

KEGOC JSC is aware of the importance of its impact on the economy, ecology and society and, striving for long-term value growth, ensures that its activities comply with the principles of sustainable development by coordinating its environmental (E), social (S) and governance (G) goals.

KEGOC JSC carries out systematic work to improve ESG principles, including corporate governance with a focus on ensuring environmental and social responsibility, effective exercise of shareholders' rights, fair treatment of shareholders, balanced dividend policy, efficiency of the Board of Directors and the Management Board of KEGOC JSC, a system of interaction with stakeholders, proper disclosure of information about The Company's stakeholders and the improvement of risk management and internal control systems.

Thanks to the Company's efforts to integrate ESG factors into strategy and business processes, commitment to principles related to corporate governance, social responsibility and business ethics, as well as the quality of disclosure of information about its activities, on August 25, 2023, the independent rating agency S&P Global awarded KEGOC JSC the ESG rating S&P Global CSA Score 2023 at the level of 51/100.

This assessment demonstrates the Company's commitment to ESG principles and serves as recognition of its contribution to creating a more sustainable future.

S&P Global

KEGOC JSC has been assigned an ESG rating by S&P Global CSA Score 2023 at the level of

51/100

Environment

Key indicators

The rate of injury with temporary disability (LTIFR) decreased by 3 times

0.15 LTIFR 

The fatality rate (FAR) has dropped to zero

0 FAR 

Since December 2022, there has been a successful placement of 'green' bonds of KEGOC JSC on the KASE trading platform with a total volume of

33 KZT billion 

KEGOC JSC took the first place among the portfolio companies of Samruk-Kazyna JSC for achievements in the field of industrial safety by the end of 2023

1 st place 

Key documents

- Development Plan (Strategy) of KEGOC JSC for 2023-2032
- Guidance on the management system in the field of sustainable development
- Environmental policy
- Objectives in the field of quality, ecology, occupational safety and health
- Register of environmental aspects
- Environmental Management System Planning Management Standard
- Waste Management Standard

Sustainable Development Goals



The management system



Environmental protection policy

KEGOC JSC considers environmental protection activities as an integral part of its daily work. Responsible attitude to the environment is a key principle of KEGOC’s Environmental Policy.

The environmental policy of KEGOC JSC is aimed at minimizing the negative impact on the environment, reducing the carbon footprint, increasing the level of environmental safety, responsibility for ensuring environmental protection during the development of the NPG of the Republic of Kazakhstan, energy conservation and rational use of natural and energy resources in the Company’s activities. The Environmental Policy applies to all employees of KEGOC JSC, as well as to suppliers, employees of contractors and organizations providing services at the Company’s facilities, on the terms specified in the concluded contracts. The management of KEGOC JSC assumes responsibility for the implementation of the obligations assumed in accordance with the Environmental Policy for continuous improvement and prevention of pollution, as well as compliance with applicable legislative and other requirements to which KEGOC JSC is related in terms of its environmental aspects. Each employee of the Company, as well as employees of contractors working in the interests of the Company, are familiar with the Environmental Policy of KEGOC JSC.

2-23, 2-24

The Company has implemented and certified for compliance with the requirements of the international standard ISO 14001 ‘Environmental Management System’, which operates within the framework of the integrated management system of KEGOC JSC. The main purpose of its implementation and operation is the application of new management methods that make it possible to strengthen the impact on the environmental aspects of the Company’s production and economic activities. Environmental aspects management is an element of the corporate risk management system at KEGOC JSC.

For effective management of the environmental management system, registers of environmental aspects of KEGOC JSC for 2023 have been developed. When identifying aspects, all components of the environmental impact of the Company’s activities are analyzed (energy conservation, impact on biodiversity, water, soil, emissions, waste). Environmental management measures have been established by the Company’s

Environmental Program for 2023. Important environmental aspects in 2023 were identified as ‘possibly polychlorinated biphenyls (PCBs) containing waste’, ‘transformer oil’ and ‘spent transformer oil’. The significance of the aspect ‘possibly PCB-containing waste’ is due to the fact that according to the Environmental Code of the Republic of Kazakhstan, PCB is a dangerous substance. The importance of the ‘spent transformer oil’ and ‘transformer oil’ aspects is related to the presence of oil-filled equipment.

Compulsory and voluntary environmental insurance contracts are concluded on an annual basis for all branches of the MES.

In September 2023, public hearings were held on the feasibility study of the project ‘Unification of the energy system of Western Kazakhstan with the UPS of the Republic of Kazakhstan. Construction of electric grid facilities’. The hearings on the above-mentioned project were conducted based on the materials of the ‘Report on possible environmental impacts’ in full compliance with the requirements of the Environmental Code of the Republic of Kazakhstan, with the participation of local executive bodies, environmental departments, the public, representatives of interested state bodies of energy and housing and communal services in cities. Aktobe and Atyrau.

In October 2023, KEGOC JSC received a positive conclusion to the ‘Report on possible Environmental impacts’.

In order to carry out the Company’s activities in accordance with the requirements of environmental legislation, in September 2023, corporate training on changes and amendments to the Environmental Code of the Republic of Kazakhstan was conducted for employees of the branches of the MES of KEGOC JSC responsible for environmental protection.

There were no financial and non-financial sanctions, as well as significant fines imposed for non-compliance with environmental legislation and regulatory requirements in 2023 in relation to KEGOC JSC.

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The Company has not received any requests in connection with the environmental impact.

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Effect on atmospheric air

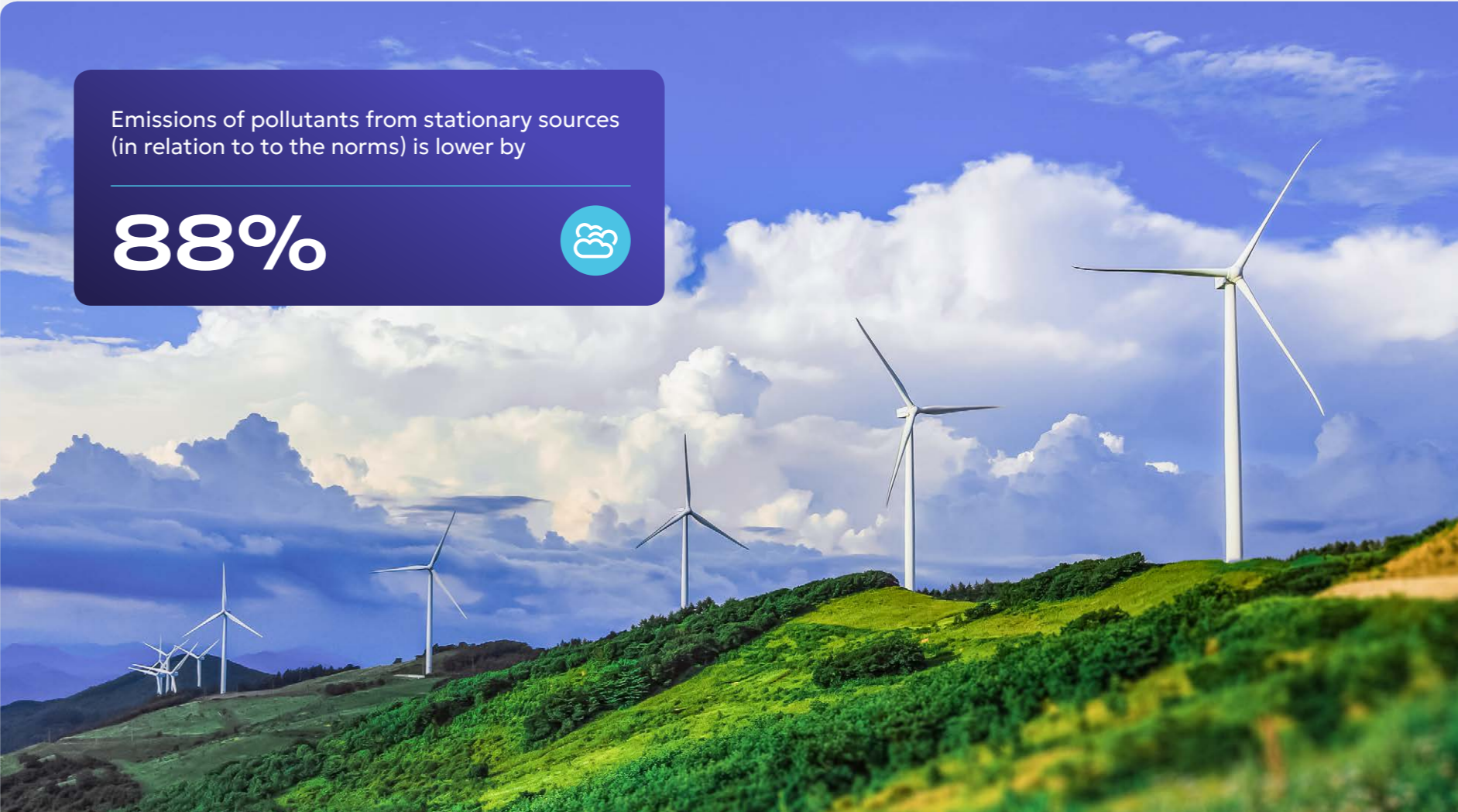
With the introduction of the new Environmental Code of the Republic of Kazakhstan, the main part of the branches of the MES were determined by a decision from the authorized body for environmental protection as objects of category IV, for which emission standards for objects of categories III and IV are not established.

However, in order to monitor the branches, an internal Environmental Control Program was developed, according to which a quarterly report on emissions from stationary sources was generated in the branches of the MES in 2023.

The Yuzhnye MES branch, previously defined as a Category II facility, was redefined as a Category IV facility at the end of December 2023, that is, according to the Environmental Code, an object with minimal environmental impact.

At the moment, KEGOC JSC has only one branch, designated as a Category II facility. Environmental monitoring at this branch is carried out by specialized organizations by calculation or laboratory measurements.

Calculations of pollutant emissions were carried out using the calculation method based on the number of hours of operation of each unit of equipment and material consumption, according to the methods of calculating pollutant emissions of the Republic of Kazakhstan.



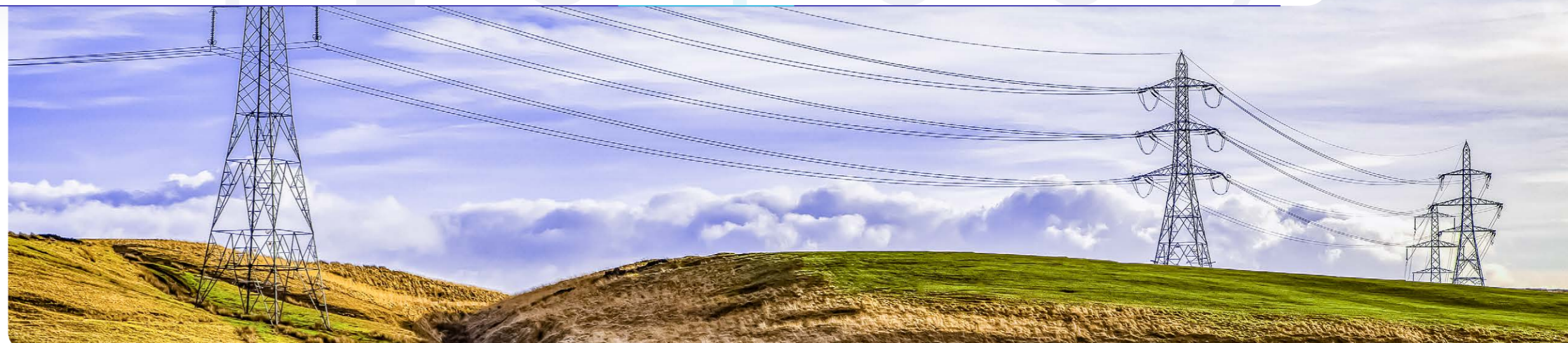
Emissions of pollutants from stationary sources (in relation to to the norms) is lower by

88%

Emissions of pollutants , tons

Emissions of pollutants	2023
Nitrogen oxides (NOx)	0.405670
Sulfur dioxide (Sox)	0.059297
Solid particles (dust)	0.252290
Carbon monoxide (CO)	0.290421
Volatile organic compounds	0.179161

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According to the Code of the Republic of Kazakhstan ‘On Taxes and other mandatory payments to the Budget’, emissions from mobile sources are not calculated, the amount of fuel used is indicated in the reports. Vehicles were checked for toxicity and smokiness of exhaust gases emitted into the atmosphere.

In its activities, the Company does not emit ozone-depleting substances that affect climate change.

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The most significant positive impact of KEGOC JSC, as an electric grid company and System Operator, on the environment is to ensure the decarbonization of the country’s economy through the integration of renewable energy into the energy system of the Republic of Kazakhstan, which is the strategic goal and objectives of the main activity.

In order to reduce the transitional climate risk in 2023, taking into account the Strategy for Achieving Carbon Neutrality of the Republic of Kazakhstan until 2060, the adopted Concept of Low-carbon Development of Samruk-Kazyna JSC and the approved Development Plan of KEGOC JSC for 2023-2032, the Company has developed a Low-carbon Development Program of KEGOC JSC until 2031 (Program) and vision to achieve carbon neutrality by 2060.

The integration of the low-carbon agenda will allow the Company not only to contribute as an electric grid company and a System Operator providing renewable energy connection, but also to increase the investment attractiveness of KEGOC JSC, competitiveness in the conditions of energy transition, as well as to declare the Company’s climate ambitions.

The purpose of the development of the Program is to systematize the main approaches and measures in the field of reducing the carbon footprint, including, including the following:

- analysis and assessment of the existing potential and opportunities to reduce the carbon footprint, taking into account the ongoing production activities;
- identification of key areas in the field of decarbonization and measures to reduce the carbon footprint;
- forecasting trends in CO₂ emissions until 2060;
- raising awareness of the Company’s staff, including about the current global trends in reducing the carbon footprint.

As part of the development of the Program, an analysis of the current situation was carried out and the main sources and indicators of direct and indirect CO₂ emissions (Scope 1 and 2) were identified, measures to reduce the Company’s carbon footprint in the course of its activities and key indicators for monitoring the reduction of the carbon footprint of KEGOC JSC were identified.

The main sources of direct greenhouse gas emissions (Scope 1) in KEGOC JSC are:

- mobile sources — vehicles used in the implementation of the main types of production activities, including maintenance and repair work;
- stationary sources — stationary and portable power plants and generators of electric energy used to ensure the reliability of power supply in emergency situations of communication facilities, as well as during maintenance and repair work;
- gas-operated circuit breakers, which are necessary equipment for the PS branches of the MES of KEGOC JSC.

Indirect sources of emissions (Scope 2) include:

- emissions generated during the production of electric energy purchased by the Company, used for technological purposes, including electric energy to compensate for the technological consumption of electricity during its transmission through the NPG of the Republic of Kazakhstan (transmission losses), as well as for the needs of heating, lighting of buildings, premises, territories, etc.;
- emissions generated during the production of thermal energy purchased by the Company, used for heating industrial and non-industrial premises.

As a System Operator and an operator of the electric grid, the Company does not have the right to set tasks for the development of its own renewable generation and the implementation of projects for the construction of renewable energy sources, as this causes a potential conflict of interest in terms of the implementation of the functions of the System Operator of the UPS of the Republic of Kazakhstan.

An important area of the Program will be the implementation of the necessary measures for resource conservation and energy efficiency improvement with appropriate potential energy conservation and energy efficiency measures. Thus, the main mechanisms for the implementation of the Program will be the conduct of energy audits, carried out both currently and in the future, the development of energy efficiency measures, as well as the implementation of energy efficiency and resource conservation programs.

It is also worth noting that the Company’s best results in the direction of resource conservation and energy efficiency improvement include the introduction of an energy efficiency improvement policy with tools to motivate the Company’s employees to make innovative proposals, the introduction of new technologies through R&D, the implementation of pilot projects and tests.

The Program contains indicators for achieving low-carbon development until 2031:

- according to **Scope 1** (direct emissions) — by gradually replacing passenger vehicles with internal combustion engines with similar types of low-carbon fuel vehicles (electric vehicles, LPG) to achieve a 2% reduction in emissions by 2030;
- according to **Scope 2** (indirect emissions) — by gradually increasing the share of generation of ‘green’ electricity from renewable energy sources and achieving it at the level of 20% by 2031.

201-2, 2-24

According to the Environmental Code of the Republic of Kazakhstan, ‘A quota-based installation is an installation whose quota-based greenhouse gas emissions exceed twenty thousand tons of carbon dioxide per year in regulated sectors of the economy.’ KEGOC JSC is not a subject of quotas. At the same time, in accordance with the terms of the UN Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement, KEGOC JSC has developed a Report on the inventory of greenhouse gas emissions by the end of 2023. The data is consolidated at the corporate level using an operational approach. The calculation limits include greenhouse gases: CO₂, CH₄, N₂O, SF₆. Greenhouse gas emissions from air conditioning systems are excluded from the calculations of direct emissions from Scope 1 due to insufficient data and their small volume. Scope 3 greenhouse gas emissions are not included in the report due to insufficient data.

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2022 was chosen as the base year, as the as the IPCC, 2006 and GHG Protocol GHG Emissions Inventory Report was prepared by KEGOC JSC for the first time in 2022. The base year will be recalculated if a new category is added or there is a transition to a more accurate methodology.

305-1, 305-2

Global warming potential coefficients adopted in accordance with the Fifth assessment report of the Intergovernmental Panel on Climate Change 6/CP.27, 2022.

Total intensity of greenhouse gas emissions (total Scope 1 and Scope 2) is

0.011 tons of CO₂-eq / KZT thousand of revenue

Emission indicators

Emissions	TOTAL (tons of CO ₂ -eq)	CO ₂ (tons)	CH ₄ (tons of CO ₂ -eq)	N ₂ O (tons of CO ₂ -eq)	SF ₆ (tons of CO ₂ -eq)
Direct (Scope 1)	10,339	8,610.62	43.70	110.62	1,574.50
Indirect (Scope 2)	2,748,431	2,748,431	-	-	-

Emission indicators, tons of CO₂ equivalent

Emissions	2021	2022	2023
Scope 1	9,144	8,887	10,339
Scope 2	2,851,258	2,632,728	2,748,431
Scope 1 + Scope 2	2,860,402	2,641,615	2,758,770

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Direct emissions (Scope 1) consist of emissions from passenger cars and special vehicles, from stationary and portable power plants and electric power generators used to ensure the reliability of power supply in emergency situations of communication facilities, as well as during maintenance and repair work, as well as emissions from disruptions of gas switches.

The company uses equipment with elegas (SF₆) — elegas switches. As part of the modernization, modern gas switches with a voltage of 110-500 kV manufactured by ABB, Siemens, GE, characterized by high quality, reliability and environmental friendliness, have been installed at substations. The operation of gas-operated switches is carried out by trained personnel in strict accordance with instructions and regulations, the use of gas is monitored and monitored, leakage in 2019-2023 averaged 0.06% per year.

Vacuum circuit breakers with a voltage of 220-500 kV are not available today, and there is no alternative to gas-operated circuit breakers in this voltage class. The use of 110 kV vacuum circuit breakers has not become widespread in the world and therefore at the moment these switches are not used in the Company.

To reduce the use of circuit during reconstruction, environmentally friendly vacuum circuit breakers with a voltage of 6-10-35 kV are used at substations.

Direct emissions (Scope 1) in 2023 increased by 1,452 tons of CO₂-equivalent due to the failure of one gas leakage circuit breaker due to a design defect.

The largest share in indirect emissions (Scope 2) is emissions generated during the production of electricity purchased by the Company to compensate for the technological consumption of electricity during its transmission through the NPG of Republic of Kazakhstan (transmission losses). The value of technological consumption is related to the volume of electricity consumption, the length of transit transmission lines, depends on the operating modes of energy systems of neighboring countries (transit, export and import of electricity), climatic conditions, and cannot be prevented by the Company. Indirect emissions of Scope 2 increased by 115,703 tons of CO₂ (4.4%) in 2023 due to an in-

crease in the volume of supply to the grid, and a corresponding increase in the volume of electricity losses. Due to changes in the electricity market ([See the figure on page 9 for details](#)), a location-based method is chosen in accordance with the GHG Protocol. The official network emission factor according to the Development of Kazakhstan 8th National Communication to the UNFCCC and 5th Biennial report, 2021, was adopted for the calculation. It should be noted that the share of RES generation in Kazakhstan from 2021 to 2023 increased from 3.6% to 5.92%. It is expected that as the Strategy for achieving carbon neutrality of the Republic of Kazakhstan until 2060 is implemented, with the necessary investments in modernization and development of grid infrastructure required for these changes, the Company’s Scope 2 carbon footprint will decrease.

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Intensity of greenhouse gas emissions in the reporting period

Total volume of greenhouse gas emissions (Scope 1 and Scope 2), tons of CO ₂ -eq.	2,758,770
Amount of revenue, KZT thousand	252,136,383
Total intensity of greenhouse gas emissions (Scope 1 and Scope 2), tons CO ₂ -eq/KZT thousand	0.011

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KEGOC JSC contributes to the fight against climate change by developing network infrastructure, including implementing ‘green projects’, taking into account the creation of conditions for the development of renewable energy in the long term, which will indirectly prevent significant greenhouse gas emissions in the Republic of Kazakhstan.

In May 2023, in order to contribute to improving the environment and maintaining global trends in reducing the carbon footprint, the Company’s employees planted 105 tree seedlings in Astana, which will continue to be cared for. Maple seedlings were chosen for planting, due to the fact that maple trees have a high ability to absorb carbon dioxide emissions.

Waste management

Production waste is generated during the operation, repair and modernization of equipment. Waste management in KEGOC JSC is carried out in accordance with the Environmental Code of the Republic of Kazakhstan and the Standard of the Waste Management Organization in KEGOC JSC, according to which all waste is divided into hazardous and non-hazardous.

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Volumes of hazardous and non-hazardous waste of KEGOC JSC, tons

Indicator	2023
Hazardous waste	462.002
Non-hazardous waste	2,883.764
Total	3,345.765

The total amount of waste transferred by the Company to third-party specialized organizations under concluded contracts for recycling, disposal, destruction in 2023 was **3,345.765** tons. Specialized organizations have confirmed the acts of recycling, disposal, destruction outside KEGOC JSC facilities for 646.84 tons of waste.

Waste management, tons

	Hazardous waste	Non-hazardous waste
Recovery, including:	177.61	447.61
- preparation for reuse	145.90	447.45
- waste recycling	31.71	0.00
- other recovery operations	0.01	0.17

Recovered 625.23 tons of waste.

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	Hazardous waste	Non-hazardous waste
Utilization, including:	6.44	15.16
- combustion (with energy recovery)	5.90	15.16
- combustion (without energy recovery)	0.00	0.00
- disposal	0.00	0.00
- other utilisation operations	0.55	0.00

Disposed of 21.61 tons of waste.

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Volume of KEGOC JSC waste, tons

	2019	2020	2021	2022	2023
Waste	2,757.00	5,117.11	4,326.09	2,635.99	3,345.77

306-1

The transfer of hazardous waste to a third-party organization is carried out on the basis of a license to perform work (provide services) for the recycling, neutralization, disposal and (or) destruction of hazardous waste. The list of wastes and their hazard level are updated as necessary.

Branches of the MES annually develop or adjust waste passports for each type, which include a description of waste generation processes at their place of origin, their quantitative and qualitative indicators, rules for handling them, methods of their control, types of environmental impact of these wastes, information about waste producers.

For the safe handling of production and consumption waste in the branches of the MES, places for their temporary safe and separate storage have been identified, maps and diagrams of waste disposal on the territory of facilities with explication have been prepared, timely removal for subsequent disposal is ensured.

306-2

In 2023, work continued on the identification of PCBs in the equipment of the substations of KEGOC JSC in accordance with the Law of the Republic of Kazakhstan 'On Ratification of the Stockholm Convention on Persistent Organic Pollutants', the Rules for the Treatment of Persistent Organic Pollutants and Waste containing them (approved by order of the Minister of Environmental Protection of the Republic of Kazakhstan). The branches of the MES updated the registers of accounting for PCB-containing equipment, the registers were submitted to the territorial environmental protection authorities on time.

In 2023, laboratory tests were planned and conducted for the presence of PCBs in the oil-filled equipment of the branches of Akmolinskiye MES, Almatinskiye MES, Sarbaiskiye MES, according to the results of which no PCBs were found.

Impact on water bodies

Water is not used in the technological process of the Company. The volume of water consumption in KEGOC JSC is insignificant, the Company's activities do not have a significant impact on water sources. The company uses water for domestic consumption from the urban water supply system and wells, water intake from surface sources (rivers, lakes, etc.) is not carried out. There is an artesian water supply at the facilities of 7 branches of the MES, wells are operated according to the received permits for special water use. In accordance with the Water Code of the Republic of Kazakhstan, groundwater monitoring is carried out on an ongoing basis at the water intake of wells under contracts concluded with specialized organizations.

Possible sources of pollution of water bodies and soil at the Company's facilities are transformer oil used in oil-filled equipment, as well as wastewater generated as a result of using water for household needs. When choosing the equipment of KEGOC JSC, one of the priority criteria is its environmental friendliness, oil switches are systematically replaced with gas and vacuum switches, which allows reducing the amount of transformer oil used at the SS branches of the MES. The use of oil-free equipment increases reliability, fire safety, and eliminates contamination of groundwater and soil. The oil-filled equipment is equipped with oil receiving devices or pallets, which prevents oil from entering the soil. The boning of oil collectors is checked regularly. The volume of extracted water from wells is 41,113.13 m³. There is no circulating water supply. Wastewater discharge to the terrain is not carried out.

Water consumption indicators of KEGOC JSC

Water consumption	2019	2020	2021	2022	2023
From wells	0.037	0.048	0.056	0.052	0.041
- of them, in regions with water stress*	0.009	0.008	0.008	0.008	0.009
Of the urban water supply systems	0.085	0.079	0.075	0.087	0.064
- of them, in regions with water stress*	0.011	0.009	0.009	0.010	0.196
Water consumption of all	0.122	0.127	0.131	0.140	0.105
- of them, in regions with water stress*	0.020	0.017	0.017	0.018	0.295

* the areas with water shortage include the territories of the branches of KEGOC JSC of the Yuzhnye and Zapadnye MES, according to the [Water Stress Map](#)

Impact on biodiversity

Being an electric grid Company and a system operator of KEGOC JSC, it does not have a significant impact on the animal and plant world.

When implementing projects, including investment ones, the Company takes a comprehensive approach to environmental protection and biodiversity conservation.

We pay attention to preventing threats to biodiversity by analyzing the risks in all areas of our activities. Also, at each stage of the implementation of investment projects and at the stage of post-project monitoring, an analysis of risks to biodiversity is carried out.

To manage environmental risks at the design stage of electric grid facilities, it is excluded that overhead lines and substation sites pass through lands and territories of settlements, including those intended for the prospective development of villages, towns, cities, as well as those provided for the development of agricultural production, natural reserves, forestry, water protection zones, irrigation arable lands, specially protected areas, cultural heritage sites and historical monuments. Overhead lines run mainly through steppe and semi-desert places.

KEGOC JSC carries out its activities in accordance with the principles of environmental legislation of the Republic of Kazakhstan, in particular the principle of accessibility of environmental information and the principle of public participation. When passing the stage of consideration of any construction and reconstruction projects, a mandatory stage is to hold public hearings or discussions on EIA projects.

2-26

During the EIA, all processes of possible significant environmental impacts in the implementation of the planned activities are taken into account, including:

- effect on atmospheric air,
- reservoirs and groundwater,
- terrain,
- conservation of biodiversity, wildlife.

Identification and assessment of project risks are carried out on an ongoing basis and at all stages of project implementation. To analyze the risks of project implementation, PESTEL analysis is used, including analysis of social and environmental risks. The results of the conducted EIA, including on biodiversity, are taken into account and the option that causes the least harm to the environment is adopted.

So, in September 2023, public hearings were held on the feasibility study of the project 'Unification of the energy system of Western Kazakhstan with the UPS of the Republic of Kazakhstan. Construction of electric grid facilities'. The hearings were held based on the materials of the 'Report on possible environmental impacts' in full compliance with the requirements of the Environmental Code of the Republic of Kazakhstan, with the participation of local executive bodies, environmental departments, the public, representatives of interested state bodies of energy and housing and communal services in the cities of Aktobe and Atyrau. On October 10, 2023, KEGOC JSC received a positive conclusion to the 'Report on possible Environmental Impacts'.

The positive impact of KEGOC JSC on biodiversity is the promotion of the preservation of traditional habitats in the power transmission lines, as well as in sanitary zones around substations.

According to the results of world research, power lines with a voltage of 0.4-10 kV pose a danger to birds due to the small distances between the grounded traverse or other grounded parts of the support and the live wires. During takeoff or approach, birds can cause a fatal short circuit for them when simultaneously touching a grounded traverse and a live wire. 99.2% of overhead lines owned by KEGOC JSC are high-voltage lines with a voltage of 110 kV and higher, on which the minimum distances between the grounded parts of the supports and the live parts of the overhead lines are at least 1.5 meters. Consequently, the wingspan of birds does not allow to close the circuit 'wire — grounded part of the line' and these lines practically pose no danger of electric shock to birds and bats. Nevertheless, more than 11 thousand safe bird protection devices have been installed in places where birds may land on traverses and portals of KEGOC JSC, which do not allow birds to land on elements of lines and substations, including devices installed as a result of the implementation of innovation proposals in branches, such as scrolling when trying to land birds on the edge traverses of reinforced concrete overhead line supports are devices and noise devices that activate in the wind and reduce risks to birds.

The company constantly studies the market for developments in the field of biodiversity conservation, gets acquainted with the experience of similar companies and maintains contact with environmental organizations. So, in September 2023, he took part in the scientific and practical seminar 'Birds of Prey and energy', held within the framework of the International Scientific and Practical Conference 'Eagles of the Palearctic; study and Protection' organized by the Public Foundation 'Center for the Study and Conservation of Biodiversity' (BRCC Research&Conservation), Bird Conservation Unions of Kazakhstan, Hungary, Germany and other associations with the support of the Cooperation Fund for the Conservation of Ecosystems in Critical Condition (CEPF), the EU Nature LIFE Foundation, VGP FOUNDATION, in order to share experiences in addressing the issue of bird safety.



In places of possible landing of birds on traverses and portals of KEGOC JSC switchgears are installed

>11,000 safe bird protection



Energy efficiency

The main objectives of KEGOC JSC for energy saving and energy efficiency are to reduce the volume of consumed fuel and energy resources, including by reducing the consumption of energy resources for the own needs of KEGOC JSC facilities, reducing technological costs of electricity when transmitting it through NPG, improving energy consumption control mechanisms and equipping the Company's facilities with electric energy metering devices and other fuel and energy resources, the organization of the information collection process based on data from metering devices.

Consumption of fuel and energy resources in 2023, GJ¹

	Unit of measure	Consumption, natural units	Consumption, GJ
Electricity total	thousand kWh	2,950,276.33	10,620,994.79
incl. from renewable sources	thousand kWh	205,711.77	740,562.39
Heat energy	Gcal	18,839.42	78,876.88
Fuel		2,767.76	117,944.77
including:			
- motor petrol	tons	900.88	39,368.35
- diesel fuel	tons	1,769.55	75,205.83
- natural gas	thousand m ³	90.71	3,066.10
- liquefied gas	tons	6.62	304.49
TOTAL			10,817,816.44

Consumption of fuel and energy resources in 2023 increased by 443,188.44 GJ compared to 2022 due to an increase in electricity consumption due to an increase in the volume of supply to the grid, and a corresponding increase in electricity losses and updating of regulations on conversion from natural units to Joules.

302-1

Specific consumption of fuel and energy resources of KEGOC JSC, GJ/KZT thousand of revenue

	2019	2020	2021	2022	2023
Specific energy consumption	0.069	0.058	0.060	0.048	0.043

302-3

¹ to convert the volumes of consumed fuel and energy resources into Joules, the following were applied: Methodology for calculation of emissions and absorption of greenhouse gases, approved by Order of the Minister of Ecology and Natural Resources of the Republic of Kazakhstan dated 17 January 2023 No. 9, Methodology for formation of fuel and energy balance and calculation of certain statistical indicators characterising the energy sector, approved by Order of the Chairman of the Committee on Statistics of the Ministry of national economy of the Republic of Kazakhstan dated 11 August 2016 No. 160.

Electricity consumption of KEGOC JSC

	2020	2021	2022	2023
	mln kWh			
Energy consumption		3,059.92	2,824.90	2,950.28
- Including RES	162.67	32.41	14.23	205.71*
	GJ			
				10,620,994.79
				740,562.39*

* In connection with the amendments introduced in 2023 to the Law of the Republic of Kazakhstan 'On Electric Power Industry', from July 1, 2023, a single electricity buyer buys electricity from all energy-producing organizations connected to the NPG, including from renewable energy sources. In this regard, this indicator was calculated based on the share of renewable energy generated electricity in the total volume of electricity generation.

302-1

The greatest effect, in terms of reducing energy consumption, is provided by measures to reduce the technological consumption of electric energy for transmission over electric networks.

The UPS of the Republic of Kazakhstan is mainly characterized by the concentration of powerful energy sources in the Northern zone and the presence of long (about 1,000 km) transit power lines (the main directions of transit North — South of the Republic of Kazakhstan, Pavlodar region — Aktobe region) — this is due to the large territory of the country and has a significant impact on the level of technological electricity consumption (technical losses). Technical losses in the KEGOC JSC network also depend on the operating modes of the energy systems of neighboring countries (transit, export and import of electricity) and climatic conditions.

The technical losses of KEGOC JSC in 2023 amounted to 2.923 billion kWh, or 5% of the electricity supply to the grid.

EU12

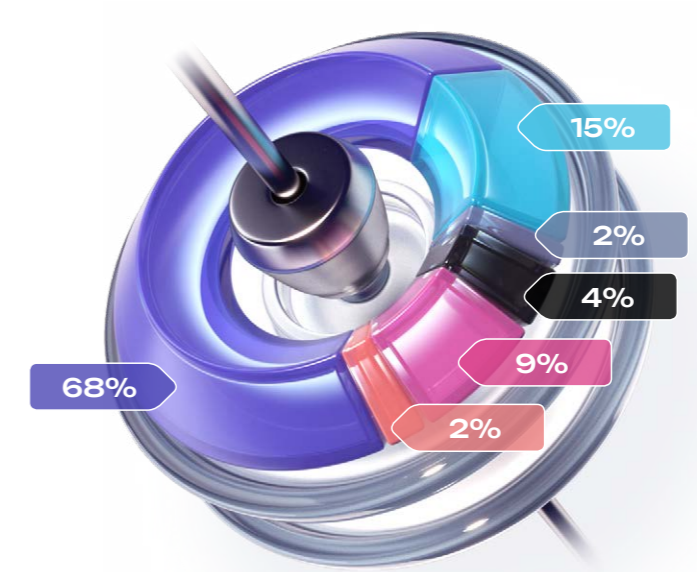
At the same time, it should be borne in mind that technical losses of electricity are losses of electricity caused by physical processes in wires and electrical equipment occurring during the transmission of electricity through electric networks, and accordingly, the main purpose of planning and carrying out measures to reduce electricity losses in electric networks is to bring the actual value of technical losses of electricity to their optimal level.

Reduction of electricity consumption in 2023

4.058

million kWh

The structure of KEGOC's electricity losses for 2023



- Load lines
- Load cells in transformers
- Crown
- Idling in transformers
- Reactors
- SN PS

Climate change can lead to the risk of excessive losses in the transmission of electricity. Therefore, when developing measures to mitigate this risk, as well as reduce electricity losses, the Company analyzes climatic factors and analyzes actual electricity losses in the KEGOC JSC network.

As a result of the implementation of measures to reduce electricity losses within the framework of managing the modes of the UPS of the Republic of Kazakhstan, the reduction in electricity consumption in 2023 amounted to 4,058 million kWh.

The effect of measures to reduce electricity losses

Activity	The effect of the activity	
	million kWh	GJ
Disconnecting lines in low-load mode	0.180	648
Switching off power transformers in low-load mode	3.878	13,961
Total for KEGOC JSC	4.058	14,609

201-2, 302-4, 302-5