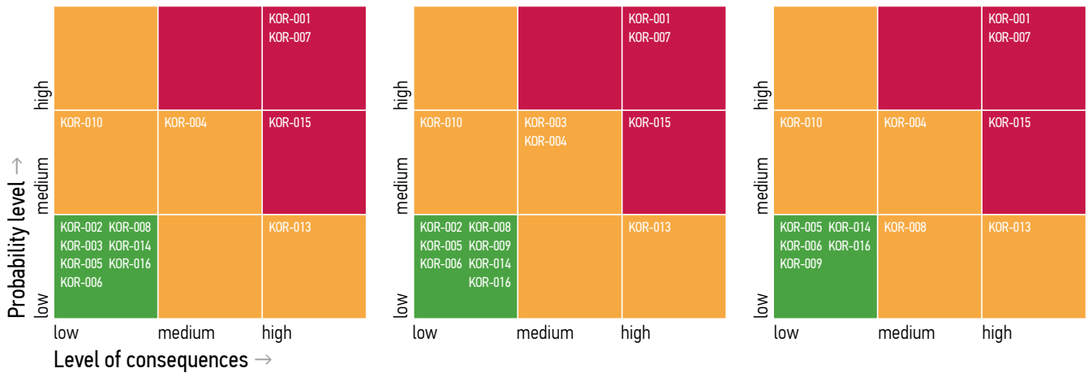
Maps of key operational risks of PJSC Rosseti for 2021–2023

As of the end of 2021[1]



As of the end of 2022[2]

As of the end of 2023[3]

Impact of key operational risks on achievement of the Company's performance targets

Performance targets of PJSC Rosseti	Risk assessment parameters	Risks
Financial results and creditworthiness	Revenues	KOR-001
		KOR-002
		KOR-003
		KOR-007
		KOR-012
	Expenses	KOR-004
		KOR-005
		KOR-006
	Creditworthiness and liquidity	KOR-008
	Net profit	KOR-009
Investment activities	Main parameters of the investment programme	KOR-010
Fulfilment of strategic goals in terms of ensuring uninterrupted power transmission and quality of grid connection services	Indicator describing electricity transmission service reliability	KOR-013
	Indicator describing grid connection service quality	KOR-014
Human resources	Occupational safety	KOR-015
	Labour productivity	KOR-016

[1] Since it is anticipated that net profit will be higher than the amount specified in the business plan, KOR-009 is not applicable.

[2] KOR-003 increased due to the revision of the methodological approach to determine the level of materiality of risks associated with the provision of grid connection services and the use of the revenue from the provision of grid connection services as a parameter for risk assessment.
KOR-009 increased due to possible insignificant deviation of net profit from the plan.

[3] Since the average transmission service tariff is projected to have a positive weighted average deviation, KOR-002 is not applicable.
KOR-003 is not applicable due to the expected increase in revenue from sales of grid connection services.
KOR-008 increased due to a possible growth of the debt load, which may affect the Company's credit rating (in terms of reliability as a borrower) and cause a rise in the cost of subsequent borrowings.

Key operational risks realised in 2023

Realised risk	Indicator	Risk realisation in the reporting period (amount of actual deviation of the risk-underlying indicator from the planned (target) value)		Reasons for risk realisation
		%	abs.	
KOR-003 Risk of deviation of the grid connection scope from the target value set in the business plan	Execution of grid connection agreements	–42%	–1,934 MW	In 2023, it was planned to execute 135 agreements for a total maximum capacity of 4,571 MW. In fact, 179 agreements were executed, with the maximum capacity amounting to 2,637 MW. Decrease in the volume of connected maximum capacity by 1,934 MW is due to rescheduling of certificate singing under grid connection agreements for the following reasons: 1. Unpreparedness of applicants, including: • Grid connection of recycling CHPP-2 (PJSC NLMK, agreement No. 754/TP dated 30.11.2021, 300 MW) • Grid connection of power plant No.1, Ivanovo CCPPs (JSC InterRAO — Electric Power Plants, 364.5 MW) • Grid connection of Roschinskaya 110 kV substation (PJSC Rosseti Lenenergo, agreement No. 233/TP-M7 dated 16 March 2011, 191 MW) 2. Absence of grid connection fees established by the FAS of Russia, including: • Grid connection of Prokat 220 kV substation, Stal 220 kV substation (LLC RNC, 358 MW) • Grid connection of Nergen 500 kV substation (LLC Amur Minerals, 250 MW) • Grid connection of Novoshakhtinskaya 220 kV substation (JSC Novoshakhtinsky Oil Products Plant, 120 MW) 3. Rescheduling of certificate singing under agreement No. 286/TP-M6 dated 18.11.2019 with JSC Vyksa Metallurgical Plant, 240 MW in accordance with Additional Agreement No. 2 dated 13.09.2023 (grid connection of GPP-10)
	Revenue from grid connection services	+ 55%	+ RUB 10,223 mln	
	Number of executed agreements, signed grid connection certificates	+ 33%	+ 44 pcs.	

For more details on the Company's KOR management, please see Appendix 1.

Risks pertaining to sustainable development

Climate risks

Climate risk management is an important aspect of PJSC Rosseti's activities that is integrated into the corporate risk management system. The Company takes a responsible approach to issues related to climate impact, studies global experience, adapts applicable international and national practices, and develops its own innovative solutions.

The Rosseti Group's production assets are situated in many regions of the Russian Federation. With such a vast geographic reach, changes in climatic conditions can affect both production operations and the financial results of the Group's companies.

The Company is constantly working to manage risks associated with climate change, including both physical and transient risks.

Physical risks are the risks associated with natural phenomena arising as a result of climate change and capable of affecting the condition and functioning of various elements of energy systems (generation, distribution and consumption of electricity).

Transition risks are the risks associated with the transition to a low-carbon economy that may impact the industry's economy.

Based on the findings of the identification and assessment process, a list of climate risks significant to PJSC Rosseti was compiled, with respective mitigation and adaptation measures devised.

Climate risks affecting the Company

Risk category	Risk	Risk impact	Risk consequences	Risk management measures
Physical risks				
Extreme weather events	Increase in wind speed and recurrence of hazardous events (gusts, squalls, tornadoes, etc.)	Exposure of grid nfrastructure as a result of conditions that do not match design conditions	• PTL accidents caused by vibration, subspan oscillation, overlapping and breaking of wires • Damage to towers and steel structures	• Dismantling or replacement of obsolete or frail buildings and structures, and PTL towers • Cutting down old and rotten trees • Reinforcement of industrial buildings • Determination of safe operating modes in high-wind conditions • Reinforcement of linear structures and monitoring of their icing • Training of emergency repair teams
	Increased frequency of occurrence of severe ice and frost deposits, accumulation of wet snow		• Accidents on PTLs due to sagging, overlapping and breaking of wires • Damage to towers and steel structures	
	Extreme recipitation and flooding	• Exposure to the effects of floods • High water content, deformation of terrain	• Flooding of ground infrastructure, equipment damage • Increase in occurrence of landslides, collapse of foundations of buildings and structures	Regarding floods: • Identification of (under)flooding zones and prohibition of use of such zones • Engineering protection of grid facilities (dams, diversion channels, hydraulic obstacles) • Bank protection structures, bank reinforcement, dredging
				With regard to mudflows, slush flows, landslides: • Adjustment of surface water runoff through vertical planning of the territory and arrangement of surface drainage system • Agroforestry, artificial alternation of slope relief • Arrangement of anti-mudflow systems, confining facilities and structures • Establishment of protection zones
	Increased frequency and intensity of extreme heat, including urban heat island effect	• Exposure of grid infrastructure due to conditions not meeting design modes • Exposure of personnel to weather factors	• Accidents on PTLs due to wire sagging; damage to transformer substations • Higher level of physical intolerance to working conditions at high atmospheric temperatures, morbidity and loss of productivity among personnel	• Revision of regulations to improve the reliability of PTLs and transformer substations • Measures to maintain design temperature profiles of industrial buildings • Change of labour and rest regimes for personnel
Irreversible climatic processes	Permafrost degradation	High exposure of buildings and utility systems	Decrease in the bearing capacity of foundations of buildings and structures, including PTL towers	• Monitoring of soil conditions in the areas where the Company's production facilities are located in the permafrost zone • Monitoring of the condition of buildings' foundations and roofs • Arrangement of erosion control systems to maintain the frozen state of the foundations of structures, buildings and overhead transmission lines
Transition risks				
Technological risks	Wider use of RES	Shift of the energy balance towards RES	Higher irregularity of electricity supply to the grid from new generation facilities	Decision-making pertaining to transition risks falls under the responsibility of the Company's Board of Directors and consists primarily of tailoring the strategy and adjusting the investment programme of PJSC Rosseti in accordance with external changes
	Wider use of energy-saving technologies and electric transport	Changes in electricity consumption modes due to the development of energy-saving technologies and electric transport	• Change in electric power demand • Necessity to redistribute electric power and power facilities of the Company	
Market risks	Emergence of new low-carbon production capacity	Emergence of new major centres of electricity consumption, including for low carbon footprint products	• Change in electric power demand • Necessity to redistribute electric power and power facilities of the Company	
Regulatory risks	Regulatory incentives to reduce greenhouse gas emissions	Introduction of financial regulatory mechanisms aimed at reducing greenhouse gas emissions	Increase in expenditures on reduction of greenhouse gas emissions	

Evaluation of potential for implementing the climate agenda

Climate change and increased focus on the sustainable development agenda open up the following potential opportunities for the Company:

- Business expansion when it is necessary to connect and adapt the operation of the power grid complex to RES-based generation
- Diversification of business, competitive growth in the field of energy storage and accumulation technologies
- Increase in investment appeal of the Company's securities due to its ESG and climate action efforts

For more details on how the Company manages climate change issues, please see p. 120.

For more details on the goals of the Power Grid Sector Environmental Policy and the Environmental Management System, please see The Report on Social Responsibility and Corporate Sustainability of the Rosseti Group for 2023.

Cybersecurity risks

According to the Energy Security Doctrine[1] of the Russian Federation, the main information security threats to the power grid sector are as follows:

- Abuse of information and telecommunications technologies, including computer attacks on critical information infrastructure facilities and communication networks used to organise their interaction
- Unlawful access to the processed control and measuring information, destruction of such information, its modification, blocking, copying, as well as other unlawful actions with respect to such information

The following priority principles are employed by the Company's information security system to counteract the above threats:

- Automating the processes of detecting and preventing computer attacks on the information infrastructure of the power grid complex of the Rosseti Group using machine learning and heuristic analysis algorithms
- Ensuring continuous operation of information protection equipment
- Running regular instrumental assessment of the efficiency of the security system of critical information infrastructure facilities
- Ensuring the fastest possible recovery (self-recovery) of critical information infrastructure facilities
- Interacting with the state system for detecting, preventing and eliminating the consequences of computer attacks on information resources of the Russian Federation
- Conducting internal control over the security of critical information infrastructure facilities through scheduled or unscheduled inspections
- Staffing the security units of the power grid facilities with specialists in protection of information systems, automated control systems, information and telecommunication networks
- Raising the level of knowledge of employees on information security issues, (re)training of engineers, technicians, administrators and operators on information security issues

In 2023, the Company's corporate cybersecurity centre prevented over 23 million computer attacks, with no significant information security breaches.

Information on risks related to proper tax compliance

The Company adheres to a transparent tax policy and discloses information on tax payments. The Company put the relevant internal documents in place in order to determine the procedure for tax accounting and to provide reliable information to internal and external users with the aim to control the correctness, completeness and timeliness of calculation and payment of taxes to the budget and compliance with tax legislation.

PJSC Rosseti switched to a tax monitoring regime starting from 2020 to ensure its information openness and transparency, enable requests for a reasoned opinion from the tax authority in case of doubt or ambiguity on taxation issues, and reduce the maintenance cost of tax control measures.

The Company defined and assigned responsibility for appropriate internal tax control, appointed business process owners, as well as owners and executors of control procedures.

The measures taken allow maintaining a high level of efficiency of the Internal Control System.

[1] Approved by Decree of the President of the Russian Federation No. 216 dated 13 May 2019.