. The Group companies invest in the construction of small, but socially significant infrastructure facilities pro bono. The investments are insignificant for the companies' budget and financial performance, but have an important social effect and improve both the quality of life of local communities and the Group's generating companies' image.

In 2018, OGK-2 financed the renovation of the only regional recreation centre in the Dedovichsky District of the Pskov Region (the Dedovichsky District Recreation Centre). The condition of the facade and rooms was poor as the last renovation had taken place in 2007. The Dedovichsky District Recreation Centre is the region's cultural centre that houses the regional civil registry office, six folk ensembles, offers space for children activities, regional contests, cultural and recreational events, concerts, veteran meetings, group, clubs and studios. The Centre is also a platform for the Dedovichi Art School, the Veshnitsa children dance ensemble, children ballroom and modern dance clubs.

In 2018, OGK-2 financed the purchase of LED street lighting for Bobrovka village in the Chelyabinsk Region. Bobrovka is located in proximity to the emergency section of Troitskaya GRES' ash dump. There had been no street lighting for many years, and the initiative was welcomed by the 5,000 village residents and administration.

Appendices

APPENDIX 1.1

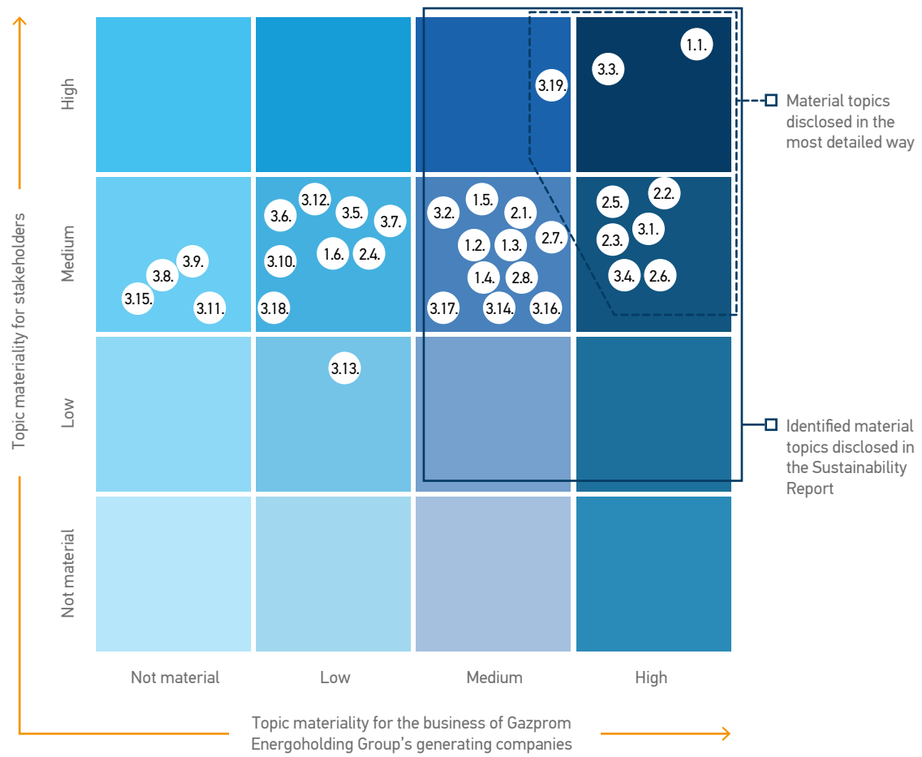
102-46 102-47 IDENTIFYING MATERIAL TOPICS

The content of Gazprom Energoholding Group's Generating Companies Sustainability Report 2018–2019 has been determined in accordance with the GRI Guidelines and Russian and international best practice. Following the surveys, topics that are considered material to both the management and key stakeholders of Gazprom Energoholding Group's generating companies were selected from the full list of topics proposed in the GRI Standards.

The choice of material topics disclosed in the report, as well as their granularity, were determined by surveys of the management and stakeholders of OOO Gazprom Energoholding and Gazprom Energoholding Group's generating companies.

To assess materiality, a full list of topics had been proposed to both the management and stakeholders in accordance with the GRI Guidelines. The management representatives assessed each topic in terms of its materiality to the business of Gazprom Energoholding Group's generating companies, while stakeholder representatives – in terms of its materiality to themselves.

Following the surveys, a materiality matrix was created to visualise the final choice of topics disclosed in the report and their granularity. A total of 20 topics had been identified to be disclosed in the report, with nine highlighted for the most detailed disclosure.



Identified material topics and brief description of the disclosed information in line with the GRI Guidelines	Materiality	
	To the business of Gazprom Energoholding Group companies (from the management's point of view)	To stakeholders of Gazprom Energoholding Group companies
1. CATEGORY: ECONOMIC		
1.1. Economic Performance Direct economic value generated and distributed (under IFRS). Risks due to climate change. Defined benefit plan obligations. Financial assistance received from government.	High	High
1.2. Market Presence Ratio of employee wage compared to local minimum wage. Proportion of senior management hired from the local community.	Medium	Medium
1.3. Indirect Economic Impacts Infrastructure investments and services supported and other indirect impacts.	Medium	Medium
1.4. Procurement Practices Proportion of spending on local suppliers in the regions of operation.	Medium	Medium
1.5. Anti-Corruption Confirmed incidents of corruption and actions taken.	Medium	Medium
1.6. Anti-Competitive Behaviour Confirmed incidents of anti-competitive behaviour and actions taken.	Low	Medium
2. CATEGORY: ENVIRONMENTAL		
2.1. Materials Materials used and the percentage of recycled (reused) waste.	Medium	Medium
2.2. Energy Efficiency Energy consumption, energy efficiency, renewable energy sources.	High	Medium
2.3. Water 3ater withdrawal, water sources, water recycled and reused.	High	Medium
2.4. Biodiversity Assessment of the Group companies' impacts on local biodiversity.	Low	Medium
2.5. Emissions GHG emissions, emissions of ozone-depleting substances, NO_x, SO_x and other substances; measures to reduce emissions.	High	Medium
2.6. Effluents and Waste Waste by type and disposal method.	High	Medium
2.7. Environmental Compliance Fines for non-compliance with environmental laws and regulations.	Medium	Medium
2.8. Supplier Environmental Assessment Procedure and criteria for supplier selection related to the Group companies' environmental standards.	Medium	Medium
3. CATEGORY: SOCIAL		
3.1. Employment New employee hires, employee turnover, benefits provided to employees.	High	Medium
3.2. Labour / Management Relations Minimum notice period regarding operational changes, its specification in the collective bargaining agreement.	Medium	Medium

Identified material topics and brief description of the disclosed information in line with the GRI Guidelines	Materiality	
	To the business of Gazprom Energoholding Group companies (from the management's point of view)	To stakeholders of Gazprom Energoholding Group companies
3.3. Occupational Health and Safety Health and safety topics: committees, injury rate, occupational diseases, agreements with trade unions.	High	High
3.4. Training and Education Employee training, programmes for upgrading employee skills, performance and career development reviews.	High	Medium
3.5. Diversity and Equal Opportunity The organisation's governance bodies and employees by gender, age, and other indicators of diversity, as well as the ratio of basic salary of women to men.	Low	Medium
3.6. Non-discrimination Incidents of discrimination and corrective actions taken.	Low	Medium
3.7. Freedom of Association and Collective Bargaining Identification of operations and suppliers in which workers' rights to exercise freedom of association or collective bargaining may be at risk, and actions taken.	Low	Medium
3.8. Child Labour Identification of operations and suppliers at significant risk for incidents of child labour and actions taken.	Not material	Medium
3.9. Forced or Compulsory Labour Identification of operations and suppliers at risk for incidents of forced or compulsory labour and actions taken.	Not material	Medium
3.10. Security Service Security personnel trained in human rights policies or procedures.	Low	Medium
3.11. Rights of Indigenous Peoples Incidents of violations involving rights of indigenous peoples and actions taken.	Not material	Medium
3.12. Respect of Human Rights Violation of human rights and actions taken.	Low	Medium
3.13. Local Communities Local community engagement.	Low	Low
3.14. Supplier Social Assessment Selection and screening of new suppliers to identify negative social impacts on local communities.	Medium	Medium
3.15. Public Policy Political contributions by country and beneficiary.	Not material	Medium
3.16. Customer Health and Safety Health and safety impacts of products and services. Compliance with regulations.	Medium	Medium
3.17. Marketing and Labelling Compliance with the requirements for product information and labelling. Survey of consumer satisfaction.	Medium	Medium
3.18. Customer Privacy Complaints concerning breaches of customer privacy and losses of customer data.	Low	Medium
3.19. Socioeconomic Compliance Fines and non-monetary sanctions imposed on the Group companies for non-compliance with laws and regulations.	Medium	High

APPENDIX 1.2

102-1 102-3 102-5

NAMES, LEGAL FORMS AND ADDRESSES OF THE GROUP COMPANIES COVERED IN THE REPORT

Name, legal form	Registered address	Actual address
PAO Mosenergo	101/3 Vernadskogo Ave., Moscow, 119526, Russian Federation	101/3 Vernadskogo Ave., Moscow, 119526, Russian Federation
PAO TGC-1	16/2-A Dobrolyubova Ave., Office 54H, St Petersburg, 197198, Russian Federation	16/2-A Dobrolyubova Ave., Arena Hall Business Centre, St Petersburg, 197198, Russian Federation
PAO OGK-2	Solnechnodolsk, Izobilnensky District, Stavropol Territory, 356126, Russian Federation	66/1-A Peterburgskoye Highway, St Petersburg, 196140, Russian Federation
PAO MIPC	101/3 Vernadskogo Ave., Moscow, 119526, Russian Federation	101/3 Vernadskogo Ave., Moscow, 119526, Russian Federation

APPENDIX 1.3

102-45

LIST OF SUBSIDIARIES INCLUDED IN IFRS FINANCIAL STATEMENTS OF GAZPROM ENERGOHOLDING GROUP'S GENERATING COMPANIES

Subsidiary	2018	2019
	Interest	Interest
Mosenergo		
ООО Tsentralny Remontno-Mekhanichesky zavod	100.0000 %	100.0000 %
ООО MosEnergoProekt	100.0000 %	100.0000 %
ООО Remontproekt	99.0000 %	99.0000 %
TGC-1		
AO Murmanskaya CHPP	98.6791 %	98.8536 %
AO St Petersburg Heating Grid	74.9997 %	71.5734 %
ООО St Petersburg Heating Grid	74.9997 %	71.5734 %
OGK-2		
ООО Centre 112	100.0000 %	100.0000 %
ООО OGK-Investproekt	100.0000 %	100.0000 %
ООО Novomichurinskoye ATP	–	100.0000 %
OAO Novomichurinskoye PPZhT	–	75.0000 %
ООО OGK-2 Finance	100.0000 %	–
ООО GEH Industrial Assets	–	38.0000 %
MIPC	**100.0000 %**	**100.0000 %**
OAO Mosgorenergo[27]	100.0000 %	100.0000 %
ООО MIPC-Finance	100.0000 %	100.0000 %
ООО TSK MIPC[28]	100.0000 %	100.0000 %
ООО TsTP MIPC	100.0000 %	100.0000 %
ООО TsUN	100.0000 %	100.0000 %
ООО TSK Mosenergo	77.4900 %	74.6400 %
ООО Heat Distribution Networks Development[29]	100.0000 %	–
ООО TSK Novaya Moskva[30]	100.0000 %	–

27 Changed name to AO MIPC Accounting Systems on 9 April 2020.
28 Dissolved on 7 July 2020.
29 Dissolved on 6 September 2019.
30 MIPC's subsidiary since 8 May 2019.

APPENDIX 1.4

102-4 102-6 **REGIONS OF OPERATION AND DISTRIBUTION MARKETS OF GAZPROM ENERGOHOLDING GROUP COMPANIES**

Branches	Distribution markets / Free power flow zones	Energy generating regions
Mosenergo		
P.G. Smidovich HPP-1 R.E. Klasson GRES-3 CHPP-8 CHPP-9 M.Ya. Ufayev CHPP-11 CHPP-12 CHPP-16 CHPP-17 CHPP-20 CHPP-21 CHPP-22 CHPP-23 CHPP-25 CHPP-26 CHPP-27	Moscow	Moscow and the Moscow Region
TGC-1		
Nevsky Branch: Tsentralnaya CHPP Pravoberezhnaya CHPP Severnaya CHPP Pervomayskaya CHPP Avtovskaya CHPP Narvskaya HPP Vyborgskaya CHPP Vasileostrovskaya CHPP Ladoga HPP Cascade Yuzhnaya CHPP Vuoksa HPP Cascade	West	St Petersburg and the Leningrad Region
Kolsky Branch: Apatitskaya CHPP Niva HPP Cascade Tuloma and Serebryansky HPP Cascade Paz HPP Cascade	Kolskaya	Murmansk Region
Karelsky Branch: Petrozavodskaya CHPP Kem HPP Cascade Vyg HPP Cascade Suna HPP Cascade	West	Republic of Karelia
AO Murmanskaya CHPP	Murmansk	Murmansk
OGK-2		
Surgutskaya GRES-1	Tyumen	Tyumen Region
Ryazanskaya GRES	Centre	Ryazan Region
Cherepovetskaya GRES		
Stavropolskaya GRES	Kuban	Stavropol Territory
Adlerskaya TPP		Krasnodar Territory
Kirishskaya GRES	West	Leningrad Region
Pskovskaya GRES		Pskov Region
Troitskaya GRES	Ural	Chelyabinsk Region
Serovskaya GRES		Sverdlovsk Region
Novocherkasskaya GRES	Rostov	Rostov Region
Krasnoyarskaya GRES-2	Siberia	Krasnoyarsk Territory
Groznenskaya TPP	Caucasus	Chechen Republic
Svobodnenskaya TPP	-	Amur Region
MIPC	**Moscow**	**Moscow and the Moscow Region**

TGC-1 also exports wholesale volumes under existing contracts with major energy companies based in Norway and Finland.

Export contract	Counterparty[31]	Country	Contract date
2016–2020	Fortum Power and Heat	Finland	27 December 2016
1 November 2012–31 December 2020	RAO Nordic Oy	Norway	31 October 2012
1 November 2012–31 December 2020	RAO Nordic Oy	Finland	31 October 2012

APPENDIX 1.5

419-1 **FINES AND NON-MONETARY SANCTIONS FOR NON-COMPLIANCE WITH LAWS AND REGULATIONS**

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Number of non-monetary sanctions	7	20	59	–	7	14	21	28	41	38	59	66
Total monetary value of fines, RUB thousand	6,955.0	2,994.5	4,353.0	948.3	1,419.0	1,493.4	1,546.3	1.531.5	803	19,799.4	18,281.8	41,590.3
Total number of cases brought against the company for non-compliance with laws and regulations	23	8	–	58	14	63	1	2	2	2	–	–

APPENDIX 2.1

ADMINISTRATIVE FINES FOR ENVIRONMENTAL NON-COMPLIANCE

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Number of violations identified in the reporting year that led to fines which were paid in the same year	4	9	0	5	5	7	10	11	10	15	3	3
Number of non-monetary sanctions	0	1	7	–	–	–	1	1	6	–	–	–
Total monetary value of fines, RUB thousand	69	496	100	250	590	650	757	544	450	2,120	520	440
Cases of non-compliance brought through dispute resolution mechanisms	–	–	–	–	–	63	–	–	2	–	–	–

[31] Contracts with RAO Nordic Oy were signed through PAO Inter RAO acting as an agent on its own behalf, but for the account of TGC-1 (principal).

APPENDIX 2.2

ENVIRONMENTAL PROTECTION COST BREAKDOWN AT GAZPROM ENERGOHOLDING GROUP COMPANIES BY INVESTMENT TYPE, RUB THOUSAND

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Capital expenditures on environmental protection	22,534	12,761	242,186	311,307	377,339	46,865	245,357	984,445	16,636	–	–	–
Current environmental protection costs	761,457	857,302	890,902	337,565	378,711	307,299	869,471	609,239	864,818	357,356	358,522	351,699
Total cost	**783,991**	**870,063**	**1,133,088**	**648,872**	**756,050**	**354,164**	**1,114,828**	**1,593,684**	**881,454**	**357,356**	**358,522**	**351,699**

APPENDIX 2.3

ENVIRONMENTAL PROTECTION COST BREAKDOWN AT GAZPROM ENERGOHOLDING GROUP COMPANIES BY INVESTMENT AREA, RUB THOUSAND

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Design and approval of permits	**8,320**	**33,569**	**52,975**	**6,571**	**6,584**	**3,558**	**7,430**	**16,501**	**22,019**	**6,158**	**5,521**	**28,927**
Environmental operational control and monitoring	**16,641**	**20,543**	**18,369**	**13,441**	**17,386**	**15,760**	**16,272**	**22,095**	**25,483**	**30,908**	**19,216**	**18,623**
Negative environmental impact charges, including fines and remediation costs	**69**	**496**	**100**	**–**	**–**	**–**	**328**	**1,771**	**–**	**–**	**–**	**248**
Capital expenditures on environmental protection, including:	**22,534**	**12,762**	**242,186**	**311,307**	**377,339**	**46,865**	**245,357**	**984,445**	**16,636**	**–**	**–**	**–**
– water protection	17,951	10,662	5,884	294,420	377,339	46,865	1,686	–	–	–	–	–
– air protection	4,583	2,100	236,302	16,887	–	–	241,481	975,916	16,636	–	–	–
– land protection	–	–	–	–	–	–	1,095	4,101		–	–	–
– fish protection and stocking	–	–	–	–	–	–	–	4,428	–	–	–	–
– toxic waste disposal, treatment and landfilling	–	–	–	–	–	–	–	–	–	–	–	–
Current (operating) environmental protection costs, including:	**761,457**	**857,302**	**890,902**	**337,565**	**307,299**	**378,711**	**869,471**	**609,239**	**864,818**	**357,356**	**358,522**	**351,699**
– air protection and action on climate change	46,603	107,774	79,404	14,239	14,912	15,192	151,558	154,128	302,248	30,452	33,482	27,571
– wastewater collection and treatment	661,362	681,136	729,404	166,877	126,696	141,519	275,054	299,967	305,619	296,774	293,750	308,544
– waste disposal	53,492	66,593	72,717	135,865	116,709	142,412	75,353	80,106	87,309	20,303	24,182	13,075
– land, surface and ground water protection and restoration	0	291	6,111	4,708	18,123	49,414	345,570	41,427	41,753	–	–	–
– environmental protection from noise, vibration and other kinds of pollution	0	1,508	3,266	1,849	2,760	1,609	724	4,992	4,725	1,454	1,358	870

APPENDIX 2.4

GAZPROM ENERGOHOLDING GROUP COMPANIES' ENERGY SAVINGS AND ENERGY EFFICIENCY PERFORMANCE

Metric	Actual 2018	Plan 2019	Actual 2019
Consumption of energy (excluding water), thousand toe	67 124	65 203	63 627
Consumption of energy (excluding VAT), RUB thousand	322 488 754	316 373 946	312 958 070
Costs of energy saving and energy efficiency initiatives (excluding VAT), RUB thousand	9 415 349	8 212 273	10 670 920
Total fuel and energy savings under the energy efficiency programme, thousand toe	**1 377**	**486**	**1 615**
Fuel and energy savings under the energy efficiency programme in monetary value, RUB thousand	**6 156 744**	**2 270 945**	**7 390 598**
Total electricity savings, mm kWh	**598,6**	**32,4**	**670,8**
including due to lower costs related to:			
plants' own operational needs, mm kWh	593,1	32,1	669,4
Total heat savings, thousand Gcal	**184,2**	**77,0**	**297,2**
Total fuel savings, thousand toe	**1 224,2**	**469,5**	**1 375,6**
including, by fuel type:			
Coal, thousand toe	23,1	9,0	5,5
Gas, thousand toe	1 197,1	458,5	1 364,6
Fuel oil, thousand toe	4,0	2,0	5,5
Gas savings, mmcm	1 040,2	378,7	1 183,1

APPENDIX 2.5

ENERGY EFFICIENCY PERFORMANCE INDICATORS IN 2018–2019

	Mosenergo			TGC-1			OGK-2			MIPC		
	Plan 2018	Actual 2018	Plan 2019	Plan 2018	Actual 2018	Plan 2019	Plan 2018	Actual 2018	Plan 2019	Plan 2018	Actual 2018	Plan 2019
Costs of energy saving and energy efficiency initiatives (excluding VAT), RUB thousand	81,258	56,003	99,451	2,286,533.0	2,237,490.0	2,998,356.0	358,000	385,291	303,109	3,452,864.54	6,699,346	4,811,357
							41.8	34.9	22.4	4.3	8.4	8.1
Total fuel and energy savings under the energy efficiency programme, thousand toe	417.1	1,317.6	427.9	32.0	15.2	27.8						
							482.4	451.6	265.1	11,478.4	16.0	7,442.3
							15.4	15.6	5,765.2			

APPENDIX 2.6

FUEL CONSUMPTION

	Mosenergo			TGC-1 (including AO Murmanskaya CHPP)			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Gas, mmcm	21,063	21,693.1	21,240.6	5,555.7	5,797.9		12,878	12,180.8		775.9	785.5	823.9
Fuel oil and diesel fuel, thousand tonnes	15.5	58.8	70.1	271.9	254.3		29.59	25.3		0.015	1.2	0.6
Coal, thousand tonnes	440.5	237.8	0.7	492.4	451.6		10,563	8,700.6		–	–	–
Wood, thousand solid cubic metres	–	–	–	13.9	15.6		–	–		–	–	–

APPENDIX 2.7

SPECIFIC REFERENCE FUEL CONSUMPTION (SRFC)[32]

	2018		2018		2019		2019	
	Proportional method		Physical (thermal) method		Proportional method		Physical (thermal) method	
	SRFC for electricity supply, goe/kWh	SRFC for heat supply, kg/Gcal	SRFC for electricity supply, goe/kWh	SRFC for heat supply, kg/Gcal	SRFC for electricity supply, goe/kWh	SRFC for heat supply, kg/Gcal	SRFC for electricity supply, goe/kWh	SRFC for heat supply, kg/Gcal
Mosenergo								
Gas	263.8	134.2	225.9	164.0	265.0	133.6	228.0	164.5
Dual fuel (gas + coal)	299.6	139.4	238.9	168.0	–	–	–	–
Diesel fuel	675.4	–	682.3	–	1,348.7	–	1,393.0	–
TGC-1								
Gas	258.2	137.2	214.2	167.3	262.1	137.4	219.6	167.8
Coal	323.1	147.4	187.6	180.3	323.6	148.4	187.6	180.9
Fuel oil (Murmanskaya CHPP)	–	174.0	–	174.0	–	174.0	–	174.0
Wood	–	391.7	–	391.7	–	308.9	–	308.9
OGK-2								
Gas	310.1	142.4	The physical method is not used for OGK-2's total calculations		307.3	142.2	The physical method is not used for OGK-2's total calculations	
Coal	416.1	166.8			415.1	173.7		
Dual fuel (gas + coal)[33]	357.5	231.1			349.5	228.0		
MIPC[34]								
Gas	No generation	157.5	No generation	157.3	No generation	157.5	No generation	157.3
Diesel fuel		205.7		145.8		205.7		145.8

APPENDIX 2.8

305-1 305-4 **GHG EMISSIONS RATE AND INTENSITY, TONNES OF CO_2-EQUIVALENT**

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Total GHG emissions, thousand tonnes of CO_2-equivalent, including:	**40,172**	**40,950**	**39,655**	**12,014**	**12,363**	**12,374**	**41,515**	**38,195**	**34,730**	**2,467**	**2,549**	**2,269**
stationary combustion of fuel – CO_2, thousand tonnes of CO_2-equivalent	40,172	40,950	39,655	12,014	12,363	12,374	41,509	38,195	34,730	2,467	2,549	2,269
Emissions in CO_2-equivalent per unit of output, tonnes of CO_2 / mm kWh	**267**	**266**	**268**	**195**	**212**	**219**	**582**	**569**	**556**	**215**	**216**	**206**

[32] SRFC calculations are based on the total volumes of fuel burned for generation, including fuel oil and diesel fuel.
[33] Novocherkasskaya GRES, Cherepovetskaya GRES and Serovskaya GRES of OGK-2 use both gas and coal in heat generation to balance their fuel mix to reflect fluctuations in prices for these fuels.
[34] SRFC for self-generation of heat (non-combined generation) at MIPC.

APPENDIX 2.9

305-6 EMISSIONS OF NO_x, SO_x AND OTHER SIGNIFICANT POLLUTANTS, TONNES

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Total emissions of pollutants	42,122.196	42,079.535	35,901.531	47,888.879	53,777.080	51,228.909	244,036.030	227,192.020	188,399.836	2,201.371	2,209.166	1,979.425
Particulate matter	760.978	527.251	128.181	4,549.125	3,359.227	3,184.239	59,486.881	50,111.867	43,022.034	0.622	2.907	1.256
Gaseous and liquid pollutants	41,361.218	41,552.284	35,773.350	43,339.754	50,417.853	48,302.408	184,549.149	177,080.153	177,080.153	2,200.749	2,206.259	1,978.169
Nitrogen oxides (in NO2)	36,668.500	35,577.999	30,809.649	18,668.074	20,241.889	18,106.718	57,255.448	50,360.581	43,641.336	1,925.214	2,015.630	1,859.971
Carbon oxide	1,409.865	1,684.923	1,297.895	6,678.050	9,055.708	9,455.987	19,789.538	17,639.491	15,802.134	254.201	166.877	112.747
Sulphur dioxide	3,242.464	4,248.838	3,628.076	17,946.403	21,065.487	20,687.828	106,891.536	108,632.894	85,575.670	0.137	0.201	0.039
Hydrocarbons (net of volatile organic compounds)	0.677	0.929	0.466	0.639	0.671	1.796	335.107	142.951	238.533			
Volatile organic compounds	37.398	37.294	35.398	44.564	48.283	47.770	275.834	300.057	210.629	0.074	3.204	3.596
Other gaseous and liquid pollutants	2.314	2.301	1.866	2.024	5.815	2.309	1.686	4.179	4.107	21.123	20.347	1.816
Benzapyrene	0.030	0.026	0.019	0.006	0.003	0.011	0.036	0.051	0.099	0.005	0.035	0.023

APPENDIX 2.10

WASTE GENERATION AND DISPOSAL, TONNES

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Hazard Class 1	16.476	14.18	12.75	10.579	10.508	13.901	10.970	11.410	11.988	4.396	5.246	4.030
Hazard Class 2	4.344	43.23	1.70	5.141	3.890	14.560	4.799	5.360	1.168	4.628	4.188	3.054
Hazard Class 3	1,421.984	1,044.40	1,030.63	1,300.866	1,376.989	1,834.471	864.600	963.560	903.457	19.874	22.971	42.275
Hazard Class 4	4,367.359	4,595.86	4,437.07	9,992.100	7,092.657	7,157.600	9,039.900	10,640.380	13,647.587	1,803.700	1,947.476	1,609.846
Hazard Class 5	116,754.192	73,032.28	22,694.07	102,006.100	98,250.200	99,402.500	2,258,738.800	1,797,728.260	1,507,418.390	2,390.700	1,607.140	1,479.356
Total	**122,564.355**	**78,729.95**	**28,176.22**	**113,314.786**	**106,734.244**	**108,423.032**	**2,268,659.069**	**1,809,348.970**	**1,521,982.590**	**4,223.298**	**3,587.021**	**3,138.561**
Including:												
oil sludge	*1,267.835*	*1,190.671*	*1,115.187*	*806.812*	*1,092.700*	*2,304.737*	*138.700*	*81.260*	*85.000*	–	–	–
ash	*87,495.260*	*50,041.270*	*142.3*	*71,273.800*	*63,912.000*	*63,040.000*	*2,162,462.900*	*1,771,394.490*	*1,406,294.960*	–	–	–
Total delivered to third parties:	**109,683.795**	**57 660,510**	**56 936,883**	**211 511,244**	**75 867,860**	**76 025,559**	**91 438,717**	**76 805,950**	**79 276,090**	**4 223,298**	**3 587,021**	**3 138,561**
	57,660.510	56,936.883	211,511.244	75,867.860	76,025.559	91,438.717	76,805.950	79,276.090	4,223.298	1 616,566	-	-
	3,587.021	3,138.561	46 873,976	158 071,234	34 070,772	38 807,392	74 143,523	57 995,360	59 205,660	-	3 587,021	3 138,561
for treatment	–	–	–	0.500	59.065	261.1	62.070	44.760	2.210	1,616.566	–	–
for disposal	99,687.433	-	-	125,100	76,600	-	1 340,270	316,720	799,620	-	-	-
	47,182.710	46,873.976	158,071.234	34,070.772	38,807.392	74,143.523	57,995.360	59,205.660		3,587.021	3,138.561	1 801,220
for neutralisation	**1,306.667**	**1,064.900**	**1,075.957**	**752.991**	**681.446**	**940.909**	**807.144**	**414.280**	**525.830**	**55.082**	**67.162**	**146.265**
for storage	**–**	**–**	**–**	**125.100**	**76.600**	**0.000**	**1,340.270**	**316.720**	**799.620**	**–**	**–**	**–**
for landfilling	**8,689.695**	**8,689.273**	**9,710.577**	**52,561.419**	**40,979.977**	**36,016.158**	**15,085.710**	**18,034.830**	**18,742.770**	**2,551.650**	**3,225.486**	**1,801.220**
Landfilled at the Company's sites	**12,880.560**	**21,792.700**	**60.700**	**31,915.121**	**30,880.296**	**32,365.15**	**2,092,256.498**	**1,767,369.490**	**1,363,904.090**	**–**	**–**	**–**
Disposed by the Company	**–**	**–**	**–**	**–**	**0.408**	**0.400**	**72,358.629**	**7,733.050**	**90,425.020**	**–**	**–**	**–**
Neutralised by the Company	**–**	**–**	**–**	**–**	**–**	**–**	**6.627**	**7.350**	**2.840**	**–**	**–**	**–**

APPENDIX 2.11

AREA OF ASH DUMPS, HA

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Area of land disturbed at year-start	114.9	114.9	114.9	67	67	67	1,121.204	1,121.204	999.8	–	–	–
Area of land disturbed during the year	–	–	–	–	–	–	–	–	–	–	–	–
Area of land disturbed at year-end	114.9	114.9	114.9	67	67	67	1,121.204	999.8	999.8	–	–	–
Area of land remediated	–	–	–	–	–	–	–	121.404	–	–	–	–

APPENDIX 2.12

TOTAL WATER WITHDRAWAL BY SOURCE, THOUSAND CUBIC METRES

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Total Water Withdrawal, including:	**433,100.04**	**393,444.97**	**402,342.91**	**335,776.85**	**308,168.70**	**308,181.13**	**3,381,927.92**	**3,244,972.66**	**2,802,315.62**	**52,477.60**	**50,427.64**	**50,010.40**
surface water	383,153.34	343,514.04	352,006.92	231,292.26	218,705.57	217,640.03	3,370,070.27	3,234,878.49	2,792,364.79	–	–	–
ground water	123.18	129.79	125.45	0.41	0.30	0.22	1,409.80	1,395.88	1,294.79	22,215.46	22,157.60	22,110.07
public water supply systems	7,785.40	7,282.64	7,105.36	96,990.18	87,919.37	89,604.99	6,210.07	5,708.87	5,706.27	8,653.80	8,169.40	8,005.80
other water supply systems	42,038.12	42,518.50	43,105.18	7,494.00	1,543.46	935.89	4,237.78	2,989.42	2,949.77	21,608.34	20,100.64	19,894.53
Water reuse	**23,624.09**	**23,899.68**	**24,664.44**	**130,982.6**	**111,921.32**	**108,318.75**	**2,441.74**	**111,921.32**	**108,318.75**	**–**	**–**	**–**

APPENDIX 2.13

WATER DISCHARGE BY QUALITY AND DESTINATION, THOUSAND CUBIC METRES

	Mosenergo			TGC-1			OGK-2			MIPC		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Total water discharge, including:	**324,705.328**	**284,858.749**	**308,765.8**	**308,437.73**	**270,791.23**	**205,439.63**	**3,322,264.6**	**3,133,870.7**	**2,680,715.04**	**22,074.581**	**23,216.66**	**23,487.563**
Total water discharged to surface water, including:	**295,050.80**	**255,696.089**	**280,747.00**	**219,659.78**	**202,421.97**	**202,196.13**	**3,317,181.96**	**3,128,926.51**	**2,678,832.78**	**109.79**	**107.39**	**107.39**
	-	-	10 889,80	57 532,79	53 884,60	54 304,69	2 382,70	2 445,52	2 528,92	8,07	-	-
polluted (untreated)	–	–	10,889.8	57,532.79	53,884.6	54,304.69	2,382.7	2,445.52	2,528.92	8.07	–	–
	264 807,42	227 745,49	241 903,30	160 803,81	146 260,89	145 566,34	3 306 401,84	3 118 726,95	2 669 803,41	-	-	-
polluted (insufficiently treated)	17,622.858	15,706.079	16,029.7	1,321.04	2,273.48	2,323.5	2,781.91	2,631.49	1,563.63	–	–	–
clean-to-standard (untreated)	264,807.42	227,745.49	241,903.3	160,803.81	146,260.89	145,566.34	3,306,401.839	3,118,726.95	2,669,803.41	–	–	–
total treated-to-standard, including:	**12,620.52**	**12,244.52**	**11,924.2**	**2.14**	**3**	**1.6**	**5,615.511**	**5,122.55**	**4,936.82**	**101.72**	**107.39**	**107.39**
at biological wastewater treatment facilities	–	–	–	2.14	3	1.51	4,326.301	3,402.24	3,402.74	–	–	–
at physical-chemical wastewater treatment facilities	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
at mechanical wastewater treatment facilities	**12,620.52**	**12,244.52**	**11,924.2**	**–**	**–**	**0.09**	**1,289.21**	**1,720.31**	**1,534.08**	**101.72**	**107.39**	**107.39**
Total water discharge over land, including:	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Total deep well injection, including:	**0.67**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Water discharge to irrigation fields	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Water discharge to drain fields	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Water discharge to wastewater stabilisation ponds	**–**	**–**	**–**	**2.38**	**2.19**	**2.84**	**313.64**	**355.8**	**243.61**	**–**	**–**	**–**
Water discharge to sewage	**29,653.86**	**29,162.66**	**28,018.8**	**58,177.84**	**50,735.24**	**2,263.63**	**4,021**	**3,904.61**	**797.91**	**21,615.424**	**22,759.9**	**23,061.053**
Water discharge to other systems	**–**	**–**	**–**	**30,597.73**	**17,631.83**	**977.03**	**748**	**683.78**	**840.74**	**349.367**	**349.37**	**319.12**

APPENDIX 3.1

403-2 **INJURIES BY SEVERITY**

	Fatal		Severe		Non-severe	
	2018	2019	2018	2019	2018	2019
Mosenergo	0	0	1	0	0	1
TGC-1	0	0	1	1	2	3
OGK-2	0	0	0	0	3	1
MIPC	0	0	2	1	9	1

APPENDIX 3.2

403-2 **WORKDAYS LOST DUE TO ALL TYPES OF ACCIDENTS**

	2017	2018	2019
Mosenergo	151	11	39
TGC-1	294	374	292
OGK-2	347	160	13
MIPC	392	707	147

APPENDIX 4.1

102-8 **TOTAL NUMBER OF EMPLOYEES BY EMPLOYMENT TYPE AND GENDER**

	Permanent employees						Part-time employees					
	2017		2018		2019		2017		2018		2019	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Mosenergo	2,505	5,403	2,508	5,434	2,514	5,480	2	3	1	2	36	14
TGC-1	2,009	4,403	2,075	4,404	2,107	4,457	15	9	3	10	19	6
OGK-2	2,859	5,673	2,751	5,641	2,730	5,653	2	28	22	2	26	2
MIPC	4,836	9,567	4,720	9,473	5,256	10,117	19	8	13	17	15	18

APPENDIX 4.2

102-8 **TOTAL NUMBER OF EMPLOYEES BY EMPLOYMENT CONTRACT AND GENDER**

	Employment contract with a permanent employee						Number of part-time employees						Temporary employees					
													Independent contractor agreement					
	2017		2018		2019		2017		2018		2019		2017		2018		2019	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Mosenergo	2,505	5,402	2,509	5,436	2,550	5,494	9	7	8	9	9	11	30	62	31	50	25	44
TGC-1	2,024	4,412	2,078	4,414	2,126	4,463	1	11	1	14	2	15	13	12	9	21	9	19
OGK-2	2,859	5,673	2,773	5,643	2,756	5,655	2	28	4	34	8	11	3	7	0	2	0	2
MIPC	4,836	9,567	4,733	9,490	5,271	10,135	18	26	12	35	3	16	12	8	14	7	12	18

APPENDIX 4.3

102-8 **TOTAL NUMBER OF EMPLOYEES BY AGE GROUP AND REGION**

Region	Headcount as at 31 December	Age group				Headcount as at 31 December	Age group			
		Under 30 years old	30–40 years old	40–50 years old	Over 50 years old		Under 30 years old	30–40 years old	40–50 years old	Over 50 years old
	2018					2019				
OGK-2	**8,416**					**8,324**	**884**	**2,389**	**2,825**	**2,226**
Krasnodar Territory	207					199	21	89	53	37
Chechen Republic	101					124	35	42	26	24
Leningrad Region	803					794	89	258	215	232
Krasnoyarsk Territory	894	72	312	282	228	905	65	296	299	249
Rostov Region	1,184	187	333	355	309	1,174	167	328	357	326
Pskov Region	283	21	78	93	91	282	26	66	88	103
Ryazan Region	1,097	71	265	425	336	1,112	82	253	424	355
St Petersburg	261	42	108	81	30	275	36	113	98	29
Sverdlovsk Region	299	36	126	89	48	242	22	119	77	63
Stavropol Territory	797	61	184	287	265	755	60	170	291	261
Tyumen Region	919	145	274	241	259	942	171	277	254	242
Chelyabinsk Region	1,005	57	253	470	225	979	46	242	413	280
Vologda Region	548	70	140	210	128	533	64	129	193	148
Moscow	18	2	10	4	2	8	1	4	3	0
Mosenergo	**7,907**	**1,247**	**1,895**	**1,740**	**3,025**	**8,044**	**1,204**	**2,003**	**1,866**	**2,971**
Moscow	6,231	1,046	1,546	1,318	2,321	6,352	981	1,648	1,438	2,285
Moscow Region	1,676	201	349	422	704	1,692	223	355	428	686
MIPC	**14,223**	**1,636**	**3,536**	**2,911**	**6,140**	**15,406**	**1,719**	**3,746**	**3,304**	**6,637**
Moscow	14,223	1,636	3,536	2,911	6,140	15,406	1,719	3,746	3,304	6,637
PAO TGC-1 and AO Murmanskaya CHPP	**7,188**	**1,046**	**1,803**	**1,601**	**2,738**	**7,297**	**1,037**	**1,854**	**1,676**	**2,730**
St Petersburg	3,490	524	830	614	1,522	3,555	548	872	636	1,499
Leningrad Region	579	91	117	100	271	586	83	111	109	283
Republic of Karelia	983	142	281	295	265	1,018	134	303	309	272
Murmansk Region	2,136	289	575	592	680	2,138	272	568	622	676

APPENDIX 4.4

401-1 EMPLOYEE TURNOVER BY AGE GROUP AND GENDER IN 2017–2019

	Under 30 years old						30–50 years old						Over 50 years old					
	2017		2018		2019		2017		2018		2019		2017		2018		2019	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
NEW EMPLOYEE HIRES IN 2017–2019																		
Mosenergo	69	287	75	337	155	471	116	201	142	299	146	266	42	72	29	52	33	82
TGC-1	91	270	126	217	106	209	117	195	117	203	120	235	27	51	34	58	36	72
OGK-2	85	123	93	161	75	241	139	199	128	224	166	182	52	75	26	46	33	47
MIPC	185	440	152	410	231	539	311	646	304	607	624	971	66	270	90	203	367	579
EMPLOYEE DISMISSALS IN 2017–2019																		
Mosenergo	58	231	35	191	90	369	86	220	89	263	92	219	169	250	115	185	106	166
TGC-1	42	179	66	136	49	110	67	204	81	167	84	188	88	214	82	167	78	172
OGK-2	47	65	55	74	37	181	149	204	152	207	104	194	138	188	129	177	89	133
MIPC	122	315	92	272	94	286	277	458	305	515	341	606	232	450	251	511	248	555

APPENDIX 4.5

202-1 ENTRY-LEVEL WAGE RATIOS (INCLUDING COMPENSATION AND INCENTIVE PAYMENTS) COMPARED TO LOCAL MINIMUM WAGE RATES

	2017	2018	2019
Mosenergo			
Moscow	1.89	3.33	3.45
TGC-1			
St Petersburg	1.03	1.01	1.12
Leningrad Region	1.29	1.28	1.55
Republic of Karelia	1.67	1.17	1.32
Murmansk Region	1.91	1.29	1.11
Murmansk (Murmanskaya CHPP)	1.58	1.27	1.33
OGK-2			
Tyumen Region	1.97	1.42	1.47
Ryazan Region	2.36	1.45	1.50
Stavropol Territory	2.36	1.78	1.80
Leningrad Region	2.35	1.95	2.00
Chelyabinsk Region	2.15	1.54	1.57
Rostov Region	1.72	1.57	1.65
Krasnoyarsk Territory	2.62	1.35	1.40
Vologda Region	2.95	1.75	1.81
Sverdlovsk Region	1.62	1.65	1.71
Pskov Region	1.56	1.30	1.34
Krasnodar Territory	2.54	2.48	2.40
MIPC			
Moscow	1.19	1.13	1.05

APPENDIX 5.1

102-55 GRI STANDARDS CONTENT INDEX

The index of standard GRI disclosures content in accordance with the GRI Standards Sustainability Reporting Guidelines and the sector-specific Electric Utility Sector Supplement.

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		Comment: The Company complies with international standards – ISO 14001:2015, OHSAS 18001:2007.	-
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