

4.2.3. Combating climate change

GRI 3-3

Kazakhtelecom JSC regards climate change as one of the key challenges, and also as an important opportunity for the transformation of the business model and the enhancement of sustainability. In conditions of the global transition to a low-carbon economy, the Company strives to make a contribution to the achievement of the climate goals of the Republic of Kazakhstan, and also to the fulfilment of international obligations within the framework of the Paris Agreement.

The approaches to the management of climate risks and opportunities formed earlier retained their relevance also in the reporting period. The Company continued the implementation of the Low-Carbon Development Programme for 2022–2032 and the application of elements of climate analysis in the processes of strategic and investment planning.

The results of the full analysis are presented in the “Analytical report on the assessment of climate risks and opportunities”, available on the Company’s website telecom.kz

At the basis of the current approach lie the results of an in-depth climate analysis covering the activities and infrastructure of the Company, as well as the identification of transition and physical climate risks with the assessment of their potential influence on key business processes with account for the international TCFD recommendations. The responsibility for the management of climate risks is fixed at the level of a member of the Management Board.

The development of an adaptation plan to the identified climate risks is planned as one of the priority measures for the medium term.

Key priorities of our climate strategy:

- Decarbonisation and reduction of greenhouse gas emissions from the activities of the Company and at all stages of the value creation chain;
- Alternative energy;
- Resource saving and enhancement of energy efficiency.

4.2.3.1. Management in the area of climate change

Kazakhtelecom JSC has built a multi-level system of management of climate issues, based on the principles of accountability, transparency and the integration of climate risks and opportunities into strategic management.

Oversight by the Board of Directors

The Board of Directors carries out the highest level of control over the climate agenda through the relevant body — the Audit and Sustainability Committee. Within the limits of its competence, the board considers issues related to climate change upon the approval of strategic plans, investment programmes, annual budgets, and also upon the assessment of large infrastructure projects and transactions. Issues related to climate change are brought to the attention of the Board of Directors not less than once a year. The agenda includes monitoring of the implementation of the Low-Carbon Development Programme, progress on the achievement of emission reduction goals, resilience to physical climate risks, as well as climate opportunities in the area of digital products and services.

The management of climate risks is fixed in the Regulation on the Audit and Sustainability Committee under the Board of Directors. The Committee considers issues of low-carbon development, the management of the carbon footprint, as well as the potential risks and limitations related to the global climate agenda, and also carries out monitoring of the quality of non-financial reporting and control over the implementation of corresponding ESG initiatives.

At the level of the board of directors, the development of climate expertise continues, including the conduct of ESG sessions with the involvement of independent experts and the discussion of scenarios of climate impact on the long-term sustainability of the business.

Role of top management

Operational management of the climate agenda is carried out at the level of executive management. In the structure of the Company, the functions of coordination of climate issues are assigned to the sustainability department in close interaction with subdivisions on technical operation, capital construction, energy and risk management. Responsible employees have been appointed, responsible for the assessment of climate risks, the development and implementation of adaptation measures, and also for monitoring the fulfilment of goals. The indicated officials and chairs of committees regularly report to the management board and, if necessary, provide information at the level of the board of directors.

The management is informed about climate issues on the basis of the results of internal monitoring, external analytical reviews, data on energy efficiency and emissions, as well as climate models and scenarios. Reporting is formed within the framework of a single system of ESG analytics and is verified before inclusion in annual reports for stakeholders.

Internal mechanisms of management of climate issues include regular cross-functional meetings, the inclusion of climate aspects in investment and project committees, as well as procedures of risk and opportunity assessment upon the development of new initiatives.



- Implementation of Strategies for Managing Climate Risks and Monitoring Their Progress.
- Establishment of a remuneration system linked to the achievement of the company's climate and ESG targets.

4.2.3.2. Strategy in the area of climate change

Kazakhtelecom JSC uses the results of an integrated assessment of climate risks and opportunities covering both physical and transition factors, as well as potential directions of creation of additional value in conditions of climate change. The analysis was conducted with the use of international methodological approaches, including the scenarios of the Intergovernmental Panel on Climate Change (IPCC), the analytical tools of McKinsey and S&P Global, and also with account for the climate features of the Republic of Kazakhstan and the specifics of the telecommunications sector.

The assessment is based on four scenarios of climate development — RCP 2.6, RCP 4.5, RCP 8.5 (IPCC), and also NZE 2050, reflecting global efforts on the achievement of carbon neutrality. Within the Company, the scenarios were interpreted as optimistic, baseline and pessimistic variants, which made it possible comprehensively to analyse the influence of climate factors on operational sustainability, the structure of costs, profitability and investment attractiveness.

Physical risks

Within the framework of the analysis of physical risks, 25 key data centres and technological facilities in major cities and regional centres of Kazakhstan were considered. The study covered segments of the value creation chain related to infrastructure, logistics, operation and operational activities.

The main risks identified:

Temperature (chronic risk)



The growth of average and extreme temperatures leads to the overheating of equipment, the increase of costs for cooling, the reduction of the reliability of systems. According to climate modelling data, by 2060 in Almaty Region the growth of the average temperature is forecast up to 9.64 °C, and the maximum — up to 17.59 °C in the RCP8.5 scenario. Elevated temperatures create risks for the operation of data centres, communication nodes and engineering systems:

- overheating of equipment;
- growth of cooling costs;
- reduction of reliability and increase of emergency shutdowns;
- reduction of employee productivity and the growth of thermal load.

The most vulnerable are facilities in Almaty, Akmola and East Kazakhstan Regions, where the largest growth of average and extreme temperatures is expected.

Floods (acute risk)



Floods are recognized as one of the most significant acute risks. In South Kazakhstan and Mangistau Regions, floods with a depth of up to 0.7 m are possible, which creates the threat of flooding and failure of telecommunications infrastructure. Consequences:

- damage to equipment;
- interruptions in the provision of services;
- potential multi-million losses from downtime.

Increased humidity and precipitation



The increase of precipitation is registered under all scenarios, especially in South Kazakhstan, Atyrau and Mangistau Regions. For example, in South Kazakhstan Region annual precipitation under the RCP8.5 scenario may increase up to 894.6 mm by 2060 (growth of 45% from historical values). Influence:

- risk of damage to cable networks and equipment due to high humidity;
- corrosion of infrastructure;
- growth of costs of technical service and replacement of network components.

Wind load



Zhambyl Region demonstrates the highest wind indicators — up to 28.17 m/s under the RCP2.6 scenario and 27.44 m/s under RCP8.5 by 2060. Akmola and South Kazakhstan Regions are also subject to it. Risks:

- destruction of communication masts and antennas;
- structural damage;
- interruptions in operation due to destruction.



The growth of interest in sustainable suppliers and the necessity of ESG rating transparency for retaining competitiveness and access to sustainable financing.

Climate opportunities

The Company regards climate changes as a source of risks and a factor of development of sustainable technological solutions, the enhancement of energy efficiency and long-term cost savings. In this connection, the Company continues to take into account climate opportunities in a number of key directions.

Enhancement of energy efficiency

Data centres (data centres) are the main consumers of electricity. In this connection, the Company regards the enhancement of their energy efficiency as a significant source of cost reduction and the enhancement of the sustainability of operational activities. The analysis previously conducted showed the potential of reduction of expenses for electricity through energy-efficient solutions in data centres at the level of USD 3.5–4 million until 2030.

Development of digital services and infrastructure

The Company actively develops solutions in the sphere of:

- The Internet of things (IoT) for the reduction of the carbon footprint;
- Smart networks and remote monitoring;
- Digital modelling of telecom infrastructure for the Optimization of energy consumption;
- Commercialisation of carbon offsets — mechanisms of compensation of emissions through climate projects.

Development of RES

Transition to renewable energy sources, the reduction of dependence on carbon-intensive types of fuel. Within the framework of the ESG strategy until 2032, the possibility of increasing the share of RES from the current 0% to 10–15% is being considered. Savings on fuel and emission compensations may amount to up to USD 5 million in the long-term horizon.

Access to sustainable financing

Enhancement of attractiveness for ESG investors, green bonds and the financing of projects of a climate orientation.

The aggregate economic benefit from the implementation of climate opportunities may reach more than USD 20 million by 2060.

Based on the results of the climate analysis, a list of recommendations aimed at enhancing the resilience

of the company to climate risks was formed. Among the key measures — introduction of a public reporting system, regular revision of climate risks, development of monitoring plans for vulnerable regions, enhancement of energy efficiency of data centres, calculation of Scope 3 emissions, as well as the elaboration of participation in the Net-Zero initiative.

Table 30. Register of climate opportunities of Kazakhtelecom JSC

Opportunities	Measures	Horizon
Enhancement of energy efficiency and process optimization	• Decommissioning of copper lines and replacement with LED light sources; • Implementation of intelligent management systems; • Optimization of the operation of networks and data centres.	Short-term
Transition to renewables	• Purchase of green certificates; • Development of smart grids; • Procurement of alternative energy and transition to environmentally friendly fuels.	Short-term/Medium-term
Commercialisation of carbon offsets	• Implementation of climate projects and subsequent emissions compensation.	Medium-term
Digital modelling	• Use of digital technologies to optimise infrastructure design and operation.	Medium-term
Minimisation of resource consumption	• Reduction of consumption of imported electrical, thermal energy and fuel. • Reduction of consumption of fossil fuels at stationary and mobile sources.	Short-term
Digitalization and development of sustainable products	• Development and promotion of digital and telecommunication services and products to reduce the carbon footprint. • Promotion of IoT solutions.	Short-term

The assessment included financial modelling, including the analysis of costs for energy supply, technical servicing and adaptation of facilities, as well as forecasting of possible indirect influence on revenue, the structure of capital investments and access to sustainable financing.

Climate risks in the short and medium term do not exert a significant influence on the financial

sustainability of the Company. In scenarios with a low and moderate level of emissions (RCP2.6 and RCP4.5), the Company demonstrates stable growth and a high ability to adapt to changes in climate conditions. Substantial impact is possible after 2050 in the scenario with a high level of emissions (RCP8.5), including growth of costs and reduction of profitability. The consideration of long-term climate risks is envisaged in strategic planning.

4.2.3.3. Risk management in the area of climate change

Management of climate risks at the Company is carried out within the framework of the corporate risk management system and is integrated into a single Risk Register. Environmental and climate risk is included in the category of operational risks and covers such factors as violation of environmental legislation, problems with waste disposal and insufficient environmental management. The consideration of climate risks is carried out on a regular basis upon the updating of the risk map, with account for the probability of occurrence and the magnitude of impact. For key risks, measures on reduction and management are developed.



⁷ Regional climate forecasts were used (Kazhydromet, World Bank Climate Portal), which made it possible to localise risks by region and identify particularly vulnerable facilities — predominantly in the southern regions of the country.

Approach to the identification and assessment of climate risks

For the identification and assessment of climate risks, the Company applied a structured and scientifically grounded approach corresponding to the international TCFD recommendations, as well as the methodological materials of the IPCC, the European Bank for Reconstruction and Development (EBRD) and the Network of Central Banks and Supervisors for Greening the Financial System (NGFS).

The assessment covers both transition risks (regulatory changes, market and technological shifts, ESG expectations of investors) and physical impacts (extreme weather phenomena, overheating, floods, disturbances in energy supply). The analysis is conducted with account for the territorial distribution of infrastructure and the climate vulnerability of facilities.

The identification and assessment of climate risks is carried out with the use of the following elements:

1. At the first stage, the assessment of the external climate and economic environment was conducted:
- historical and current climate trends (temperature, precipitation, wind loads);
 - dynamics of global and regional climate factors;⁷
 - key demographic, technological, political-legal and economic drivers;
 - potential changes in the supply chain, demand for services and consumer behaviour.
2. Using the TCFD recommendations and the framework model of climate analysis, climate risks were classified into:
- Physical (acute and chronic),
 - Transition (regulatory, market, technological, reputational).



Kazakhtelecom JSC systemically works on the enhancement of the energy efficiency of its data centres, taking into account their key role in the provision of digital infrastructure of the country. One of the priorities is the reduction of specific energy consumption with the simultaneous increase of computing capacities and reliability of operation of systems.

With the aim of enhancing energy efficiency, measures on the modernization of data centres are assumed, including the installation of new equipment and the build-up of capacities in existing premises. Particular attention is paid to the period of the summer months, when the load on climate equipment increases — it is at this time that enhanced energy efficiency and reliability are required to maintain the stable operation of the entire IT infrastructure.

Despite the positive dynamics of energy consumption, the share of RES in the structure of energy used remains at the level of 0%. This indicates the potential for transition to more sustainable sources of energy and the possibility of integration of renewable solutions into the architecture of the energy supply of data centres.

Kazakhtelecom JSC is considering the issue of phased inclusion of RES in the energy balance of data centres as part of the climate strategy for the medium term, which will make it possible to reduce the carbon footprint and to enhance the overall sustainability of the digital infrastructure. Within the framework of the climate strategy, expansion of the scale of programmes on the enhancement of energy efficiency, the introduction of innovative technological solutions and the reduction of carbon intensity in the long term is planned.

Goals of the Company within the framework of the Low-Carbon Development Programme and the ESG Strategy

Kazakhtelecom JSC sets clear and measurable climate goals aimed at the reduction of the carbon footprint, the enhancement of energy efficiency and the transition to sustainable sources of energy, in accordance with international approaches and the climate goals of the Republic of Kazakhstan. The goals established cover both the short and the long term and are based on calculations of greenhouse gas emissions by the categories of Scope 1, Scope 2 and, in the long term, Scope 3.

Long-term goals:

Achievement of carbon neutrality by 2060, in accordance with the national strategy of the Republic of Kazakhstan for the decarbonisation of the economy.

Medium-term goals (until 2032):

Reduction of greenhouse gas emissions of Scope 1 and Scope 2 by 13% as compared with the baseline level of 2021.

Reduction
of consumption
of imported electricity
on average by 1.5–2%
annually.

Reduction
of consumption
of imported thermal
energy on average by 1%
annually.

Implementation of compensatory measures: formation of a portfolio of offset projects until 2029.

Transition to RES: gradual increase of the share of renewable sources of energy in the structure of consumption, including the purchase of “green” electricity with I-REC certificates, with the achievement of the volume of 10,700 MW·h by 2032.



Plans for 2026 and the medium term:

- Revision of the LCDP (low-carbon development plan) until 2032 with account for updated climate challenges and technological opportunities.
- Development of a plan on interaction with counterparties on climate issues (within the framework of the supply chain and Scope 3).
- Expansion of the public disclosure of climate risks in annual reporting.
- Carrying out an assessment of Scope 3 (non-energy emissions) and disclosure of the results in open access.