



ROSATOM

2021 PERFORMANCE

OF THE POWER ENGINEERING
DIVISION

MESSAGE FROM THE HEAD OF THE DIVISION

GRI 102-14



Andrey Petrov

Director General of JSC Rosenergoatom
Head of the Power Engineering Division

Dear colleagues,

In 2021, ROSATOM's Power Engineering Division (hereinafter referred to as the Division) achieved targets set by the government for power generation and other key performance indicators, giving the highest priority to safety of NPP operation.

Russia's NPPs are steadily increasing their power generation and have once again demonstrated safe, reliable and efficient operation. In the reporting year, Russian NPPs reached a new all-time high in power generation — 222.4 billion kWh, exceeding the 2020 level by 6.7 billion kWh. Performance against the balance target set by the Federal Antimonopoly Service (FAS) of Russia (217.7 billion kWh) totalled 102.2% thanks to safe and stable operation of NPPs, commissioning of power unit No. 2 at Leningrad NPP 2 and optimisation of the duration of scheduled repairs.

Over the past 24 years, no safety incidents classified above the first level (incident) according to the International Nuclear Event Scale (INES) were recorded at Russian NPPs. The Company is working systematically to achieve a zero injury rate in the Division and contractors as part of the industry-wide Vision Zero project.

The Division's financial and economic indicators are also growing steadily. In 2021, the Division's consolidated revenue equalled RUB 735.129 billion, which is more than in 2020 by 24%.

In March 2021, Leningrad NPP 2 commissioned innovative power unit No. 2 with a new-generation VVER-1200 reactor, which became the fourth power unit of this type in the Russian NPP fleet.

New power units No. 1 and 2 are under construction at Kursk NPP 2, and some milestones set by the government were reached ahead of schedule, with 37.49% readiness of the facilities as at the year-end. The Division continues to work on promising sites of new replacement power units at Smolensk NPP, Leningrad NPP and Kursk NPP.

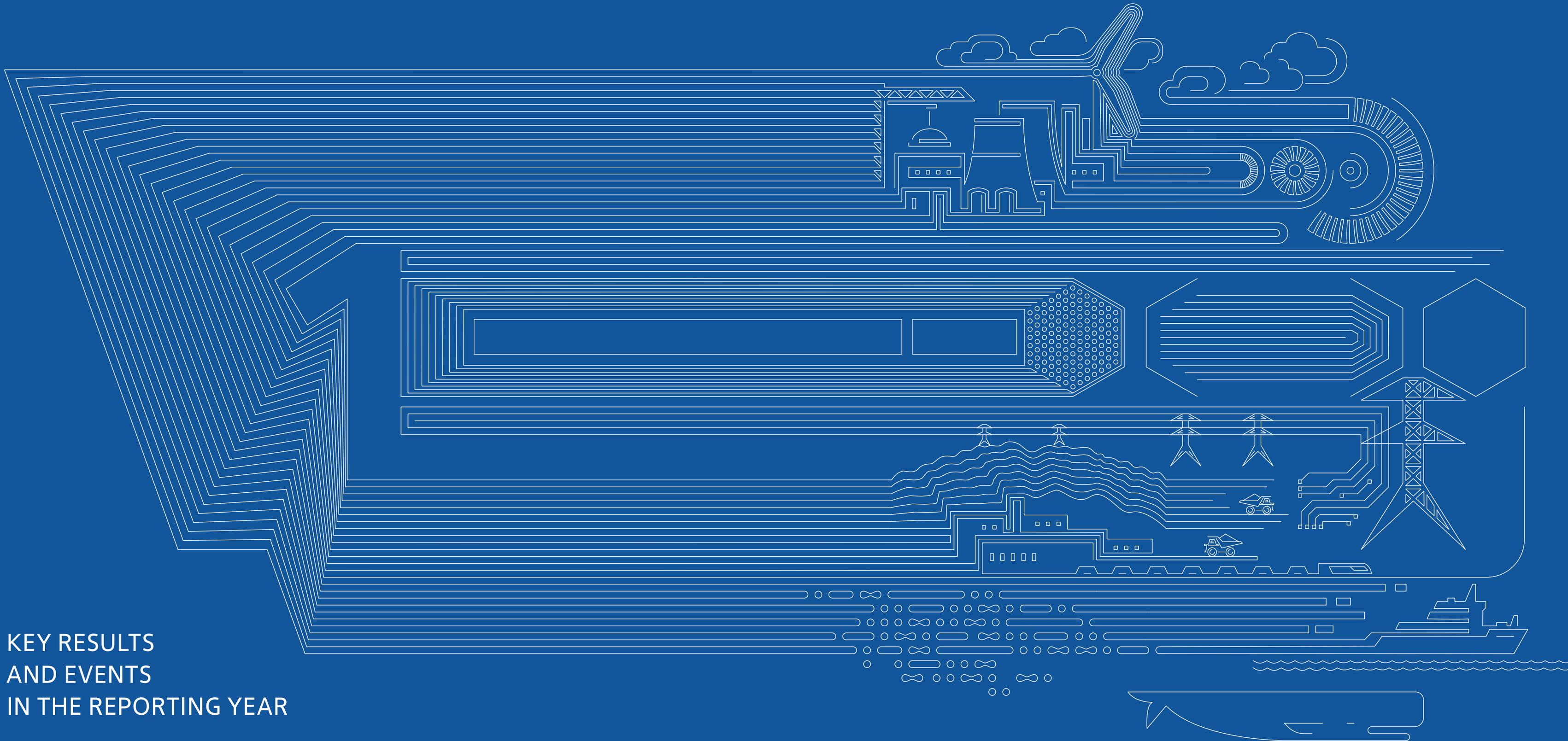
The Division contributes significantly to the key UN Sustainable Development Goals, recognising the importance of combating climate change and managing climate risks. As a low-carbon life-cycle energy source and a key tool for achieving carbon neutrality, nuclear power makes a substantial contribution to combating climate change on a global scale.

Our strategic priorities focus on efficient management of economic, environmental and social impacts of the Division and ROSATOM. The Division strives to operate NPPs in a reliable and safe way to meet energy needs of the population and industry, as well as to develop and implement new energy technologies to improve the quality of people's lives and protect the environment.

This success is especially valuable as it was achieved in a difficult epidemiological situation caused by the spread of COVID-19. Efficient work of production units and support to host cities and towns allowed us to maintain uninterrupted safe and reliable operation of NPPs, as well as to build and commission new generating capacities as scheduled and to ensure a high standard of living in our host cities and towns.

The Division actively creates and introduces new products, including digital ones. We actively implement a data centre development strategy according to which the Division should make the top five data centre market participants by 2025. The Division started to implement an R&D investment project to develop nuclear hydrogen energy technologies for large-scale hydrogen production and consumption, a very promising area both in Russia and abroad.

Ambitious goals set by ROSATOM for the Division are aimed at further development of Russia's economy and power industry and sustainable development of the Division and its regions of operation.



KEY RESULTS
AND EVENTS
IN THE REPORTING YEAR

As at December 31, 2021, JSC Rosenergoatom (hereinafter referred to as Rosenergoatom or the Company) operated 35 NPP power units and a floating thermal nuclear power plant (FTNPP) with a total installed capacity of 29.577 GW, including:

- 22 power units with VVER reactors (including 13 power units with VVER-1000, four power units with VVER-1200, five power units with different versions of VVER-440);
- 11 power units with channel-type reactors (eight power units with RBMK-1000 reactors and three power units with EGP-6 reactors);
- two power units with sodium-cooled fast-neutron reactors (BN-600 and BN-800);
- two reactor/turbo generator units of the Akademik Lomonosov floating power unit (FPU) of the floating thermal nuclear power plant (FTNPP, with KLT-40S reactor).

On March 18, 2021, power unit No. 2 equipped with a VVER-1200 reactor with installed capacity of 1,188.151 MW was commissioned at Leningrad NPP 2.

On December 19, 2021, power unit No. 1 equipped with an RBMK-1000 reactor with installed capacity of 1,000 MW was shut down for decommissioning at Kursk NPP.

According to the consolidated forecast balance of electricity (capacity) production and supply approved by the FAS of Russia, Rosenergoatom's power generation for 2021 was planned at 217.674 billion kWh.

In 2021, power generation at NPPs totalled 222.4 billion kWh, or 102.2% of the balance target set by the Federal Antimonopoly Service (FAS) of Russia and 103.1% of the actual power generation in 2020 (215.7 billion kWh).

The NPP capacity factor stood at 83.18% in 2021; the share of nuclear power generation in electricity output in Russia totalled 19.7% (19.9% in UES of Russia).

Power generation exceeded the target set by the FAS of Russia by 4.76 billion kWh mainly because the duration of scheduled repairs at power units was reduced by 216 days.

Share of power produced by NPPs in total power generation in the Russian Federation (by region)

Indicator	Russia	UES of Russia	IPS of the Centre	IPS of the Middle Volga	IPS of the North-West	IPS of the South	IPS of the Urals	IPS of the East
Nuclear power generation, billion kWh	222.4 ¹	222.1	109.4	33.0	40.2	31.7	7.8	0
Power generation in Russia ² , billion kWh	1,131.2	1,114.5	255.5	110.9	115.4	110.2	259.7	46.9
Share of NPP generation, %	19.7	19.9	42.8	29.8	34.8	28.8	3.0	0

Installed capacity, power generation, NPP capacity factor in 2021

NPP	IPS	Installed capacity as at December 31, 2021, MW	FAS generation target, billion kWh	Power generation (actual), billion kWh	Capacity factor, %	FAS target performance, %	2021 / 2020, %
Kalinin NPP	IPS of the Centre	4,000	33.4	34.3	98.0	102.8	120.5
Kursk NPP	IPS of the Centre	3,000	22.8	25.2	72.4	110.4	94.9
Novovoronezh NPP	IPS of the Centre	3,778.3	27.4	26.9	81.4	98.5	100.6
Smolensk NPP	IPS of the Centre	3,000	22.5	22.9	87.3	102.0	103.9
Kola NPP	IPS of the North-West	1,760	10.2	9.3	60.5	91.4	98.9
Leningrad NPP (RBMK / VVER)	IPS of the North-West	4,375.8	29.9	30.9	72.0 / 89.2	103.2	110.8
Rostov NPP	IPS of the South	4,071.9	30.1	31.7	88.9	105.5	96.7
Balakovo NPP	IPS of the Middle Volga	4,000	31.5	33.0	94.2	104.8	107.8
Beloyarsk NPP	IPS of the Urals	1,485	9.7	7.8	60.0	80.8	72.1
Bilibino NPP	—*	36	0.1	0.1	34.7	92.5	75.3
FTNPP	—*	70	0.2	0.2	28.7	114.0	138.0
Total		29,577.0	217.7	222.4	83.2	102.2	103.1

* Bilibino NPP and FTNPP are in an isolated power system.

¹ Including 0.28 billion kWh from Bilibino NPP and FTNPP in the isolated power system.

² Source: SO UES's press release dated January 11, 2022.

The decrease in actual power generation by Bilibino NPP in 2021 against the target is due to the reduction of NPP load to a technological minimum in Q3 and Q4 of 2021.

Key performance indicators of the Division for 2019-2021

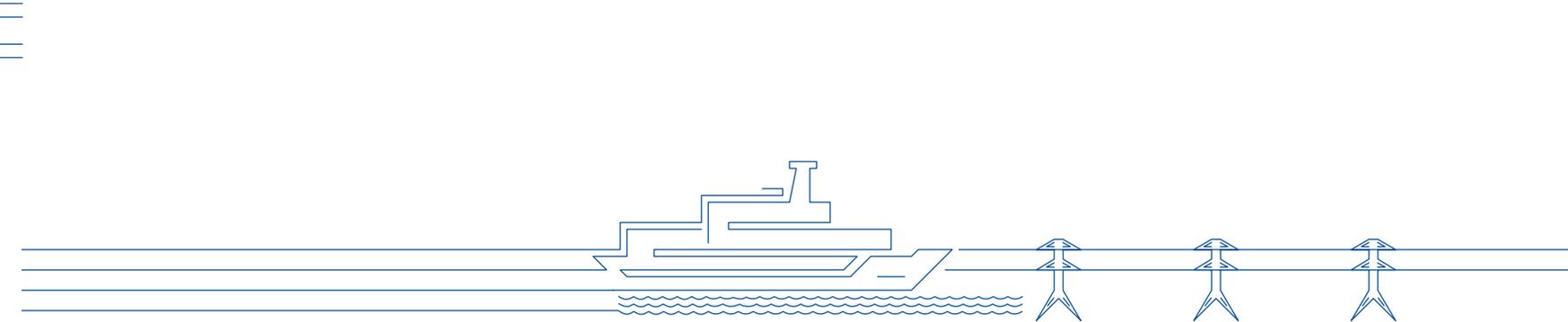
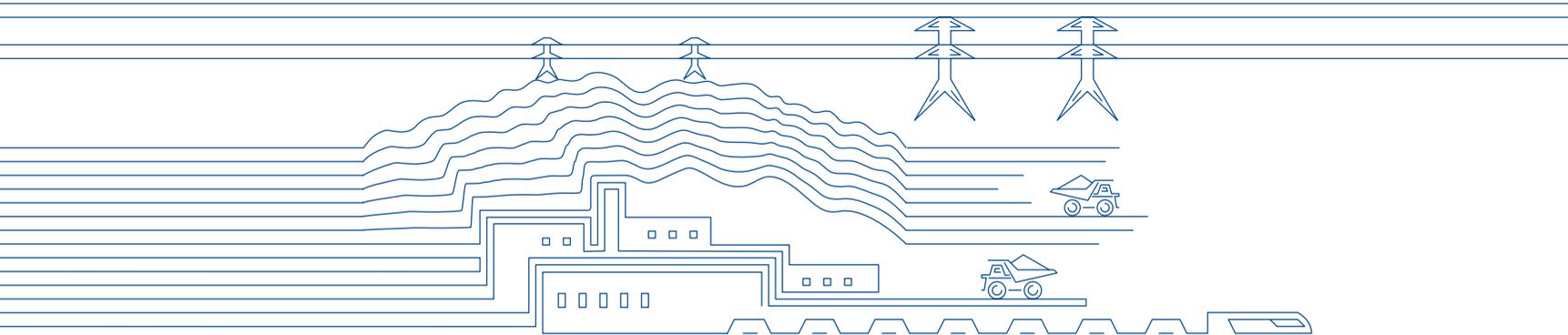
GRI 102-7

Indicator	2019	2020	2021
Power generation, billion kWh	208.8	215.7	222.4
Capacity factor, %	80.41	81.07	83.18
Division's revenue (consolidated), RUB million	546,851	592,702	735,129
Taxes payable to budgets, RUB million	67,809	75,953	87,552
<i>including JSC Rosenergoatom, RUB million*</i>	58,736	65,196	76,148
Division's average headcount, people	54,411.93	56,951.77	57,278.57
<i>including JSC Rosenergoatom, people*</i>	34,346.6	35,312.86	35,518.69
Division's LTIFR	0.04	0.03	0.04

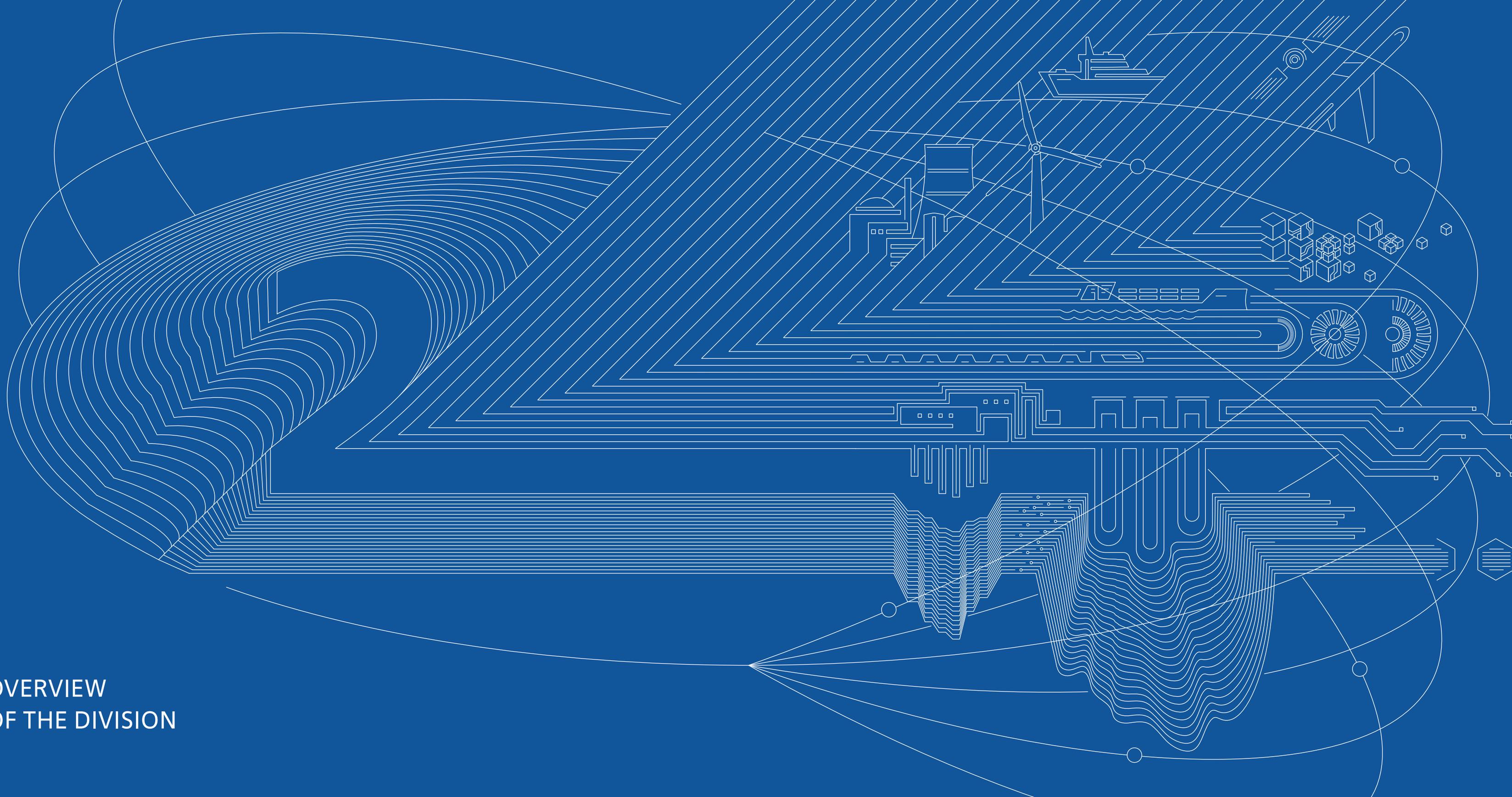
* The full list of organisations of the Power Engineering Division is available on Rosenergoatom's website www.rosenergoatom.ru in the Controlled Organisations section.

KEY EVENTS IN 2021

March 10	Emergency core cooling system tanks of the 10UJA reactor were moved into final position at power unit No. 1 of Kursk NPP 2.
March 16	Concreting of the foundation slab of the modular pumping station was completed at power unit No. 2 of Kursk NPP 2.
March 18	Power unit No. 2 of Leningrad NPP 2 with a VVER-1200 reactor unit was put into commercial operation.
March 26	The life extension project for power unit No. 2 at Kola NPP was completed in accordance with Rosenergoatom's investment programme.
April 26	The support truss of the reactor pit was moved into final position at the reactor building of power unit No. 2 of Kursk NPP 2.
June 30 – July 1	Novovoronezh NPP held annual comprehensive emergency response drills.
July	Rosenergoatom commissioned the Decision Making Centre (DMC), a unique digital enterprise management project.
October 6	Installation work was completed in the 10UJA reactor pit of power unit No. 1 of Kursk NPP 2.
November	Rosenergoatom and NLMK Group signed an agreement on cooperation in low-carbon power supply.



OVERVIEW
OF THE DIVISION

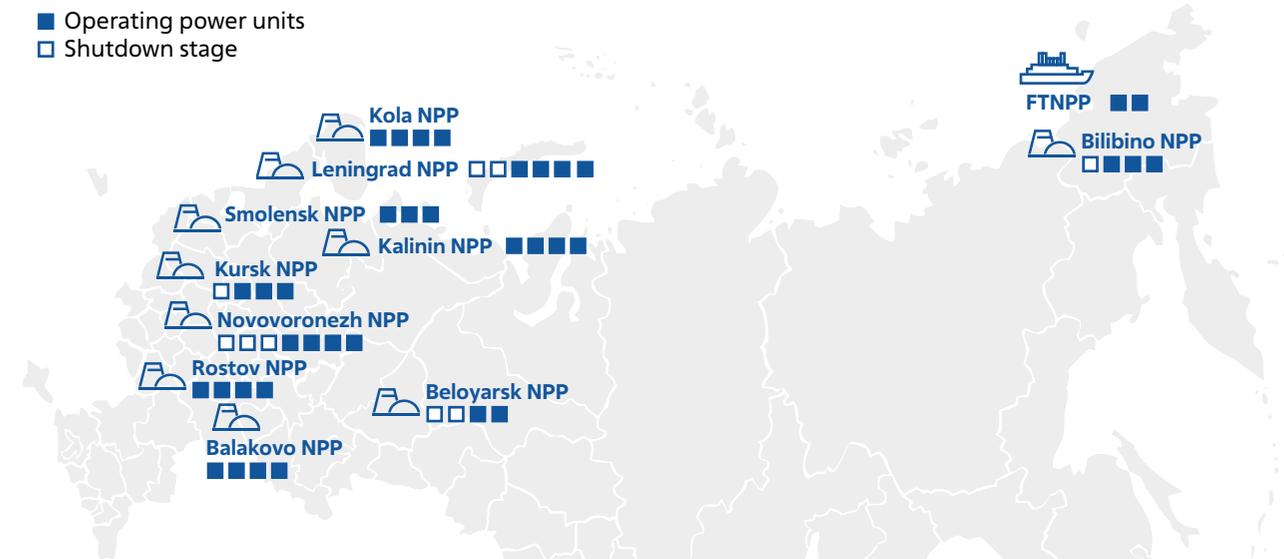


ROLE OF THE DIVISION IN THE STRUCTURE OF ROSATOM

The Power Engineering Division (hereinafter referred to as the Division; its holding company is JSC Rosenergoatom) is the sole operator of NPPs in Russia and one of the largest players on the Russian electricity market.

Rosenergoatom includes operating nuclear power plants, directorates of NPPs under construction, the Capital Projects Implementation Branch Office, the Technology Branch Office, Pilot and Demonstration Engineering Centres (PDEC) for Decommissioning of VVER and RBMK Reactors, a branch located in Bangladesh, and the Akkuyu Engineering Centre; they all have the status of the Division's affiliates.

Rosenergoatom ranks first in terms of total power generation among the largest power generating companies of Russia and second in the world in terms of total installed capacity of NPPs.



Rosenergoatom's core businesses are power and heat generation at its nuclear plants, and operation of nuclear power plants, radiation sources and facilities storing nuclear materials and radioactive substances in accordance with Russian legislation.

The Division's operations are closely linked to the business priorities of ROSATOM and are underpinned by its strategic goals:

- to increase the international market share;
- to reduce production costs and lead time;
- to develop new products for the Russian and international markets;
- to become a global leader in advanced technologies.

Under the resolution of Rosenergoatom's Board of Directors, these goals have been supplemented with the following commitments underpinning its safety priorities:

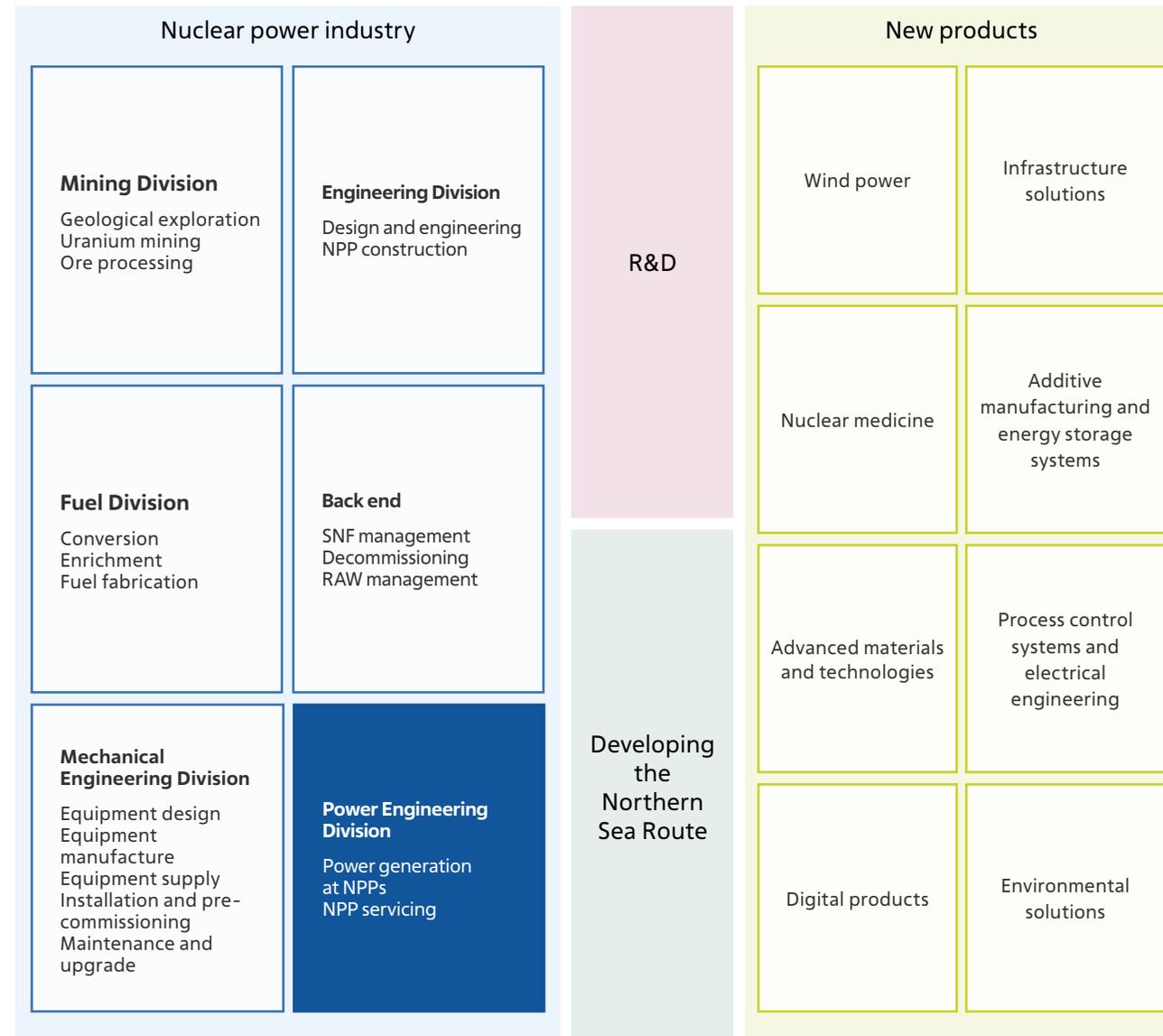
- to reduce the risk of accidents involving damage to the reactor core across the nuclear reactor fleet;
- to prevent workplace fatalities at NPPs;
- to prevent accidents at NPPs resulting in employee radiation exposure exceeding individual exposure limits;
- to prevent accidents at NPPs resulting in radioactive releases and discharges exceeding permitted limits.

JSC Rosenergoatom's shareholders (as at December 31, 2021)

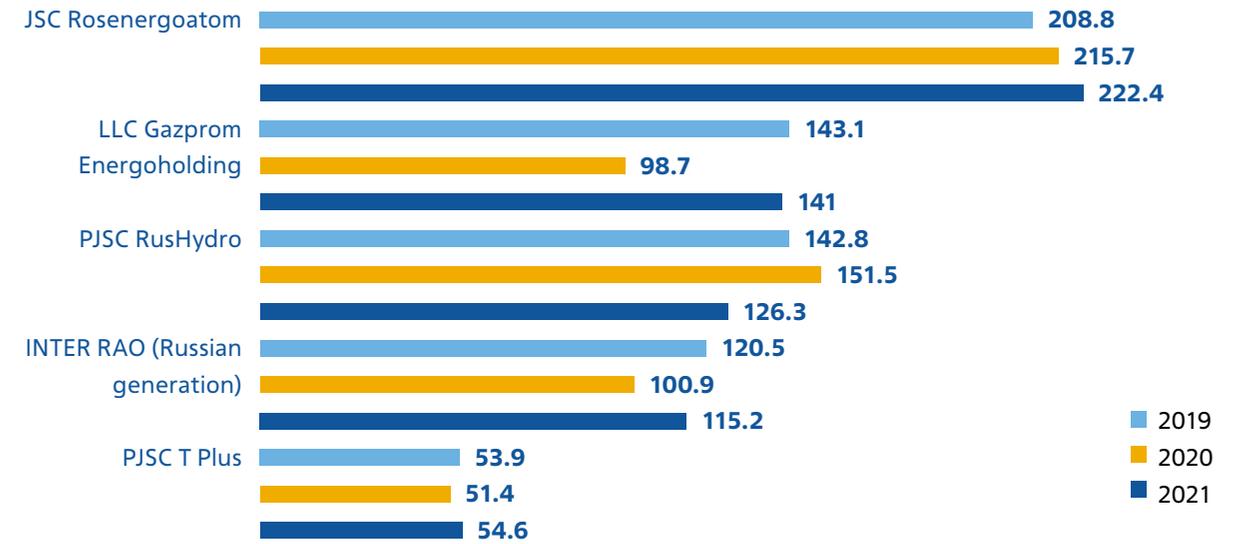
Shareholder	Share
State Atomic Energy Corporation ROSATOM	0.0000000012%
Joint Stock Company Atomic Energy Power Corporation	99.9999999988%

Rosenergoatom ranks first among the largest generating companies in Russia in terms of total power generation and third in terms of installed capacity.

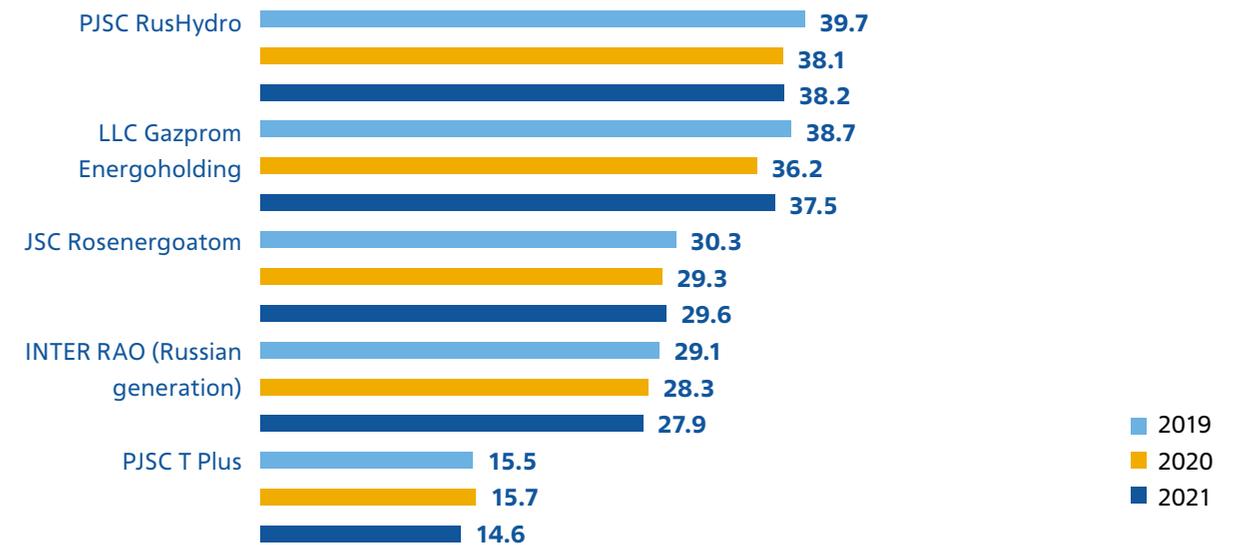
Role of the Division in the structure of ROSATOM



Power generation by Russia's largest generating companies (billion kWh)



Installed capacity of Russia's largest generating companies (GW)



Sources: energoholding.gazprom.ru, www.rushydro.ru, irao-generation.ru, www.tplusgroup.ru.

CORPORATE GOVERNANCE SYSTEM

GRI 102-18

Rosenergoatom's corporate governance system is based on the requirements of Russian legislation; its aim is to enable efficient management, ensure compliance with the principles of transparency and availability of information, and safeguard the rights of shareholders and other stakeholders.

Key documents regulating the observance of shareholder rights in Rosenergoatom include: Rosenergoatom's Articles of Association, the Regulation on Rosenergoatom's General Meeting of Shareholders, the Regulation on Rosenergoatom's Board of Directors. Rosenergoatom's internal regulations can be found on the website: <https://www.rosenergoatom.ru/shareholders/raskrytie-informatsii/ustav-i-vnutrennie-dokumenty/>.

Governance principles and governing bodies

The General Meeting of Shareholders is the highest governing body of Rosenergoatom. The activities of the General Meeting of Shareholders are governed by Russian legislation, Rosenergoatom's Articles of Association, and the Regulation on Rosenergoatom's General Meeting of Shareholders.

In 2021, two general meetings of shareholders were held, and the following issues were reviewed:

- distribution of Rosenergoatom's profit and losses for 2020;
- election of members of Rosenergoatom's Board of Directors;
- approval of a new version of Rosenergoatom's Articles of Association.

The Board of Directors is a collective governing body in charge of overall management of the Company. It is responsible for the development of the strategy and monitors the activity of executive bodies in order to safeguard the rights and legitimate interests of Rosenergoatom's shareholders.

The activities of the Board of Directors are governed by Russian legislation, provisions of Rosenergoatom's Articles of Association, and the Regulation on the Board of Directors.

As per the resolution of the Annual General Meeting of Shareholders of Rosenergoatom dated June 23, 2021, the following members were elected to the Board of Directors:

1. Alexander Lokshin, Chairman of the Board of Directors;
2. Sergey Adamchik;

3. Vladislav Korogodin;
4. Boris Silin;
5. Andrey Petrov.

Members of the Board of Directors do not have an interest in Rosenergoatom's authorised capital, do not hold Rosenergoatom's ordinary shares, and have not entered into transactions involving the acquisition or sale of the Company's shares. Rosenergoatom's Board of Directors has no committees.

Director General

The Director General is the sole executive body.

On October 7, 2015, Andrey Petrov was elected as the Director General of Rosenergoatom. As per the resolution of the Extraordinary General Meeting of Shareholders of Rosenergoatom (Minutes No. 32 dated October 6, 2020), Andrey Petrov was elected as the Director General of Rosenergoatom on October 7, 2020 for five years.

Improving the corporate governance system in 2021

In order to effectively prepare and agree on resolutions to be approved by Rosenergoatom's Director General and related to conditions for increases in authorised capitals of organisations, contributions to their assets, key parameters of corporate integration and cooperation transactions, as well as other corporate governance issues, Rosenergoatom's Corporate Governance Committee held 30 meetings.

In order to establish uniform rules and principles of managing Rosenergoatom's controlled organisations (COs), amendments were made to the Regulation on Management of Controlled Organisations (Rosenergoatom's order No. 9/1470-P dated October 31, 2017 On Approval of the Regulation on Management of Controlled Organisations) to update the list of key performance indicators of COs and deadlines for related performance reporting.

In order to digitise corporate procedures and adapt to the restrictions on face-to-face events during the COVID-19 pandemic, the Online Voting System for COs' Board of Directors Meetings (hereinafter referred to as the System) was introduced in 2021. The System enables members of the COs' Board of Directors to participate in meetings in person, by correspondence, or in a mixed format, regardless of their location, using an electronic

digital signature, and also optimises the timing of preparation and processing of the results of collective governing bodies' meetings. From July through December 2021, 30 meetings of the COs' Board of Directors were held using the System.

COMPLIANCE AND INTRODUCTION OF QUALITY MANAGEMENT SYSTEMS AND STANDARDS

GRI 103-1 The Division gives the highest priority to quality assurance at all stages of the NPP life cycle. It follows a quality policy aimed at achieving cost-efficient power generation and providing reliable heat and power supply to consumers in full compliance with nuclear and radiation safety requirements.

GRI 103-2 The quality management system is a core subsystem of the Division's Integrated Management System (IMS) compliant with the requirements of the ISO 9000 Series of Standards, Federal Rules and Regulations NP-090-11 Requirements for Quality Assurance Programmes for Nuclear Facilities, and IAEA General Safety Requirements No. GSR Part 2 Leadership and Management for Safety.

Rosenergoatom developed a dedicated system to monitor IMS process indicators and implemented safety management. Operator guidelines and standards were updated and brought into force in 2021 to support the development of a quality management system compliant with NP-090-11 and GOST R ISO 9001-2015, and to maintain the quality of products supplied to NPPs.

In 2020, a three-year certification cycle (2020-2022) involving verification of compliance of Rosenergoatom's quality management system with the GOST R ISO 9001-2015 (ISO 9001:2015) standard was started in the area of design and construction management for nuclear facilities, power generation and supply management, and power generation and supply. Certificate of compliance No. 318192 QM15 will be valid until December 25, 2023. The certification covered 16 branches of Rosenergoatom.

In 2021, the first surveillance audit of Rosenergoatom's quality system was carried out in a remote format due to the epidemiological situation. 222 executives and employees of Kola, Novovoronezh, Rostov NPPs, PDEC and FTNPP were trained in the application of the GOST R ISO 9001-2015 (ISO 9001:2015) standard and the methodology of internal audits of the quality management system.

As a result of the audit, the scope of Rosenergoatom's quality management system certification was clarified to include decommissioning activities: managing the design and construction of nuclear facilities, power generation and supply management, power generation and supply, decommissioning of nuclear facilities and related management.

A programme for integrated internal audits was implemented in Rosenergoatom's Central Administration and branches to monitor compliance with the requirements of the GOST R ISO 9001-2015 standard, NP-090-11 rules, and IAEA General Safety Requirements GSR Part 2.

In 2021, PDEC and FTNPP developed a system for monitoring all IMS process indicators, and the system for monitoring process indicators of the IMS at NPPs, which was created in 2020, was improved.

In 2021, scheduled audits were conducted at Balakovo, Kalinin, Kola, Novovoronezh, Rostov, Leningrad, Kursk, Bilibino NPPs and FTNPP to verify their compliance with Quality Assurance for Safety in Nuclear Power Plants (General), Quality Assurance for Safety in Nuclear Power Plants (Operational), GOST R ISO 9001-2015, and IAEA General Safety Requirements No. GSR Part 2, as well as other private quality assurance programmes (QAPs).

All the audits were carried out in accordance with the programmes, and reports were drawn up to describe the non-conformities identified and make recommendations for improvement. Based on them, the branches develop corrective action plans and agree them with Rosenergoatom's Central Administration.

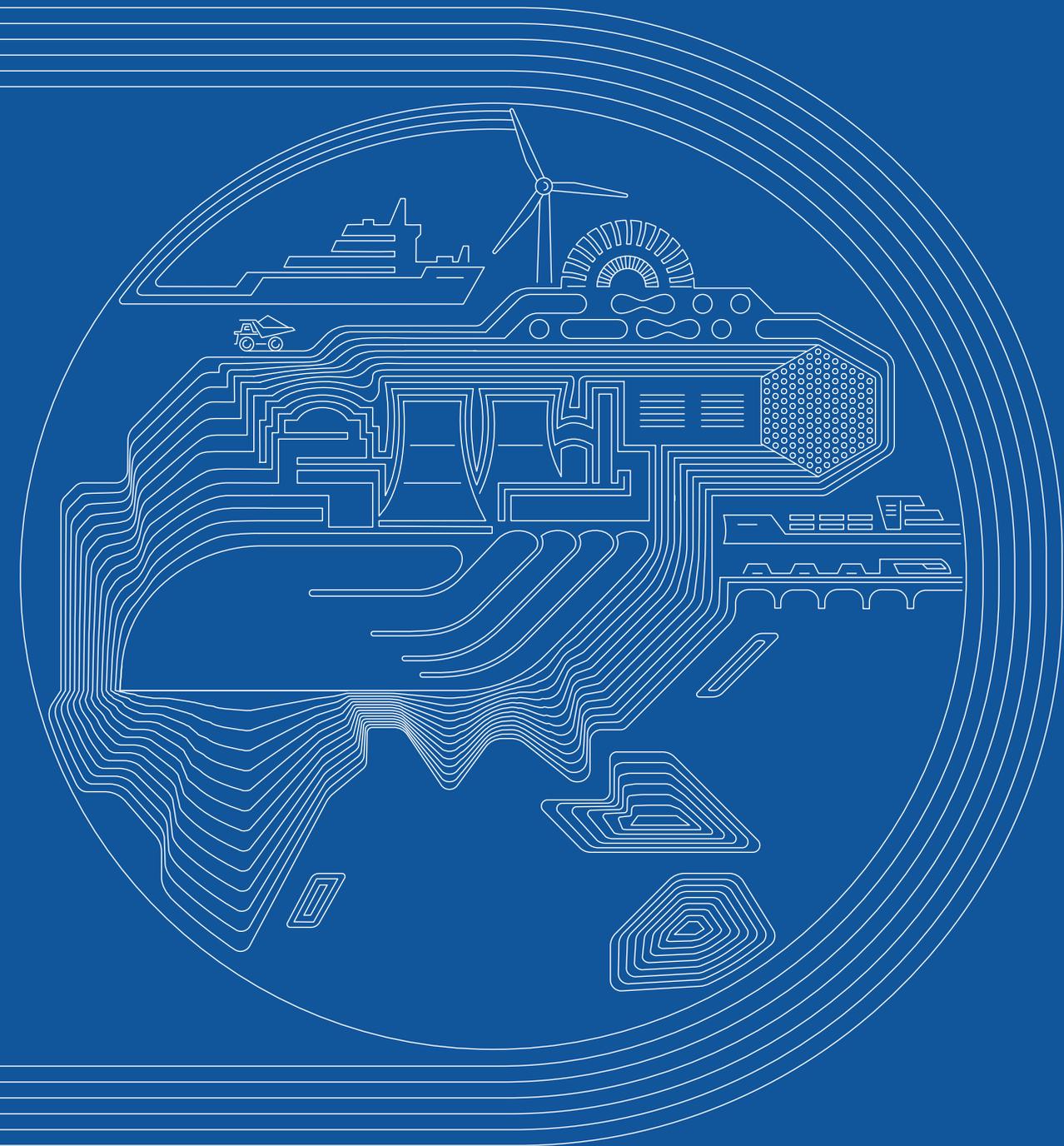
Pursuant to the requirements of the NP-090-11 rules, following each audit, dedicated commissions assess the performance under Quality Assurance for Safety in Nuclear Power Plants (General), QAPs within Rosenergoatom's area of responsibility and draw conclusions. Based on the audit conclusions, an annual report on Quality Assurance for Safety in Nuclear Power Plants (General), QAPs is prepared to assess the performance.

In 2021, Rosenergoatom reviewed 532 QAPs of organisations in their licensed activities. The compliance with QAPs in organisations performing work and providing services for Rosenergoatom is audited in accordance with the annual audit schedule formed using a differentiated approach. The audit schedule is updated quarterly.

In 2021, Rosenergoatom's Capital Projects Implementation Branch Office conducted three audits of compliance with QAPs by organisations performing work and providing services for the operator at the nuclear-facility design and construction stages; Rosenergoatom's Engineering Support Department conducted two audits of compliance with QAPs by organisations performing work and providing services for the operator at the nuclear-facility operation stage.

In 2021, Rosenergoatom's Quality Department and OEM Department carried out 19 audits of compliance with QAPs in the equipment design and manufacture.

Rosenergoatom's branches (NPPs, FTNPP, PDEC) audit organisations that perform work and provide services to the Company as scheduled.



SUSTAINABLE
DEVELOPMENT

SUSTAINABLE DEVELOPMENT MANAGEMENT SYSTEM

GRI 102-16 The Division is fully aware of its economic, social and environmental responsibility towards society and is strongly committed to the UN Sustainable Development Goals (SDGs), which can only be achieved through collaborative efforts of governments, the private sector, civil society and the global community.

GRI 103-1

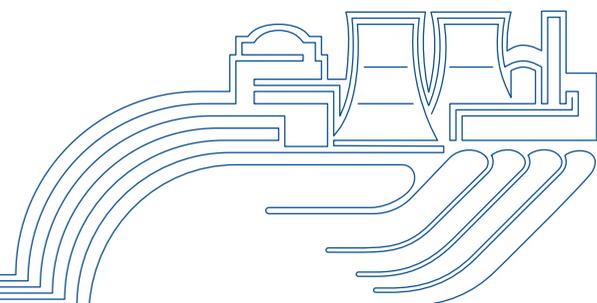
For details, see ROSATOM's Sustainability Report for 2021.

GRI 103-2 The Division adopted the Unified Industry-Wide Sustainable Development Policy of ROSATOM and its organisations by order. The Division makes efforts to ensure the sustainable development of the company and positive impacts on the environment and the regions of operation. The Division approved and adopted ROSATOM's Methodological Sustainable Development Guidelines.

Nuclear power is the largest low-carbon energy source in Russia. Russian NPPs globally help to prevent emissions totalling more than 100 million tonnes of CO₂ equivalent per year.

In 2021, Russian NPPs prevented 109 million tonnes of emissions (CO₂ equivalent).

Division's indicator	2019	2020	2021
Environmental costs (Rosenergoatom), RUB billion	4.44	5.91	6.12
Occupational safety and health costs, RUB billion	3.863	4.517	5.863
Social expenditure, RUB billion	3.388	3.693	4.151
Social expenditure per employee, RUB '000	60.03	64.99	72.55



KEY SUSTAINABLE DEVELOPMENT PROJECTS

As one of the largest power engineering companies and the sole operator of NPPs in Russia, the Division has a significant impact on social and economic development and the environment both in its regions of operation and at the global level.

The Division assessed Rosenergoatom's sustainability performance. An opinion was received from ROSATOM on the level of sustainability of power and heat generation at NPPs.

The Division analysed Rosenergoatom's compliance with European directives (Restriction of Hazardous Substances, European Union Regulation on the Registration, Evaluation and Authorisation of Chemicals, Ecodesign Directive). In 2021, representatives of the Division took part in the UN Climate Conference (COP26) as part of the Clean Nuclear Energy Day.

Enhanced design solutions for the conventional water-cooled water-moderated power reactor (VVER) technology

In the reporting year, the Division was implementing a programme to improve design solutions for the conventional VVER technology (the Programme) in accordance with instructions from ROSATOM. The Programme includes R&D for 2019–2024 in 26 areas focused on enhancing safety features and optimising NPP designs based on VVER reactor technology. The deliverables of these R&D are intended to be introduced at both operating and newly built NPP power units equipped with VVER reactors.

The implementation of the Programme is expected to deliver an overall reduction of power unit construction costs by more than RUB 2.2 billion through the introduction of new technologies and construction solutions and lower equipment costs. Moreover, NPP construction time will be shortened by at least 6.5 months.

Work under the Programme is financed as part of Rosenergoatom's investment programme, with a total of RUB 1.671 billion allocated for the period from 2019 through 2024. The R&D deliverables are already being applied at operating NPPs and in the construction of power units No. 1 and 2 at Kursk NPP 2. They will also be used in the construction of power units at new NPP sites in Russia and abroad.

Electricity demand management

The Division continues to provide electricity demand management services to businesses. Following competitive tendering for demand-side management services, the Division (JSC Rosenergoatom and JSC Atomenergobyty) increased its total managed capacity to more than 100 MW by the end of 2021 (a 20-fold year-on-year increase). The demand-side management pilot project will continue in 2022.

ANTI-CORRUPTION POLICY

Rosenergoatom has developed and adopted at all organisational levels:

- The Uniform Industry-Wide Anti-Corruption Policy of ROSATOM and Its Organisations. The policy sets out the basic anti-corruption principles, methodological approaches and tools.
- The Code of Conduct determining standards and rules of employees' ethical conduct.
- The 2021-2024 Anti-Corruption Plan containing a list of priority activities aimed at implementing the anti-corruption plan of ROSATOM and its organisations for the period from 2021 through 2024.
- Unified Industry-Wide Guidelines on Professional Development for People Whose Job Duties Include Anti-Corruption Activities.
- A unified industry-wide procedure for the handling of Hotline messages in ROSATOM and its organisations.

Methodological documents were issued to regulate the procedure for taking measures to identify and eliminate the causes and conditions conducive to conflicts of interest, for reporting cases of inducement to commit a corruption offence, for reporting the receipt of gifts and hospitality, and for interacting with law-enforcement authorities.

In 2021, Rosenergoatom and its subsidiaries checked more than 100 reports received through ROSATOM's dedicated Hotline communication channels.

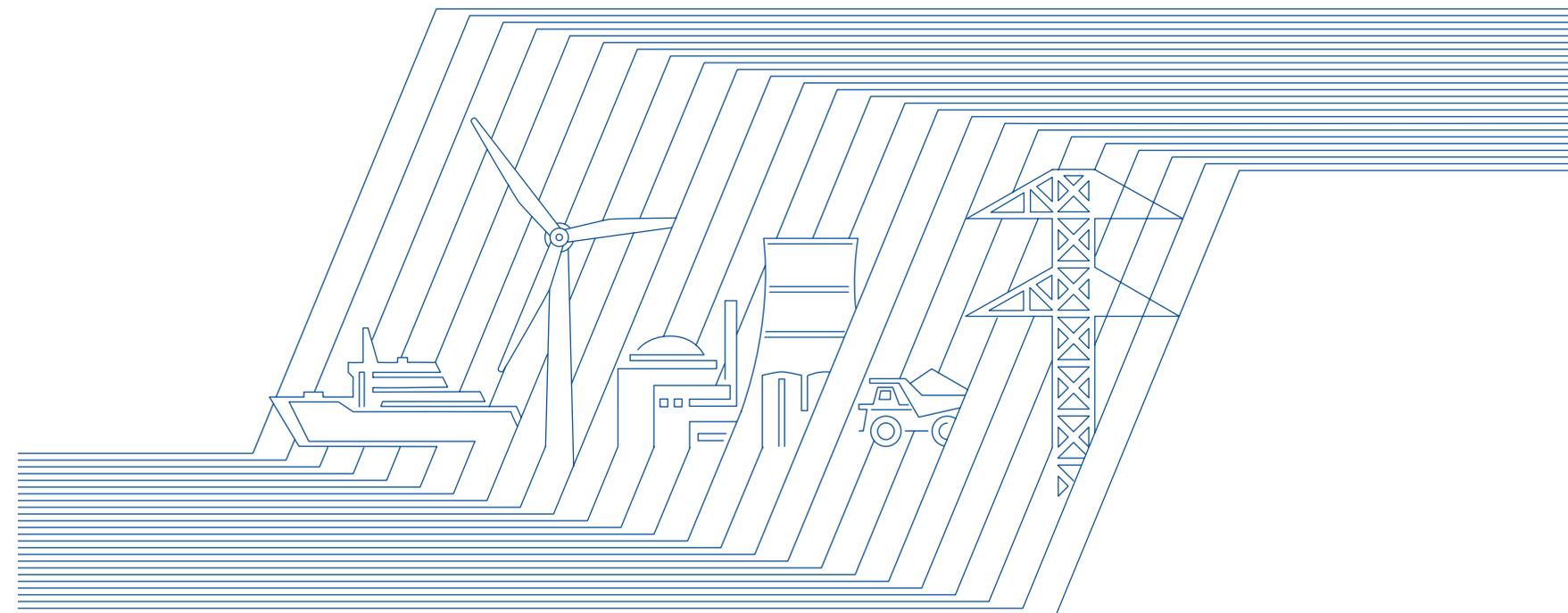
In the reporting period, more than 90 employees of Rosenergoatom completed anti-corruption training programmes.

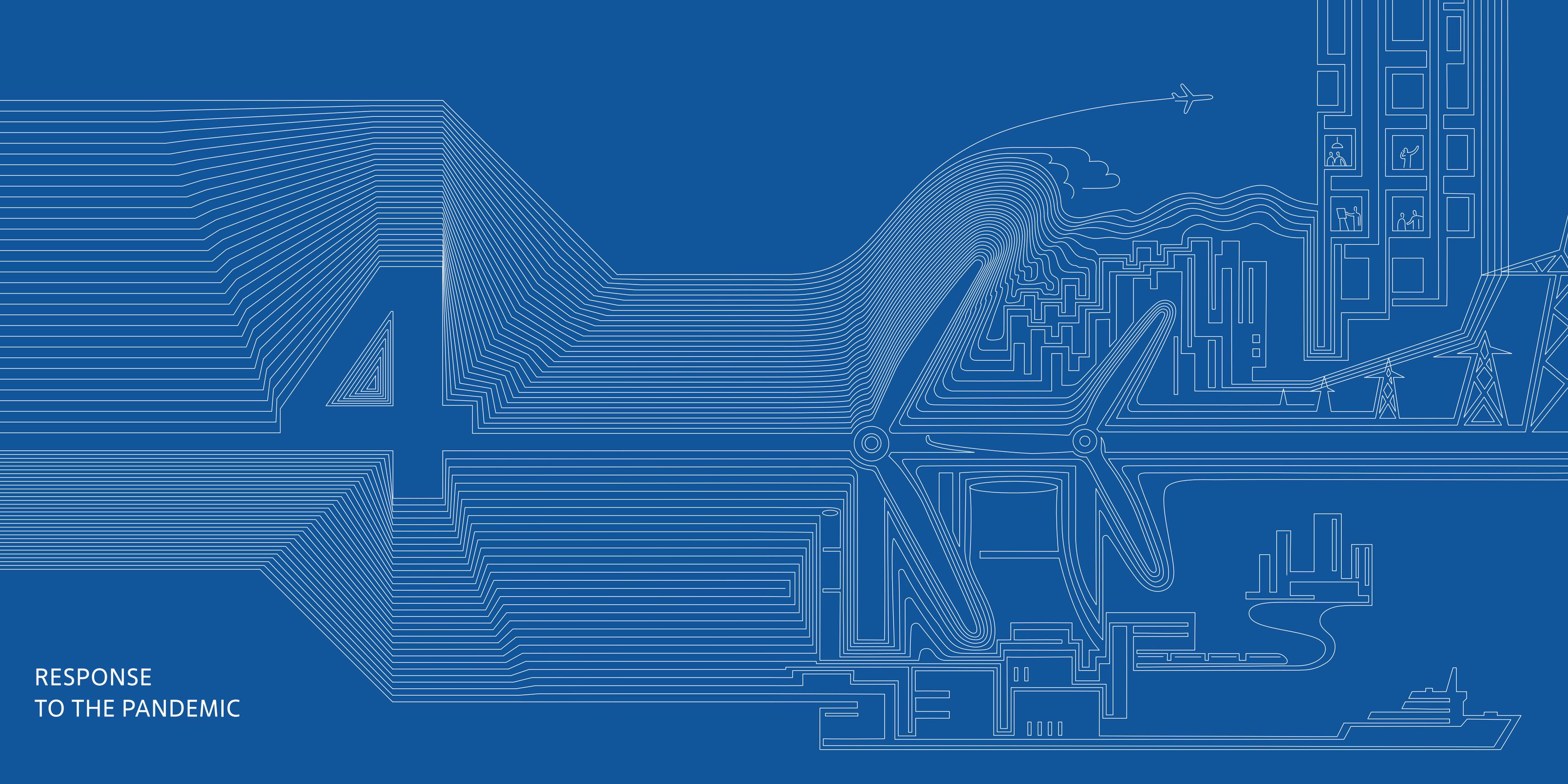
Measures were taken to resolve over 70 potential conflicts of interest, which significantly reduced the risk of corruption and other offences among Rosenergoatom's employees.

The monitoring of compliance with anti-corruption legislation showed that:

- Rosenergoatom's anti-corruption local regulations comply with the requirements of anti-corruption legislation and industry documents;
- all of Rosenergoatom's employees follow most of the requirements of anti-corruption standards and procedures.

In the reporting period, there were no corruption-related offences that substantially violated the rights and legitimate interests of Rosenergoatom and its organisations.





RESPONSE
TO THE PANDEMIC

The Division was actively involved in fighting against the spread of the COVID-19 novel coronavirus infection, the main global challenge of 2020, ensuring safe operation of production facilities (NPPs), and supporting the regions of operation. Measures taken allowed the Division to minimise risks of a massive COVID-19 influx in the regions of operation and successfully accomplish production tasks.

The most important anti-coronavirus tool is vaccination and revaccination of personnel with any vaccine registered in the Russian Federation. In 2021, 62,278 employees of the Power Engineering Division were vaccinated, and 22,171 employees were revaccinated. According to the temporary guidelines of the Ministry of Health of the Russian Federation ‘Procedures for Vaccination Against New Coronavirus Infection (COVID-19)’, vaccination/revaccination should take place six months after a previous vaccination/revaccination or after infection. Vaccination rate including revaccination in the Power Engineering Division was 87% at the end of 2021 (86% as at March 14, 2022).

Due to the COVID-19 pandemic, in 2021, in all of the 11 municipalities where Rosenergoatom operates, i.e. NPP host towns and cities, and in its Central Administration, the Company established and operated COVID-19 response crisis centres, took measures to prevent the spread of the virus and protect the Division’s employees, and conducted daily epidemic tracking and response monitoring in host towns and cities. In cooperation with ROSATOM’s Department for Regional Interaction, best practices in information and communication support for anti-coronavirus measures were monitored and shared.

The Division allocated more than RUB 240 million to fight against the spread of coronavirus in its host municipalities.

In 2022, in order to maintain the vaccination/revaccination rate (over 80% of personnel), the Division will continue to revaccinate employees in accordance with the recommendations of the Russian Ministry of Health, as well as purchase vaccines for healthcare organisations of the Federal Medical Biological Agency of Russia in NPP cities and towns.

CONTINUOUS PRODUCTION PROCESSES

In order to maintain the continuity of production processes during the pandemic, the Division has put in place a set of organisational and administrative measures and provided necessary resources.

Anti-coronavirus activities are coordinated by the dedicated crisis centre of the Division and crisis centres of branches and controlled organisations.

Anti-pandemic principles were formulated in the GL 2020-04 Guideline for Members in Response to Pandemic Threat developed by WANO based on recommendations from the World Health Organisation as well as the experiences of WANO members.

Rosenergoatom has developed and implemented urgent and long-term organisational and hygiene measures to prevent and minimise coronavirus infection among employees, which have proved highly effective:

- limited personnel access to Rosenergoatom’s Central Administration and NPPs;
- temperature checks of employees and visitors, mask wearing, social distance, and regular testing;
- restrictions on business travel, face-to-face meetings and public events;
- workplace sanitary practices;
- vaccination and revaccination of personnel;
- isolation of operating personnel in healthcare centres affiliated with NPPs in cases of epidemiological situation aggravation;
- remote working for some employees;
- active information campaign to raise awareness among employees about disease trends in the country, regions of operation, the nuclear industry and the organisation.

In order to ensure the minimum allowable number of NPP operating personnel during the pandemic, the number of operating personnel at all NPP power units was not reduced below the minimum allowable number established for the project.

NPP power units are operated in full compliance with the process regulations for safe operation of NPP power units, which define, among other things, the procedure for their conversion to a safe condition when design operating conditions cannot be met.

Guidelines on Assessment of the Impact of Changes in the Number of Operating Personnel at Workplaces During Abnormal Events on NPP Safety MR-UP.01.00.02 (the Guidelines) were developed and put into effect. In accordance with the Guidelines, the Division conducted a unit-by-unit assessment of the risks of impact on the safe power-unit operation of changes in the number of operating personnel by position, assessment of compliance with the safety functions of power units upon occurrence of abnormal events associated with a reduction in the minimum number of NPP personnel. The Guidelines were developed using a risk-based approach. The event assessed was the change in the number of employees able to arrive at their workplaces according to the approved work schedule. The event was considered in terms of the effect of changes in the number of operating personnel in the workplace during abnormal events and the safety impact of changes in the number of operating personnel, as well as the likelihood of the event occurrence.

Information on the minimum number of operating personnel at NPPs was included in the Guidelines for the Establishment of Requirements for the Minimum Required Number of Operating Personnel in Rosenergoatom's Branches – Operating NPPs and the Central Administration of Rosenergoatom MU-UPP.01.00.06³.

Despite the increasing complexity of Rosenergoatom's operations, there were no violations of INES level 2 or higher and no incidents involving personnel exposure above 20 mSv per year in 2021. At all NPPs, radioactive gas-aerosol emissions and liquid discharges did not exceed permitted limits.

PROCUREMENT AND LOGISTICS

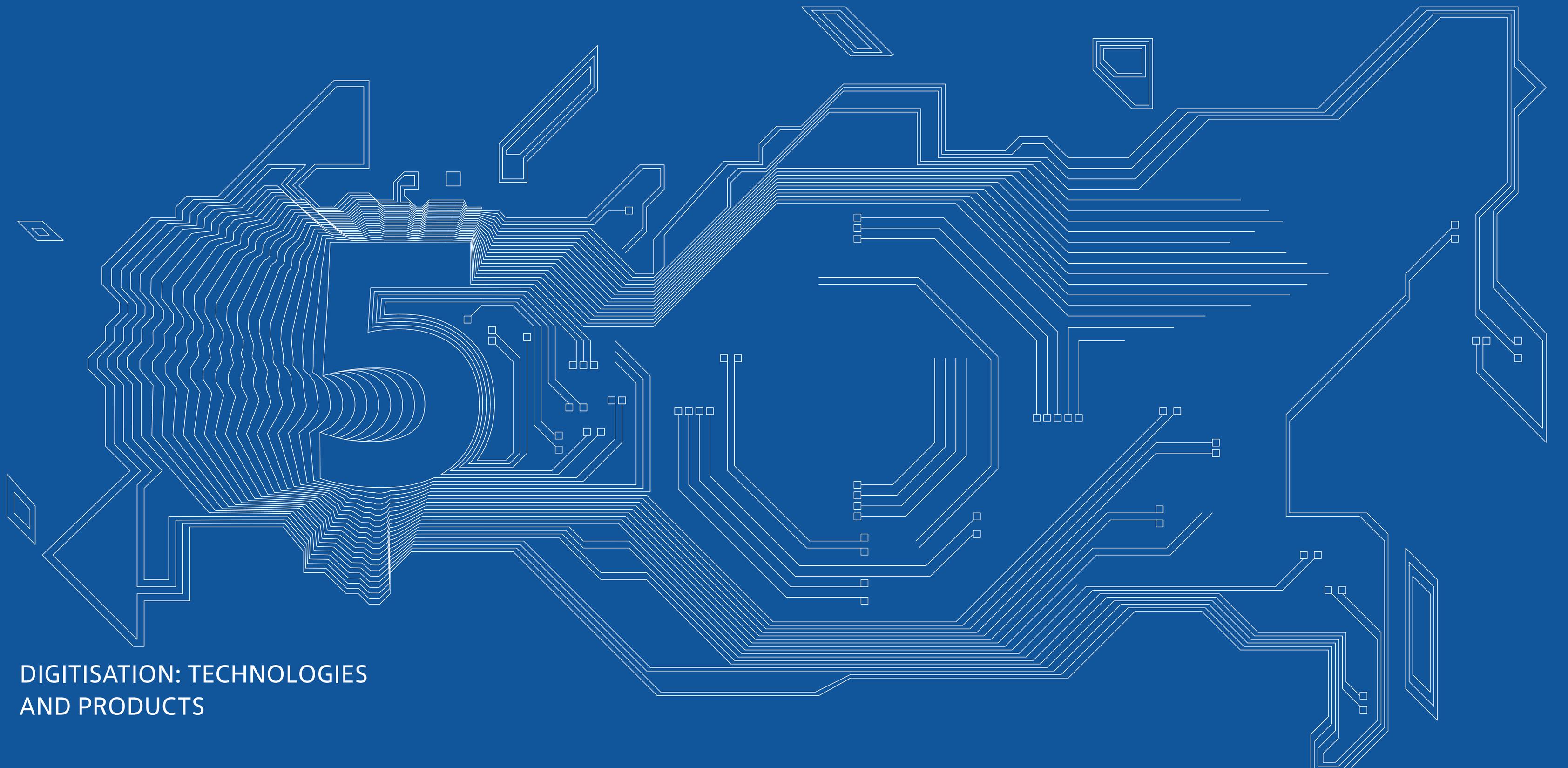
To fight against the pandemic, ensure continuity of procurement and logistics support and a reliable and uninterrupted supply chain, the Division introduced and takes the following measures:

- An analysis (assessment) was conducted for risks of non-performance of centralised functions related to providing enough material resources to allow the Division to perform its functions and select NPP contractors and service providers.
- Current agreements were analysed to reveal risks of delays in import equipment deliveries. The analysis identified risks of failures to fulfil contractual supply obligations due to quarantine measures at foreign production sites, travel restrictions. Compensatory measures were developed and taken.
- Special procurement conditions were adopted to prevent the import and spread of coronavirus⁴.
- The Schedule for Publication of Rosenergoatom's 2021 Procurement Plan in the Uniform Information System was developed (moving from two to four publications of the Procurement Plan to enable procurement of PPE, equipment during the pandemic).
- A programme for partnership between Rosenergoatom and small and medium-sized businesses was developed in accordance with the Plan of Preliminary Measures (Actions) to Ensure Sustainable Development of the Economy Given the Degradation of the Situation due to the Spread of the Novel Coronavirus Infection approved by the Government of the Russian Federation on March 17, 2020.
- A list of critical equipment and spare parts needed for continuous operation of NPPs was prepared; production milestones were determined.
- The interaction with the federal and regional executive authorities was organised to consider the potential continuous manufacture and supply of critical products, as well as key equipment supplies to launch facilities.

- Uninterrupted current procurement using available information resources and electronic trading platforms was ensured.
- Appeals were made to manufacturing plants to organise work under restrictive measures for the timely production of contracted products.
- An irreducible minimum stock of medical and disinfecting supplies was created, and mask sewing was organised at NPPs, NPP services.
- A transition to remote work (using the corporate mail, EDI, video and audio conferencing) was completed for collegial bodies that deal with procurement and logistics support of ROSATOM, Rosenergoatom, general contractors and select suppliers of equipment for NPP power units under construction, as well as for supervising and controlling bodies (FAS of Russia, Central Arbitration Committee of ROSATOM, Arbitration Committee of Rosenergoatom).
- Special personnel categories were identified for employees whose presence at work is critical (necessary working conditions such as electronic keys were ensured), as well as for employees who are prescribed to work remotely due to age and/or health conditions.

³ Adopted by Rosenergoatom's Order No. 9/01/498-P dated March 29, 2021.

⁴ Orders of ROSATOM No. 1/357-P dated April 8, 2020, as amended on May 7, 2021, No. 1/457-P, No. 1/537-P dated May 28, 2020, No. 1/1247-P dated October 27, 2020; No. 1/315-P dated March 17, 2021, No. 1/809-P dated June 30, 2021.



DIGITISATION: TECHNOLOGIES
AND PRODUCTS

DIGITISATION MANAGEMENT SYSTEM

In 2021, Rosenergoatom made the top ten data centre operators in Russia, being the operator of three data centres: Xelent, one of the largest data centres in St. Petersburg with 954 racks; StoreData, a 160-rack data centre in Moscow that will specialise in customised services; and Kalinin Data Centre in Udomlya, the Tver Region, with 4,800 racks. There is also Kalinin 2 Data Centre, a 32 MW infrastructure site for modular data centres. Design and survey work was completed as part of the Innopolis Data Centre project with a design capacity of up to 2,000 server racks in the Republic of Tatarstan.

Over 100 digital projects in the Division are focused on improving internal efficiency, reliability and security. These include large-scale technology projects: the development of the unified platform combining NPP operation, maintenance, repairs and engineer support, the creation of an automated system for the management of resources and production processes at NPPs, the development of a construction cost and schedule management system to create a single loop of digital data exchange from the general contractor to the customer and the investor in NPP construction projects.

KEY DIGITISATION PROJECTS

More than 1,000 participants from nine nuclear power plants and subsidiaries are involved in the implementation of the Digital Pattern of NPP Operation project.

The project is aimed to:

- improve the reliability, efficiency, and operational safety of NPPs;
- create the digital pattern, improve the quality of information in NPP operation support processes;
- create an innovative product for the Russian and international markets.

The project will ensure:

- standardisation of NPP operation activities, including maintenance and repairs, centralised maintenance of standards and updates of the reference database by all process participants;
- planning, managing and controlling the operation and repairs of NPPs;

- a unified information space for automation of NPP operation, repairs, crisis management, recording and analysis of operation experience, occupational health and safety management, and operational managerial decision-making (mobile Executive's Workstation);
- accumulation and traceability of facility data;
- technical documentation management;
- supporting the operation of NPPs using digital work control (mobile walkarounds, monitoring of walkaround routes, etc.);
- augmented reality visualisation for NPP operating and maintenance personnel;
- monitoring (management) of NPP incidents recorded by machine vision;
- room access control based on data from the information system, personnel monitoring systems, and intelligent surveillance systems;
- predictive analytics of equipment status and failure probabilities from data obtained during NPP operation;
- control of autonomous equipment in high-risk areas of NPPs.

To improve the efficiency of management, Rosenergoatom put into operation the Decision Making Centre, a unique digital project that consolidates more than 1,000 different indicators of operational financial and economic activities, including sales of power and capacity of nuclear power plants in the wholesale market.

The first VR simulator was put into commercial operation at Leningrad NPP 2, which allows personnel to practice using complex electrical equipment in a safe virtual environment.

At Novovoronezh NPP, a predictive analytics pilot project was completed, with around 1,000 indicators implemented, including six pieces of equipment and 45 models. Plans for 2022 include the replication of the system in four NPP power units and an import substitution project for predictive analytics systems.

Safety remains Rosenergoatom's top and unconditional priority. In 2021, a project was started to create a comprehensive digital health and safety management system at facilities, and an AI-powered video analytics system, which can detect up to 98% of PPE violations, was launched. Next year, the system will be trained to recognise the initial signs of fire and smoke and to detect objects left behind.

Rosenergoatom focuses on improving and upgrading its information security systems. In 2021, measures taken allowed the Division to prevent massive computer attacks of a new type on Rosenergoatom's information resources without causing disruption of business processes, as well as the spread of attacks to technology segments of NPPs.

PLANS FOR 2022

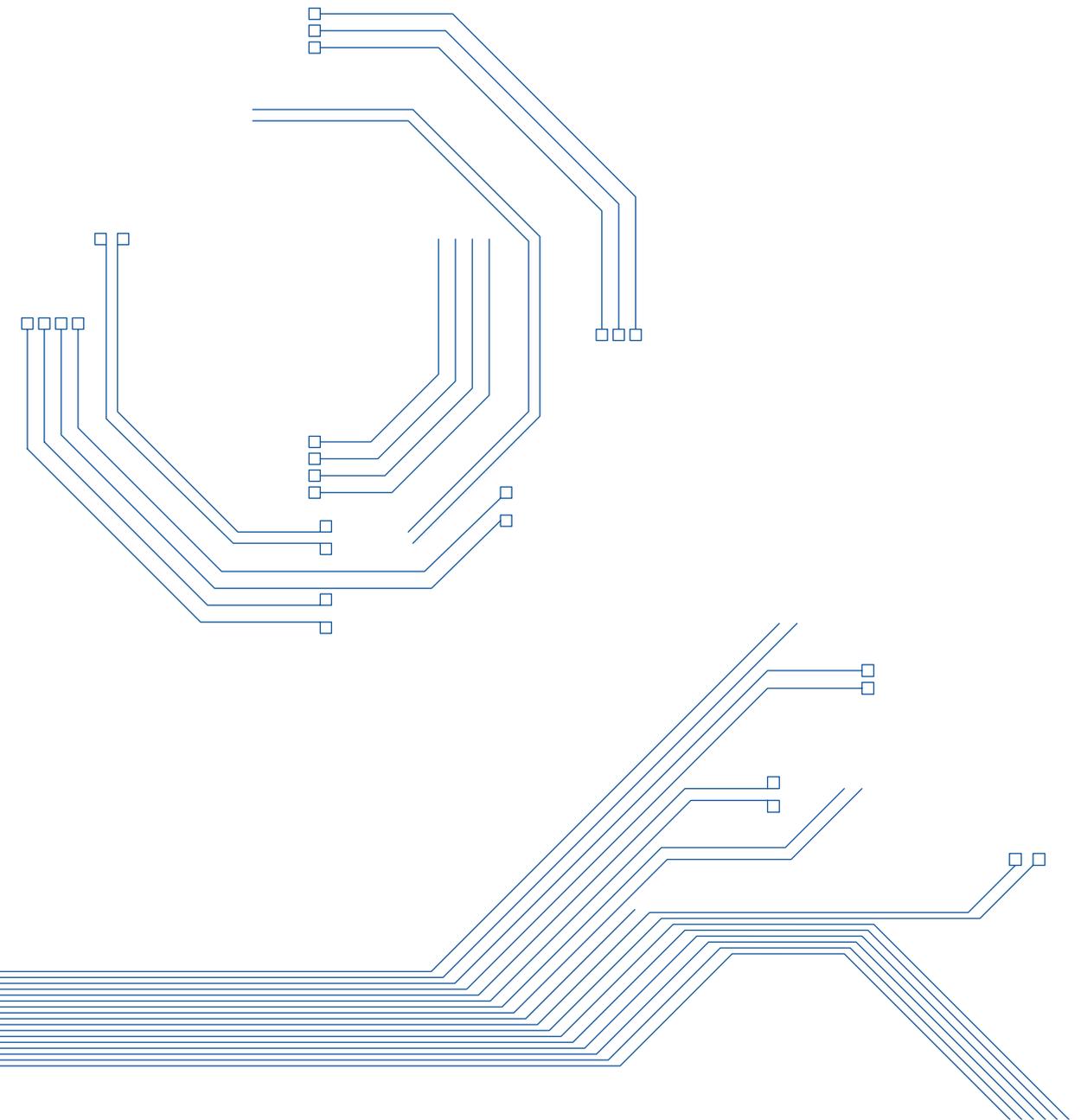
- to roll out virtual workstation infrastructure (VDI) for 5,000 users comprising software and hardware fully developed and produced in Russia;
- to further expand the data centre network, including in the Moscow and North-Western Regions, and further develop data centre infrastructure solutions for the Arctic and a number of ROSATOM's overseas sites;
- to continue developing the Digital Pattern of NPP Operation, an industry-wide unified digital solution for the efficient operation of nuclear facilities in Russia and abroad, which will give ROSATOM an additional competitive advantage when entering into agreements for the construction of new NPPs in international markets. The solution is based on the idea of market consolidation of our digital projects, and today the target product image includes more than 320 IT systems and tools.

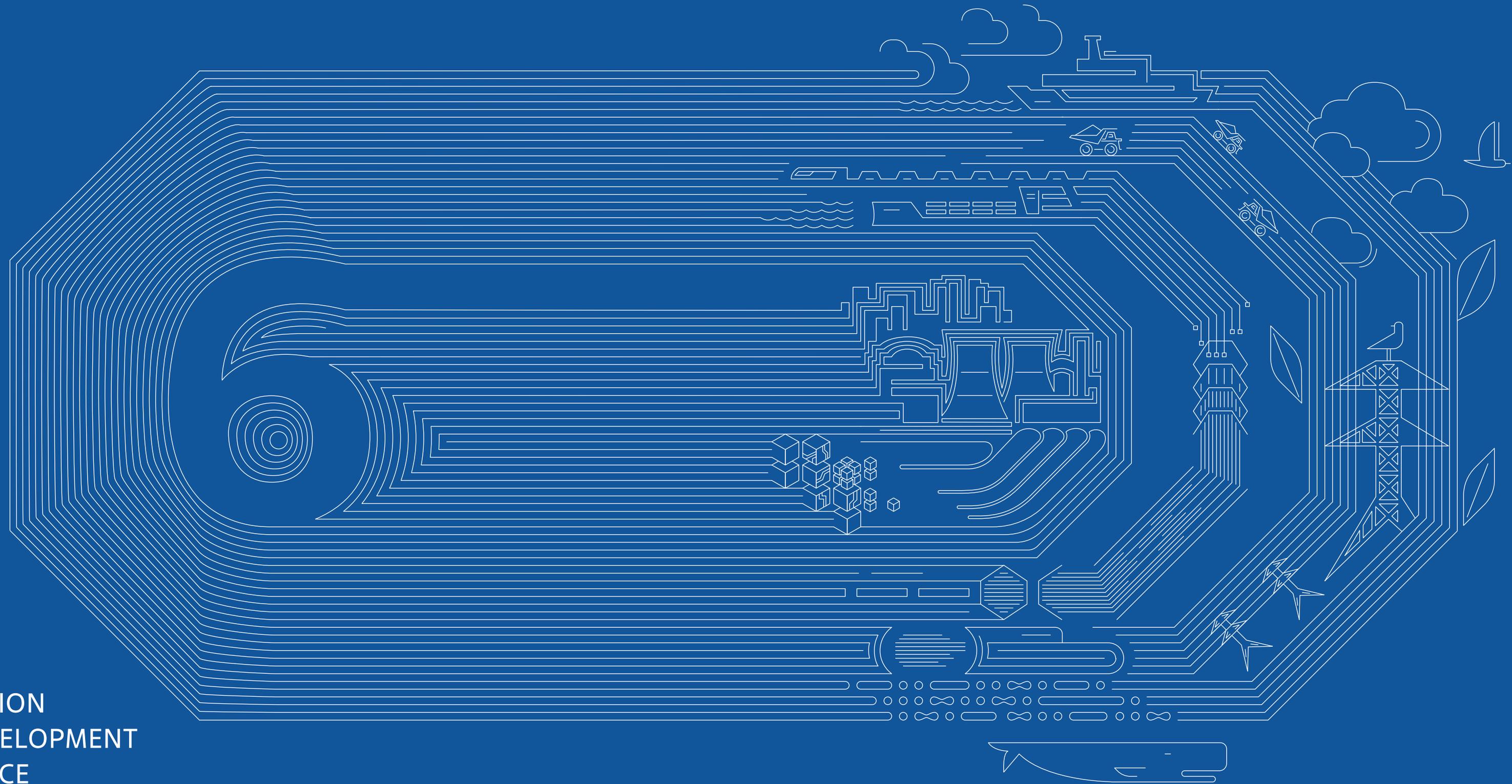
In order to ensure sustainable development of the IT infrastructure and reduce the risks of information security breaches, a set of measures to improve information security is planned to be implemented in 2022 in accordance with federal and industry requirements.

IMPORT SUBSTITUTION

The Division has become a flagship in import-substituting software implementation. More than 20,000 employees of the Division have already been working on import-substituting software based on Astra Linux replacing Microsoft solutions. A hardware import substitution project was initiated: a fully Russian hardware and software system was installed in Kalinin Data Centre to provide virtual desktops for 5,000 users. In addition, Rosenergoatom's experts are actively involved in import substitution and digitisation of Russia's power industry as part of the Digital Energy Association's activities.

The Division's import substitution project for automated workstations was recognised by Russian IT community: it won first place in the Global CIO Project of the Year 2021 contest in the Best IT Project in Domestic Development category.





INNOVATION
AND DEVELOPMENT
OF SCIENCE

GRI 103-1 In innovative activities, the Division strives to achieve the goal set by the government – to strengthen the innovative potential of Russian nuclear technologies and extend the scope of their application. Innovative development is a prerequisite for maintaining the technological leadership of both Rosenergoatom and the national nuclear industry.

One of the key objectives of the Division's innovative development is to make products and services more competitive in nuclear power markets through upgrading current technologies and reequipping production facilities in accordance with the Forecast for the Scientific and Technological Development of the Russian Federation until 2030 approved at the end of 2016.

GRI 103-2 The main innovation management tool is the Innovative Development and Technological Modernisation Programme of ROSATOM until 2030 (in the civilian sector) updated and approved by the Supervisory Board of ROSATOM as amended in 2020 (Minutes No. 38 dated December 28, 2020).

The Division manages technologies as part of the innovation management process of the Integrated Management System (IMS). This process is aimed at ensuring an optimal portfolio of technologies and innovative products with protected IP rights for further implementation.

The development of new technologies is planned on the basis of an analysis of scientific and technological development priorities of ROSATOM and its competitors, business objectives, a search for technology ideas, expert support, as well as a patent search allowing the assessment of a rationale and risks for new technologies.

In the course of its activities, Rosenergoatom uses various forms of innovation implementation, with a focus on innovative development through technologies and capabilities created, mainly as part of R&D ordered by the Company.

R&D plans are fulfilled as part of Rosenergoatom's Capital Investment Programme (CIP) approved jointly by ROSATOM and Russia's Ministry of Energy. Based on the CIP, Rosenergoatom prepares annual R&D plans. Rosenergoatom's R&D plans approved include the development of materials to ensure the safety of NPPs, the development of domestic competitive equipment and materials in leading domestic companies, and the creation of new breakthrough technologies and products for new-reactor power markets. In 2021, the Company allocated RUB 10.9 billion for R&D.

Knowledge is a priceless resource for Rosenergoatom as for an organisation that ensures the safe and efficient operation of NPPs, as well as the construction of new power units. The importance of knowledge retention is considered at the levels of human factors (personnel competence), technology (use of knowledge on

operation experience, new technologies and innovations) and organisation (knowledge management as part of Rosenergoatom's integrated management system). The Division implemented a knowledge management system and approved the Regulation on Nuclear Knowledge Management System.

The pressurised water-cooled reactor (VVER) technology provides a practical basis for the nuclear power industry in the coming decades and will remain its integral part until the end of the century both in Russia and in terms of promoting the Russian reactor technology on the international market.

As part of forming a technology basis for a two-component nuclear energy system, in 2021, the Division started to implement the Programme for the Improvement of Design Solutions for the Conventional VVER Technology No. PRG 1.2.2.15.999.001-2019 (hereinafter referred to as the Programme)⁵. The Programme includes R&D projects in 26 areas focused on enhancing safety features and optimising NPP designs based on VVER reactor technology. The deliverables of these R&D projects are intended to be introduced at both operating and newly built NPP power units equipped with VVER reactors. The Programme is scheduled to be implemented from 2019 through 2024.

The Programme is financed as part of Rosenergoatom's Capital Investment Programme; the total amount of financing for the period from 2019 to 2024 is RUB 1,671 million. The work performed in 2021 is estimated at RUB 424 million; the amount of work performed in 2019-2021 totalled RUB 944 million.

The implementation of the Programme is expected to deliver an overall reduction of power unit construction costs by more than RUB 2.2 billion through the introduction of new technologies and construction solutions and lower equipment costs. Moreover, NPP construction time will be shortened by at least 6.5 months.

As part of Rosenergoatom's NPP Power Generation Enhancement Programme from 2020 through 2035⁶, in 2021, R&D were conducted to develop documentation to justify safety of the transition of VVER-1200 power units under the NPP-2006 project to an 18-month fuel cycle (between repairs) characterised by an increased capacity factor. R&D deliverables are expected to be implemented at Novovoronezh NPP 2 and Leningrad NPP 2 power units. The Programme is scheduled to be implemented from 2021 through 2024.

R&D deliverables are already being used at operating NPPs, during the construction of power units No. 1 and 2 of Kursk NPP 2, and will be implemented during the construction of power units at the sites of new NPPs in Russia and abroad.

⁵ The Programme is being implemented in accordance with ROSATOM's Order No. 1-8/124-R dated February 25, 2019.

⁶ PRG 1.2.2.15.002.120-2020.

As a follow-up to the R&D Programme, a comprehensive programme titled ‘Optimisation of Design Solutions for Better Performance of a Turbine Island of a VVER Power Unit’ was developed and approved⁷. The deadline for the comprehensive programme is 2025; the cost of the work is RUB 774.1 million. Technical proposals were developed to ensure enhanced performance at NPP power units, which will provide the following capacity gains at each of the power units:

- operating NPP-2006 units – 20.8 MW;
- promising NPP-2006 units – 28.1 MW;
- promising VVER-TOI units with a high-speed turbine – 42.1 MW.

To date, four innovative power units with the VVER-1200 generation 3+ reactor were put into commercial operation in Russia (Novovoronezh NPP 2: power units No. 1 and 2; Leningrad NPP 2: power units No. 1 and 2). Assistance was provided for the construction and commissioning of power units at the Belarusian NPP.

Units No. 1 and 2 of Kursk NPP 2 with VVER-TOI reactors are being constructed. As at December 31, 2021, Kursk NPP 2 was 37.49% ready: one-third of the replacement plant was built, which is in line with plans to build a two-unit NPP facility.

As part of R&D controlled by the Governmental Commission for Emergency Prevention and Response and Fire Safety (Minutes No. 7 of the meeting dated December 13, 2019), a multifunctional robotic system for fire protection of machine islands of NPPs was developed as Rosenergoatom ordered. An invention application was filed for the Multifunctional Robotic System for Preventive Monitoring, Fire Detection and Control of Fire Extinguishing at Industrial Facilities. In the future, the use of systems of this kind could be extended to conventional power plants and enterprises in oil and gas, space and other industries.

Exploratory research was initiated on another promising technology, a VVER spectral control reactor (VVER-S), which ensures its full involvement in the closed nuclear fuel cycle (CNFC) using mixed uranium-plutonium fuel along with fast-neutron reactors.

By ROSATOM’s Order No. 1/664-P dated May 31, 2021, Rosenergoatom was instructed to organise R&D on the VVER spectral control technology from 2021 through 2024 to justify design solutions for a two-unit NPP with medium-capacity VVER-S power units at the site of Kola NPP 2 (in accordance with technical specifications for R&D on the ‘Development of Designs of VVER-Type Nuclear Facilities. R&D for Designing a Medium-Capacity VVER Spectral Control Reactor Unit for a Two-Unit NPP’ No. 9/02306-TZ dated April 16, 2021) in order to ensure

the implementation of the federal project titled ‘New Nuclear Power Industry, Including Small Nuclear Reactors for Remote Areas’ as part of the comprehensive programme for technology and research development, under the investment project.

In cooperation with JSC Atomenergoproekt, JSC TVEL, JSC OKB GIDROPRESS, and NRC Kurchatov Institute, Rosenergoatom developed a list of measures, including design, engineering and R&D stages, to ensure timely preparation of design documentation for implementation of the medium-capacity VVER-S NPP project at the site of Kola NPP 2. The list was approved by Alexander Lokshin, ROSATOM’s First Deputy Director General for Nuclear Energetics.

Rosenergoatom issued Order No. 9/01/1260-P dated August 13, 2021 to organise the implementation of the R&D investment project titled ‘Development of VVER Spectral Control Technology’ at the site of Kola NPP 2; a Governing Board and a Technical Committee were established in the Company for this purpose.

The Energy Strategy 2035 of the Russian Federation covers the following promising objectives: to develop hydrogen production and consumption and become a global leader in hydrogen production and exports. Key measures contributing to achieving these objectives include the scaling-up of hydrogen production from natural gas with nuclear power and the development of domestic low-carbon technologies for hydrogen production through reforming, methane pyrolysis, electrolysis, etc. An action plan titled ‘Development of Hydrogen Energy in the Russian Federation until 2024’ was approved by Order No. 2634-r of the Government of the Russian Federation dated October 12, 2020. The centralised large-scale environment-friendly hydrogen production requires nuclear power engineering plants combining technologies of high-temperature gas-cooled reactors and steam natural gas reforming technologies. The Division intends to become a leader in this sector in Russia and significantly enhance its export potential in hydrogen energy, a promising and fast-growing segment of the world economy.

In accordance with ROSATOM’s Resolution No. IP-II.B.8.4.1-2020-1 dated April 22, 2020 On Inclusion of Other Investment Project ‘R&D on Nuclear Hydrogen Energy Technologies for Large-Scale Hydrogen Production and Consumption’ in Rosenergoatom’s Capital Investment Programme for the Period from 2020 through 2025, Rosenergoatom completed 2021 R&D stages in full on nuclear hydrogen energy technologies for large-scale hydrogen production and consumption as part of its CIP.

According to the resolution of the Presidium of ROSATOM’s Scientific and Technical Council dated November 11, 2021, the development of a nuclear power engineering plant based on a high-temperature gas-cooled reactor was recognised as one of the priority areas under the emerging state programme and nuclear power strategy, including for the production of low-carbon hydrogen.

⁷ ROSATOM’s Order No. 1-8/142 dated February 27, 2020.

LEGAL PROTECTION OF ROSENERGOATOM'S INTELLECTUAL ACHIEVEMENTS

In 2021, all tasks on legal protection of Rosenergoatom's intellectual achievements were successfully solved. The Company received nine Russian patents for inventions related to key technologies and basic nuclear power projects, including patents for such inventions as a repair system for storage pool lining, methods for diagnosing the technical condition of rotating equipment and diesel generators.

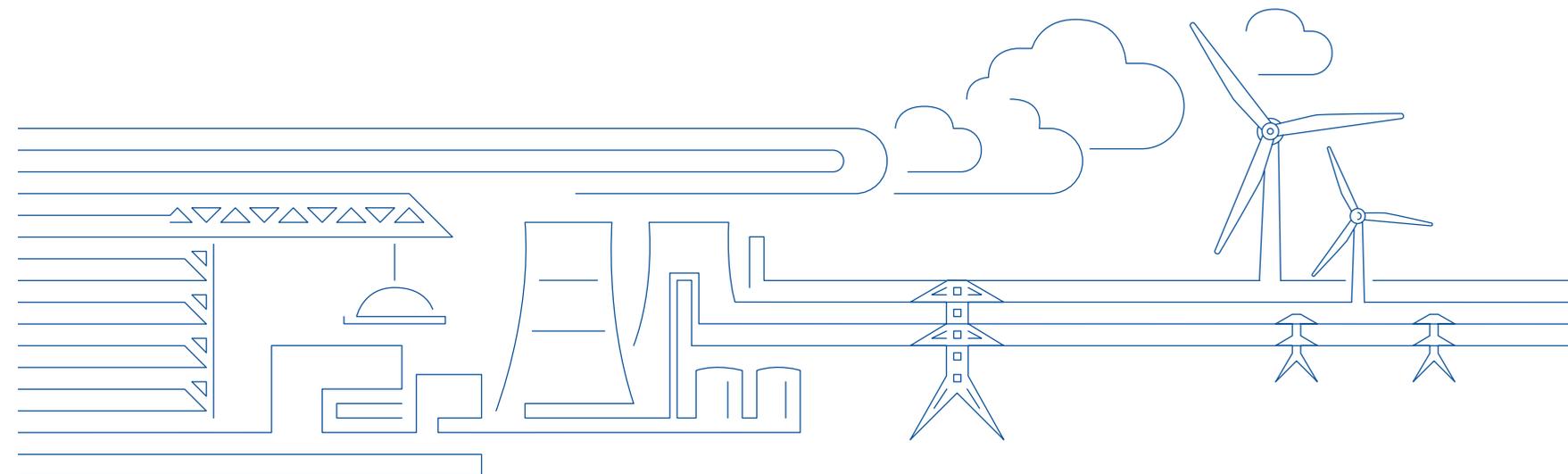
Rosenergoatom cooperates with Science and Innovations (ROSATOM's industry competence centre for intellectual property management) on foreign patenting of inventions. In 2021, nine international applications for patents were filed abroad. Rosenergoatom has received five foreign patents for the first time on previously filed international applications:

- Indonesian patent for the invention of a method of ensuring hydrogen explosion safety of a nuclear power plant (No. IDP000078491);
- Japanese patent for the invention of a method of boron-controlled treatment of liquid waste from NPPs (No. 6972042);
- Ukrainian patent for the invention of a radioactive waste processing unit (No. 124578);
- Eurasian patents for the invention of a mobile compression-foam fire extinguishing unit (No. 38523) and for the invention of a small mobile robotic fire extinguishing unit (No. 36855).

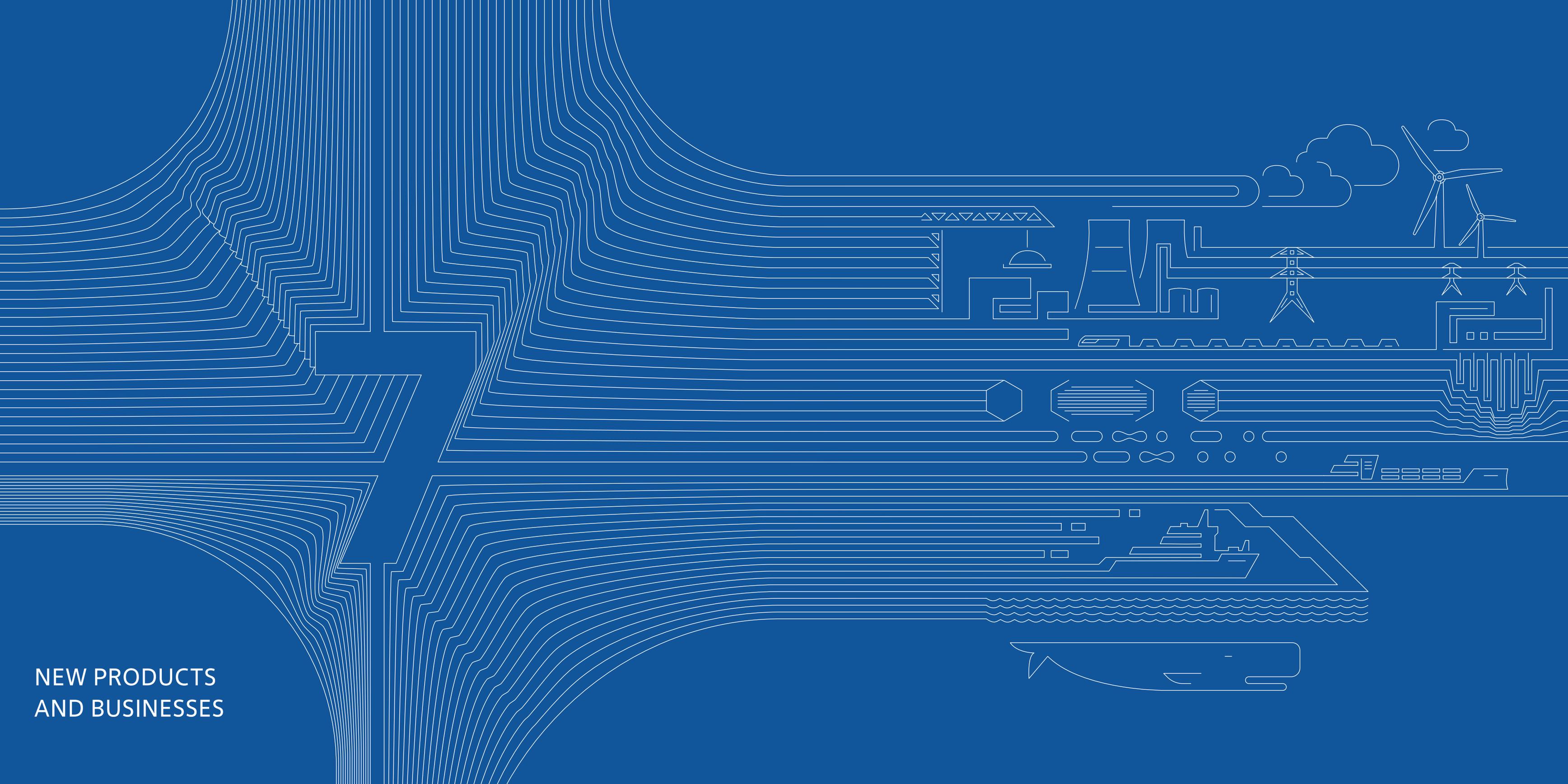
Ten applications for Russian patents were prepared and submitted to Russia's Federal Service for Intellectual Property (Rospatent) for inventions created as part of R&D under Rosenergoatom's contracts with industry organisations. These include applications for inventions related to nuclear hydrogen energy technology, such as a method for manufacturing carbon and graphite products, a high-temperature dense composite nuclear fuel material and a method for producing it, and an ammonia combustion device.

In the reporting year, Rosenergoatom created and registered with Rospatent 30 computer programmes and two databases. Among other things, a certificate of state registration was obtained for the COVID-Info Coronavirus Information Collection System designed to optimise the interaction of employees responsible for reporting on coronavirus infection in terms of providing monitoring data by organisation and city, maintaining the COVID monitoring database and generating summary reports.

Rosenergoatom developed and registered Virtual Digital NPP with VVER, a software package for computers that consists of 52 calculation modules and is designed for multiphysical modelling of stationary and dynamic processes and modes typical for NPP power units with VVER technology.



NEW PRODUCTS
AND BUSINESSES



GRI 102-10 Development of new products, an increase in the international market share, and global leadership are strategic goals of ROSATOM. In accordance with ROSATOM's strategy, it is intended that new businesses will make up at least 40% of the total revenue by 2030.

GRI 103-1

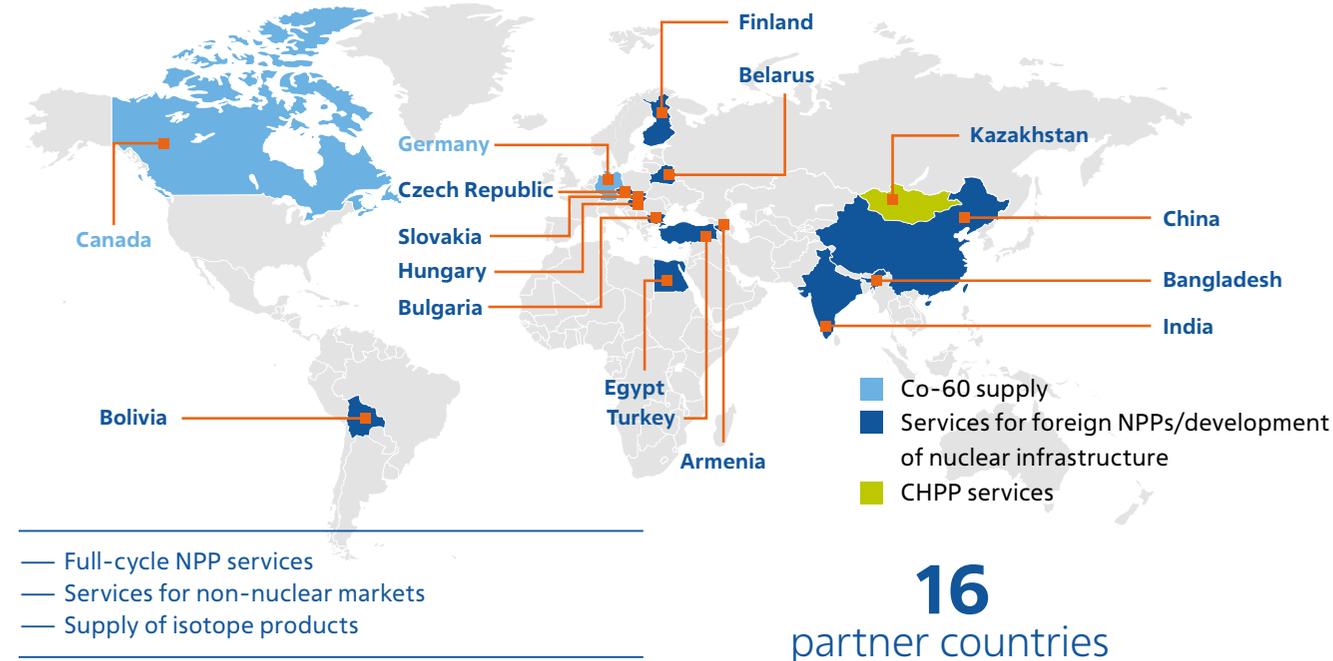
GRI 103-2

In 2021, the Division achieved record levels of overseas revenue and revenue from new products. Overseas revenue exceeded \$1 billion and revenue from new products totalled RUB 104 billion (14% of the Division's total revenue).

INTERNATIONAL AND NEW BUSINESSES

GRI 102-2 The Division's organisations provide a wide range of services for foreign NPPs. The Division's portfolio included projects for nuclear infrastructure, personnel training and training centres, Owner's Engineer services, NPP construction and commissioning, NPP maintenance and repairs, supply of spare parts and equipment for NPPs, NPP modernisation and life extension.

GRI 102-4 The Division's new business geography in 2021



In addition to the services for foreign NPPs, the Division develops other businesses abroad: Co-60 supply, service and engineering for conventional power facilities.

At the same time, the Division's organisations develop new businesses in the Russian Federation: supplier of last resort, full-cycle engineering and energy services (including retail generation services), creation and development of a geo-distributed data centre network (Digitisation section), sale of low-carbon power, etc.

PROJECTS FOR FOREIGN NPPS IN 2021

As part of the NPP construction project in Turkey, a joint venture of JSC CONCERN TITAN-2 and Turkey's TITAN2 IC reached some key milestones for all four Akkuyu NPP units under construction, including the start of construction of power units No. 3 (first concrete) and 4 (excavation).

Jointly with experts from the Capital Projects Implementation Branch Office (CPIBO) and Rosenergoatom's companies, the Akkuyu Engineering Centre (Rosenergoatom's branch) continued to provide services to Akkuyu NPP.

Power unit No. 1 of the Belarusian NPP was commissioned, and the first criticality stage started for power unit No. 2. The Division's organisations (JSC Rusatom Service, JSC Atomtekhexport, JSC Atomenergoremont) took part in the commissioning of power units No. 1 and 2. JSC Rusatom Service concluded and is executing a contract for maintenance and repairs of equipment of power unit No. 1 of the Belarusian NPP.

The Division's organisations performed most of the works on the project aimed at extending the life of power unit No. 2 at the Armenian NPP (including the unique work on the restoration annealing of the reactor vessel), as a result of which this large-scale and multi-year project was successfully completed, the Armenian NPP was granted an operating licence until 2026.

The Company provided support for scheduled preventive maintenance at Kudankulam NPP (India), Tianwan NPP (China), and Armenian NPP.

The Division's organisations carried out a range of activities in preparation for commissioning under the Rooppur NPP project (Bangladesh).

Over 540 members of operating and maintenance personnel at foreign NPPs underwent training in 2021 as part of long-term and short-term training programmes, including at Rooppur NPP (Bangladesh), Akkuyu NPP (Turkey) and El Daba NPP (Egypt).

JSC ZAES received an accreditation certificate confirming its compliance with the requirements of GOST ISO/IEC 17020-2013 (ISO/IEC 17020:2012, IDT). The accreditation provides an opportunity to expand the range of conformity assessment services offered by the company in the global market and gives an advantage when taking part in competitive procurement.

JSC VNIIAES signed a cooperation agreement with THALES AVS FRANCE SAS in the field of simulation engineering.

JSC Rusatom Service signed the first major overseas thermal power contract — a contract for the expansion of the Ust-Kamenogorsk TPP in Kazakhstan. To perform the works, Svetoch LLP, a local company that holds Kazakhstan's construction, installation, design and survey licences, was acquired.

The Division continued to implement its isotope business development programme until 2030 included in the Development of Nuclear Medicine and Technology Product Area strategic programme and ROSATOM's Unified Industry-Wide Isotope Business Strategy. The Division is implementing projects for organising Co-60 production on RBMK reactors, producing sterilisation Co-60 based on fast neutrons, and initiated projects for medical isotopes on RBMK, substitute technologies.

DEVELOPMENT OF NEW BUSINESSES

JSC Atomenergobyty increased the share of electricity bills paid by people and over 50,000 organisations in Kursk, Smolensk, Tver and Murmansk Regions to more than 99%. The positive dynamics are driven by comprehensive customer interaction and a wide range of available services.

The key trend of 2021 is related to the development of an ecosystem of technological and organisational solutions for corporate customers: the project was recognised as the best production project in the Best Power Supply Company all-Russian contest organised by EnergoNews, an industry-specific web portal. In addition, the Division continues to develop its digital B2C services: about 50% of retail customers use them.

The Division has started cooperating with large industrial consumers under free bilateral contracts, supplying them with low-carbon power generated by NPPs. Rosenergoatom and NLMK Group signed an agreement on cooperation in low-carbon power supply.

The Division's product strategy was approved for the provision of full-cycle engineering and energy services (including retail generation services).

With the participation of JSC Atomtekhnenergo and JSC Atomenergoremont, the PIK research reactor was launched.

JSC CONCERN TITAN-2 signed significant contracts for engineering services: a state contract for the construction of the Children's Rehabilitation Centre in the Novosibirsk Region, a contract for the construction of a new building of the Vishnevsky Centre for High-Tech Medical Care in Moscow, and contracts for the construction of production and processing units for hazard classes I and II waste Shchuchye (Kurgan Region) and Gorny (Saratov Region).

JSC Atomenergoremont signed major contracts with Agrostroypodryad for equipment supply and construction and installation work.

JSC Electrogorsk Research and Development Centre for Nuclear Power Plants Safety (JSC ENIC) diversified its portfolio of engineering and energy services and obtained a new certificate with an extended scope of accreditation to include personal protective equipment.

JSC ENIC received its first revenue from its new business — modelling of power systems and consumer power supply systems.

LLC C-plus signed contracts for the construction and reconstruction of a production unit for the manufacturing of new products.

JSC ITC JET signed contracts with PJSC T Plus to develop a concept design for a digital twin of the Akademicheskaya TPP. Analytical simulators were produced and delivered for training centres at Novovoronezh NPP and ROSATOM's Technical Academy in Obninsk.

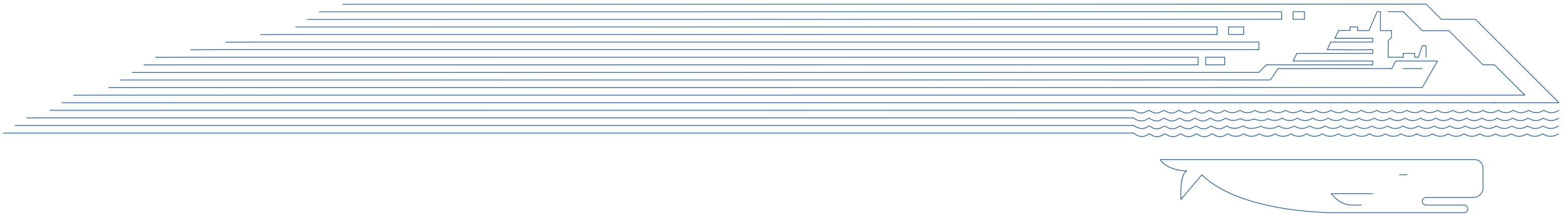
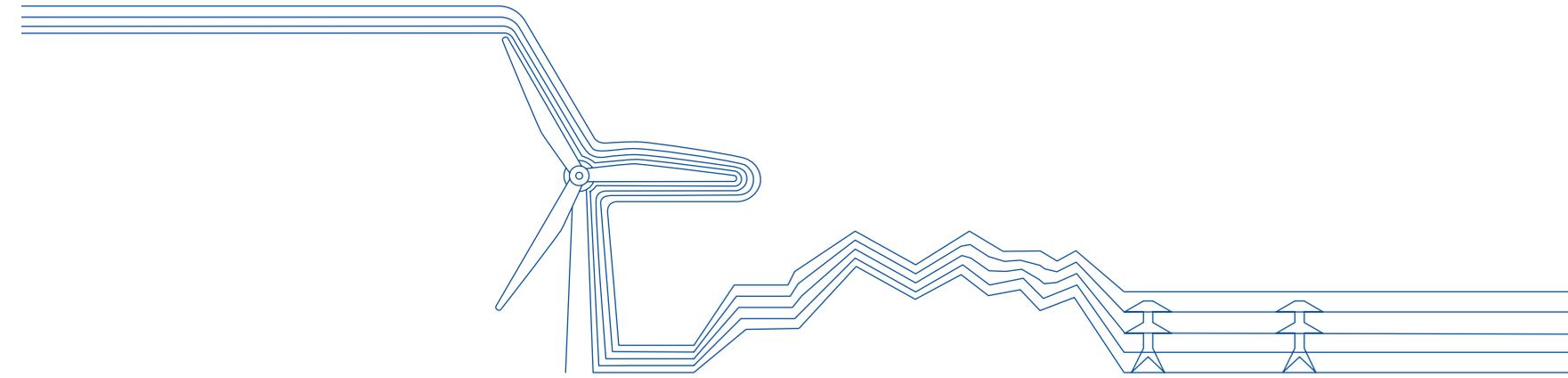
JSC Inorganic Sorbents, Rosenergoatom's subsidiary, was established to develop and produce Thermoxid inorganic sorbents, enter promising market segments and form a long-term comprehensive programme for science, production and engineering development from 2021.

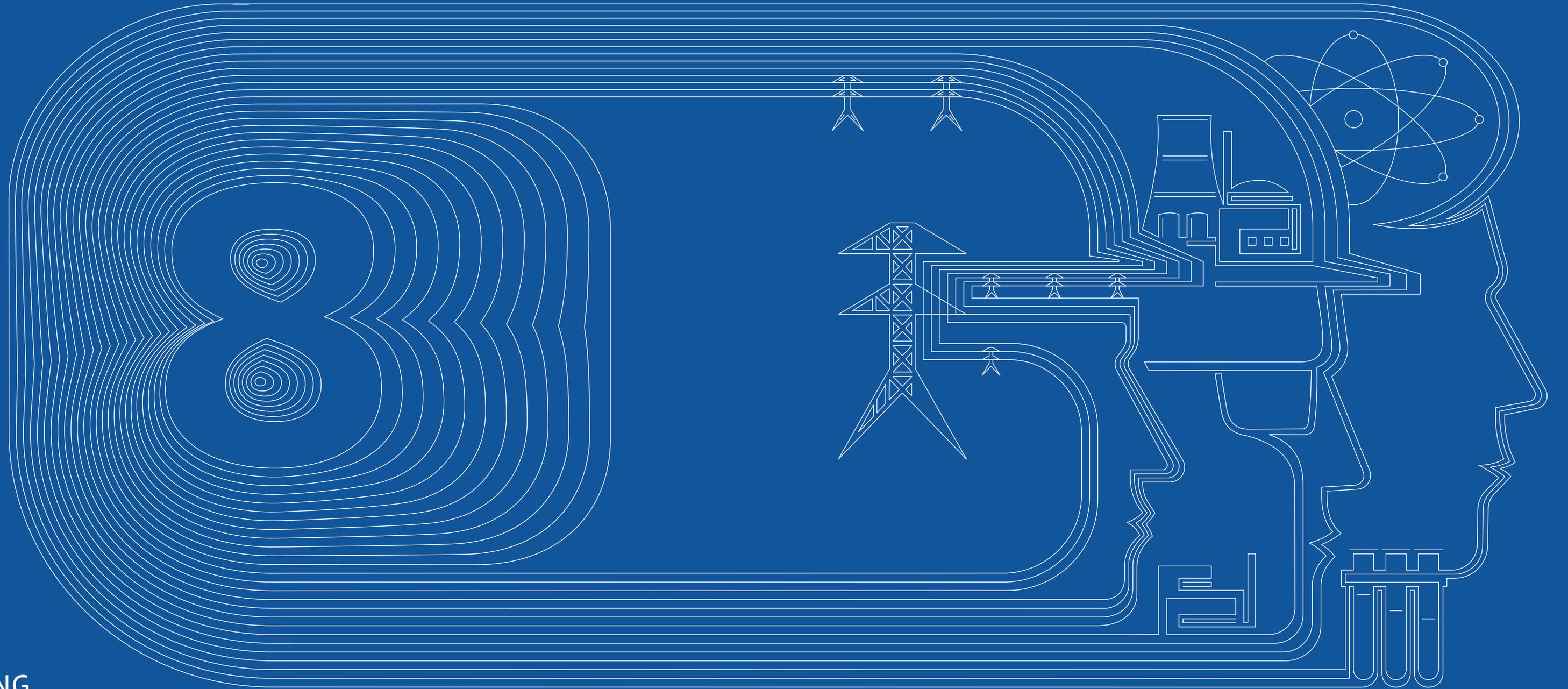
The Division continued to implement the project to search for and create new products: in 2021, 13 branches of Rosenergoatom, including all NPPs and seven subsidiaries, were involved. Eleven business initiatives resulting from the project were approved for further development and/or investment rationale analysis.

PLANS FOR 2022

In 2022, the Division's organisations will continue to implement existing projects both in Russia and abroad. The Division's main objectives for 2022 include:

- to participate in the commissioning of power unit No. 2 at the Belarusian NPP and power unit No. 1 at Rooppur NPP;
- to reach key milestones in the construction of the Akkuyu NPP;
- to train personnel for Akkuyu, Rooppur, Paks II and El Dabaa NPPs;
- to develop a presence and conduct maintenance at NPPs and non-nuclear facilities abroad;
- to start shipping Co-60 from Smolensk and Kursk NPPs;
- to sign new contracts and implement existing projects in non-nuclear markets in Russia;
- to develop new businesses: small-scale generation, thermal energy modernisation, and robotics.





DEVELOPING
THE HUMAN CAPITAL

HR SYSTEM

GRI 103-1 The objective of the Division's human resource policy is to provide the business in a timely and cost-effective manner with the required number of employees who are engaged and have appropriate qualifications. The Division's personnel management system is based on shared industry-wide values of ROSATOM and its organisations, which all employees are required to know and adhere to.

KEY PERSONNEL CHARACTERISTICS

GRI 102-7

GRI 102-8 Division's average headcount in 2019–2021

Enterprise	2019	2020	2021
Branches of Rosenergoatom			
Balakovo nuclear power plant	3,216.2	3,258.16	3,231.6
Beloyarsk nuclear power plant	2,554.9	2,558.52	2,522.9
Bilibino nuclear power plant	693.8	687.43	659.5
Kalinin nuclear power plant	3,225.9	3,311.57	3,300.5
Kola nuclear power plant	2,102.4	2,134.79	2,134.6
Kursk nuclear power plant	4,329.0	4,561.41	4,674.3
Leningrad nuclear power plant	5,661.1	5,848.57	5,737.8
Novovoronezh nuclear power plant	3,889.7	3,937.28	4,053.3
Rostov nuclear power plant	3,053.0	3,163.48	3,173.9
Smolensk nuclear power plant	3,631.2	3,682.26	3,689.6
VVER Pilot and Demonstration Centre	332.3	341.46	343.3
RBMK Pilot and Demonstration Centre	0	10.25	75.1
Directorate for Construction and Operation of FTNPPs	310.6	439.94	465.3
Technology Branch Office	156.2	160.40	157.3
Capital Projects Implementation Branch Office	236.5	239.80	241.5
Akkuyu Engineering Centre	23.6	35.66	36.3

Enterprise	2019	2020	2021
Central Administration (excluding small branches)	835.3	863.83	907.6
Directorate of Voronezh Thermal Nuclear Power Plant (under construction)	26.9	27.16	25.7
Directorate of Baltic NPP (under construction)	53.5	50.90	52.9
Directorate of Kostroma NPP (under construction)	14.5	0.00	0.00
Bangladesh branch	0	0	35.6
Total in JSC Rosenergoatom	34,346.6	35,312.87	35,518.69
Division's enterprises⁸			
JSC CONCERN TITAN-2	4,361.25	4,849.79	4,552.6
JSC Atomtekhexport*	172.35	167.06	172.6
JSC AtomTechEnerg	2,127.68	2,283.68	2,117.4
JSC Atomenergoremont	9,286.35	9,565.05	9,556.6
JSC Atomenergoby* [*]	2,143.38	2,118.62	2,116.2
JSC VNIIAES	534.91	562.52	595.7
JSC ZAES	221.14	264.72	314.7
JSC CONSYST-OC	855.66	1,094.35	1,267.5
JSC Rusatom Service*	212.42	223.10	227.5
LLC C-plus	94.75	112.80	178.3
TITAN2 IC	55.83	397.18	537.4
JSC ITC JET	0.0	0.0	68.8
LLC REK	0.0	0.0	7.0
JSC Atomdata-Centre	0.0	0.0	30.9
JSC Atomdata	0.0	0.0	16.5
SVETOCH LLP	0.0	0.0	0.3
Total across the Division's enterprises	20,065.72	21,638.87	21,759.9
Total in the Division	54,411.93	56,951.77	57,278.57

* Controlled by the Power Engineering Division.

⁸ Only organisations included in the calculation of the average headcount for the period from 2019 through 2021.

PERSONNEL TRAINING

In order to form a talent pool and perform strategic tasks, the Division adopted professional training, development and psychological aid systems.

GRI 404-1 Aggregated data on personnel training across the Division in 2021

Indicator	Total	Per employee
In-house training, hours	3,886.8	67.9
Training provided by external organisations, hours	1,330.5	23.2
Total number of training hours, including:	5,217.3	91.1
<i>Executives</i>	915.3	103.1
<i>Specialists and white-collar workers</i>	2,119.3	83.5
<i>Blue-collar workers</i>	2,182.7	94.9

Average expenditure on training, assessment and development of the Division's employees in 2021 totalled RUB 12,500 per person per year.

In 2021, the Division became one of the industry leaders in training coverage (94.19% of the Division's employees were trained for more than one (1) hour, against a target of 75%). These results are driven, among other things, by the active use of the RECORD mobile education platform by employees.

As part of its personnel training programmes, the Division places special emphasis on topics related to a safety culture, accident-free working skills, personnel reliability and leadership skills of executives. 13,187 NPP employees underwent training in safety culture in 2021. To make safety culture training effective, training materials were developed in 2021 for the course titled 'The Role of Human Factors in Safety. Tools for Prevention of Personnel Misconduct', 'Compendium of Personnel Misconduct in 2020 to Be Used in NPP Education and Training Departments (Centres) in Training and Maintaining the Qualifications of NPP Personnel.' The e-course titled 'The Role of Human Factors in Safety. Tools for Prevention of Personnel Misconduct' was uploaded to the Record and Record Mobile systems.

In 2021, the Division systematically developed management competencies of its employees. A total of 348 employees were trained as part of the industry-wide executive talent pool development programme, and more than 1,600 employees completed the Leadership E-School programme. As part of measures to maintain the level of employee engagement in the Division, Knowledge Days were held, which included a series of workshops run by coaches from ROSATOM's Corporate Academy. More than 900 employees of the Division took part in the events. In 2021, Rosenergoatom was chosen to pilot the My Career at ROSATOM programme; 288 employees of NPPs were trained under the programme.

NPP personnel are provided with professional training by the Division's education and training departments (centres) (ETDs). ETDs' buildings and premises have classrooms for theoretical training, classes for specialised training, laboratories and workshops. The training rooms are equipped with advanced technical training facilities: training simulators, including full-scale analytical simulators. To further equip ETDs, in 2021, the Division approved the Novovoronezh NPP analytical simulator for training, upgraded a full-scale Rostov NPP simulator, and introduced the Kalinin NPP training facility to develop skills in the controlled access area.

Personnel training and knowledge monitoring at ETDs are conducted using training documents, computer-based training materials, multimedia information systems, multifunctional interactive and automated systems. In 2021, the Division developed and reviewed 2,552 educational materials, 1,420 position-specific training programmes, and 213 computer educational materials. As part of the digitisation programme, in 2021, a prototype of a software and hardware visualisation system for the steam and armature unit was developed to train personnel of Leningrad NPP 2.

NPP personnel training includes psychological training provided by specialists from psychophysiological laboratories. 13,000 NPP employees underwent psychological training totalling 42,000 hours in 2021.

Certain operations can be performed only by employees holding the required permits from Rostekhnadzor (Russia's Federal Service for Environmental, Technological and Nuclear Supervision). In 2021, a total of 1,842 NPP employees of the Division had the relevant permits. In order to improve training of employees who hold licensed positions on a permanent or temporary basis, in 2021, the Division introduced 23 training programmes for operating personnel holding licensed positions, e-courses, and electronic educational materials to prepare employees receiving permits from Rostekhnadzor to take part in NPP construction and decommissioning, and updated electronic educational materials for high-level executives at NPPs for certification at supervisory bodies.

In 2021, the Division continued to develop and promote the industry-wide system of professional qualifications, with two professional standards for the nuclear power industry developed, four updated, and 12 introduced. 140 employees were trained as potential experts to be involved in developing professional standards and conducting independent qualification assessment. Twenty-five employees passed independent qualification assessment exams.

To provide a practical solution for a range of tasks related to improving and maintaining the required level of human reliability, including psychological and teaching assistance in professional training, psychophysiological laboratories (PPLs) have been established. In 2021, psychophysiological examination covered 8,007 employees; 837 opinions were issued to holders of permits from Rostekhnadzor. Experts of the psychological relief room of Rosenergoatom's Central Administration continued to restore the functional reserves of personnel and conducted 1,703 courses to eliminate impacts of the pandemic in 2021.

COOPERATION IN EDUCATION

Cooperation with universities

In 2021, the Division's organisations hired 594 university graduates, including 361 graduates with nuclear-related degrees.

Rosenergoatom's organisations participated in industry-wide career and university events. In order to attract graduates, Rosenergoatom held the Career Day, created a telegram channel for students, and held meetings between representatives of Rosenergoatom's organisations and students of all key universities (National Research Nuclear University MEPhI's Obninsk Institute for Nuclear Power Engineering, NRNU MEPhI's Volgodonsk Engineering and Technical Institute, Ivanovo State Power Engineering University, Ural Federal University, Tomsk Polytechnic University, etc.).

Ten internship agreements were concluded with ROSATOM's core universities (NRNU MEPhI, Ural Federal University, Tomsk Polytechnic University, Kazan Power Engineering University, Alekseev Nizhny Novgorod State Technical University, Ivanovo State Power Engineering University, Moscow Power Engineering Institute, St.Petersburg Polytechnic University, Sevastopol State University, Bauman Moscow State Technical University). The agreements allow students to undertake internship at any branch and organisation of Rosenergoatom without any additional agreements.

In 2021, 1,602 students completed internships in Rosenergoatom's enterprises, which is 570 more than in 2020.

Ninety-three people went to university under employer-sponsored education contracts, with a total of 262 students covered by Rosenergoatom's employer-sponsored contracts.

A regular contest was held to award scholarships to students and grants to university professors. In total, 39 grants worth RUB 200,000 and 79 scholarships worth RUB 100,000 were given. In the reporting year, Kazan Power Engineering University has joined the contest for the first time.

Financial assistance was provided to universities for the maintenance and development of laboratory facilities, the purchase of training equipment, and repairs: Ivanovo State Power Engineering University received RUB 17.15 million, Moscow Power Engineering Institute – RUB 9.82 million.

IMPLEMENTATION OF THE SOCIAL POLICY

GRI 103-2

The Division implements its social policy in accordance with its strategy and the Uniform Industry-Wide Social Policy of ROSATOM in order to make it more attractive as an employer on the labour market, enhance employee loyalty, attract and retain specialists, preserve the occupational health of employees and improve the quality of their lives.

Social expenses of the Division in 2018-2021, RUB '000

	2019	2020	2021
Expenses per employee	62.23	64.99	72.55
Total expenditure on the implementation of the social policy	3,385,952	3,693,386	4,151,847
Including key programmes:			
<i>Healthcare programmes (VHI+accident insurance)</i>	628,681	667,308	814,131
<i>Private pension plans</i>	59,392	152,545	194,270
<i>Health resort treatment and wellness</i>	527,909	292,599	517,907
<i>Support for retirees</i>	436,118	406,993	423,842
<i>Providing better living conditions for employees</i>	305,135	399,612	337,170
<i>Cultural and sporting events</i>	696,105	743,120 ⁹	679,735

⁹ Including mass anti-pandemic events.

Voluntary health insurance (VHI)

Apart from regional compulsory health insurance programmes and state benefits, Rosenergoatom provides VHI and accident and illness insurance to its employees. Employees can obtain insurance for their family members at a discount. VHI covers the provision of specialised information, consultations and medical care for employees and their family members not only in regional healthcare institutions but also in Moscow and Saint Petersburg.

Health resort treatment for employees

Rosenergoatom annually implements measures to improve employees' health in healthcare centres affiliated with the industry and in Russian health resorts. In 2021, 9,031 employees received health resort treatment in ten healthcare centres affiliated with NPPs, and 5,343 employees received treatment in 34 health resorts on the Black Sea coast, in the Caucasian Spas and Central Russia.

Providing better living conditions for employees

The provision of housing for Rosenergoatom's employees is a very important prerequisite for attracting skilled personnel, which is especially needed as new power units are being actively constructed. In 2021, the Division built housing and assisted employees in buying a permanent home as part of a housing programme adopted in Rosenergoatom.

In 2021, 274 employees were given interest-free loans to make a down-payment on mortgages; 3,240 people received compensation for interest on mortgage loans, and 1,011 people, including 867 employees under 35 years who live in temporary housing were provided with assistance.

Sports and cultural activities

In 2021, Rosenergoatom's employees took part in industry-wide sports events. The most significant events included Atomiada 2021, the 13th Summer Sports Competition for employees of nuclear power, industry and science organisations, and the Nuclear Cities Run. Forty-one NPP employees took part in Atomiada 2021 as part of Rosenergoatom's team, and more than 2,000 employees and their family members participated in the Nuclear Cities Run.

In 2021, Rosenergoatom continued to implement comprehensive programmes of social and sports projects:

- Planet of Basketball – Orange Atom (from 2021 through 2023);
- Atomic Puck (from 2020 through 2022).

Modern multi-purpose sports grounds were built and upgraded in host NPP towns and cities, and projects were prepared for the construction of sports grounds in Pevek and Bilibino.

At the #Sport for All contest on best practices in engaging employees and their families in a healthy lifestyle, Rosenergoatom's representatives were recognised in categories such as Best Practice in Preparing and Holding the Unified Ready-for-Labour-and-Defence Day and Best Internet/Online Project in the Industry.

Private pension plans (PPPs)

Rosenergoatom offers PPPs for employees through the Atomgarant industry-wide Non-State Pension Fund (hereinafter referred to as the Fund) in accordance with the Programme on Non-State Pension Plans for Rosenergoatom's Employees and pension agreements concluded between the Company and the Fund. Pension obligations are covered in full using Rosenergoatom's shared resources under a retirement benefit scheme; the value of obligations in 2021 was estimated at RUB 167 million (RUB 128 million in 2020). Upon retirement of an employee of Rosenergoatom, the scope of their participation in the pension plan is determined based on the length of employment in the nuclear power industry, which must total at least 15 years at the time of reaching retirement age.

Private pension plans for Rosenergoatom's employees in 2021

Indicator	2019	2020	2021
Total number of Rosenergoatom's retirees who receive a private pension through the Atomgarant Non-State Pension Fund, people	13,687	13,397	12,903
Average non-state pension, RUB	2,300	2,280	2,274
Funds paid by the Atomgarant Non-State Pension Fund as non-state pensions to retirees, RUB million	290.2	283.3	275.4

In 2021, the number of members of co-financing pension plans equalled 7,282 people (7,097 people in 2020).

Veterans' movement

Care for veterans is one of the most important areas of the social policy. Interaction with the Inter-Regional Public Organisation of Rosenergoatom's Veteran Employees (IRPORVE) is based on the Cooperation Agreement between Rosenergoatom and IRPORVE in accordance with the Corporate Social Support Programme for Non-Working Retirees, which is an integral part of the Uniform Industry-Wide Social Policy of ROSATOM and its organisations and the Social Support Programme for Non-Working Retirees of Rosenergoatom.

As part of the cooperation, Rosenergoatom provides organisational assistance for social adaptation and rehabilitation of its employees upon their retirement, takes social measures to support non-working retirees, and conducts activities to protect economic, social, labour, and other rights and legitimate interests of non-working retirees of the Company.

In order to support IRPORVE's activities on protection of social, labour, and other rights of non-working retirees of Rosenergoatom, as well as to develop social partnership for the implementation of the coordinated social policy, assistance and rehabilitation of former employees of the Company after their retirement, and to enhance their social protection, Rosenergoatom annually provides MOOVK with financial assistance in the form of donations.

In 2021, the actual number of retirees participating in IRPORVE totalled 18,142 people (18,029 people in 2020). Using funds allocated by Rosenergoatom under the Charitable Contribution Agreement, IRPORVE provided retirees in need with financial assistance totalling RUB 83.0 million (RUB 71.6 million in 2020) and funding for health and wellness totalling RUB 75.6 million (RUB 56.9 million in 2020).

The Division spent RUB 10.5 million on health resort treatment and cultural events (compared to RUB 12.9 million in 2020).

Veterans are provided with home care. Financial assistance was provided to a total of 42,758 retirees (48,158 in 2020).

Youth engagement

Youth engagement is one of the Division's most important areas of focus and comprehensive support. Youth engagement is aimed at uniting young employees of the Division to create an industrial, social, economic, and psychological environment that promotes professional and social development, full potential unlocking, and upskilling of young employees, and to involve them in innovative projects, including projects on sustainable development, digitisation, and ecology.

Social measures for young workers and specialists of Rosenergoatom are taken in accordance with the Uniform Industry-Wide Social Policy of ROSATOM and its Organisations¹⁰. To define uniform approaches to youth programmes and projects aimed at creating conditions to attract and retain young people in Rosenergoatom, promote corporate values and culture, encourage professional and social initiative, career growth of young employees, and ensure their self-realisation and upskilling, Rosenergoatom adopted the Regulation on Youth Engagement.

In 2021, young employees took part in local, divisional, industry-wide, federal and international events, including:

- III Divisional Youth Convention;
- Industry Youth Leadership Convention;
- ROSATOM Youth Congress;
- Open Contest for the Best Scientific and Technical Report;
- Anatoly Alexandrov Corporate Social Responsibility and Volunteering Competition;
- events as part of the WorldSkills championship movement (REASkills divisional championship, AtomSkills industry-wide championship, WorldSkills Hi-Tech national championship);
- Energy of Youth contest;
- Russian Energy Week;
- CASE-IN Engineering Case Championship;
- Youth Global Energy Outlook;
- Forsazh Young Professionals Community Forum;
- European Nuclear Young Generation Forum.

¹⁰ Rosenergoatom's Order No. 9/01/539-P dated April 9, 2020.

Volunteer projects and charity initiatives

The Division supports an important corporate tradition as part of the social policy, annually donating to charities. The relations between Rosenergoatom and donees are based on the co-financing model. Apart from Rosenergoatom's partnerships with other enterprises, employees of NPPs and the Central Administration are also involved in charity projects.

Rosenergoatom's subsidiaries independently develop and implement corporate social responsibility initiatives. The enterprises of the Division participate in annual charitable events and the cultural life in the regions of their operation, including support for children from orphanages, large families, people with disabilities, mothers of many children, social support in solving issues of regional improvement.

Division's key volunteer and charity projects in 2021

Project	Description
Volunteer crisis centres	In 2021, volunteers from Rosenergoatom's crisis centres actively helped those in need by serving requests to those centres. The volunteers purchased and delivered food and medicines, provided transport services and counselling to those in need.
Charity events	The Division's enterprises run the <i>Box of Courage</i> campaign on an ongoing basis to help children with serious illnesses in hospitals. <i>Visits to orphanages, old people's homes.</i> Volunteers not only give gifts that they collected themselves, but also share their emotions during the activities they organise. Twice a year, they organise <i>visits to animal shelters</i> (assistance to shelters is provided on an ongoing basis). Rosenergoatom's employees collect up to 500 kilograms of things that shelter animals need as part of the Box of Kindness campaign. <i>Christmas Tree of Wishes</i> is a campaign to collect Christmas gifts for children in difficult social situations (held at six enterprises of the Division for more than 10 years). Children write their wishes on the balls/cards used to decorate the Christmas tree. Any employee may choose a ball/card and buy a gift. The Thank You to Doctors campaign: Rosenergoatom's trade union and volunteers have been running a campaign to support doctors at leading multidisciplinary clinics for several years in a row. These include FMBA hospitals No. 119, 85, 84, 83, Burnasyan Federal Medical Biophysical Centre.
Blood donation	The regular (biannual) <i>ROSATOM's Donor</i> event is held at 12 enterprises of the Division. As part of each event, on average, about 700 employees of Rosenergoatom donate blood.
Interaction with veterans	For Victory Day and other commemorations, volunteers organise the <i>delivery of food packages</i> . Close interaction between volunteers and veterans takes place on an ongoing basis at all enterprises of the Division. <i>The Evening of Memory – June 22</i> event (Rostov NPP) is held to preserve and perpetuate the memory of courage and heroism of the Soviet people shown during the Great Patriotic War from 1941 to 1945.

Project	Description
Environmental protection	<i>Beautification of a military burial ground and a clean-up day in Obninsk.</i> In 2021, about 100 people took part in the event. The <i>Clean City Starts with You</i> campaign has been run by Rostov NPP since November 2020. The project was presented at the #WeAreTogether Forum to Alexey Likhachev, Director General of ROSATOM, and won the 9th Public Recognition contest in the Rostov Region. <i>Organisation of a separate waste (plastic) collection system in Sosnovy Bor</i> for recycling plastic into materials to produce trash cans, benches, fences, landscaping items, etc. <i>Beware! Sticky Tape!, Blooming Nuclear City, Green Spring</i> projects of Beloyarsk NPP include various events (master classes, separate waste collection, clean-up days, installation of works of art, eco lessons, etc.) to develop the environmental culture among residents of Zarechny. <i>A large-scale social and environmental campaign of Novovoronezh NPP</i> (together with the Voronezh Regional Branch of the All-Russian Society for Nature Conservation and the Vernadsky Non-Governmental Environmental Fund): comprehensive environmental management of the city of operation. Smolensk NPP's <i>Clean Energy</i> project preserves the natural resources for future generations and aims to confirm the environmental friendliness of power generation at nuclear power plants, popularising green energy. A project titled <i>'Me, You, We – Forming the Future of the Country Together'</i> of Kursk NPP inspires participants to take care of energy and natural resources.
Inclusion	<i>Sails of the Spirit</i> is an inclusive regatta held in Beloyarsk NPP's cooling pond since 2020. People with disabilities, professional yachtsmen, nuclear employees, representatives of authorities and city residents take part in the event on an equal footing. <i>The Day of Persons with Disabilities Campaign (Balakovo NPP):</i> assistance to residents with disabilities in the form of gifts purchased by NPP as part of a charity campaign for the Day of Persons with Disabilities. <i>Beauty Day for Orphanage Children</i> at Kalinin NPP: free hairdressing services to children from orphanages. The Light Up! Get Noticed! Campaign (Kalinin NPP) is aimed at improving the safety of children on roads and promoting compliance with traffic rules.

Volunteer activities include events to restore monuments to the Great Patriotic War, missing soldiers, such as the Soldier's Grave event by Rostov NPP, the Memory Watch of the Inter-Regional Public Movement Perpetuating the Memory of Fallen Defenders of the Fatherland. There is Rosenergoatom's search movement at Rostov NPP. A Few Good People, a volunteer group of Desnogorsk's secondary school No. 2, is responsible for moral and patriotic education of schoolchildren through joint volunteer activities with Smolensk NPP's Young Nuclear Employees and other volunteer organisations.

OCCUPATIONAL SAFETY AND HEALTH

GRI 103-1 One of the strategic goals of Rosenergoatom is to prevent workplace fatalities at NPPs.

GRI 102-11

GRI 403-1

The Division's occupational safety and health policy is aimed to:

- give priority to protecting employees' health and life in the workplace;
- consistently and continuously implement measures to prevent accidents, workplace injuries and occupational diseases through occupational safety and health procedures;
- plan and fund measures to reduce injury and occupational disease rates;
- ensure cooperation with contractors in occupational safety and health, promote social partnership to provide necessary working conditions;
- make sure that employees are able to speak openly (with management) about the problems they discover in occupational health and safety and to make suggestions for improving occupational health and safety performance;
- make sure that employees are motivated to promptly inform management of the problems identified and the proposals on occupational health and safety issues;
- determine the causes of detected health and safety violations to take measures to eliminate them and prevent their recurrence.

Injury rates

GRI 403-9

In 2021, there was one accident involving Rosenergoatom's employees at operating NPPs (a fatal accident while working at height at Smolensk NPP). Off-site accidents were caused by car crashes involving NPP employees: a minor accident involving an employee of Leningrad NPP and a severe accident involving an employee of Bilibino NPP. There were no accidents involving NPP employees at power units under construction in 2021.

There were two accidents involving contractors' employees at operating NPPs: a severe one at Kalinin NPP while moving cargo on a trolley and a fatal one at Kursk NPP as a result of electrocution. There were no accidents involving contractors' employees at NPP power units under construction.

There were three accidents involving employees of controlled organisations (COs) while working at the Company's own sites (outside NPP sites): a severe accident involving an employee of JSC Atomtrans as a result of deterioration of health while cleaning the workplace; a minor accident involving an employee of LLC Kursk NPP-Service as a result of a

foreign object in the eye while repairing a vehicle; a severe accident involving an employee of the ATES-Polyarnye Zori branch of LLC AtomTeploElectroSet as a result of thermal burns by steam-water mixture.

In 2021, key causes of the accidents included:

- non-compliance with requirements of the permit-to-work system when preparing and carrying out repairs to equipment and maintaining it in good working condition;
- deficiencies in injury risk assessment and risk management measures;
- poor safety control over equipment, facilities and systems.

Checks were carried out in the Division's organisations to determine irregularities/deficiencies, circumstances and causes of the accidents occurred. Based on that, a set of measures was taken to prevent injuries.

Number of accidents involving NPP personnel at operating NPPs

NPP	2019	2020	2021
Balakovo NPP	–	–	–
Beloyarsk NPP	1m	–	–
Bilibino NPP	–	–	–
Kalinin NPP	–	–	–
Kola NPP	–	1s	–
Kursk NPP	–	–	–
Leningrad NPP	–	–	–
Novovoronezh NPP	–	–	–
Rostov NPP	–	–	–
Smolensk NPP	–	–	1f
FTNPP	–	–	–
Total	1m*	1s**	1f***

* M – minor.

** S – severe.

*** F – fatal.

Statistics on injury rates among contractor personnel at NPP facilities

NPP	Total number of accidents		
	2019	2020	2021
At operating NPPs of Rosenergoatom			
Balakovo NPP	1m	1f	–
Beloyarsk NPP	–	–	–
Kalinin NPP	–	–	1s
Kola NPP	–	–	–
Kursk NPP	–	–	1f
Leningrad NPP	–	–	–
Rostov NPP	–	–	–
Smolensk NPP	–	–	–
FTNPP	–	–	–
Total	1(1m)	1(1f)	2(1s,1f)
At Rosenergoatom's NPP construction sites			
Kursk NPP 2	1f + 1s + 1g(2s)	1f	–
Leningrad NPP 2	1f	–	–
FTNPP	1s+1m	–	–
Total	6	1	–
Total	7 (1g (2s)+2f+2s+2m)	2 (2f)	2 (1s+1f)

The LTIFR (Lost Time Injury Frequency Rate) in the Division stood at 0.04 in 2021 (0.03 in 2020) against a KPI limit of 0.15.

There were no employees newly diagnosed with occupational diseases in Rosenergoatom and contractor organisations in 2021.

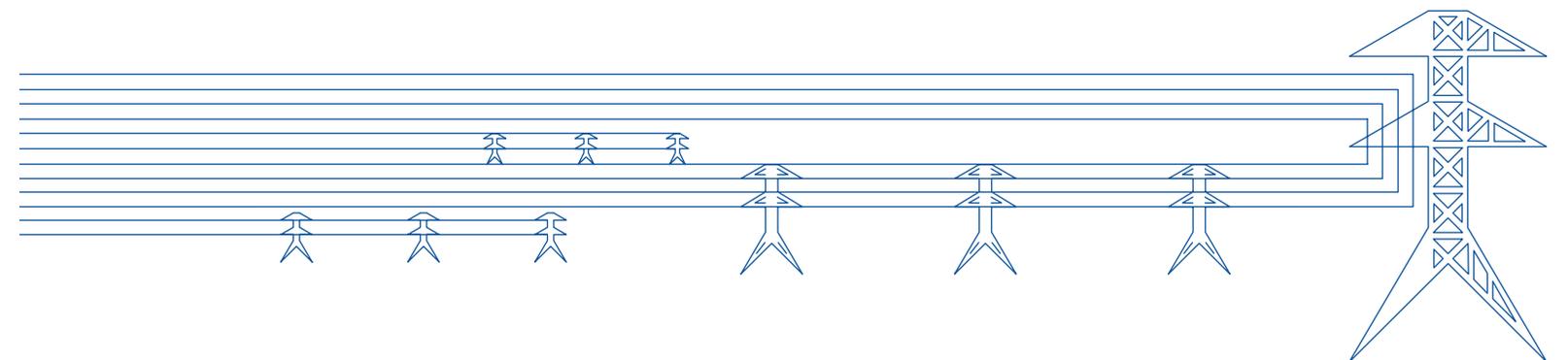
In 2021, Rosenergoatom's occupational health and safety costs totalled RUB 5.863 billion.

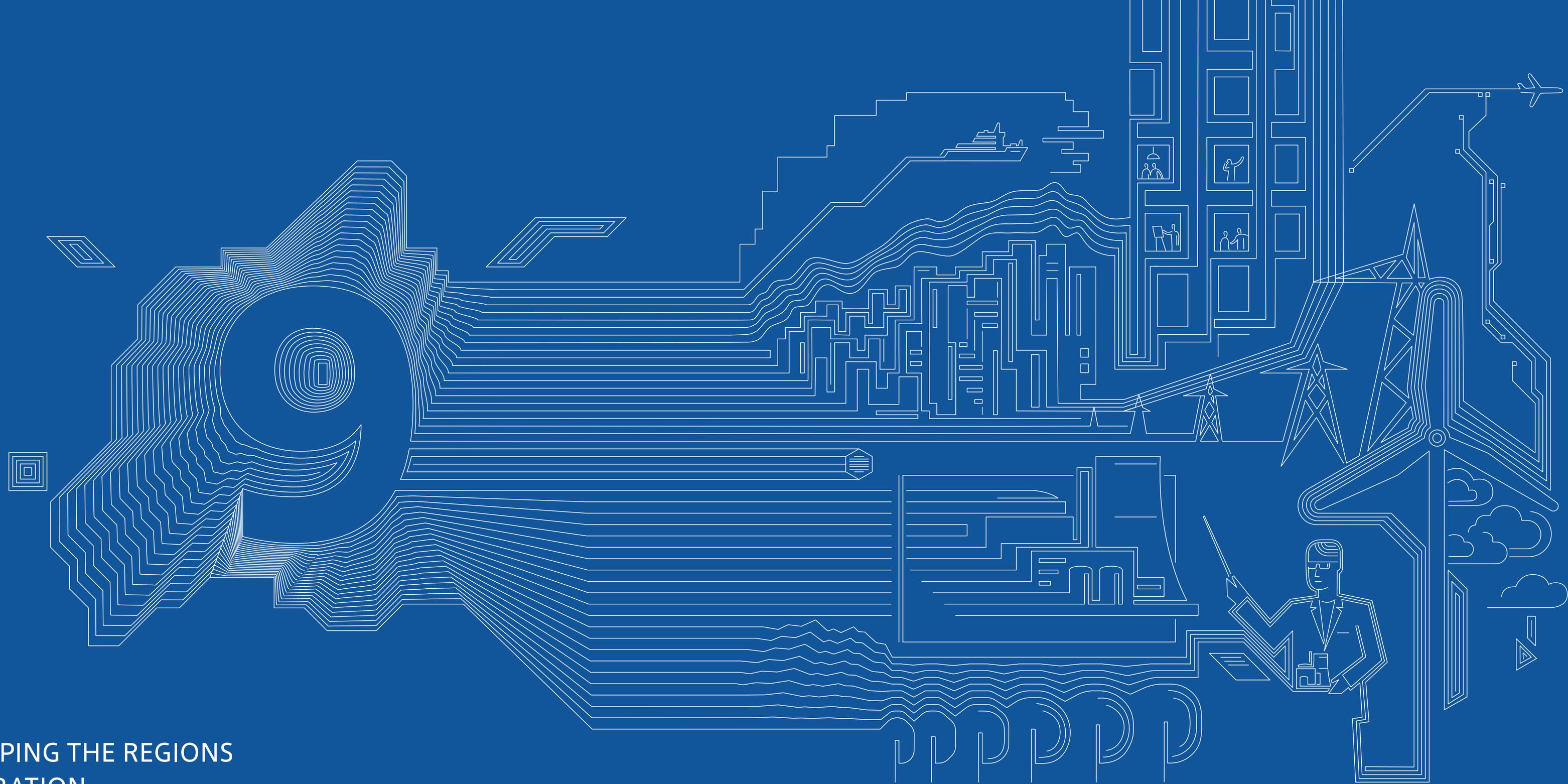
Key occupational health and safety results in 2021

- A new proactive indicator in occupational safety (prevention of severe injuries) was applied in order to introduce a mechanism to motivate executives at all levels and NPP employees to implement the principle of openness, reduce occupational accidents and improve occupational safety.
- An increased-focus monitoring plan titled 'Safe Management of Contractor Works' was implemented.
- Recommendations on the application of occupational risk management tools for different categories of NPP personnel were introduced.

Key objectives for 2022

- to implement a project to develop and implement the Seven Golden Rules for Vision Zero Programme;
- to implement an increased-focus monitoring plan titled 'Safe Workplace Management – Application of Occupational Risk Management Methods by Employees Responsible for the Organisation and Execution of Operations with Work Permits';
- to implement a comprehensive action plan to reduce the severity of injuries from 2022 through 2023;
- to improve the operation of the permit-to-work system;
- to improve procedures to ensure occupational health and safety controls in controlled non-contractor production organisations;
- to train personnel of different categories in the use of occupational risk management tools.





DEVELOPING THE REGIONS
OF OPERATION

SYSTEM FOR MANAGING RELATIONS WITH THE REGIONS OF OPERATION

GRI 103-1 In order to create effective mechanisms restraining out-migration from strategic regions, form and implement a differentiated spatial-development model and develop high-tech territorial-production clusters, ROSATOM and the Division implement target programme measures in the regions of operation.

GRI 103-2

Since 2012, ROSATOM and Russian regional authorities have been fulfilling cooperation agreements to develop host NPP municipalities. As members of the consolidated taxpayer group, ROSATOM's enterprises pay additional taxes spent on improving social and engineering infrastructure, building sports facilities, and developing amenities in host towns and regions.

Under the agreements, additional tax payments to budgets of host NPP regions exceeded RUB 24.5 billion in 2021 (RUB 38.3 billion in 2020), with RUB 2.66 billion spent on municipal initiatives (RUB 2.61 billion in 2020).

Key measures implemented in 2021 under agreements with regions

Territory (NPP)	Total amount, RUB million	Activities
Novovoronezh District, Voronezh Region (Novovoronezh NPP)	391.9	Public areas and yards were improved, roads were repaired, and school No. 4's building is under overhaul repairs (to be completed in 2022).
Zarechny District, Sverdlovsk Region (Beloyarsk NPP)	300.0	Roads were repaired, educational organisations and institutions that perform management functions in education were renovated, and the sports ground at School No. 1 was overhauled.
Polyarnye Zori, Murmansk Region (Kola NPP)	233.0	Reconstruction of the Severnoye siyaniye (Northern Lights) 2.0 boulevard and construction of a ski lodge were started, the stadium of Gymnasium No. 1 was restored, yards and public areas were improved, roads were repaired, musical instruments and necessary equipment were purchased for the Children's Art School.
Volgodonsk, Rostov Region (Rostov NPP)	306.2	The sanitation of the city sewer and the construction of a 600-seat public school in the B-9 neighbourhood were started. The Smart City project was implemented, a martial arts centre is under construction, and utilities companies were reimbursed for utility bills.
Desnogorsk, Smolensk Region (Smolensk NPP)	60.0	Overhaul repairs of road H-3 and co-financing of improvement of the ATOMPARK public area were started.

Territory (NPP)	Total amount, RUB million	Activities
Kurchatov, Kursk Region (Kursk NPP)	311.5	The Teply Bereg-2 embankment was improved, the Smart Kurchatov programme is being implemented, 42 elevators were installed, and roads were repaired.
Sosnovy Bor District, Leningrad Region (Leningrad NPP)	270.1	Construction was started on a 240-bed daycare centre with a swimming pool, the Staroye Kalishche gas distribution pipeline and a veterinary clinic building.
Udomlya District, Tver Region (Kalinin NPP)	99.5	The Kurchatov Avenue road, as well as the facade and roof of the Sadko school were repaired, yards and the square-boulevard on Energetikov Avenue were improved.

In addition, the Division allocated more than RUB 2 billion in 2021 for the implementation of socio-economic and infrastructure development projects, including the construction, reconstruction and modernisation of social facilities, support of people's social initiatives and the implementation of cultural and sports projects in host NPP towns and cities.

Supported by the Division, the ATR AES Fund held the 9th annual social project contest for non-profit organisations in host NPP towns and cities in 2021. Seventeen projects totalling RUB 14.29 million were implemented.

In partnership with Russia's Presidential Agency for Strategic Initiatives to Promote New Projects, Rosenergoatom is preparing applications from host cities and towns for participation in the Russian Ministry of Construction's annual contests titled 'Small Towns and Historical Settlements of Russia.'

In 2021, projects that won the Russian Ministry of Construction's contest in 2020 were completed in NPP cities and towns: Desnogorsk (AtomPark project), Zarechny (Takhovskiy Boulevard project), Novovoronezh (NovoPark project), Kurchatov (Teply Bereg.2.0 project).

Improvement projects in the cities of Pevek (City Embankment project) and Sosnovy Bor (improvement of the southern part of Primorsky Park and the entrance to the city beach) will be completed in 2022. In total, Rosenergoatom allocated RUB 151.7 million for implementation of the winning projects in NPP cities and towns; consolidated co-financing from the regions and municipalities amounted to RUB 262.6 million.

In 2021, the winners of the Russian Ministry of Construction's contest were the towns of Polyarnye Zori (Severnoye Siyaniye 2.0 project) and Udomlya (Venetsianov Park Phase 2 project), which received RUB 150.5 million from federal, regional and municipal budgets and RUB 24.8 million from the Division for project implementation.

In addition, the Division allocated RUB 41.5 million for preparation of concepts and design and estimate documents for new public urban spaces that will be included in the application for the Russian Ministry of Construction's contest in 2022.

In order to improve municipal infrastructure management, ROSATOM's Smart Cities platform is being implemented in host NPP municipalities. This platform is the information basis of digital urban services. It is aimed at implementing the state digital economy policy of the Russian Federation and covers all areas of recommended smart city components listed in the methodological guidelines for the preparation of the Russian Ministry of Construction's Smart Cities regional project.

In 2021, work was carried out to implement the projects titled 'Smart City of Volgodonsk' and 'Smart Kurchatov,' for which Rosenergoatom allocated RUB 37.5 million. Co-financing of the projects from regional budgets amounted to RUB 37.5 million.

In May 2021, an agreement was signed between the Minister of Construction, Housing and Utilities of Russia, the Governor of the Kursk Region and the head of Kurchatov to include Kurchatov in the list of pilot cities implementing the Russian Ministry of Construction's Smart City priority project. In 2021, the Division supported the following projects implemented by the ATR AES Fund in host NPP areas: the 5th International Children Photography Contest titled 'Hugged by Nature', international children contests 'Atomny Pegasik,' 'Atom-cutyur,' 'MultiKLIPatsiya,' and the Blogger Academy youth communication project. More than 3,500 children and teenagers aged 10-20 were involved in the projects.

In 2021, the Division's PR projects took five award-winning places in two federal competitions.

For details on support for local communities during the pandemic, see the chapter Response to the Pandemic.

COMMUNICATION WITH EXTERNAL STAKEHOLDERS

When planning operations which can have a significant environmental and social impact, the Division initiates public consultations.

More than 100 events involving the general public, government agencies and the media are held in order to provide explanations concerning the planned operations and their safety for people and the environment.

In 2021, nine public discussions were held to talk about facilities that are subject to the state environmental expert review, including preliminary environmental impact assessment, in Polyarnye Zori, Bilibino, Balakovo, Zarechny, Kurchatov, Volgodonsk, Ust-Kuyga (Yakutiya) and Belarus.

A public environmental expedition to the FTNPP (October 6-8, 2021) was held with the participation of representatives of ROSATOM's Public Council, the Oka Inter-Regional Environmental Movement, the Green Party, as well as more than 20 journalists from German, English, American, Austrian, French and Russian media. The project was widely covered in the federal and foreign media.

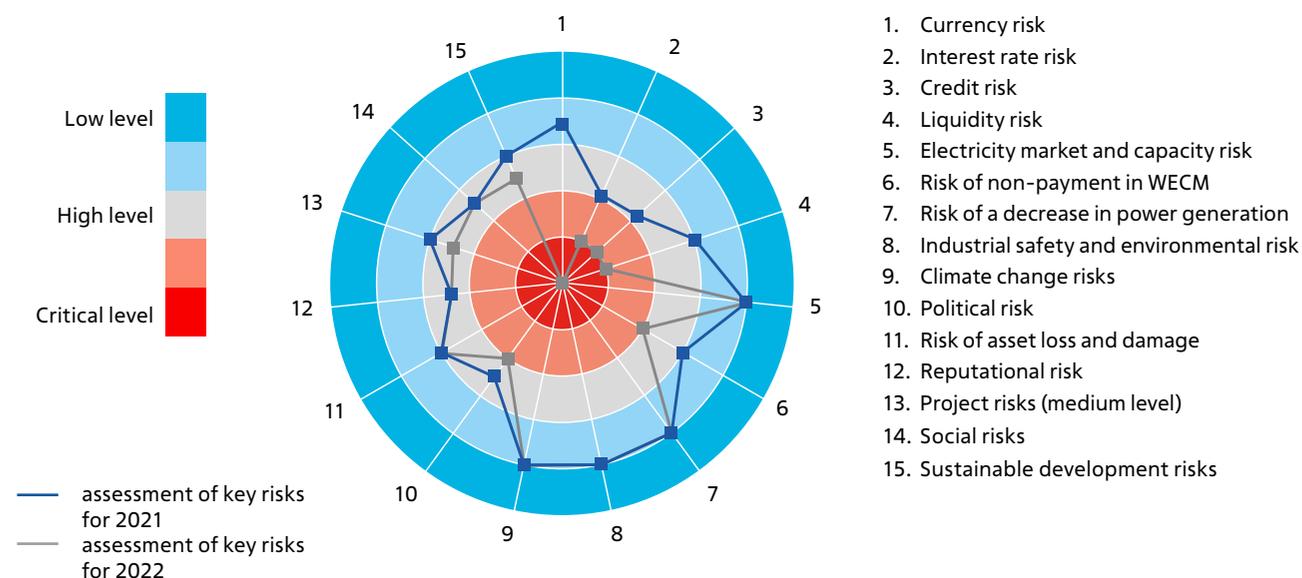
The Division's approach to media relations is based on a policy of maximum transparency and openness. Information on NPP operation and radiation levels in the towns and cities where NPPs are located is available on the official website of Rosenergoatom (www.rosenergoatom.ru), where press releases and announcements are posted in a timely manner. Furthermore, the findings of radiation monitoring at Russian NPPs are published at www.russianatom.ru in real time. More than 1,400 press releases were published on Rosenergoatom's website. In 2021, the total number of Rosenergoatom followers on social media, excluding the pages of branches (operating NPPs) exceeded 64,600 people (+29% compared to 50,000 people in 2020).



SPECIFIC RISKS
AND MANAGEMENT
APPROACHES

In 2021, the Division experienced no significant adverse effects of risk materialisation. Given the nature of its business, the Division pays special attention to nuclear, radiation, technical and fire safety risks and risks related to NPP security; accordingly, any decisions related to the operation of the Risk Management System are determined primarily by the need to comply with all types of current safety standards and ensure continuous operation and improvement of the safety management system, which forms part of the Company’s overall management system. In 2021, as throughout its entire history, Rosenergoatom prevented any significant adverse effects of risk materialisation.

GRI 102-15



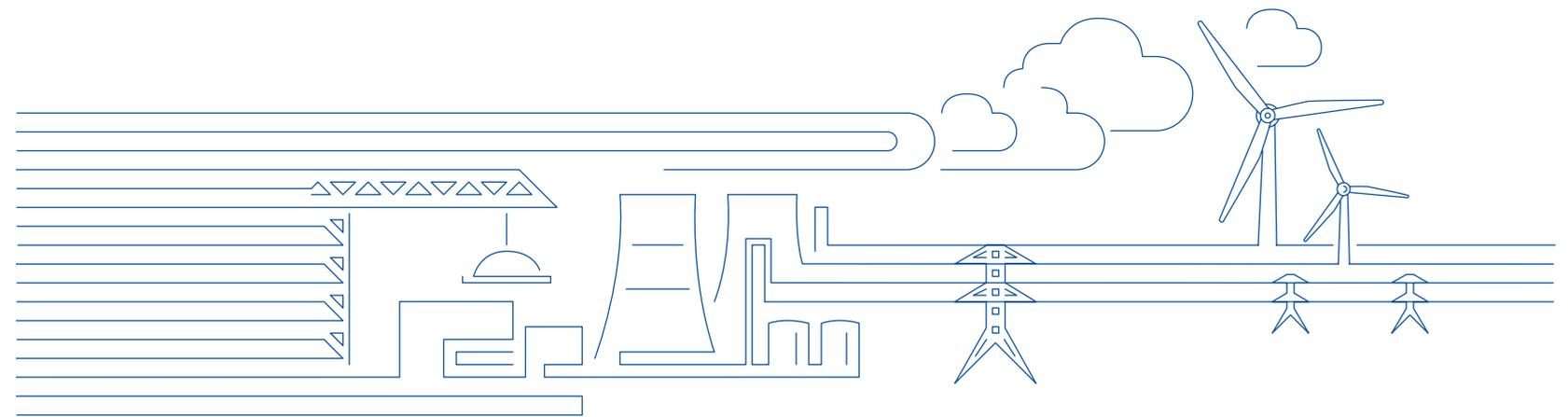
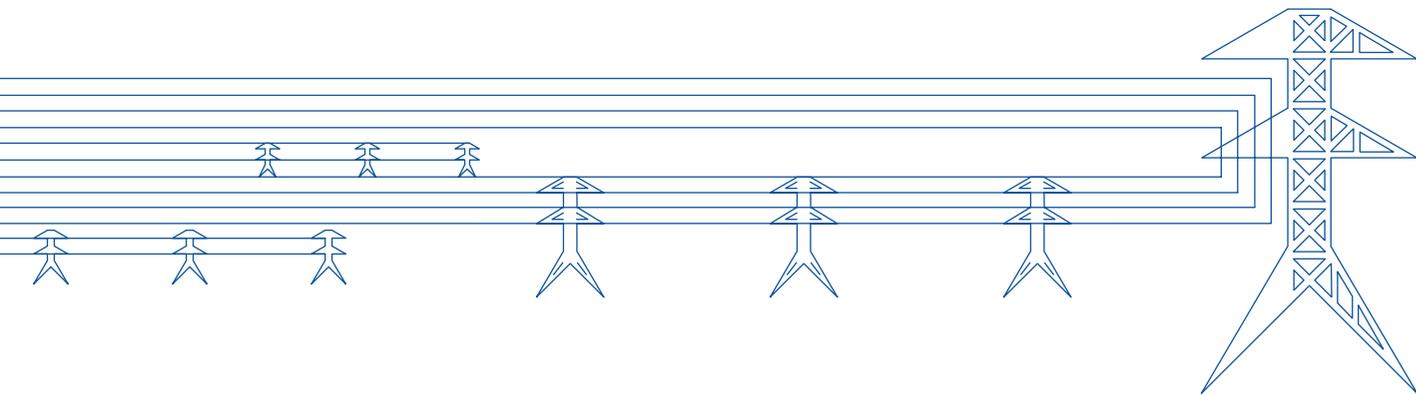
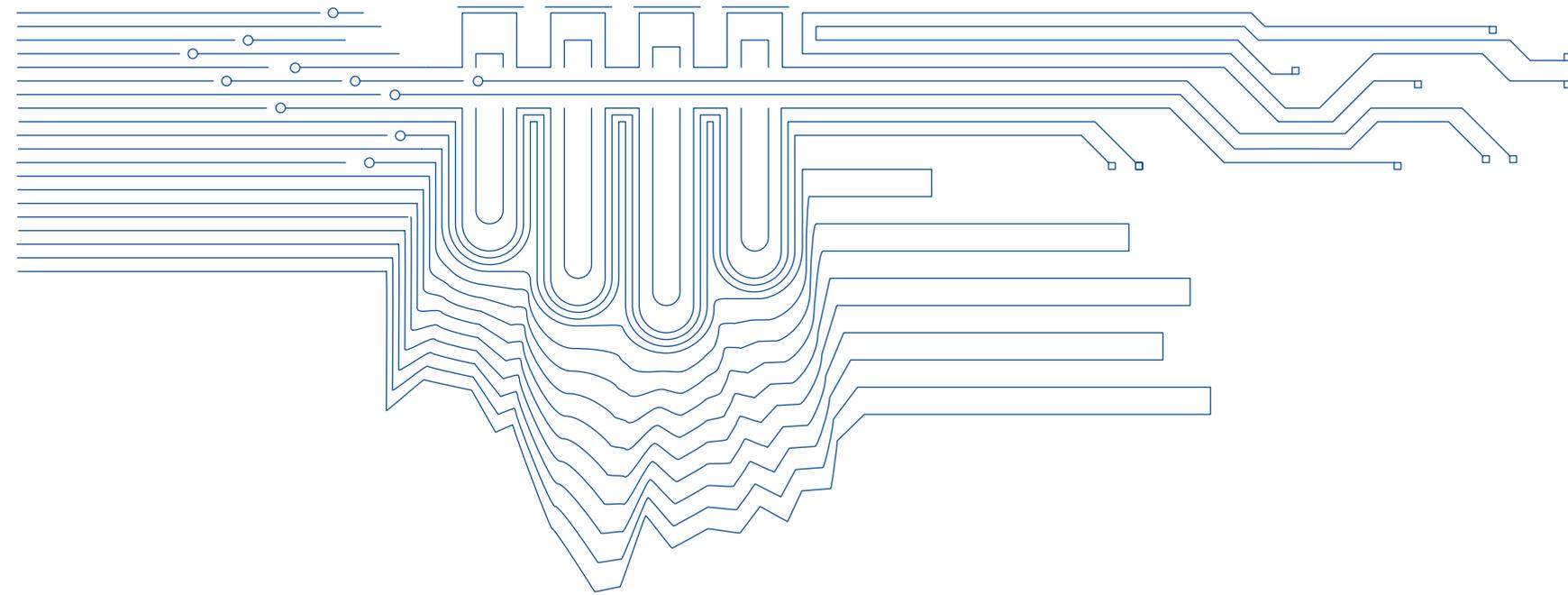
Key risks of the Division

Risks (description)	Management practice
<p>Electricity market and capacity risk (negative changes in prices for electricity and capacity)</p>	<p>Management approaches: The risk depends only on external factors. The risk cannot be hedged using financial instruments due to the low liquidity of the market. In order to reduce the risk, Rosenergoatom's services determine the lead time for repairs of network and generation equipment jointly with PJSC FGC UES and JSC SO UES. Results: In 2021, as in previous periods, key contributing factors included electricity consumption in the first pricing zone, indexation of gas prices (with gas being the main type of fuel used by thermal power plants in the first pricing zone). Thus, in 2021, electricity consumption in the first pricing zone increased by 7% year on year, driving a 20% increase in bids on the day-ahead market, which caused a spike in prices on the day-ahead market. Dynamics: The level of the risk in 2022 is projected to be the same as in 2021.</p>
<p>Risk of non-payment in the wholesale electricity and capacity market (non-payment from the North Caucasus’s providers of last resort and other buyers)</p>	<p>Management approaches:</p> <ul style="list-style-type: none"> pre-trial settlement of debts of current WECM participants; claim-related work; participation of Rosenergoatom's authorised representatives in the consideration of issues regarding the application of measures against violators of payment discipline provided for by the WECM regulations in the standing bodies under the Market Council Association, whose functions include the control of payment discipline; entering into cession agreements with JSC CFR to manage receivables generated in the day-ahead market and in the balancing market; entering into debt restructuring agreements; application of direct settlements with non-paying counterparties in cases stipulated by the standard wholesale market accession agreement to ensure priority of settlements to Rosenergoatom, including the use of bank bills of ROSATOM’s captive banks as means of settlement with different payment deadlines from the drafting date; sale of consumer debts for electricity and capacity through open auctions, or with a discount. <p>Results: Cash collection rate for electricity and capacity was 99.8%, which is 0.3% (RUB 1.9 billion) higher than in 2020. Dynamics: Due to increasing economic uncertainty, the level of the risk tends to increase in 2022.</p>
<p>Risk of a decrease in power generation (due to equipment shutdowns or unavailability)</p>	<p>Management approaches: To improve NPP safety, reliability and resilience, prevent equipment failures, meet the load schedule, achieve the target for power and heat supply, and accelerate efforts to achieve key targets for power generation and fulfil government orders, JSC Rosenergoatom has adopted and is using a special mode of operation to achieve the target for power generation in accordance with JSC Rosenergoatom’s orders No. 9/01/987-P dated June 25, 2021 and No. 9/01/1644-P dated October 15, 2021.</p>

Risks (description)	Management practice
	<p>NPP life extension programmes and equipment upgrades are implemented annually to increase installed capacity and power generation at operating power units (including the possibility of power units operating at above nameplate capacity).</p> <p>Results: In 2021, nuclear power generation totalled 222.4 billion kWh. The rate of fulfilment of government orders (performance against the balance target set by the Federal Antimonopoly Service (FAS) of Russia) stood at 102.19%. The increase in power generation compared to the targets was mainly driven by a reduced duration of scheduled repairs at NPP power units. All incidents and equipment failures have been properly investigated. Corrective and preventive measures have been developed in order to address the root causes of the incidents and prevent their recurrence.</p> <p>Dynamics: The level of the risk in 2022 is projected to be the same as in 2021.</p>
<p>Industrial safety and environmental risk Accidents at hazardous production facilities</p>	<p>Management approaches: Scheduled equipment maintenance, personnel training and modernisation/upgrading of hazardous production facilities. Implementation of the Programme of Measures to Reduce the Risk of Accidents at Hazardous Production Facilities in the Medium Term Between 2021 and 2023 (PRG 1.2.2.15.008.185-2020). Risk management through liability transfer: - insurance (contract concluded to insure civil liability of the owner of a hazardous facility against damage caused by an accident at a hazardous facility).</p> <p>Additional approaches:</p> <ul style="list-style-type: none"> — regular inventories of sources of negative environmental impact with the preparation and implementation of risk mitigation plans; — measures to improve environmental and industrial safety at enterprises, including measures to prevent irreversible environmental changes in the regions of operation; — measures to upgrade process equipment and improve production processes in Rosenergoatom's branches; — monitoring of compliance of operations with statutory limits on environmental impacts; — monitoring of individual radiation risk exposure of employees and measures to reduce it; — monitoring of the radiation and environmental situation in host towns and cities; — constant readiness of emergency and incident response of teams and equipment; — creating reserves to ensure the safety of nuclear power plants at all stages of their lifecycle and development; — arranging civil liability insurance against damage resulting from accidents at hazardous production facilities; — calculation and monitoring of indicators used for assessing the probability of potential negative impacts of industrial safety violations at hazard class 1 and 2 industrial facilities; — timely updates to internal regulations of the organisations, as required by legislation and federal rules and standards; — ensuring safe operation of hazardous production facilities of ROSATOM's organisations

Risks (description)	Management practice
	<ul style="list-style-type: none"> — ensuring a high level of accountability for results and safety culture among personnel; — continuous monitoring of the use of personal protective equipment (including equipment designed to prevent the spread of COVID-19) by employees in the workplace. <p>Results: Safe operation of ROSATOM's organisations, including hazardous production facilities.</p> <p>Dynamics: The level of the risk in 2022 is projected to be the same as in 2021.</p>
<p>Project risks (data centres) (non-achievement of approved project targets)</p>	<p>Management approaches:</p> <ul style="list-style-type: none"> — diversifying the customer base and increasing external revenue from data centre services, optimising costs and organisation of data centre operations; — negotiating the main terms and conditions of contracts with customers in advance; — developing risk maps for new business areas. <p>Results: Kalinin Data Centre's infrastructure site is 100% occupied, with operating cost savings of 8%. Xelent and StoreData data centres are 100% contracted.</p> <p>Dynamics: The risk level is projected to increase moderately in 2022 relative to the 2021 level.</p>
<p>Project risks (NPP service abroad) (technical and technological complexity of projects, lengthy approval procedures with foreign customers, potential risks of shifting deadlines for construction and commissioning of NPP units with VVER reactors abroad)</p>	<p>Management approaches:</p> <ul style="list-style-type: none"> — regular monitoring and control of risk management as part of overseas projects of subsidiaries; — regular monitoring and control of achievement of key milestones, financial and physical targets for overseas projects; — regular monitoring and communication with customers concerning the schedule for NPP maintenance and training of foreign NPP personnel abroad, as well as other matters related to the implementation of overseas projects; — improving project and risk management systems of subsidiaries. <p>Results: Compensation plans were developed and implemented, and the target overseas revenue was exceeded. Risk management measures implemented by the Company have enabled it to avoid a negative impact on key performance indicators.</p> <p>Dynamics: In 2022, the level of the risk is projected to increase compared to 2021 due to heightened geopolitical tensions, severe sanctions on the Russian Federation and Russian companies, general instability in global markets, uncertainty about further developments, possible new restrictions and the extent of their impact on ongoing and planned projects.</p>
<p>Project risks (electricity retailing) (non-achievement of cash collection targets)</p>	<p>Management approaches:</p> <ul style="list-style-type: none"> — The analysis of counterparties for solvency and financial stability and monitoring of receivables are carried out. In addition, when entering into contracts, the Company uses mechanisms to help mitigate credit risks, including minimising advances to counterparties. — Client services (mobile application, personal account, EDI) are being developed. — Systematic work is carried out to collect and recover debts: — disconnection of consumers; — claim-related work to recover receivables; — applying to a court for the declaration of the debtor's bankruptcy. <p>Results: Cash collection rate for electricity and capacity was 99.6% in 2021, which is 0.3% higher than in 2020 (99.3%).</p> <p>Dynamics: The risk level is projected to increase slightly in 2022 relative to the 2021 level.</p>

Risks (description)	Management practice
<p>Risk of not achieving the goals of NPP investment projects in the Russian Federation (increasing costs and time of NPP construction in the Russian Federation)</p>	<p>Management approaches:</p> <ol style="list-style-type: none"> 1. Time and cost management is carried out in the in-house automated system for construction cost and schedule management (ASCCSM) in the pilot project for the construction of power units No. 1, 2 at Kursk NPP 2. Under the Kursk NPP 2 project, the ASCCSM is used for: <ul style="list-style-type: none"> — planning, monitoring and forecasting the cost using the base and index method, as well as construction time; — subject-specific planning and reporting; — control of the working documentation and estimate limit for each construction facility; — analysis of reasons for deviations of cost and deadlines from targets, etc. 2. The TCM NC (Total Cost Management Nuclear Construction) information system is being introduced and integrated with the ASCCSM to comply with the unified industry-wide approaches to cost and schedule management. That made it possible to estimate the full costs of the construction of Kursk NPP 2 in a resource-based manner for further consideration in the capacity supply rate. <p>Results: Risk management measures, as well as the application of the ASCCSM and TCM NC tools, make it possible to level out the impact of negative factors and make management decisions in a timely manner.</p> <p>Dynamics: Some deterioration in risk assessment dynamics is expected. The following factors may contribute to this:</p> <ul style="list-style-type: none"> — increased cost of imported equipment due to changes in the USD/RUR exchange rate; — delayed construction due to sanctional bans on certain categories of imported equipment and their import substitution.



SAFETY
OF OPERATIONS



SAFETY OF NUCLEAR TECHNOLOGIES AND NUCLEAR FUEL CYCLE PRODUCTS

Policy and fundamental principles underlying safe NPP operation

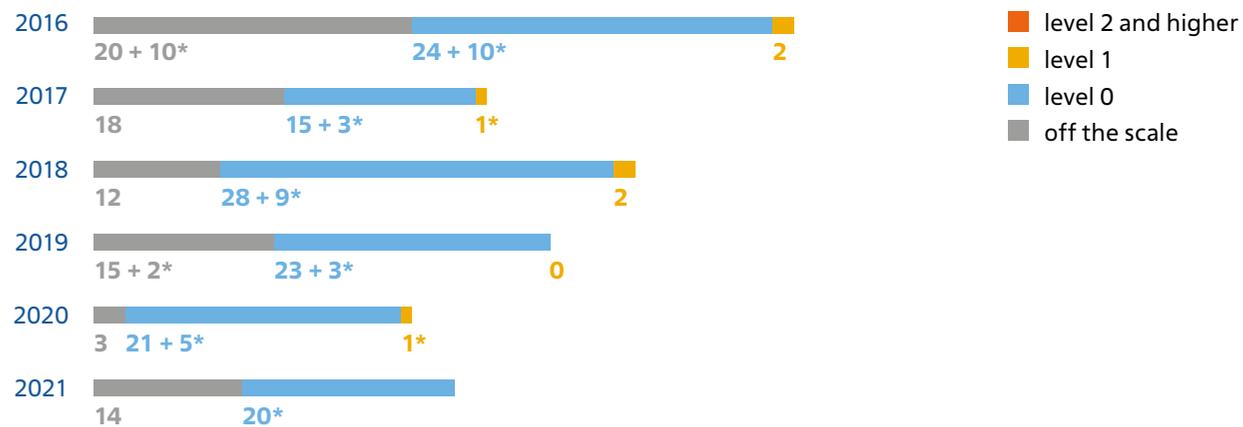
Safety is the top priority for Rosenergoatom as the Division’s operator. The Division carries out its operations only if safety is guaranteed; this is its highest business priority. In the course of its operations, the Division is committed to fulfilling its obligations under the Convention on Nuclear Safety and complies with the recommendations given in the IAEA safety regulations and guidelines, as well as the provisions and principles set out in the documents of the International Nuclear Safety Advisory Group (INSAG), such as Basic Safety Principles for Nuclear Power Plants and Safety Culture.

Rosenergoatom ensured sustainable and safe operation of Russian NPPs in 2021. Over the past 22 years, no incidents rated above Level 1 (Anomaly) on the International Nuclear and Radiological Event Scale (INES) were recorded at Russian NPPs.

Deviations		Unscheduled automatic shutdowns		Accidents		Fires	
2020	2021	2020	2021	2020/2021		2020/2021	
23 + 6*	34 + 7	7 + 1*	5 + 1	1	3	0	0

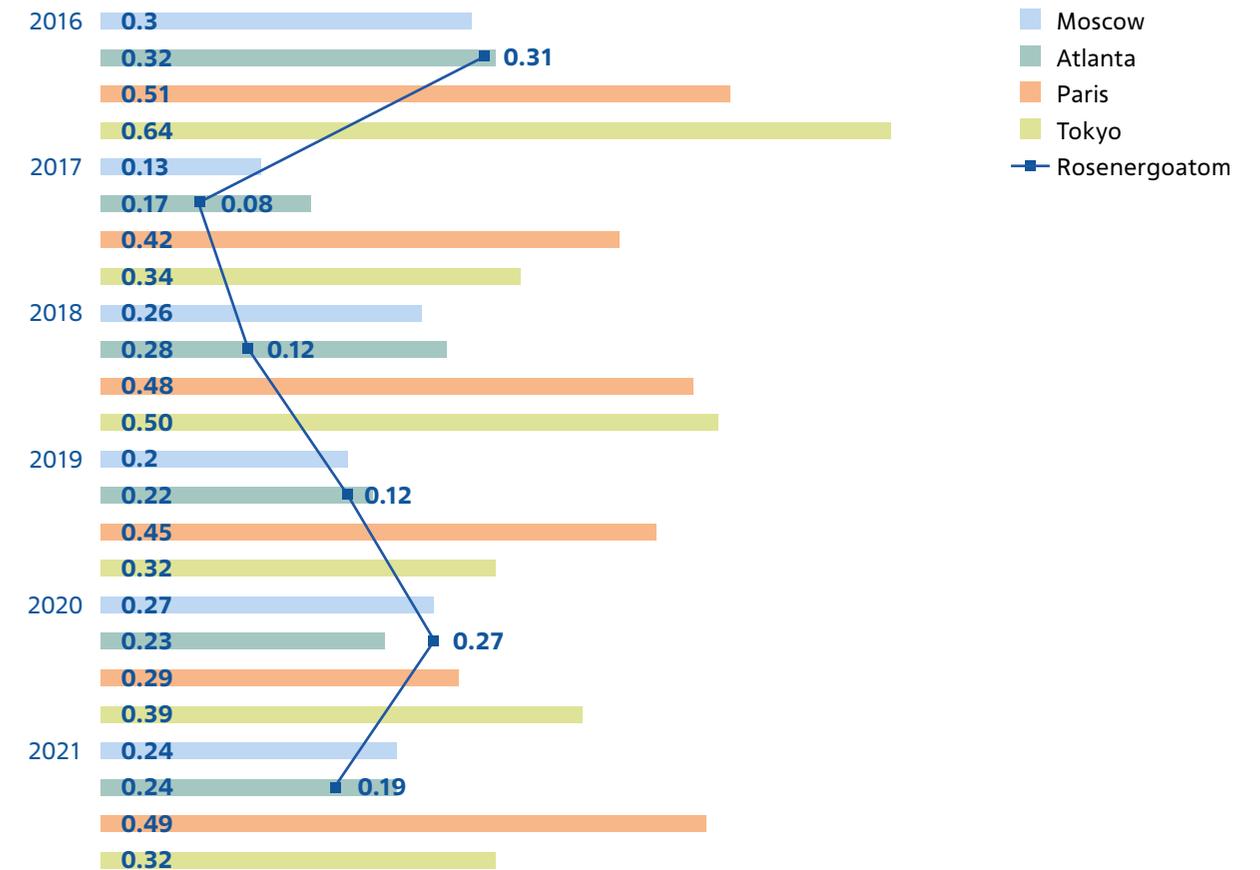
In 2021, there were no fires and incidents rated at Level 1 on the INES scale (for details on accidents, see Section 8.3).

Changes in the number of INES incidents at NPPs



* Events related to low-power testing of power units during their commissioning.

Changes in the number of unplanned automatic scrams between 2016 and 2021 (annual average unplanned automatic scrams)



The average number of reactor shutdowns per 7,000 hours of critical operation at Russian NPPs (benchmarked against the average data of WANO regional centres in Moscow, Atlanta, Paris and Tokyo) between 2016 and 2021 remains lower than at NPPs in other regions of the world.

Based on the findings of analysis of NPP safety performance and trends, the safety performance of operating NPPs was assessed as acceptable; however, it was considered advisable to implement corrective measures in a number of functional areas both at individual NPPs and at the corporate level.

NPP safety monitoring

GRI 103-2 The Division implements a wide range of internal and external measures to verify compliance with both Russian and international requirements for NPP safety. NPP safety monitoring includes comprehensive and targeted audits performed by Rosenergoatom's units; they are aimed primarily at:

- assessing the current safety status of NPPs;
- detecting any possible common problems and negative tendencies during NPP operation;
- developing and implementing corporate-level measures and recommendations for improving NPP safety;
- efficient monitoring of timely implementation of measures to improve NPP safety and resilience;
- identifying and analysing best practices and efficient work methods implemented at Rosenergoatom's NPPs in order to improve safety performance;
- assessing NPP preparedness for emergencies caused by seasonal adverse weather conditions.

GRI 103-3 NPPs are audited in accordance with the annual work plan, the inspection schedule and instructions from the management of Rosenergoatom and ROSATOM. If NPP safety performance deteriorates, or if there is an increase in the equipment failure rate or in the number of deviations in NPP operation, targeted audits are conducted to examine the root causes of deterioration in safety performance and implement the necessary corrective measures to eliminate them. Based on the audit findings, improvement measures were developed, and their efficiency is monitored.

The findings of safety audits at operating NPPs and monitoring of implementation of corrective measures lead to the conclusion that the safety performance of Rosenergoatom's NPPs meets the current requirements of Russian regulations and standards governing the use of nuclear power, as well as international requirements and standards.

Improvement of NPP safety and resilience to extreme external impacts

GRI 102-11

GRI 103-1

GRI 103-2

GRI 103-3

In response to events in Japan which led to the Fukushima Daiichi nuclear disaster, Rosenergoatom analysed scenarios of how an accident may occur at Russian NPPs under extreme external impacts and identified measures to mitigate the impact on local communities and the environment.

Measures to improve the resilience of NPPs to the impact of natural and man-made disasters are implemented in three stages:



All measures scheduled for 2021 were implemented.

Safety culture

GRI 403-3

Safety culture (hereinafter referred to as SC) is a set of characteristic features of organisational activities and individual behaviours which determine that matters related to NPP safety are given priority in accordance with their significance (NP-001-15). Safety culture is a fundamental principle of NPP safety management. The Division's safety culture policy defines the objective of SC initiatives: to shape and develop such features of the organisation's activities and employees' behaviour which help to prevent safety deterioration and enable continuous improvement of NPP safety performance.

Rosenergoatom has established a SC Council chaired by the Director General and Councils chaired by NPP directors at each NPP. During their meetings, the Councils review the performance of NPP managers and the Central Administration in terms of SC development, assessment and continuous monitoring of safety performance as part of NPP audits. The Division has introduced the practice of holding a SC round-up day, which includes expert assessment of SC and measures implemented at NPPs, identifying achievements and problems and sharing the experience of plants acknowledged as the top performers following the expert assessment.

Balakovo and Kola NPPs were acknowledged as the top performers in terms of safety culture development during the safety culture round-up day in 2021.

Fire safety

Rosenergoatom has established and maintains a sustainable fire safety system covering all controlled enterprises and organisations. Fire safety measures aimed at eliminating the shortcomings identified

No accidents at hazardous production facilities were recorded in 2021.

by national fire safety authorities were implemented in full in 2021. All measures scheduled for 2021 under the 2018–2022 Action Plan for Fire Safety Improvement and Modernisation of Fire Protection Systems at NPPs and the 2020–2025 Comprehensive Programme for Improvement of Fire and Emergency Protection at NPPs were implemented. As a result of the organisation and improvement of Rosenergoatom's fire safety system implemented at Russian NPPs currently in operation and under construction, there were no fires in 2021.

In order to meet legal fire safety requirements and to minimise the risks of fires at NPPs and facilities controlled by Rosenergoatom, it was decided to create a Fire Safety Department with additional functions and powers within Rosenergoatom's Central Administration.

Industrial safety

The Division attaches special importance to ensuring industrial safety of hazardous production facilities (HPFs) at NPPs. In accordance with regulatory requirements, industrial safety declarations were developed for hazard class 1 and 2 HPFs. The Division's employees involved in HPF operation undergo training and certification in industrial safety carried out by the relevant committees of Rostekhnadzor, Rosenergoatom's Central Administration and NPPs.

The Division has in place an industrial safety management system to prevent industrial accidents and incidents, plan and implement prioritised and long-term measures to improve industrial safety performance of HPFs, and ensure that the Division's personnel are prepared for emergency and incident containment and response.

In order to improve industrial safety in 2021:

- As part of the adoption of new federal industrial-safety standards and rules, which came into force on January 1, 2021, Rosenergoatom conducted a comprehensive inspection of the actual state of hazardous production facilities for their compliance with new requirements, based on which action plans were developed to bring HPFs into compliance with the new rules.
- As part of the Programme of Measures to Reduce the Risk of Accidents at Hazardous Production Facilities in the Medium Term Between 2021 and 2023, all work was completed as planned for 2021.

ENVIRONMENTAL SAFETY

The Division's environmental safety policy is aimed at enabling sustainable, environmentally-friendly development of the nuclear power industry and maintain NPP safety performance at a level where its impact on the environment, personnel and local communities ensures long-term and short-term conservation of natural ecosystems, their integrity and life-supporting functions. In 2021, NPPs were operated in strict compliance with environmental safety standards and regulations. NPPs operated in a reliable and safe way, making a minimal environmental impact.

The Division's industrial environmental monitoring system is developed and improved year by year, which is confirmed by the year-on-year reduction of the environmental footprint of NPPs.

Pollutant emissions into the atmosphere

The contribution of NPPs to air pollution remains negligibly small compared to other power generation facilities using fossil fuels. The level of pollutant emissions into the atmosphere does not exceed permitted limits and is significantly below the limits established by environmental agencies. The major share of pollutant emissions is produced by auxiliary boiler houses, the boiler houses of health centres and backup diesel generator units, which are started up periodically for routine testing.

For many years, NPPs account for less than 0.01% of the total volume of pollutant emissions into the atmosphere from Russian enterprises.

Total pollutant emissions into the atmosphere from all NPPs did not exceed the prescribed limits. 1,199 tonnes of pollutants were released into the atmosphere in 2021, which amounted to 18.8% of the limit established in the reporting year (6,389 tonnes).

Despite the progress that has been made, NPPs continue to regularly implement measures to reduce the man-made impact on the atmosphere: the Division is improving technological solutions to increase fuel combustion efficiency at operating plants; high-quality fuel oil (with a lower sulfur content) is used; painting techniques are improved; efficient gas scrubbers and dust collectors are commissioned.

625 tonnes of pollutants were released into the atmosphere by controlled organisation, which amounted to 30.2% of the limit established in the reporting year (2,070 tonnes).

NO_x, SO₂ and other significant emissions by NPPs by type and weight (tonnes)

Pollutant	2019	2020	2021
SO ₂	380.7	261.6	481.5
CO	97.8	95.6	111.4
Nitrogen oxides (NO ₂ equivalent)	154.4	134.1	165.7
Hydrocarbons without volatile organic compounds (VOCs)	100.9 (100.8 tonnes – methane)	95.4 (methane)	63.2 (63.1 tonnes – methane)
Volatile organic compounds	74.4	74.0	94.5
Other gaseous and liquid compounds	8.3	14.3	13.8

Rosenergoatom's Pilot and Demonstration Engineering Centre for Decommissioning emitted 0.065 tonnes of pollutants into the atmosphere (permitted limit is 0.147 tonnes).

Controlled organisations emitted 624.711 tonnes of pollutants into the atmosphere (permitted limit is 2,069.676 tonnes), including 8.587 tonnes of solid pollutants, 616.124 tonnes of gaseous and liquid pollutants.

NPP emissions of gaseous and liquid pollutants into the atmosphere (tonnes)

SO ₂	7.362
CO	39.646
Nitrogen oxides (NO ₂ equivalent)	11.734

Hydrocarbons (without volatile organic compounds)	503.507
Volatile organic compounds	46.910
Other gaseous and liquid compounds	6.965

Treatment plants received 3.924 tonnes of pollutants, included 3.550 tonnes captured. The treatment efficiency was 90.5%.

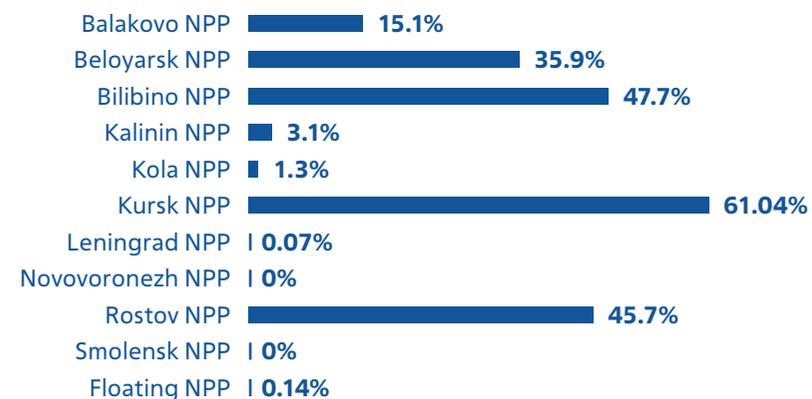
Discharge of pollutants into water bodies

NPPs are large water consumers; accordingly, matters related to water consumption and water discharge are central to environmental management. Almost all water withdrawn from water bodies (4,273.0 million m³, or more than 99%) was used for cooling the process medium in turbine condensers and heat exchangers and was returned to water bodies without additional pollution. Water consumption is kept within the limits established by environmental agencies.

In 2021, water discharge from NPPs was consistent with the water balance and power generation and totalled 3,820.0 million m³, or 88.6% of water consumption (4,313.6 million m³), which indicates efficient water management. The share of contaminated wastewater totalled 1.9 million m³ (0.05%). The volume of contaminated wastewater discharges is gradually decreasing as wastewater treatment systems at NPPs are systematically upgraded and renovated.

In 2021, controlled organisations used 2.3 million m³ of water, including 1.9 million m³ for drinking and household purposes and 0.4 million m³ for production.

Share (%) of water discharge limits for NPPs



In 2021, the overall indicator for all NPPs that reflects their compliance with the water discharge limits was 0.226%, which is a good result compared to other major energy companies in the Russian Federation (usually around 5-8%). The volume of contaminated wastewater discharges is gradually decreasing as wastewater treatment systems at NPPs are systematically upgraded and renovated. NPPs take measures to maintain and preserve the biodiversity of ichthyofauna in cooling ponds:

- Balakovo NPP developed a 10-year programme to replenish the ichthyofauna of the Volga River with various fish species every year as part of the Revitalisation of the Volga federal project. In October 2021, the Saratov reservoir was stocked with juvenile bighead carp, grass carp and common carp to artificially restore the region's aquatic biological resources.
- Rostov NPP released into the cooling pond: 1 tonne of grass carp, 4 tonnes of bighead carp, 3 tonnes of carp, 59,201 pieces of juvenile silver carp, 530,998 pieces of juvenile common carp.
- Smolensk NPP released 200 tonnes of fish into the cooling pond.

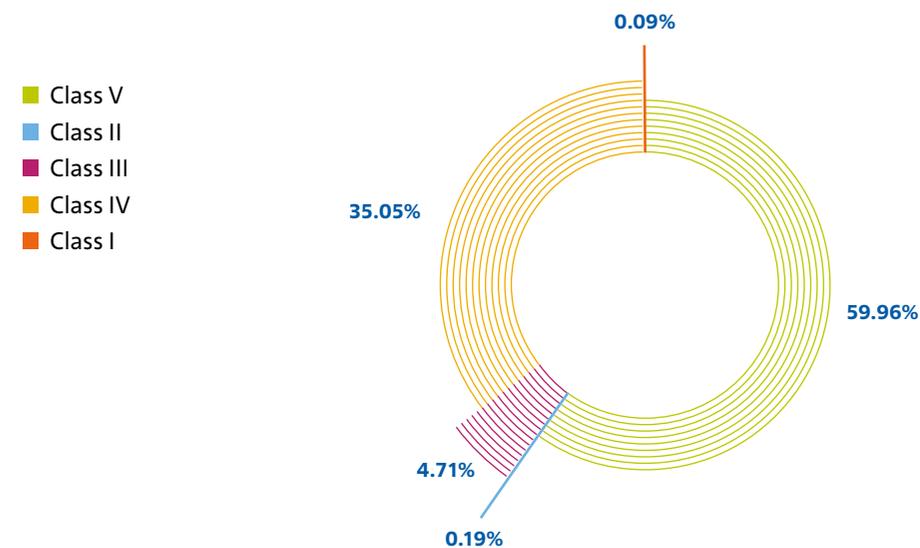
Industrial and consumer waste management

In 2021, industrial and consumer waste (hereinafter referred to as waste) at NPPs was managed in accordance with environmental legislation. Environmental aspects (industrial processes) leading to waste generation include maintenance and repairs of buildings, structures, equipment, tools, machines, other installations and mechanisms, water preparation for production and process needs, production of steam and hot water for heating and other needs of NPPs, services provided to NPP personnel, wastewater treatment, metal and wood treatment, removal of petroleum products from tanks, oil purification and regeneration, replacement of light bulbs, etc.

Industrial and consumer waste by class (tonnes)

Waste class	2019	2020	2021
I	33	51	30
II	60	84	68
III	1,656	2,127	1,671
IV	12,567	16,558	12,433
V	24,538	19,407	21,268
TOTAL	38,853	38,227	35,470

Waste by hazard class



The volume of waste at the beginning and at the end of 2021 totalled 28,247 tonnes and 26,871 tonnes respectively

In 2021, NPPs transferred waste to other organisations for:

recycling	16,082 tonnes
disposal	12,384 tonnes
decontamination	1,937 tonnes
processing	1,769 tonnes

3,355 tonnes of municipal solid waste (MSW) were handed over to regional operators. All industrial and consumer waste is stored at properly equipped sites and in special storage facilities, and its disposal is monitored by environmental departments of NPPs.

In the reporting year, the Directorate of Baltic NPP (under construction), Directorate of Voronezh NPP (under construction) and PDEC generated 7,258 tons of waste, with hazard class I-II waste amounting to 0.002%.

All waste generated is transferred to other organisations for:

recycling	6,534 tonnes
disposal	307 tonnes
processing	377 tonnes

40 tonnes of MSW were handed over to regional operators.

In 2021, controlled organisations generated 41,824 tonnes of waste, including:

Waste class	Amount, tonnes
I	1
II	18
III	80
IV	20,157
V	21,568

In 2021, controlled organisations transferred waste to other organisations for:

Purpose	Amount, tonnes
recycling	2,836
disposal	21,704
decontamination	111
processing	68

17,070 tonnes of MSW were handed over to regional operators.

Rosenergoatom is committed to adopting and using the best practices in the sphere of environmental management in accordance with the international ISO 14001:2015 standard and the local GOST R ISO 14001-2016 standard. In 2021, certified environmental management systems (EMSs) of Rosenergoatom's Central Administration and NPPs successfully underwent inspections (recertification audits); the findings of the audits confirmed efficient operation and continuous improvement of EMSs and their full compliance with environmental standards.

As part of its environmental safety initiatives, the Division implemented measures scheduled for 2021 under the Comprehensive Environmental Policy Implementation Plan of ROSATOM and its Organisations for the Period from 2019 through 2021, the Plan of Measures for Minimising the Negative Environmental Impact of ROSATOM until 2025 (within the scope related to the Division), and the Action Plan for Solving of Problems and Improvement of Rosenergoatom's Waste Management for the Period from 2020 through 2022.

Branch	Measures	Environmental benefit
Reducing the negative impact on the atmosphere		
Leningrad NPP	Replacement of targeted passenger vehicles with M3 buses.	CO and NO _x emissions from heavy passenger vehicles were halved thanks to the transition from EURO 3 to EURO 5.
PDEC	Modernisation of the auxiliary power supply system in terms of replacement of diesel-engined generating units (DGUs).	The number of stationary sources of emissions of harmful (polluting) substances into the atmosphere (in terms of DGUs) was reduced by 60%. The annual gross pollutant emissions from DGUs were reduced by 20-30%.
Reducing the negative environmental impact of waste		
Kola NPP	Solid radioactive waste (SRW) processing using radioactive waste compactors and shredders with primary packaging and transfer to a specialised organisation for conditioning.	SRW volumes were reduced by a factor of 3.0 or more. SRW processing through shredding helped to reduce the amount of SRW accepted for storage by a factor of 3.15 on average.
Kola NPP	Production of salt melt (end product of LRW processing).	1,992 m ³ of liquid radioactive waste was processed. Processing through ion-selective purification resulted in 208 tonnes of salt melt (end product of LRW processing).
Leningrad NPP	Taking measures aimed at reducing RW from Leningrad NPP 2 power units.	SRW generation limits were lowered by 5% to reduce waste generation. Actual SRW generation totalled 31.3% of the annual limit.
Smolensk NPP	Replacement of wooden sleepers with reinforced concrete sleepers on non-public railway tracks.	Railway tracks were repaired with the replacement of sleepers and a reduction of hazard class III waste by 450 tonnes.
Smolensk NPP	Sorting of municipal solid waste (MSW), paper and cardboard waste.	Measures were taken to reduce the amount of MSW disposed to landfills and to transfer waste for recycling: <ul style="list-style-type: none"> — at the facilities of the Lesnaya Polyana settlement; — sites for MSW containers were prepared/concreted; — 12 MSW containers were purchased; — a request was made for the purchase of materials and equipment for the sheds; — waste sorting boxes for waste paper and used batteries were purchased and installed at units.
Reducing the negative impact on water bodies		
Balakovo NPP	Upgrading of fire water mains, utility and drinking water supply, sanitary sewers, PLC, and the construction site area.	The existing steel pipeline was replaced with polyethylene pipes to minimise water losses and reduce waste generation by extending the service life of the pipeline. Environmental benefits include reduced water losses and reduced waste generation as a result of a longer service life of the pipelines.

Branch	Measures	Environmental benefit
Kalinin NPP	Implementation of automated monitoring of petroleum product content in wastewater.	Environmental benefits include preventing the risk of petroleum product content in wastewater exceeding the statutory limit (0.05 mg/l).
Reducing the negative impact on biodiversity and biodiversity conservation		
Beloyarsk NPP	Stocking of the Beloyarsk reservoir with bighead carp, grass carp and black carp.	482,000 pieces of fry were released, including: <ul style="list-style-type: none"> — 269,000 pieces of bighead carp fry; — 123,000 pieces of black carp; — 90,000 pieces of grass carp.
Kalinin NPP	Stocking of the Udomlya reservoir (cooling pond of Kalinin NPP) with fish for biological amelioration.	82,700 pieces of juvenile black carp (1,038 kg) with an average weight of 12.55 g were released.
Novovoronezh NPP	Stocking of the cooling pond of power unit No. 5.	Release of 6,000 kg of juvenile herbivorous fish (bighead carp), with an average weight of 100 g per piece.
Rostov NPP	Stocking of the cooling pond with herbivorous fish.	Released: 1.0 tonnes of grass carp; 4.0 tonnes of bighead carp; 3.0 tonnes of common carp.
Rostov NPP	Taking measures to compensate fisheries for damage: reproduction and release of juvenile carp and juvenile common carp.	239,004 pieces of juvenile carp and 693,563 pieces of juvenile common carp were released.
Smolensk NPP	Stocking of the cooling pond (Desnogorsk reservoir).	41,210 pieces of black carp, 36,320 pieces of grass carp and 13,720 pieces of silver carp were released.
Kursk NPP	Biological amelioration measures.	The cooling pond was stocked with 4,510 kg of bighead carp (150–500 g per pcs).
Control and monitoring of impacts on environmental components		
Leningrad NPP	Organisation of tritium and carbon-14 monitoring in the atmospheric emission control system for radioactive substances.	Tritium and carbon-14 aspirators were procured for all sources of atmospheric radioactive emissions.
Rostov NPP	Upgrading of the radiation monitoring system for atmospheric emissions from Rostov NPP.	Equipment for standardised IRG radionuclides monitoring was commissioned at all power units and the special building: <ul style="list-style-type: none"> — tritium and carbon-14 radionuclide monitoring equipment for power units No. 1, 2, 3 and the special building; — emission monitoring benches were delivered (to determine aerosol dispersion and activity, radioactive iodine activity of different forms) to all power units and the special building; — emission monitoring benches were installed; — UOT-02 automatic tritium and carbon-14 sampling units were delivered and installed in power unit No. 4.

MEASURES FOR BETTER ENERGY EFFICIENCY

Performance against the target set for energy savings through reducing energy consumption in 2021, under comparable conditions, against 2020 as the base year totalled 0.55% (with the target level of 0.2%). The target was met mainly thanks to an increase in power generation as, in 2021, Rosenergoatom's NPPs showed a record-breaking output of more than 222.4 billion kWh. The indicator reflects energy savings that were achieved, under comparable conditions, by reducing energy consumption of NPPs for in-house needs, not related to safe production and a reliable electricity supply, as well as energy consumption for business needs.

In 2021, Rosenergoatom's Overall Energy Saving and Efficiency Programme for 2017–2021 was implemented in the amount of RUB 830.703 million.

As part of the programme, in 2021, NPPs took measures to reduce seasonal losses and scheduled and unscheduled repair time, improve performance of power units, and reduce energy consumption, including through upgrading lighting systems and using LED lights, reducing heat distribution losses, replacing thermal insulation with highly efficient coating, winterising NPP buildings and structures, upgrading ventilation equipment. These measures are aimed at enhancing the safety and reliability of operation of main equipment, reducing failures and the duration of related repairs, and improving energy efficiency of power units.

Following the second inspection audit, it was confirmed that Rosenergoatom's energy management system complied with the ISO 50001:2018 international standard. The Company's certificates will be valid until December 2022.



PROCUREMENT
ACTIVITIES

In 2021, the Division conducted 16,577 procurement procedures worth RUB 280,285 million. The economic effect of competitive procurement procedures was RUB 5,652 million (6.20%).

In 2021, the target annual volume of purchases from SMBs, including those made by Rosenergoatom and its organisations as part of procurement procedures involving only SMB contractors, was achieved¹¹.

Rosenergoatom has emerged as a leader in implementing state policy to support SMBs in Russia. Rosenergoatom is Russia's second largest SMB customer. According to the register of manufacturing SMBs being potential suppliers to major customers (maintained by the SME Corporation), Rosenergoatom entered into agreements with 1,467 SMB counterparties.

In 2021, Rosenergoatom's annual procurement of innovative, high-tech products amounted to 16.12%, with a target of at least 10%¹².

In 2021, Rosenergoatom met safety and performance indicators for procurement:

- customers' needs for materials and equipment, works and services were met;
- access to procurement for SMBs was ensured;
- the timeliness of contracting and the quality of products procured were ensured;
- the quality of data reliability audits was improved;
- customers were satisfied with the quality of service and logistics;
- target performance index was achieved for key programmes and projects under the uniform digital strategy;
- the results were achieved under a project to implement the Brief Digital Solution, a new procurement system.

PLANS AND OBJECTIVES FOR 2022

- to ensure access to procurement for SMBs;
- to ensure customer satisfaction with the service and logistics;
- to ensure the timeliness of procurement procedures;
- to improve contract performance;
- to achieve the target performance index for key programmes and projects under the uniform digital strategy;
- to achieve results under a project to implement the Brief Digital Solution, a new procurement system.

As part of compliance and implementation of quality management and assurance systems, the Division's suppliers are certified and audited as prescribed in regulations of ROSATOM and Rosenergoatom. In 2021, for the supply of products in the form of systems and elements classified as safety classes 1, 2 and 3 in accordance with the NP-001 rules, there are requirements for suppliers to ensure development, approval and implementation of the Quality Assurance Programme (QAP) in their organisations for the supply of systems and elements for nuclear facilities, which must comply with the TPPG 1.1.3.09.1814 and NP-090 requirements.

Quality management system requirements for suppliers and contractors (quality management, environmental management, industrial safety, occupational health and safety, energy efficiency, etc.) are standardised and included in contract and procurement documents in accordance with quality, logistics support, contracting and procurement regulations of ROSATOM and Rosenergoatom.

¹¹ In pursuance of Regulation No. 1352 of the Government of the Russian Federation dated December 11, 2014 On the Specifics of Participation of Small and Medium-Sized Businesses in Procurement of Goods, Works and Services by Certain Types of Legal Entities.

¹² Pursuant to Regulation No. 1442 of the Government of the Russian Federation dated December 25, 2015 On Procurement of Innovative and High-Tech Products by Certain Types of Legal Entities and Amendments to Certain Acts of the Government of the Russian Federation.

APPENDIX 1. INFORMATION ON THE REPORTING PROCESS

GRI 102-43 The preparation of the Power Engineering Division's reporting materials for 2021 involved a review of the Division's performance in 2021, a questionnaire survey among stakeholders to amend the list of material topics to be disclosed in the reporting materials, and remote discussion of draft reporting materials with stakeholders.

As in the past, safe NPP operation remains the prioritised topic for the Division. The reporting materials have been prepared in accordance with the Core option of the GRI Standards.

GRI 102-45 The reporting materials provide information about the performance of the Power Engineering Division of ROSATOM (JSC Rosenergoatom and its affiliates and subsidiaries), as well as JSC Rosenergoatom (where stated) for the period from January 1, 2021 through December 31, 2021 and information on long-term development areas and measures providing a framework for long-term sustainable development.

Draft reporting materials were approved by stakeholders during remote discussions (including discussions of material topics, circulating the materials, collecting, analysing and incorporating comments).

APPENDIX 2. GRI INDEX

GRI 102-55

Indicator	Chapter/Page	Comments
GRI 101: Foundation (2016)		
GRI 102: General Disclosures (2016)		
Company profile		
102-1 Name of the organisation	2. Overview of the Division	
102-2 Activities, brands, products and services	2. Overview of the Division 7. New Products and Businesses	
102-4 Location of operations	2. Overview of the Division 7. New Products and Businesses	
102-5 Ownership and legal form	2. Overview of the Division	
102-6 Markets served	2. Overview of the Division	
102-7 Scale of the organisation	1. Key Results and Events in the Reporting Year 2. Overview of the Division 8. Developing the Human Capital	
102-8 Information on employees and other workers	8. Developing the Human Capital	
102-9 Supply chain	2. Overview of the Division	
102-10 Significant changes to the organisation and its supply chain	7. New Products and Businesses	
102-11 Precautionary principle or approach	8. Developing the Human Capital 11. Safety of Operations	
Strategy		
102-14 Statement from senior decision-maker	Message from the Head of the Division	
102-15 Key impacts, risks, and opportunities	10. Specific Risks and Management Approaches	
Ethics and integrity		
102-16 Values, principles, standards, and norms of behaviour	3. Sustainable Development	
Governance		
102-18 Governance structure	2. Overview of the Division	
Stakeholder engagement		
102-43 Approach to stakeholder engagement	9. Developing the Regions of Operation Appendix 1. Information on the Reporting Process	
Report profile		
102-45 Entities included in the consolidated financial statements	Appendix 1. Information on the Reporting Process	
102-46 Defining report content and topic boundaries	Appendix 1. Information on the Reporting Process	
102-50 Reporting period	Appendix 1. Information on the Reporting Process	

Indicator	Chapter/Page	Comments
102-52 Reporting cycle	Appendix 1. Information on the Reporting Process	
102-54 Claims of reporting in accordance with the GRI Standards	Appendix 1. Information on the Reporting Process	
102-55 GRI Content Index	Appendix 2. GRI Index	
Material topics		
GRI 403: Occupational Health and Safety (2018)		
<i>GRI 103: Management Approach (2016)</i>	8. Developing the Human Capital	
403-1 Occupational health and safety management system	8. Developing the Human Capital	
403-3 Occupational health services functions that contribute to the identification and elimination of hazards and minimisation of risks	11. Safety of Operations	
403-5 Worker training on occupational health and safety	8. Developing the Human Capital	
403-6 Promotion of worker health	8. Developing the Human Capital	
403-9 Work-related injuries	8. Developing the Human Capital	
403-10 Work-related ill health	8. Developing the Human Capital	The Division has employees engaged in professional entailing a risk of occupational diseases. These employees are categorised based on working conditions
GRI 416: Customer Health and Safety (2016)		
<i>GRI 103: Management Approach (2016)</i>	8. Developing the Human Capital	
416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	8. Developing the Human Capital	There were no incidents of non-compliance with regulations or voluntary codes in the reporting period
Safe NPP operation		
<i>GRI 103: Management Approach (2016)</i>	2. Overview of the Division 11. Safety of Operations	
Reliable electricity supply to consumers		
<i>GRI 103: Management Approach (2016)</i>	2. Key Results and Events in the Reporting Year	
New products and services, including on the market outside the scope of the industry		
<i>GRI 103: Management Approach (2016)</i>	7. New Products and Businesses	
The Company's impact on regional social and economic development		
<i>GRI 103: Management Approach (2016)</i>	9. Developing the Regions of Operation	
State nuclear power policy		
<i>GRI 103: Management Approach (2016)</i>	2. Overview of the Division	

GLOSSARY AND ABBREVIATIONS

SNPP	small-scale nuclear power plant
NPP	nuclear power plant
NPU	nuclear power unit
FNR	fast neutron reactor
VVER	water-cooled water-moderated power reactor
Division	ROSATOM's Power Engineering Division
UIS Quality	Unified Industry-Wide Quality Management System of ROSATOM
Pollutants	pollutants
CIP	Capital Investment Programme
IMS	Integrated Management System
Company	ROSATOM's Power Engineering Division (the holding company is JSC Rosenergoatom)
KPI	key performance indicator
SC	safety culture
IRPORVE	Inter-Regional Public Organisation of Rosenergoatom's Veteran Employees
Guidelines	Guidelines on Assessment of the Impact of Changes in the Number of Operating Personnel at Workplaces During Abnormal Events on NPP Safety MR-UP.01.00.02
SMBs	small and medium-sized businesses
PDEC	Pilot and Demonstration Engineering Centres for Decommissioning
CO	controlled organisation
CO	controlled organisation
QAP	quality assurance programme
RPS	ROSATOM Production System
IP	intellectual property
RU	reactor unit
QMS	Quality Management System
LNG	liquefied natural gas
CSS	control and safety system
MSW	municipal solid waste
CHPP	combined heat and power plant
ETD	education and training department
SD	sustainable development
Fund	Atomgarant Non-State Pension Fund
DC	data centre

Terms used in the reporting materials

LTIFR	Lost Time Injury Frequency Rate
Top management (senior management)	employees of the Company who make decisions that have a significant impact on the operations of the enterprise as a whole (from the level of directors in functional areas up to the Chief Executive Officer)
Consolidated revenue	total revenue of organisations included in the consolidated financial statements in accordance with the methodology approved in the company, less intra-group revenue and other adjustments
Stakeholder	an individual, a group of persons or an organisation that is affected by the company and/or can affect it
Significant regions of operation	regions where the production facilities and key personnel of the enterprise are located
Material topic	a topic that reflects a significant area of the Company's business or impact on stakeholders

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<https://report.rosatom.ru/rea>

Official group on Vkontakte

<https://vk.com/rearu>

Official Telegram channel

t.me/rosenergoatom

Official group on Odnoklassniki

<https://ok.ru/group/64297107128563>

GRI 102-3

GRI 102-5

GRI 102-53