ENVIRONMENTAL RESPONSIBILITY

INVESTING IN THE FUTURE

Principle 7: Businesses should support a precautionary approach to environmental challenges.
Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility.
Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies.

CLIMATE CHANGE AND LOW-CARBON DEVELOPMENT

NC KazMunayGas JSC recognizes that climate change is one of the most significant global challenges impacting ecosystems, the economy, and social development. In alignment with global and national strategies to reduce greenhouse gas emissions and achieve carbon neutrality, the Company integrates climate considerations into its development strategy and risk management system.

KMG's climate strategy is focused on reducing its carbon footprint, improving energy efficiency, and developing low-carbon technologies, as outlined in the Low-Carbon Development Program to 2060 (LCDP-2060), approved by the Board of Directors in 2024. This document outlines the key stages and mechanisms of business decarbonization, including the development of renewable energy sources (RES), implementation of energy-saving technologies, methane emissions management, and carbon capture, utilization, and storage (CCUS) projects.

The Company adopts a comprehensive approach to climate risk management that includes:

- **Strategic integration of climate agendas** into corporate governance and decision-making processes;
- **Systematic identification and assessment of climate-related risks** as part of the corporate risk management system;
- **Development of adaptation mechanisms to physical and transition climate risks,** including strengthening infrastructure resilience and accounting for carbon regulation;
- **Transparency and monitoring** – regular disclosure of GHG emissions data.

KMG also places strong emphasis on collaboration with international partners, government agencies, and stakeholders to advance low-carbon initiatives. In 2024, the Company joined the Oil and Gas Methane Partnership (OGMP 2.0), contributing to more accurate methane emissions accounting and the adoption of global best practices.

KMG's commitment to low-carbon development and responsible climate risk management enhances its resilience during the global energy transition, maintaining its leadership in Kazakhstan's oil and gas sector.

GREENHOUSE GAS EMISSION REDUCTION TARGETS

In line with the LCDP-2060, the Company has established clear emission reduction and low-carbon technology development targets.

The base year for measuring GHG emission trends is 2019, which represents typical pre-COVID-19 operations and is considered the most representative for tracking progress.

TARGETS FOR 2031:

- Reduce direct (Scope 1) and indirect (Scope 2) emissions by 15% from 2019 levels;
- Reduce methane emissions by 32%;
- Reduce carbon intensity by 15%;
- Achieve a 15% share of RES in electricity consumption;
- Eliminate routine flaring of associated gas;
- Implement a forest-climate offset project covering 1,600 hectares;
- Deploy carbon capture, utilization, and storage (CCUS) technologies.

TARGETS FOR 2060:

- Reduce Scope 1 and Scope 2 emissions by 64%, including offsets;
- Reduce methane emissions by 96%;
- Reduce carbon intensity by 60%;
- Reach a 50% share of RES in electricity consumption;
- Implement forest-climate offset projects covering 11,600 hectares;
- Inject 421 thousand tonnes of CO_2 via CCUS projects;
- Produce 1.4 million tonnes of sustainable aviation fuel (SAF);
- Achieve an "A" rating in the CDP Climate score.

These targets ensure a long-term reduction of the carbon footprint, laying the foundation for a gradual transition to a low-carbon economy.

DISCLOSURE ACCORDING TO TCFD RECOMMENDATIONS

Component	TCFD Recommendation	Disclosed Information	Report Section
Governance	Description of the Board's oversight of climate-related risks and opportunities	Description of governance mechanisms for climate issues at the Board level	Governance of Climate Risks
	Description of management's role in assessing and managing climate-related risks and opportunities	Management's involvement in developing and implementing the climate strategy	
Strategy	Identification of climate-related risks and opportunities over the short, medium, and long term	Key climate risks and opportunities and their potential impacts on company operations	Climate Risk Assessment
	Impact of climate-related risks and opportunities on the business, strategy, and financial planning	Description of adaptation of strategy and business processes to climate challenges	Climate Risk Management Strategy Key projects under the climate strategy
	Resilience of the company's strategy under different climate scenarios	Climate scenario analysis and its implications for the company	Climate Risk Management Strategy Climate Risk Assessment
Risk Management	Processes for identifying and assessing climate-related risks	Approaches to identifying, assessing, and monitoring climate-related risks	Climate Risk Assessment
	Processes for managing climate-related risks	Measures for mitigation and adaptation to climate risks	
	Integration of climate risks into the overall risk management system	Incorporation of climate risk management into corporate risk governance	Integration of Climate Risks into Risk Management
Metrics and Targets	Metrics used to assess climate-related risks and opportunities	Key climate metrics such as greenhouse gas emissions and energy efficiency	Greenhouse Gas Emissions Energy efficiency and conservation programs
	Scope 1, 2 (and if applicable, Scope 3) greenhouse gas emissions	Detailed disclosure of emissions data	Greenhouse Gas Emissions
	Targets set by the organization related to climate issues	Long-term and mid-term emission reduction and climate resilience targets	Greenhouse Gas Emission Reduction Targets

CLIMATE RISK MANAGEMENT

NC KazMunayGas JSC applies a comprehensive and systematic approach to climate risk management, aligning with leading international practices, including the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The Company views climate risks as strategically significant factors that may impact operational activities, investment decisions, and the long-term resilience of the business.

ROLE OF MANAGEMENT IN CLIMATE RISK MANAGEMENT

The **KMG Board of Directors** exercises the highest level of oversight over the Company's climate policy, approves key strategic documents such as the Low-Carbon Development Program to 2060 (LCDP-2060), and monitors the implementation of climate-related initiatives. For in-depth review of environmental, climate, and ESG issues, the Health, Safety, Environment and Sustainable Development Committee (HSE&SD Committee) operates under the Board and regularly analyzes current and emerging climate risks and opportunities.

The **Company's Management Board** is responsible for integrating climate aspects into strategic and operational management. Within KMG's management structure, designated executives oversee climate initiatives, including the **Deputy Chairman of the Management Board**, who coordinates implementation efforts, and heads of relevant departments responsible for emissions monitoring, carbon asset management, and low-carbon technology deployment.

The **Department of Low-Carbon Development** plays a key role in implementing the climate strategy. It is responsible for developing and monitoring decarbonization roadmaps, coordinating efforts with subsidiaries and affiliates, and promoting initiatives in renewable energy and carbon capture.

In 2024, the Company also approved several new regulatory documents that reinforce its climate policy and emissions management framework, including the Methodology for Monitoring and Reporting Greenhouse Gas Emissions and the Methane Emissions Management Instruction. These documents formalize KMG's commitment to reducing its carbon footprint and establish a unified approach to managing climate-related factors across the Group.

INTEGRATION OF CLIMATE RISKS INTO THE RISK MANAGEMENT SYSTEM

Climate risks are integrated into KMG's Corporate Risk Management System (CRMS), enabling the Company to identify, assess, and mitigate the potential impacts of climate change in a timely manner.

Under this approach, the Company:

- Identifies physical and transition climate risks, taking into account various climate scenarios;
- Develops risk maps and management plans, including adaptation measures and mitigation of climate impacts;
- Conducts regular monitoring of climate risks and includes them in the Company's Risk Register and Risk Map, as well as in annual reporting.

To manage identified risks, KMG develops adaptation strategies, including improving energy efficiency of its assets, expanding renewable energy, deploying carbon capture, utilization and storage (CCUS) technologies, and reducing methane emissions.

Transparency and disclosure play a key role in KMG's approach to climate risk management. The Company regularly discloses information on climate risks and its carbon footprint in accordance with international standards, including TCFD, GRI Standards, CDP, and ISO 14064.

By integrating climate aspects into corporate governance and risk management, KMG strengthens its resilience to climate challenges and enhances its competitiveness in the energy transition era.

CLIMATE RISK MANAGEMENT STRATEGY

The Company implements the Low-Carbon Development Program to 2060 (LCDP-2060), which outlines the key priorities, focus areas, and instruments for reducing its carbon footprint.

The main elements of the strategy include:
- Integrating climate-related considerations into business processes, including investment decisions, production operations, and risk management;
- Gradually reducing greenhouse gas (GHG) emissions and transitioning to a low-carbon economy using advanced technologies and international standards;
- Expanding renewable energy, implementing energy efficiency solutions, and reducing methane leaks;
- Applying CCUS mechanisms and implementing forest-climate offset projects;
- Systematic monitoring and reporting aligned with international standards.

KMG's strategy aims at long-term climate risk reduction and creating opportunities for sustainable development, considering global trends and Kazakhstan's national commitments to achieve carbon neutrality by 2060.

TIME HORIZONS

The Company has defined three time horizons for climate-related planning:
- **Short-term (0–1 year):** Includes annual budgeting and operational planning, analysis of current risks and opportunities;
- **Medium-term (1–10 years):** Aligns with KMG Group's Development Plan and business plans of subsidiaries and affiliates, considering Kazakhstan's Nationally Determined Contributions (NDCs) to global climate initiatives;
- **Long-term (10–35 years):** Covers the Company's strategic goals, including LCDP-2060 implementation, development of low-carbon projects, and alignment with international decarbonization standards. It also reflects the goals and principles of the Republic of Kazakhstan's Carbon Neutrality Strategy to 2060.

DECARBONIZATION SCENARIOS

As part of its climate strategy, KMG applies various scenarios to assess potential development pathways and adaptation to changing conditions. These scenarios help forecast the impact of climate risks and determine optimal response measures.

1. Realistic Scenario

Assumes a reduction in carbon footprint through:
- Implementation of energy efficiency and energy saving measures at production facilities;
- Deployment of two large-scale renewable energy projects with a total capacity of 1.2 GW in the Mangystau and Zhambyl regions.

2. Green Development Scenario

This scenario is aimed at achieving decarbonization targets and includes:
- Implementation of energy efficiency measures;
- Increasing the share of renewable energy in the energy mix sufficient to meet the Company's climate targets;
- Implementation of a forest-climate offset project to compensate part of the greenhouse gas emissions.

Under this scenario, KMG focuses on two key approaches to reducing greenhouse gas emissions:
- **Organic emission reductions** achieved through improved operational efficiency and modernization of production assets, considering potential changes in production volumes;
- **Inorganic emission reductions** through the implementation of new technological solutions at the corporate level, including the construction of renewable energy facilities and the purchase of renewable electricity for industrial needs, allocated among the Company's enterprises via intragroup agreements.

3. Deep Decarbonization Scenario

Envisions a 64% reduction in greenhouse gas emissions from 2019 levels by:
- Large-scale deployment of carbon capture, utilization, and storage (CCUS) technologies;
- Active offset policy, including forest-climate projects and development of hydrogen energy.

KMG plans to define its carbon neutrality targets by 2030 following pilot testing of these directions.

These scenarios enable KMG to respond flexibly to changes in regulation, economic trends, and technological advancements, ensuring sustainable business development and compliance with climate commitments.

CLIMATE RISK ASSESSMENT

APPROACH TO CLIMATE RISK ASSESSMENT (SCENARIO ANALYSIS)

KMG applies two main approaches for analyzing climate risks:
- **Analysis of physical climate risks** related to changes in the natural environment and their impact on the Company's operations;
- **Assessment of transition risks** associated with economic transformation, regulatory developments, and market demand shifts during the global energy transition.

When evaluating physical risks, KMG uses Representative Concentration Pathways (RCPs) developed by the Intergovernmental Panel on Climate Change (IPCC):
- **RCP 2.6** – a low-emission scenario where global temperatures stabilize due to strict climate policies;

- **RCP 4.5** – a medium pathway assuming moderate mitigation efforts;
- **RCP 8.5** – a high-emission scenario with no significant measures to limit emissions.

To assess transition risks, KMG uses scenarios developed by the Network for Greening the Financial System (NGFS):

- **Nationally determined contributions (NDC)** – assumes all announced policy measures are implemented, even if not yet enacted;
- **"Below 2°C" Scenario** – a moderate transition path that gradually strengthens climate policy to keep warming below 2°C;
- **Delayed Transition Scenario** – assumes delayed action until 2030, requiring abrupt and more drastic measures thereafter;
- **Net Zero by 2050 Scenario** – an ambitious path where strong policy and technological innovation achieve carbon neutrality.

Based on these scenarios, KMG conducts climate risk assessments at both the corporate and asset levels, allowing for the development of effective adaptation strategies.

KEY CLIMATE RISKS AND MITIGATION MEASURES

GRI 201-2

Physical Climate Risks	Planned and Ongoing Mitigation Measures
Sharp changes in temperature conditions *Potential consequences:* • Deterioration of employee health, increased risk of injuries and fatalities; • Reduced labor productivity and increased personnel costs; • Increased energy consumption for heating and cooling of production facilities; • Higher load on equipment and infrastructure.	• Improving thermal insulation of industrial and administrative buildings; • Developing energy-efficient heating and air conditioning systems; • Regular maintenance of equipment to prevent overheating or freezing; • Introducing adaptive work schedules during extreme temperatures.
Extreme weather events (floods, hurricanes, storms, dust storms) *Potential consequences:* • Damage to production assets and equipment; • Disruption of operations, shutdowns in extraction and processing; • Increased costs for infrastructure restoration.	• Enhancing the resilience of critical facilities to extreme weather conditions; • Developing emergency response plans and scenarios; • Improving early warning systems and meteorological monitoring; • Training personnel in emergency response methods.
Drought and water shortages *Potential consequences:* • Restrictions in water supply for technological processes; • Increased extraction and processing costs; • Environmental impacts on adjacent ecosystems.	• Introducing water reuse technologies; • Developing water treatment and recycling systems; • Optimizing water use at production facilities; • Training employees in efficient and responsible water use; • Developing emergency water supply plans; • Cooperating with government bodies on water supply issues; • Organizing environmental campaigns to reduce water use among the public and other companies.

Transition Climate Risks	Planned and Ongoing Mitigation Measures
Tightening greenhouse gas emission regulations *Potential consequences:* • Increased costs for acquiring carbon quotas; • Introduction of additional taxes and levies; • Restrictions on the use of carbon-intensive technologies.	• Monitoring greenhouse gas emissions in line with international standards; • Investing in emission reduction projects; • Expanding methane emission reporting under OGMP 2.0 and implementing methane reduction measures; • Developing an internal carbon pricing (ICP) system; • Maintaining dialogue with regulators and participating in the development of new standards; • Monitoring international trends and proactively adapting to legislative changes.
Declining demand for oil and petroleum products *Potential consequences:* • Decreased revenue from traditional oil and gas activities; • Risk of product oversupply.	• Developing and implementing low-carbon products and technologies; • Optimizing production processes and introducing new solutions to reduce carbon intensity; • Improving marketing strategies with a focus on environmentally friendly products; • Training and reskilling staff for new technologies and products; • Engaging with government and civil society on creating and implementing environmental production standards; • Continuously monitoring market trends to promptly adapt Company strategies to evolving customer needs.

Rising raw material and energy prices *Potential consequences:* • Increased operating costs for the Company; • Reduced competitiveness amid rising energy prices.	• Diversifying supply sources; • Optimizing energy use through energy-efficient technologies; • Long-term contracts with suppliers to stabilize pricing; • Adapting marketing strategies and customer relations.
Lack of regulatory framework for low-carbon projects *Potential consequences:* • Delays in implementing RES, CCUS, and hydrogen energy projects; • Uncertainty in emissions offset mechanisms.	• Active engagement with government authorities on standard development; • Participation in international emissions reduction and technology deployment initiatives; • Developing internal guidelines and methodologies for evaluating low-carbon projects.

KEY PROJECTS WITHIN THE CLIMATE STRATEGY

1. Enhancing Energy Efficiency and Reducing Emissions

One of the key decarbonization areas is the reduction of direct emissions (Scope 1) through improved operational efficiency and the implementation of energy-saving technologies.

Work completed in 2024:
- 70 activities were implemented under the Low-Carbon Development Plan;
- Annual savings of fuel and energy resources amounted to 2.36 million GJ, equivalent to a reduction of 174.9 thousand tonnes of CO_2 emissions;
- Energy consumption at production facilities was optimized through equipment upgrades and automation of technological processes.

2. Development of Renewable Energy

KMG is implementing large-scale renewable energy projects (RES) to replace traditional carbon-intensive energy sources and increase the share of clean energy in the energy mix.

Key projects:
- Construction of a 1 GW wind power plant with an energy storage system (Zhambyl region) – partner: Total Eren, implementation period: 2023–2027;
- 247 MW hybrid renewable power plant in Zhanaozen (Mangystau region) – partner: Eni S.p.A, implementation period: 2023–2026.

Work completed in 2024:
- Feasibility studies for the projects were completed;
- Wind potential in the Zhambyl region was assessed;
- Work is underway to select the main equipment supplier for the wind power plant;
- In December 2024, early works were completed at the solar power plant site, and installation of major equipment began.

3. Carbon Capture, Utilization, and Storage (CCUS)

KMG considers carbon capture and storage (CCUS) a key tool for reducing CO_2 emissions and enhancing oil recovery at fields. After 2040, a full-scale CCUS project is planned, with an estimated annual injection volume of up to 412 thousand tonnes of CO_2.

Work completed in 2024:
- CO_2 emissions screening was completed in the Atyrau and Mangystau regions – key emission sources totaling 412 thousand tonnes of CO_2 were identified;
- Infrastructure for CO_2 utilization was assessed;
- A concept was developed for a pilot CCUS project with a capacity of 10–20 thousand tonnes of CO_2 per year at the Prorva group of fields CPF operated by Embamunaigas JSC.

4. Development of Hydrogen Energy

KMG strategically positions itself in the hydrogen production market as a promising low-carbon energy source. Key focus areas include the production of blue hydrogen with carbon capture, the use of renewables for green hydrogen, scientific research, and the development of new storage and transportation technologies.

Work completed in 2024:
- Feasibility studies were conducted for the production of blue hydrogen, low-carbon ammonia, and methanol;
- A Water Resources Atlas was developed to assess the potential for green hydrogen production in western Kazakhstan;
- A pilot project on green hydrogen production and application is underway;
- An analytical calculator was developed to assess the cost of green hydrogen production;
- First laboratory samples of iron and titanium alloys were obtained for the safe storage and transport of hydrogen.

Successful completion of the project will enable NC KazMunayGas JSC to acquire a hydrogen transport technology for both domestic use and international export.

5. Production of Sustainable Aviation Fuel (SAF)

KMG is considering the production of SAF as an alternative to conventional Jet-1 aviation fuel, which would significantly reduce the carbon footprint of the aviation sector.

Work completed in 2024:
- A study on the potential for SAF production in Kazakhstan was completed by ICF SH&E Limited;
- Key export markets were identified, including the European Union;
- Preliminary technological solutions and capacity of the first plant were developed: 40,000 tonnes of SAF per year requiring 72,000 tonnes of bioethanol;
- A feasibility study (FS) is scheduled for 2025.

6. Implementation of Forest-Based Carbon Offset Projects

KMG views forest-climate projects as an effective mechanism to offset CO_2 emissions.

Work completed in 2024:
- A project to create a green zone around the city of Pavlodar covering 1,600 hectares is being implemented jointly with Chevron;
- Field research and soil analysis were carried out to assess CO_2 absorption potential, and a Working Project for the creation of green plantations was developed and passed the state environmental review.

Six forest-climate projects are planned under the LCPD-2060.

7. Methane Emissions Management

Reducing methane emissions is one of KMG's top priorities within global climate initiatives.

Work completed in 2024:
- In May 2024, KMG submitted its first methane emissions report under the OGMP 2.0 framework;
- Methodological support for report preparation was provided in cooperation with IFC and Carbon Limits;
- In June 2024, Tetra Tech ES, Inc. conducted a methane measurement campaign at Ozenmunaigas JSC and KazGPZ LLP facilities;
- A series of trainings and seminars on methane leak detection and repair (LDAR) technologies were held for production personnel.

Given Kazakhstan's accession to the Global Methane Pledge and the expected tightening of methane emissions regulation in the short term, NC KazMunayGas JSC is actively working on inventorying (baseline determination) and reducing methane emissions at its facilities.

GREENHOUSE GAS EMISSIONS

APPROACH TO CALCULATION

NC KazMunayGas JSC has adopted a comprehensive approach to the monitoring, accounting, and verification of greenhouse gas (GHG) emissions in accordance with leading international standards. The Company systematically analyzes its direct (Scope 1), indirect (Scope 2), and other material emissions (Scope 3), ensuring transparency and accuracy in its reporting.

Emissions Accounting Methodology

KMG is guided by the following international standards and methodologies:
- ISO 14064 – a standard for greenhouse gas emissions verification;
- GHG Protocol – methodology for calculating Scope 1, 2, and 3 emissions;
- IPCC Guidelines for national greenhouse gas inventories;
- UNFCCC – United Nations Framework Convention on Climate Change;
- Order of the Minister of Ecology and Natural Resources of the Republic of Kazakhstan dated January 17, 2023, No. 9 – National Methodological Guidelines.

The Company has also developed and approved a Methodology for Monitoring and Reporting Greenhouse Gas Emissions, which standardizes emissions accounting processes across the entire KMG Group.

Emissions Inventory

As part of its climate strategy, KMG conducts a greenhouse gas emissions inventory in the following categories:
- Scope 1 (direct emissions) – emissions from fuel combustion at production facilities (oil and gas extraction, processing, transportation);
- Scope 2 (indirect emissions from energy consumption) – emissions associated with the consumption of electricity and thermal energy purchased from third-party suppliers;
- Scope 3 (indirect emissions across the entire value chain) – includes emissions from the use of sold products, transportation, employee business travel, and other sources.

Since 2023, KMG has expanded its Scope 3 reporting to include five key categories:
- Other indirect emissions from energy consumption (electricity transmission losses);
- Emissions from employee business travel;
- Emissions from employee commuting;
- Emissions from transportation and delivery of finished products;
- Emissions from the use of sold goods and services.

Implementation of Internal Carbon Pricing

To account for the impact of climate-related factors on business and to stimulate emissions reduction, KMG is implementing a system of internal carbon pricing (ICP). This mechanism allows the Company to:
- Assess financial risks associated with tightening carbon regulations;
- Reallocate investments from carbon-intensive projects to low-carbon initiatives;
- Determine a "shadow price" for CO_2 emissions to evaluate the sustainability of projects.

Since 2022, calculating the carbon footprint and related financial aspects has been a mandatory part of feasibility studies (FS) for new capital projects.

Transparency and Reporting

KMG regularly discloses information on its emissions and climate risks in line with advanced international reporting standards:
- CDP (Carbon Disclosure Project) – reporting on emissions and climate risks;
- GRI (GRI Sustainability Reporting Standards) – sustainability reporting;
- TCFD (Task Force on Climate-related Financial Disclosures) – climate risk disclosure.

The adopted approaches to GHG emissions accounting ensure reliable and accurate reporting, enabling KMG to effectively manage its carbon footprint and adapt to changing climate-related requirements.

GREENHOUSE GAS EMISSIONS VOLUME

GRI 305-1, GRI 305-2, GRI 305-3, GRI 305-4, GRI 305-5

The volume of direct greenhouse gas emissions (CO_2) for 2024 by the Group of Companies of NC KazMunayGas JSC amounted to 7.7 million tonnes of CO_2 (9.06 million tonnes of CO_2-equivalent)[2].

[2] CO_2-equivalent data are presented using the global warming potential (GWP) coefficients from the IPCC Fifth Assessment Report (methane – 28, nitrous oxide – 265).
The calculation includes carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).
Direct greenhouse gas emissions data are verified by conclusions from independent accredited organizations for each subsidiary.

GHG EMISSIONS INDICATORS

Scope 1. Direct Emissions		2022	2023	2024
Breakdown by business activity				
Production	million t CO_2 / million t CO_2-eq	2.4/2.8	2.33/3.44	2.64/3.98
Processing	million t CO_2 / million t CO_2-eq	5.1/5.2	5.01/5.03	4.92/4.94
Transportation	million t CO_2 / million t CO_2-eq	0.1/0.1	0.1/0.1	0.14/0.14
Breakdown by countries				
Kazakhstan	million t CO_2 / million t CO_2-eq	6.6/7.1	6.55/7.68	6.99/8.35
Romania	million t CO_2 / million t CO_2-eq	0.9/0.9	0.88/0.88	0.69/0.69
Georgia	million t CO_2 / million t CO_2-eq	0.02/0.02	0.02/0.02	0.02/0.02
Breakdown by type of greenhouse gas				
CO_2	million t CO_2	7.6	7.44	7.7
CH_4	million t CO_2-eq	0.4	1.11	1.34
N_20	million t CO_2-eq	0.1	0.1	0.02
Scope 2 Indirect emissions (market-based)	million t CO_2 / million t CO_2-eq	3.2/3.2	3.4/3.4	3.3/3.3
Scope 2 Indirect emissions (location-based)	million t CO_2 / million t CO_2-eq	3.3/3.3	3.5/3.5	3.4/3.4
Scope 3 Use of sold products	million t CO_2 / million t CO_2-eq	61.6/61.8	54.6/54.8	59.1/59.2

GHG EMISSIONS INTENSITY INDICATORS

	Production			Transportation			Processing		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Scope 1 emissions intensity									
Scope 1 Emissions Intensity (tonnes of CO_2 per KZT million of revenue)	0.28	0.28	0.32	0.01	0.01	0.02	0.59	0.60	0.59
Scope 2 emissions intensity									
Scope 2 Emissions Intensity (location-based) (tonnes of CO_2-eq per KZT million of revenue)	-	-	0.15	-	-	0.03	-	-	0.24
Scope 2 Emissions Intensity (market-based) (tonnes of CO_2-eq per KZT million of revenue)	-	-	0.15	-	-	0.03	-	-	0.23

ENERGY SAVING AND EFFICIENCY IMPROVEMENT PROGRAMS

ENERGY EFFICIENCY MANAGEMENT

KMG applies energy saving and efficiency improvement principles based on the methodology of the international ISO 50001 standard "Energy Management Systems," which is recognized as a global best practice for systematic energy use management.

As part of its Low-Carbon Development Program, KMG has approved key internal regulatory documents that ensure a comprehensive approach to managing energy consumption:

- Energy Policy of NC KazMunayGas JSC;
- Regulation on Energy Saving and Energy Efficiency Management within the KMG Group, applicable to subsidiaries, affiliates, and contractor companies.

In addition to these measures, a targeted energy audit of process furnaces and boiler equipment at oil production enterprises was conducted within the KMG Group. Separate regulations on energy saving and efficiency were adopted at the level of individual subsidiaries (KBM, KGM, KOA, KTM, Pavlodar Refinery, PKOP, Caspi Bitum).

STRATEGIC GOALS

In 2024, KMG approved the Low-Carbon Development Program through 2060, which outlines the following key strategic priorities in energy efficiency and resource conservation:

- Long-term planning – development of integrated energy efficiency plans across the Group;
- Effective energy management – ensuring transparent management of energy flows based on reliable and measurable data;
- Centralized monitoring – implementation of a unified system for monitoring and managing energy efficiency processes;
- Engagement with government agencies – ongoing cooperation on energy-saving initiatives;
- Replication of best practices – scaling up successful cases throughout the organization;
- Cost optimization – identification and elimination of inefficient expenditures through rational use of resources;
- Profitability improvement – reduction of fuel and energy losses and minimization of inefficient expenses;
- Improved financial performance – enhanced economic efficiency through reduced energy consumption.

These measures are expected to ensure a sustainable reduction in energy costs, improve operational efficiency, and support the Company's decarbonization goals.

ENERGY CONSUMPTION

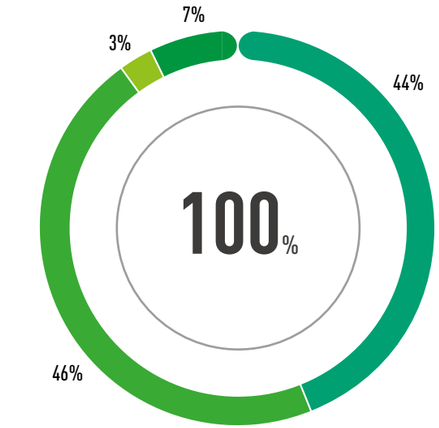
GRI 302-1

In 2024, total fuel and energy resource (FER) consumption across the KMG Group amounted to 129.4 million GJ, a 4% increase compared to 2023 (124.1 million GJ). The increase in energy consumption was driven by the commissioning of new subsidiaries and dependent entities – Dunga, Urikhtau Operating, Ural Oil and Gas, and KPI.

Breakdown of energy consumption:
- Electricity – 15.1 million GJ
- Thermal energy – 3.9 million GJ
- Motor fuel[3] – 1.8 million GJ
- Boiler and furnace fuel[4] – 108.5 million GJ

In 2024, the Group's own generation amounted to 737.5 million kWh of electricity and 5,440.6 thousand Gcal of thermal energy.

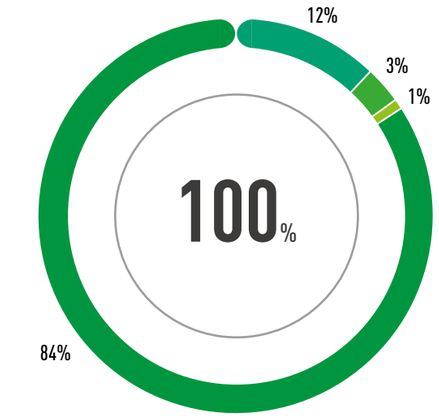
ENERGY CONSUMPTION BY SEGMENTS, THOUSANDS OF GJ



- Exploration and Production of Oil and Gas
- Oil and Gas Refining
- Oil Transportation
- Oil and Gas Chemistry (KPI)

As part of support for renewable energy sources (RES), Pavlodar Refinery and MMG purchased 10,832 thousand kWh of electricity produced by RES facilities via the Settlement and Financial Center for RES Support LLP. In addition, PKOP and Caspi Bitum LLP provided street lighting powered by solar panels, generating 149.5 thousand kWh of electricity in 2024.

STRUCTURE OF ENERGY CONSUMPTION



- Electric Energy
- Heat Energy
- Motor Fuel
- Boiler and Furnace Fuel

ENERGY CONSUMPTION REDUCTION

GRI 302-4

KazMunayGas is consistently implementing energy efficiency measures aimed at optimizing energy resource consumption and reducing its carbon footprint.

In 2024, the KMG Group implemented 70 equipment modernization initiatives, including:
- Replacement of gas burners in process furnaces;
- Introduction of energy-saving technologies;
- Optimization of heat generation and consumption;
- Modernization of lighting systems.

Economic and environmental outcomes:
- Annual energy savings: 2,361 thousand GJ ;
- Greenhouse gas emissions reduction equivalent: 174.9 thousand tonnes of CO_2.

Breakdown of reduced consumption:
- Electricity – 48,114 thousand kWh (173 thousand GJ)
- Thermal energy – 22,334 Gcal (94 thousand GJ)
- Boiler and furnace fuel[5] – 21,188 tonnes (887 thousand GJ)
- Dry de-ethanized gas – 5,238 thousand m^3 (226 thousand GJ)
- Natural gas – 29,003 thousand m^3 (980 thousand GJ)
- Diesel fuel – 36 tonnes (2 thousand GJ)

Total investment in energy efficiency measures in 2024 amounted to 5,930 KZT million.

The measures taken not only helped reduce energy consumption, but also improved operational efficiency by reducing costs and minimizing environmental impact.

ENERGY INTENSITY

GRI 302-3

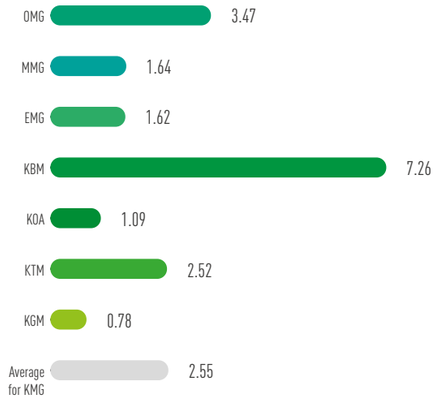
In 2024, the specific energy consumption in the hydrocarbon production segment of the KMG Group was 2.55 GJ per tonne of produced hydrocarbons (HC), which is 70% higher than the global average benchmark of 1.5 GJ/t set by IOGP.

However, the average value for the KMG Group is not fully representative due to significant variations in energy intensity across enterprises. Substantial impact comes from Ozenmunaygas (OMG) and Karazhanbasmunay (KBM), where specific energy consumption significantly exceeds industry norms.

KBM consumes five times more energy than the global IOGP average. This is due to the specific conditions at the Karazhanbas field, where oil is extracted using steam and hot water injection. This method is necessary due to the high paraffin content and unique rheological properties of the oil, requiring heating not only during winter but also in summer.

OMG shows more than double the energy consumption per production unit compared to industry standards. In 2024, the company introduced a well treatment technology using hot oil, which further increased energy consumption.

SPECIFIC ENERGY CONSUMPTION FOR THE PRODUCTION OF 1 TONNE OF HYDROCARBONS (HC), GJ/TONNE



GRI 302-3. Specific energy consumption (by segment)	Units	2024
Oil & gas exploration and production	thousand GJ/t of produced hydrocarbons	2.55
Oil & gas processing	thousand GJ/t of processed hydrocarbons	3.41
Oil transportation	thousand GJ/t	0.09

[3] Gasoline, diesel fuel.
[4] Furnace fuel, oil, fuel oil, refinery gas, associated petroleum gas, natural gas, defeminized gas, LPG.
[5] fuel oil, refinery gas

ENVIRONMENTAL IMPACT MANAGEMENT

MANAGEMENT APPROACHES

Environmental responsibility is one of the Company's key priorities. A comprehensive set of measures is being implemented to enhance environmental safety and reduce environmental impacts.

KMG's environmental policy is integrated into its Development Strategy through 2031. Within the framework of its environmental strategic initiatives, the Company is focused on achieving a "zero impact" approach–preventing negative environmental impacts. The implementation of effective internal standards and technological solutions, promotion of environmental awareness, and continuous improvement of the management system contribute to significant progress in this area.

Key areas of activity include:
- Management of air pollutant emissions;
- Reduction of raw gas flaring;
- Water resource management;
- Waste management and land reclamation;
- Biodiversity conservation.

KMG and its subsidiaries follow a zero-tolerance principle regarding environmental pollution. In its operations, the Company is guided by the Environmental Code of the Republic of Kazakhstan and its internal Environmental Policy, ensuring the collection, analysis, and dissemination of environmental information.

Transition to Best Available Techniques (BAT)

In line with the requirements of Kazakhstan's new environmental legislation, KMG is actively involved in the reform to transition to Best Available Techniques (BAT). As part of this initiative, BAT reference documents for oil and gas extraction and processing have been developed, and enterprises included in the list of the 50 largest polluters have begun the process of obtaining Integrated Environmental Permits (IEPs). The following KMG Group companies are on the list: Atyrau Refinery, Pavlodar Refinery, PKOP, and KOA.

Environmental Dialogue and Engagement

KMG actively participates in industry initiatives and engages in dialogue with government authorities and the expert community. On November 9, 2024, a roundtable was held in Atyrau on environmental regulation in the oil and gas sector with the participation of the Ministry of Ecology and Natural Resources of Kazakhstan, the KAZENERGY Association, and oil and gas companies. Key topics included obtaining IEPs, implementing Automated Monitoring Systems (AMS), and improving environmental legislation.

As part of the dialogue, representatives of the Ministry of Ecology and Natural Resources and the KAZENERGY Association visited the facilities of Atyrau Oil Refinery LLP and Kazakhstan Petrochemical Industries Inc. (KPI) to familiarize themselves with their environmental programs, monitoring systems, and treatment facilities.

Automated Environmental Monitoring Information System (AEMIS)

KMG is implementing an AEMIS aimed at creating a unified information space in the field of environmental protection.

The main goal of the project is to increase transparency in environmental monitoring, minimize human error, and ensure real-time control over compliance with environmental standards, thereby reducing the risk of fines and sanctions.

Key AEMIS functions include:
- Automation of reporting to government authorities;
- Maintenance of a database of permitting documents and emission fee calculations;
- Real-time response to potential exceedances of regulatory thresholds and adjustment of technological processes;
- Environmental status monitoring based on data from industrial environmental control;
- Generation of corporate reports through integration with the HSE KMG system.

The implementation of AEMIS will improve the efficiency of environmental management across KMG's operations and strengthen compliance with environmental protection requirements.

KEY ENVIRONMENTAL PERFORMANCE INDICATORS

0.23

SOx emission intensity (IOGP – 0.09)

0.39

NOx emission intensity (IOGP – 0.36)

98%

of associated formation water reinjected into reservoirs

1,099 thousand tonnes

Remediated historical waste and oil-contaminated land (2023 – 1,145 thousand tonnes)

1.45

Raw gas flaring intensity (IOGP – 8.8)

98.9%

Raw gas utilization rate

CDP: "B"

Climate rating

CDP: "B"

Water security rating

The Company continues to improve its environmental management system by implementing comprehensive environmental protection programs and increasing employee awareness of environmental safety.

WATER RESOURCE MANAGEMENT

MANAGEMENT APPROACH

GRI 303-1, GRI 303-2

In the context of climate change, water resources are becoming increasingly vulnerable, significantly impacting ecosystems, economies, human health, and communities. KMG acknowledges its responsibility for the rational use of water resources and is taking action to reduce its negative impact on aquatic ecosystems.

Strategic Approach to Water Resource Management

KMG's approach aligns with international sustainable development principles, including SDG 6 ("Clean Water and Sanitation"). The Company is committed to ensuring access to and rational use of water resources, as well as reducing pollution of water bodies.

In line with its Environmental Policy, KMG and its subsidiaries and dependent entities recognize environmental protection and the prevention of negative impacts on water resources as key priorities. The Company is committed to continuously improving water usage processes, including implementing water-saving projects, increasing the share of water recycling, and managing risks related to water scarcity.

To systematize activities in this area, a 10-year Water Resource Management Program has been developed. It focuses on:

- Preventing water resource shortages;
- Protecting ecosystems and reducing environmental impact;
- Improving water use management systems across KMG Group.

The Program covers major operating subsidiaries and includes the assessment of investment projects in terms of water use. As part of the Program, KMG conducted a water footprint assessment, identified key risks, and developed recommendations for their mitigation.

Water Conservation and Rational Water Use

KMG strives to reduce freshwater consumption and increase the volumes of recycled and reused treated wastewater. As part of its corporate water resource management, in 2018 the Company approved a Corporate Water Resource Management Standard based on the "eight water principles." The Standard regulates water use practices across subsidiaries and helps foster commitment among executives and staff to conserving water resources. An updated version of the Standard is planned for 2025 to reflect the approaches of the Water Resource Management Program.

KMG operates in full compliance with international standards, and Kazakhstan's environmental and water legislation. The Company has implemented processes for developing pollutant discharge limits and obtaining environmental permits, including those for discharges and water use.

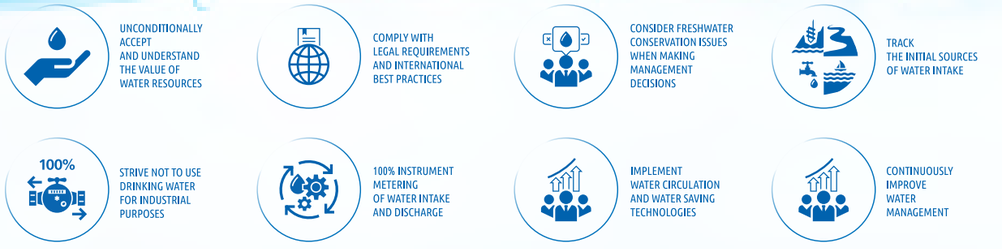
KMG WATER PRINCIPLES

Water is the basis of life, the source of all things existing.

The stability and security of the state is determined by the abundance of clean fresh water, and the success and sustainability of business – by responsible, caring attitude to it. These principles express the Company's commitment and demonstrate its intention to conserve water resources for people, nature and well-being of current and future generations of our country.

We constantly use water - from daily needs to the extraction and processing of oil. And at the same time, within the daily routine, we must not forget how much water is priceless. Every employee of the Company can and should contribute to its preservation.

KazMunayGas NC JSC CEO



Water Use Monitoring and Assessment

The Company ensures transparency in its environmental activities by providing open access to environmental information for shareholders, government agencies, and the public.

Since 2020, KMG has calculated its water footprint and annually discloses water use data via the Carbon Disclosure Project (CDP) water security questionnaire. In 2024, based on its 2023 disclosure, KMG's water management efforts were rated "B" (up from "C" in 2023).

In 2024, KMG was recognized among the top performers in the first RAEX ESG water efficiency rating. The rating analyzed water use indicators of 144 companies from Russia, Kazakhstan, and Mongolia, assessing not only consumption volumes but also corporate strategies and risk mitigation mechanisms. KMG ranked among the top 10 companies for the most efficient water use.

The Company continues improving water technologies and optimizing water use, which is a key part of its sustainable development strategy.

Environmental and Social Water Use Projects

KMG and its subsidiaries implement a wide range of measures to improve water use efficiency. Key initiatives include modernization of wastewater treatment facilities, development of water infrastructure in regions of operation, and deployment of innovative desalination technologies.

"TAZALYK" PROJECT – MODERNIZATION OF ATYRAU REFINERY WASTEWATER TREATMENT FACILITIES

One of the largest environmental projects is the "Tazalyk" Project, implemented by Atyrau Oil Refinery LLP. The goal is to reconstruct evaporation ponds, mechanical and biological treatment units, and build an advanced wastewater treatment facility.

Key environmental outcomes of the project include:
- Improved wastewater treatment quality;
- Elimination of harmful emissions from open reservoirs;
- Reduced environmental impact from evaporation fields.

As part of this project, the capacity of the mechanical treatment facilities is planned to be doubled. Notable achievements include:
- Commissioning of two phases of mechanical treatment plant reconstruction (Phase I – end of 2023, Phase II – May 2024);
- Increased mechanical treatment capacity to 1,000 m^3/hour, with oil sludge processing reaching 12,000 m^3/month;
- Elimination of open ponds, minimizing hydrocarbon evaporation;
- Completion of pipeline construction to redirect treated water to municipal sewerage, preventing pollutant discharge into the environment.

Ongoing reclamation work on the evaporation fields includes:
- Drainage of sections;
- Reed cutting;
- Deep ploughing and bioremediation;
- A three-stage reclamation process.

DEVELOPMENT OF WATER INFRASTRUCTURE IN OPERATIONAL REGIONS

KMG pays special attention to providing water resources to communities in its regions of operation. Two major strategic projects are underway in this area: the reconstruction of the Astrakhan – Mangystau main water pipeline and the construction of a desalination plant in Kenderli.

Reconstruction of the Astrakhan – Mangystau water pipeline aims to increase throughput capacity from 110,000 m^3/day to 170,000 m^3/day, ensuring water supply to the population, agriculture, industry, and oil and gas facilities in Atyrau and Mangystau regions. The pipeline is a critical water source for Kurmangazy, Isatai, and Zhylyoi districts of Atyrau region, as well as Zhanaozen, Beineu, Mangystau, Karakiya, and Tupkaragan districts of Mangystau region. With annual population water consumption growing by 4–5%, the project is a crucial step toward regional water security.

Another significant project is the construction of a desalination plant in Kenderli with a capacity of 50,000 m^3 per day. The facility will address the shortage of drinking water in Zhanaozen and ensure a stable water supply to support the development of tourism, entrepreneurship, and agriculture in the region.

At present, the main construction works have been completed, including the installation of a 201 km main water pipeline to deliver desalinated water to Zhanaozen, 83 km of power transmission lines, and 40 km of roads.

Work is nearing completion on a 46 km gas pipeline, which is now 97% complete.

The plant is scheduled to be commissioned in 2025, which will significantly improve the quality of life for the local population and support the region's economic activity.

INNOVATIVE WATER TREATMENT AND DESALINATION TECHNOLOGIES

Karazhanbasmunai JSC has implemented a project for a produced water desalination plant at the Karazhanbas field in the Mangystau region. Once operating at full capacity, the plant will allow:
- Treatment of 42.5 thousand m^3/day of produced water;
- Production of 17 thousand m^3/day of desalinated water;
- Reduction in freshwater withdrawal.

Implementation results to date:
- In 2023, water withdrawal was reduced by 2.6 million m^3;
- In 2024, water withdrawal decreased by 4.07 million m^3, compared to 6.3 million m^3 in 2022.

WATER TREATMENT AND IMPROVED WORKING CONDITIONS

KazTransOil JSC completed a project to install mobile water purification units at the Kalamkas GNPS and Karazhanbas NPS facilities. Project goals include:
- Providing workers with clean drinking water;
- Improving employee working conditions;
- Enhancing social and environmental resilience of production sites.

Previously, these sites relied on drinking water purchased from the Kiyakty village pumping station, which required significant financial resources. Following the installation of the purification units:
- Volga water (technical water) is treated to meet drinking water standards of the Republic of Kazakhstan;
- The Company significantly reduced water supply costs;
- Environmental safety at the sites has been improved.

KMG and its subsidiaries are consistently implementing major infrastructure projects aimed at reducing water intake, improving wastewater treatment quality, and ensuring access to drinking water for the population. The implementation of modern technologies minimizes environmental impact and strengthens water security in the Company's regions of operation.

WATER FOOTPRINT

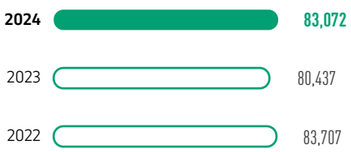
WATER WITHDRAWAL

GRI 303-3

In 2024, KMG Group's total water withdrawal amounted to 83.1 million m³. The main sources were surface water, groundwater, and seawater.

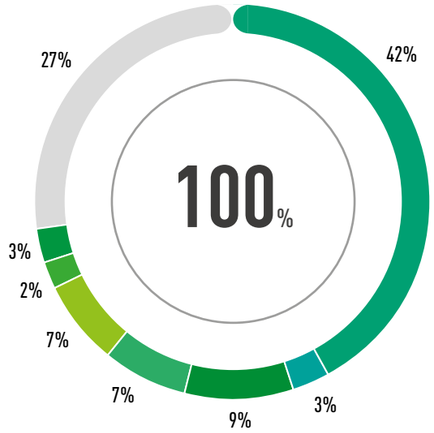
It is important to note that this total includes 24.08 million m³ withdrawn by a subsidiary providing technical freshwater supply services to consumers in the Atyrau and Mangystau regions – this volume is not used by KMG for its own domestic or production purposes. Excluding this volume, KMG Group's own operational water use in 2024 amounted to 58.99 million m³.

TOTAL WATER WITHDRAWAL, THOUSAND M³



According to the World Resources Institute (WRI)[6], Kazakhstan is located in a region of critical water scarcity, and a high level of water stress is projected over the next 15–20 years. KMG conducts a water use assessment in six of its subsidiaries located in regions facing elevated water scarcity, based on the WRI Aqueduct water stress indicator, including the Caspian Sea basin and the Syrdarya and Ural river basins. In 2024, the total water withdrawal in these regions amounted to 27.3 million m³.

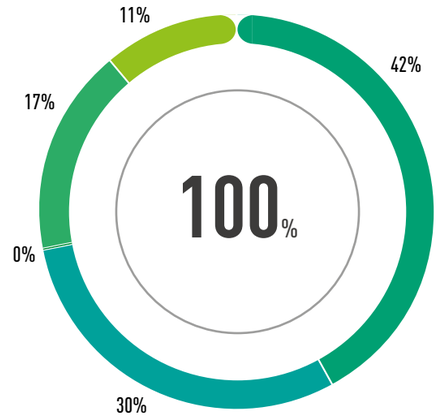
WATER USAGE STRUCTURE BY TYPE OF OPERATIONS



To minimize water shortages in these regions, KMG is implementing measures to reduce freshwater consumption, increase water recycling, and strengthen water use monitoring. At the same time, it is important to note that water availability is a critical factor for the Company's operational activities.

[6] According to WRI Aqueduct: high category – total water stress 80-40%, extremely high category – > 80%.

WATER INTAKE STRUCTURE BY SOURCES FOR 2024, MILLION M³



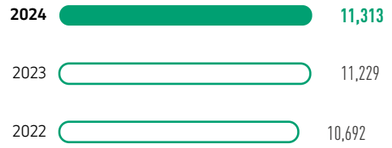
WASTEWATER DISCHARGE AND REUSE

GRI 303-4

In 2024, the total volume of discharged wastewater amounted to 11.3 million m³. Treated wastewater is routed to specialized recipients, such as holding ponds, evaporation fields, and filtration fields. There is no direct discharge into surface water bodies or onto natural terrain.

Enterprises without their own storage facilities transfer wastewater to specialized companies for treatment. In 2024, the volume of such transferred wastewater amounted to 0.8 million m³ (all of which had a salinity level above 1,000 mg/l).

TOTAL VOLUME OF WATER DISCHARGES, THOUSAND M³



The wastewater discharge from KMG enterprises in water-stressed regions amounted to 2.98 million m³, of which 2.95 million m³ were directed to on-site wastewater recipients, and 0.03 million m³ were transferred to specialized treatment companies.

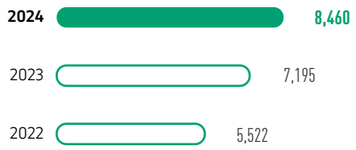
KMG considers wastewater not only as waste, but also as a potential resource for further use. The treatment facilities of the Company's enterprises are equipped with technologies for removing petroleum products and suspended solids. For example, at refineries, wastewater undergoes mechanical and physicochemical treatment in grit chambers, oil traps, radial settling tanks, and flotation units, followed by biological treatment.

One of KMG's key goals is to increase the reuse of treated wastewater. Water is reused in technological processes, irrigation of green areas, dust suppression at construction sites and roads, vehicle washing, and fire protection system replenishment. In 2024, a total of 8.5 million m³ of treated wastewater was reused.

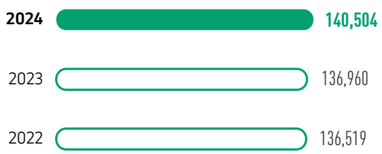
A significant portion of treated wastewater is reused at refineries – 4.1 million m³ in 2024, which represents about a quarter of the total water withdrawal by KMG refineries.

In recirculating water systems at KMG's refineries, a total of 535.5 million m³ of water circulated in 2024.

VOLUME OF WATER REUSED (AFTER TREATMENT), THOUSAND M³

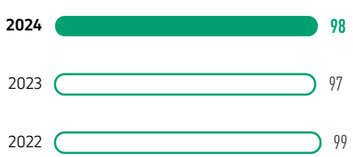


VOLUME OF PRODUCED ASSOCIATED WATER, THOUSAND M³



VOLUME OF CIRCULATING WATER, THOUSAND M³

SHARE OF ASSOCIATED WATER INJECTED BACK INTO RESERVOIR, %



PRODUCED WATER MANAGEMENT IN OIL PRODUCTION

Oil extraction generates significant volumes of produced water. This water is brought to the surface along with the oil in the form of a water-oil emulsion, which is then separated by gravity. The treated water is injected back into the reservoir to maintain reservoir pressure.

In 2024, the total volume of produced water amounted to 140.5 million m³, of which 98% was reinjected. This demonstrates a high level of produced water utilization and minimization of impact on surface and groundwater resources.

ENVIRONMENTAL MONITORING AND PROTECTION OF WATER BODIES

The production activities of KMG have the greatest impact on water bodies in the western region of Kazakhstan, including the Ural and Kigach rivers, as well as the unique Kokzhide sand ecosystem. These areas are of special environmental, economic, and cultural value.

To prevent negative impacts on these sensitive ecosystems, KMG implements comprehensive environmental monitoring, including continuous observation of the environmental condition and control of water quality. The Company's activities in this area comply with national environmental legislation requirements and international sustainable water use standards.

AIR PROTECTION

KMG places top priority on air protection, as pollution levels directly affect public health and the environment. As part of its environmental policy, the Company consistently reduces pollutant emissions, implements modern technological solutions and automated monitoring systems, and carries out measures to reduce gas flaring.

EMISSIONS MANAGEMENT AND EQUIPMENT MODERNIZATION

A key area of KMG's environmental activity is reducing atmospheric emissions through equipment modernization and the implementation of environmentally efficient technologies. This includes replacing fuel oil with natural gas in process furnaces, using next-generation additives, and implementing landscaping and site improvement programs.

Additional work includes burner modernization, optimizing equipment operation modes, and reducing equipment runtime. Cleaning of exhaust gases from harmful compounds, expanding gas processing capacity, and constructing appropriate facilities help reduce pollution levels. Regular monitoring detects potential leaks, ensuring prompt response.

One of the key measures is the installation of floating roofs on storage tanks, which minimize the formation of volatile fractions by eliminating free space above the stored product.

As part of a technical upgrade program at the **Atyrau Oil Refinery**, 36 burners were replaced in 2024 on the EDP-AVT-2 (Electric desalination plant, atmospheric-vacuum tube) processing unit. The new burners, produced by International Combustion Equipment S.r.l., are equipped with ignition systems and flame monitoring sensors, increasing efficiency and reducing pollutant emissions. Additionally, new flow meters, electric-drive dampers, gas filters, oxygen analyzers, and variable-frequency draft fan drives were installed, optimizing combustion and reducing emissions.

KazTransOil JSC completed the installation of a pontoon in a 20,000 m³ tank at the Kasymov oil refinery. This device isolates the oil surface from the gas space, reducing hydrocarbon evaporation and decreasing air pollutant emissions by 80%. Overall, in 2024, KazTransOil JSC reduced pollutant emissions at its facilities by 7% compared to 2023.

EMISSIONS MONITORING AND AUTOMATED CONTROL SYSTEMS

KMG conducts comprehensive environmental monitoring, including air, water, and soil quality control, to minimize the environmental impact of its operations. The Company regularly performs production environmental control, and measurement results are submitted quarterly to government supervisory authorities.

Special attention is paid to air quality monitoring in areas near production facilities, including installing stationary observation posts at the boundaries of sanitary protection zones. These measures ensure timely response to pollution level changes and enable corrective actions.

In accordance with the Environmental Code of the Republic of Kazakhstan, since January 1, 2023, facilities in Category I are required to have an Automated Emissions Monitoring System (AEMS). AEMS allows real-time tracking of emissions from major stationary sources and transmits data to government authorities.

AEMS has been implemented at KOA, MMG, Atyrau Refinery, Pavlodar Refinery, and PKOP facilities, and installation and commissioning are nearing completion at KPI. Environmental monitoring instruments measure the concentrations of sulfur oxides/sulfur dioxide, nitrogen oxides, soot, and carbon monoxide in the emissions of furnaces and boilers.

Data is updated every 20 minutes and sent to government regulatory bodies.

The implementation of automated monitoring systems enables real-time emissions control and adjustment of equipment operation parameters to reduce environmental impact. In this way, KMG applies a comprehensive approach to air protection by combining production modernization with enhanced emissions control.

AIR POLLUTANT EMISSIONS

GRI 305-7

In 2024, KMG continued to implement measures to reduce atmospheric pollutant emissions, leading to further reductions. Total emissions across the Group amounted to 116.765 thousand tonnes, a 2% decrease compared to 2023.

- Nitrogen oxides (NOx): Emissions totaled 15.218 thousand tonnes, maintaining the previous year's level.
- Sulfur dioxide (SOx): Emissions increased to 11.686 thousand tonnes due to changes in operation modes of some production units.
- Carbon monoxide (CO): Emissions decreased by 6% to 21.500 thousand tonnes due to process optimization.
- Other pollutants: Emissions amounted to 68.361 thousand tonnes, showing a steady decline due to the implementation of environmental protection measures.

VOLUME OF AIR POLLUTANT EMISSIONS, THOUSAND TONNES[7]

Volume of Air Pollutant Emissions, thousand tonnes	2022	2023	2024
Nitrogen oxides (NOx)	16.00	15.27	15.22
Sulfur dioxide (SOx)	10.50	10.99	11.69
Carbon monoxide (CO)	13.71	22.96	21.50
Particulate matter (PM)	0.52	1.31	1.97
Other	79.86	68.93	66.38

SPECIFIC AIR POLLUTANT EMISSIONS IN THE KMG GROUP

Indicator	2022	2023	2024
Oil and gas production, t / 1,000 tonnes of produced hydrocarbons	2.1	2.2	2.2
Oil refining, t / 1,000 tonnes of processed crude oil	3.1	3.0	2.9
Oil transportation, t / 1,000 tonnes of transported oil	0.5	0.4	0.4

In 2024, the average ratio of NOx emissions to the total volume of hydrocarbon production in oil equivalent across the KMG Group amounted to 0.39 tonnes per thousand tonnes of hydrocarbon production, while the average IOGP benchmark was 0.36. Compared to 2023, the specific NOx emissions increased, which was due to the addition of new emission sources from new operators as well as activities of contracting organizations.

The average ratio of SOx emissions to the total volume of hydrocarbon production in oil equivalent across the KMG Group amounted to 0.23 tonnes per thousand tonnes of hydrocarbon production, while the average IOGP benchmark was 0.09. This KMG indicator remained at the same level as in 2023.

EFFICIENT USE OF ASSOCIATED GAS

KMG and its subsidiaries adhere to the principles of environmental responsibility by implementing comprehensive measures to control emissions of pollutants and greenhouse gases. One of the Company's priorities is the reduction of flaring of associated gas, in line with the goals of KMG's Environmental Policy and international sustainable development standards.

As part of its strategy to minimize flaring of associated petroleum gas, KMG actively develops programs for its utilization and beneficial use. As a result of these efforts, in 2024, the associated gas utilization rate reached 98.9%. The gas flaring intensity amounted to 1.45 tonnes per 1,000 tonnes of hydrocarbon production (HCP), which corresponds to the 2023 level (1.4) and shows a decrease compared to 2022 (1.5). This indicator remains 84% below the industry average established by the International Association of Oil & Gas Producers (IOGP), where the average gas flaring level is 8.8.

[7] The Company does not emit persistent organic pollutants in its operations.

A slight increase in the volume of gas flaring in 2024 compared to the previous year is attributed to the commissioning of new fields in the Aktobe, Mangystau, and West Kazakhstan regions.

At the same time, the Company continues to work on further reducing flaring volumes through the expansion of gas processing infrastructure and its efficient use.

Volume of Raw Gas Flaring	2022	2023	2024
Total volume of raw gas flared, million m^3	35.7	33.35	35.2
Associated gas utilization rate, %	98.8	98.9	98.9
Flaring intensity, tonnes per 1,000 tonnes of HCP	1.5	1.4	1.45

KMG also participates in global initiatives to reduce gas flaring. Since 2015, the Company has supported the World Bank's "Zero Routine Flaring by 2030" initiative, which aims to minimize emissions and promote the rational use of resources. As part of this initiative, KMG annually reports its raw gas flaring volumes to the World Bank Representative Office in Kazakhstan.

The Company continues implementing projects for processing associated petroleum gas for use in production processes, including heat and power generation. These efforts not only reduce pollutant emissions but also improve production energy efficiency.

WASTE MANAGEMENT AND LAND RECLAMATION

GRI 306-1, GRI 306-2, GRI 306-3, GRI 306-4, GRI 306-5

KMG's production activities generate various types of waste, including drilling waste, oil-containing waste, spent catalysts, chemical reagents, construction waste, used oils, and oily rags. In line with Kazakhstan's national environmental policy and KMG's Environmental Policy, the Company implements a comprehensive set of measures to reduce waste generation, ensure safe waste handling, and adopt environmentally friendly technologies.

In 2024, KMG approved a Corporate Standard on Waste Management, which sets out step-by-step responsibilities for subsidiaries and dependent entities in waste management. The document was developed to align KMG operations with the environmental legislation of the Republic of Kazakhstan and to improve waste management efficiency.

WASTE ACCOUNTING AND MANAGEMENT SYSTEM

KMG maintains strict control over waste at all stages–from generation to disposal. A separate waste collection system has been introduced, taking into account the properties and volumes of waste. Waste tracking results are submitted to the authorized environmental protection authority and recorded in the HSE KMG information system.

The waste management process includes accumulation, landfilling, disposal, or transfer to specialized licensed contractors authorized for waste treatment and disposal. To reduce environmental impact from transportation, subsidiaries and dependent entities are encouraged to process waste on site or reduce movement where possible.

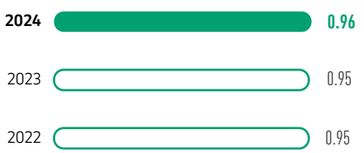
Waste treatment and recovery activities carried out by specialized contractors are monitored by KMG to ensure compliance with contract requirements and project specifications. If necessary, control laboratory tests are conducted on recovered waste.

In 2024, KMG allocated KZT 18.9 billion for waste treatment and recovery activities.

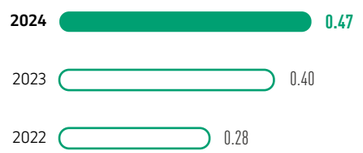
WASTE MANAGEMENT INDICATORS IN 2024, THOUSAND TONNES

Type of Waste	Generated Waste	Waste Sent for Processing/ Utilization	Waste Sent for Disposal and Placement
Hazardous Waste	358.0[8]	1,452.9[9]	-
of which drilling waste (drilling mud and cuttings)	179.6	179.6	-
Non-Hazardous Waste	79.7	54.7	16.5
Total:	**437.7**	**1,507.6**	**16.5**

RATIO OF THE AMOUNT OF WASTE RECYCLED TO THE AMOUNT OF NEWLY GENERATED WASTE, T/T



RATIO OF THE AMOUNT OF RECYCLED WASTE TO THE AMOUNT OF ACCUMULATED AND NEWLY GENERATED WASTE, T/T



[8] The amount of generated waste is presented, taking into account the volumes of waste generated by contractors performing work at the facilities of KMG subsidiaries.
[9] Taking into account the volumes of historical waste recycling, as well as the carryover volume from the previous year.

REMEDIATION OF HISTORICAL POLLUTION AND LAND RECLAMATION

KMG continues its efforts to dispose of historical oil-containing waste and clean up contaminated land at MMG, OMG, KBM, and EMG facilities.

In 2024, 1,099 thousand tonnes of historical waste were disposed of, the areas where the waste had been stored were reclaimed, and work began to assess the remaining volumes of oil waste. The total area of reclaimed disturbed land amounted to 172 hectares.

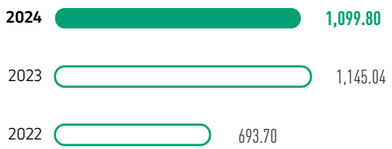
KBM has fully eliminated historical pollution within its contract territory, having disposed of 518,879 tonnes of historical oil waste during the 2021–2024 period.

A waste pit in the coastal zone of the Caspian Sea was eliminated, along with three land pits, and 246 oil-contaminated sites were cleaned up within the Karazhanbasmunai contract area.

EMG also completed the remediation of historical oil-contaminated land within its contract areas and continues eliminating pollution beyond those boundaries in accordance with the approved land reclamation project and the conclusion of the State Environmental Expertise.

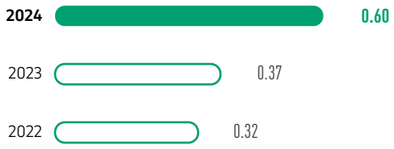
KMG continues to implement comprehensive measures aimed at reducing the volume of waste, increasing the level of waste recycling, and minimizing environmental impact – an essential component of the company's sustainable development strategy.

HISTORICAL WASTE RECYCLED, THOUSAND TONNES



RATIO OF THE AREA OF CONTAMINATED LAND AT THE END OF THE YEAR TO THE AREA AT THE BEGINNING OF THE YEAR, HA/HA

RATIO OF THE AREA OF LAND RECLAIMED DURING THE YEAR TO THE AREA OF CONTAMINATED LAND DURING THE YEAR, HA/HA



PREVENTION AND RESPONSE TO OIL SPILLS

GRI 306-3

KMG considers continuous preparedness for oil spill response (OSR) one of the key priorities of environmental safety, especially in offshore operations in the Caspian Sea – a highly vulnerable ecosystem due to its landlocked nature.

The Company enforces strict environmental requirements during offshore oil operations, conducts baseline environmental monitoring prior to the start of activities, and assesses potential social and environmental impacts. Impact monitoring, emission monitoring, and emergency monitoring are carried out during and after operations.

Before the start of offshore drilling, KMG ensures full preparedness for responding to all potential oil spill emergencies. Upon completion of operations, continuous environmental monitoring of the plugged wells is conducted, which includes:

- Air quality control;
- Monitoring of marine water and bottom sediment contamination;
- Observation of biodiversity status;
- Laboratory analysis of samples;
- Photo and video documentation of plugged wellheads

During offshore operations, KMG strictly adheres to the following principles:

- Strict compliance with design solutions to prevent deviations from approved environmental standards;
- Zero discharge principle – all waste and wastewater are brought ashore;
- All vessels are equipped with fish protection devices and are prohibited from discharging bilge water;
- Ban on operations during spawning season (from April 1 to July 15) to preserve marine bioresources;
- Ban on fishing from operational vessels in oil production zones;
- Ban on well testing and flaring of hydrocarbons during nighttime to minimize environmental impacts;
- Adherence to a special environmental regime in marine contract territories.

In 2024, a total of 351 oil spills were recorded onshore, with a total volume of 284 tonnes. The main cause of spills was pipeline ruptures due to corrosion. These spills occurred at onshore facilities during the production and transportation of hydrocarbons, primarily due to wear and tear of steel pipelines and collector depressurization. No offshore oil spills were recorded.

The Company is systematically working to reduce the number of accidents and ruptures in field pipelines. Key measures include timely diagnostics, reconstruction, equipment replacement, use of corrosion inhibitors, and pipeline cleaning. These actions are aimed at improving the integrity and reliability of the pipeline infrastructure.

KazTransOil JSC, in close cooperation with law enforcement authorities, has successfully eliminated criminal illegal taps into trunk oil pipelines. While two cases of illegal tapping were recorded in 2019 with damages totaling

KZT 6.4 million, no such incidents were reported from 2020 to 2024. This achievement was made possible through:

- Enhanced monitoring of mobile teams using GPS systems and regular pipeline patrolling;
- Implementation of the "Optosense" monitoring system for pipeline protection.

The Company also pays particular attention to maintaining constant readiness for OSR, treating this area as an unconditional priority.

KMG continues to improve its oil spill prevention and response systems, enhancing the environmental safety of its offshore operations and reducing potential risks to the environment.

Development of Volunteer Engagement within OSR

As part of the Oil Spill Response (OSR) Volunteer Development Program, KMG Systems & Services LLP organized a training session on June 22, 2024, for the 16th and 17th groups of volunteers. University students from the city of Aktau participated in the training.
The program is aimed at developing oil spill response skills and increasing public engagement in the region's environmental safety.

BIODIVERSITY PROTECTION

GRI 306-2, GRI 306-3, GRI 306-4, GRI 306-5

MANAGEMENT APPROACH

KMG has committed to biodiversity conservation and minimizing impacts on ecosystems as part of its Environmental Policy. The Company adheres to the principles of responsible natural resource use and implements measures to prevent and mitigate the negative consequences of its industrial activities on the environment.

Subsidiary	Projects	Volume of expenses, thous. KZT
KMG System&Servises LLP	compensation of fishery losses in the Ural River	9,856
Kalamkas-Khazar Operating LLP	fish stocking of the Ural River	58,399.45
Magistralny Vodovod LLP	fish stocking of the Kigash River	23,211.517

KMG'S PRINCIPLES AND COMMITMENTS

In its operations, the Company is guided by the following principles:

- Prohibition of activities in specially protected natural areas that are critical habitats for rare and endangered species. Risk assessments are conducted before beginning work in ecologically sensitive areas.
- Application of the mitigation hierarchy, including avoidance, minimization, restoration, and compensation of potential significant impacts.
- Participation in research programs and industry partnerships to develop innovative solutions for environmental protection and biodiversity conservation.
- Prohibition of illegal hunting, fishing, and other use of natural resources by KMG employees and contractors within contract areas.

In 2025, KMG plans to develop a long-term Biodiversity Conservation Program, which will cover all Group entities and include comprehensive ecosystem protection measures.

TRAINING ON BIODIVERSITY IMPACT MANAGEMENT

In September 2024, KMG's Corporate Center organized training for specialists from its subsidiaries and dependent entities on biodiversity impact management. Ecologists and engineers from the Corporate Center and KMG Group companies participated in the program.

The training aimed to build a deep understanding of biodiversity issues in the context of corporate management. Participants studied key aspects of industrial impact on the environment and biodiversity, methods of minimizing such impact, and requirements for accounting and reporting.

Special attention was given to:

- Assessing biodiversity impacts, analyzing indicators and bioindicators in accordance with international standards and best practices;
- Recommendations from the Task Force on Nature-related Financial Disclosures (TNFD) and the GRI Sustainability Reporting Standards (GRI);
- The mitigation hierarchy principles including four key actions: avoidance, preservation, restoration, and compensation of potential impacts.

This approach supports the integration of biodiversity considerations into KMG's management system, ensuring sustainable development and compliance with international environmental standards.

MONITORING AND ASSESSMENT OF ECOSYSTEM IMPACTS

In areas located within the North Caspian State Reserve Zone, baseline environmental studies, drilling, and well testing have been conducted. At present, anthropogenic impact in these areas remains minimal and does not interfere with the migration of animals and birds.

The main environmental impact factors during offshore operations include:

- Increased suspended particles in water during construction;
- Alteration of seabed sediment structure due to intensive navigation;
- Physical noise impact during drilling and operations.

To monitor the environmental state, KMG conducts industrial environmental monitoring, including surveillance of decommissioned wells and scientific research (R&D) in hydrology, hydrochemistry, hydrobiology, and ichthyology. These studies also serve as compensatory measures for the unavoidable impacts on fish resources.

Indicator	Onshore Operations			Offshore Operations		
	2022	2023	2024	2022	2023	2024
Sites where biodiversity is covered by an EIA or similar document (%)	100	100	100	100	100	100
Sites where regular environmental monitoring is conducted (%)	100	100	100	100	100	100
Sites with decommissioned wells where regular monitoring is conducted (%)	100	100	100	100	100	100

Case Example

Magistralny Vodovod LLP carried out the restocking of the Kigach River, releasing 23.6 thousand juvenile beluga sturgeon to help preserve the biodiversity of the Caspian Sea and its coastal zone.

For the same purpose, in 2024, Kalamkas-Khazar Operating LLP released 70 thousand juvenile Russian sturgeon and sterlet into the Ural River as part of its compensation measures, while KMG Systems & Services LLP released 18.8 thousand juvenile sturgeon.

IMPACT OF POWER TRANSMISSION LINES ON AVIFAUNA

One of the significant environmental challenges associated with industrial activities is bird mortality caused by collisions with power transmission lines (PTLs) and electrocution. This is particularly relevant in steppe and semi-desert regions, where the absence of tree cover makes PTL poles attractive for nesting and resting by birds of prey.

KMG monitors high-risk areas for birds, identifying critical zones through special studies and production environmental control. The company implements measures to reduce negative impacts, including the installation of visual markers on PTLs and the application of other protective mechanisms.

STRATEGIC APPROACH TO BIODIVERSITY CONSERVATION

KMG implements nature conservation measures both within and beyond protected natural areas. The biodiversity conservation policy includes:

- Preservation of habitats and animal migration routes;
- Minimization and compensation of potential harm to ecosystems;
- Reduction of disturbed areas through restoration efforts.

To mitigate the impact on biodiversity, measures are taken to optimize the duration, intensity, and levels of industrial activity at oil production and transportation sites.

KMG is open to new initiatives and proposals in the field of biodiversity conservation and invites interested parties to submit their ideas to: hse@kmg.kz.

PROTECTED NATURAL AREAS AND BIODIVERSITY IN KMG'S REGIONS OF OPERATION

NORTHERN CASPIAN ECOSYSTEM

The Northern Caspian is the most biologically productive part of the Caspian Sea, rich in biological resources. The region's waters are home to 25 fish species, including sturgeon, which accounts for 70–80% of the global reserves in this basin.

The eastern part of the Northern Caspian and the deltas of the Volga, Ural, and Emba rivers are part of protected natural areas. These wetlands are key to Eurasian biodiversity, serving as breeding, molting, migration, and wintering grounds for millions of waterfowl and semi-aquatic birds.

The Northern Caspian lies along the Siberian–Black Sea–Mediterranean migratory route, one of the largest flyways in Eurasia.

Background ecological research indicates that over 70 bird species migrate through the northeastern Caspian. Among them are five rare species listed in the Red Book of Kazakhstan.

Five species listed in the Red Book of the Republic of Kazakhstan also nest in the region's terrestrial habitats. The most numerous is the steppe eagle. Other notable species include the pied avocet, magpie, and little egret.

The Caspian seal (Phoca caspica) is the only large marine mammal endemic to the Caspian Sea. Its population migrates seasonally: breeding occurs in the northern part during winter, followed by a move to the central and southern areas in spring and summer, and a return to the northern shallows in autumn.

PROTECTED AREAS AND ECOSYSTEM MONITORING

KMG actively conducts environmental monitoring on its contract areas, tracking the condition of flora and fauna, marine water pollution levels, seabed sediment, and air quality.

- The "Isatay" block is located in the northern Caspian Sea, 45 km from the Buzachi Peninsula (Mangystau Region), near protected natural areas.
- The "Abay" block lies in the northwestern part of Kazakhstan's Caspian Sea sector, 60–70 km offshore from the Buzachi Peninsula (Atyrau Region), and is part of the Caspian protected zone.
- The "Al-Farabi" block is located in the southern part of Kazakhstan's Caspian sector, with its western boundary adjacent to Kazakhstan's state border with Russia in the Mid-Caspian Sea.

PROTECTED AREAS OF MANGYSTAU REGION

Mangystau Region is rich in specially protected natural areas, including:

- Ustyurt State Nature Reserve;
- Kendirli-Kayasan Republican-level Protected Zone;
- Eight wildlife reserves and a regional nature park.

Rare animal species inhabit the region, including the Elaphe sauromates (blotched snake), listed in the Red Book of Kazakhstan. The Central Asian tortoise, which is widely found in the region, is considered threatened according to IUCN classification.

The Kendirli-Kayasan protected zone was established to preserve the habitat of the houbara bustard and the saker falcon, which are under special protection. The zone is governed by three regimes of nature use: strict reserve, wildlife reserve, and regulated use.

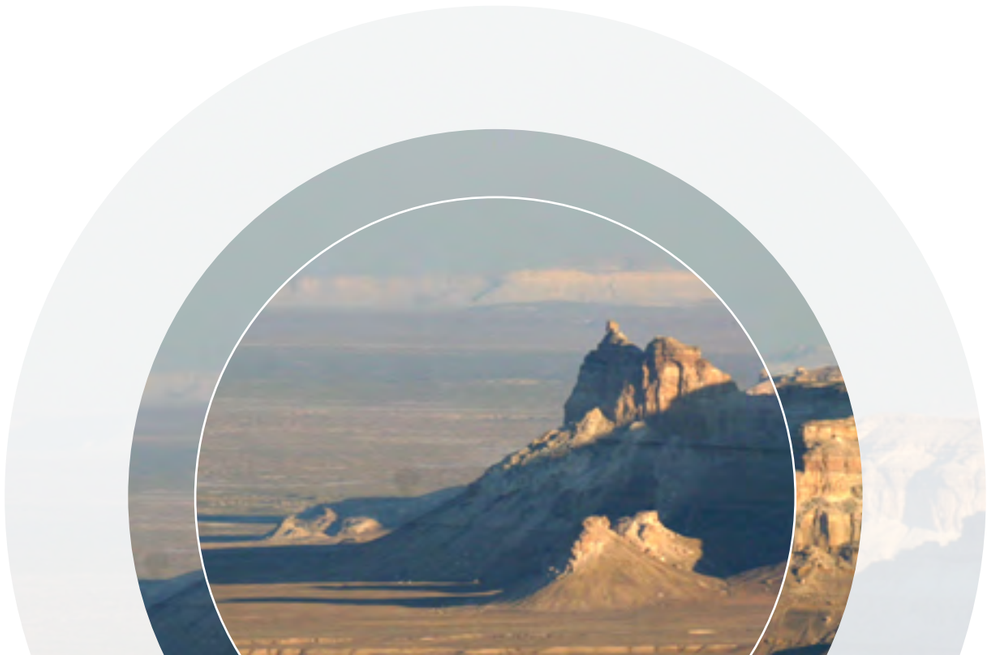
PROTECTED AREAS OF AKTOBE REGION

State nature complex wildlife reserve of local significance "Kokzhide–Kumzhargan." The territory includes two sites of the state nature reserve fund of republican significance: the Kokzhide Sands and the Kokzhide Groundwater, which are listed among the geological sites of the national and international nature reserve fund.

ENVIRONMENTAL MONITORING AND CONSERVATION OF UNIQUE ECOSYSTEMS

KMG maintains strict environmental control over oil production areas, especially those near unique natural sites:

- The Urikhtau, Alibekmola, and Kozhasai fields (Aktobe Region) are located near the "Kokzhide–Kumzhargan" reserve. To prevent contamination of groundwater, constant monitoring of the environmental condition is carried out, including in the Kokzhide sand massif.
- The Karazhanbas field, located in the northwestern part of the Buzachi Peninsula, borders the North Caspian State Protected Zone. At this site, biannual monitoring of flora and fauna is conducted as part of industrial environmental control.



ENVIRONMENTAL ASSESSMENT OF PLANNED ECONOMIC ACTIVITIES

KMG implements a comprehensive approach to environmental impact assessment of economic activities, ensuring identification, analysis, and mitigation of potential environmental risks.

Within this framework, environmental reviews are conducted for all new projects, with mandatory public input and an assessment of possible impacts on ecosystems.

ENVIRONMENTAL ASSESSMENT PROCEDURE AND PUBLIC PARTICIPATION

The environmental assessment includes an analysis of the potential environmental impacts of planned projects and enables early identification and prevention of negative effects. Public participation is an essential part of this process and is carried out through:

- Informal meetings and discussions with stakeholders;
- Collection of written and verbal proposals from the public;
- Open meetings and public hearings.

All significant projects are submitted for public hearings involving non-governmental organizations, government agencies, members of the public, and other stakeholders. Hearings are conducted in an open format, and the outcomes are documented and made publicly available.

In 2024, KMG held 18 meetings with community representatives and conducted 100 public hearings.

HTTPS://WWW.KMG.KZ/EN/

Case Examples

- On October 23, 2024, Embamunaigas JSC organized a site visit to the production facilities of the Dossormunaigas Oil and Gas Production Department at the request of community representatives. During the visit, participants received answers to questions concerning environmental protection and other aspects of the company's operations.

- On August 8, 2024, a meeting of the Public Environmental Council was held at the Atyrau Oil Refinery. Participants were presented with the plant's plans to minimize environmental impact, including a project for the construction of a comprehensive wastewater treatment and feedwater preparation facility. The implementation of this project will:

- *Reduce water intake from the Ural River by up to 50%;*
- *Enable the reuse of wastewater, reducing discharge volume by 70%.*

During the Q&A session, key environmental issues were discussed, including the permit for discharging wastewater into the Atyrau city wastewater treatment facilities and the expansion of the plant's sanitary protection zone.

- On the same day, an open house was held at the Atyrau Refinery to mark the 125th anniversary of Kazakhstan's oil industry. The event was attended by eco-activists, government officials, members of the public, and the media. Participants were introduced to the refinery's environmental initiatives, including the launch of an automated emissions monitoring system (AEMS) on the reforming unit's stack, and toured the mechanical treatment facilities (MTF) following their reconstruction.

UPDATE OF CORPORATE STANDARDS IN 2024

In 2024, KMG updated its Corporate Environmental Assessment Standard, which establishes unified corporate principles for assessing the environmental impact of economic activities.

The standard regulates:

- the activities of employees and contractors of the KMG Group of companies,
- the work of design organizations involved in preparing technical documentation and environmental impact assessment (EIA) materials,
- the organization of public consultations and consideration of public opinion,
- the process of obtaining environmental permits.

The update of this standard is aimed at enhancing the environmental safety of all KMG projects and strengthening corporate oversight of compliance with environmental regulations.

CLOSURE AND RECLAMATION OF WORK SITES

In accordance with the legislation of the Republic of Kazakhstan and contract terms, NC KazMunayGas JSC is legally obligated to dismantle and decommission fixed assets and restore land plots at each of its oil and gas fields. These obligations include the phased closure of all non-productive wells, dismantling of pipelines and buildings, reclamation of contract areas, and remediation of environmental damage at production sites.

The company evaluates asset retirement obligations individually for each contract. As of December 31, 2024, the carrying amount of the Group's provision for decommissioning oil and gas assets amounted to 142,009 KZT million (as of December 31, 2023: 123,785 KZT million).

Reclamation and decommissioning procedures for contract areas are regulated by the Subsoil and Subsoil Use Code of the Republic of Kazakhstan. According to the Code, remediation of subsoil use consequences is carried out in accordance with an approved project that has passed the required expert reviews. Conservation of subsoil areas is also conducted based on an approved conservation project. Technological facilities are subject to liquidation or conservation according to project documentation, with special rules in place for certain types of wells. Requirements for well abandonment are defined in regulations approved by Order No. 200 of the Minister of Energy of the Republic of Kazakhstan dated May 22, 2018.

With regard to trunk oil and gas pipelines, in accordance with the Law of the Republic of Kazakhstan "On the Main Pipeline," which came into force on July 4, 2012, KazTransOil JSC (KTO) has a legal obligation to decommission trunk pipelines after the end of their operation and to implement environmental restoration measures, including land reclamation. The reserve for pipeline decommissioning and land reclamation obligations is estimated based on the Group's cost calculation for performing the related work. As of December 31, 2024, the carrying amount of the Group's provision for pipeline decommissioning and land reclamation obligations amounted to 37,405 KZT million (as of December 31, 2023: KZT 45,649 million).

KMG continues its efforts to ensure environmental safety and compliance with regulatory requirements during the closure and reclamation of work sites, striving to minimize the environmental impact of its activities.

IMPLEMENTATION OF GREEN OFFICE PRINCIPLES

KMG adheres to the principles of a "Green Office," aimed at the rational use of resources, waste reduction, and increasing employees' environmental awareness. As part of this initiative, the Company has implemented a range of activities that contribute to reducing its environmental footprint and fostering sustainable habits within the corporate culture. In 2024, efforts in this area were further strengthened as part of the national environmental campaign "Taza Kazakhstan."

GREENING OF OFFICE SPACE

As part of the waste segregation initiative, a reverse vending machine was installed in 2024 at the KMG headquarters for collecting plastic bottles, aluminum cans, and glass containers. Over the year, more than 25.3 thousand plastic bottles and nearly 8.2 thousand aluminum cans were collected for recycling. Since the machine's installation in February 2023, a total of 54,378 units of recyclable packaging have been collected.

The Company's headquarters is equipped with eco-bins and containers for the collection of paper, plastic, glass, metal, and used batteries. Additionally, special cabinets for the collection and storage of fluorescent lamps have been installed.

Other resource-saving measures include:

- Automated reminders for employees to turn off computers and equipment at the end of the workday;
- Informational materials encouraging reduced printing and the preservation of trees;
- Development of electronic document management to minimize paper use;
- A growing number of indoor plants – employees gift live plants instead of bouquets on colleagues' birthdays.

To promote sustainable transport, bicycle parking is available at the KMG headquarters. In 2024, the number of parking spots was increased, and repairs to outdoor parking facilities were carried out.

ENVIRONMENTAL INITIATIVES AND CORPORATE CAMPAIGNS

KMG actively engages employees in environmental activities. In 2024, the "Bring Your Own Dish" campaign was launched, offering discounts at the office coffee shops, cafeteria, and canteen for employees using reusable containers.

The Company also supports initiatives to reduce CO_2 emissions. Employees participated in the "Jasyl Jol" challenge organized by the Ministry of Environmental Protection, during which, from May 6 to June 5, 2024, they refrained from using personal cars to commute, opting instead for bicycles or walking.

Furthermore, since 2023, electric vehicle charging stations have been installed and used at KMG headquarters as part of a pilot project.

On World Environment Day, dedicated in 2024 to land restoration and combating desertification, the KMG Group organized an awareness campaign. UNEP video materials were posted on the internal portals, and eco-posters were displayed on employee monitors.

The Company traditionally supports the international "Earth Hour" campaign by switching off lights and household appliances for one hour. In 2024, KMG once again participated in the initiative, demonstrating its commitment to the global movement to reduce energy consumption.

"Taza Kazakhstan" Campaign

As part of the national environmental campaign "Taza Kazakhstan," a clean-up schedule was approved for the KMG Group of Companies, covering the period from July to October 2024. Every Saturday, at least two KMG subsidiaries and dependent entities participated in the events.

On August 24, the largest clean-up day was held, with over 2,800 employees from 34 KMG Group companies participating simultaneously, including senior executives. The event included representatives from subsidiaries based in Astana, as well as the Mangystau, Aktobe, Atyrau, Kyzylorda, Pavlodar, Turkestan, and West Kazakhstan regions.

Results of the beautification action plan implementation:

- *75 clean-up and improvement campaigns were held at historical and cultural monuments, schools, kindergartens, and other sites.*
- *235 Saturday clean-ups were organized with the participation of over 10,000 people, resulting in the collection of 240 tonnes of waste.*
- *60 whitewashing events were carried out for green spaces, covering approximately 170,000 trees.*

KMG actively participates in the large-scale environmental initiative launched by the Head of State to plant 2 billion trees nationwide over five years. In 2024, KMG Group initially planned to plant 88,925 trees. However, thanks to additional efforts, the greening volume was increased, and a total of 97,218 trees and shrubs were planted.

On October 12, as part of the nationwide tree planting campaign, more than 12,000 trees were planted across the KMG Group. In particular, the KMG Corporate Center planted 125 three-meter-tall pine trees around School No. 111 in Astana and 5 trees near the office building. The initiative saw participation from the top executives of 28 subsidiaries and over 1,400 employees.

Through its consistent work in landscaping and greening, KMG makes a significant contribution to improving the environmental situation and creating green areas in its regions of operation.

ECO-QUIZZES AND EDUCATIONAL EVENTS

To enhance employees' environmental awareness, KMG organizes educational activities. On June 5, 2024, in honor of World Environment Day, an environmental quiz was held, and winners received prizes.

On August 7, 2024, an Eco-Thinking Master Class was held with over 120 employees participating (70 in person and 50 online). Environmentalist and eco-ambassador Assel Kuspanova gave a presentation on reducing resource consumption, waste separation, and recycling. Employees learned about local recycling drop-off points in Astana and received tips on conscious consumption. As part of the event, a book exchange market was organized by corporate volunteers.

In addition, KMG launched the "Paper-Free Thursdays" initiative: on this day, employees are encouraged to minimize paper use, with recommendations for digitalizing workflows distributed across offices.

Starting from September 1, 2024, a competition was launched within the KMG Group to encourage active use of the reverse vending machine for plastic bottle recycling. The goal of the contest is to promote the use of vending machines among employees and encourage waste segregation. Alongside increasing the volume of recycled plastic, the initiative aims to foster environmentally responsible behavior and raise awareness of the importance of resource conservation.

KMG continues to expand its "Green Office" initiatives, shaping a corporate culture focused on sustainable development and responsible resource consumption.

COMPLIANCE WITH LEGISLATION AND ENVIRONMENTAL EXPENDITURES

ENVIRONMENTAL PROTECTION EXPENDITURES

The Company's environmental expenditures include:

- Payment of taxes for permitted emissions,
- Costs of environmental protection measures,
- Environmental risk insurance,
- Compensation measures in the field of environmental protection,
- Investments in the prevention of environmental impacts.

In particular, investments in oil waste recycling have tripled since 2015.

In 2024, environmental protection expenditures amounted to KZT 45.4 billion. The main areas of funding included:

- Waste recovery (preparation for reuse, recycling, disposal) and elimination of historical contamination;
- Remediation of oil-contaminated sites;
- Implementation of production monitoring, including in marine areas;
- Modernization of treatment facilities to reduce emissions and discharges of pollutants;
- Repair of treatment facility infrastructure;
- Technical and organizational measures to reduce emissions, including replacement and installation of burners, filters, use of catalysts, and other technological solutions.

COMPLIANCE WITH ENVIRONMENTAL LEGISLATION

GRI 2-27

The Company systematically monitors compliance with environmental legislation of the Republic of Kazakhstan at its production facilities. As part of this work, potential non-conformities are identified, problem areas are analyzed, and environmental risks are managed, allowing timely preventive measures to be taken.

In 2024, fines in the amount of KZT 33,203.2 million were imposed, of which KZT 196 million has been paid. At the same time, one of KMG's subsidiaries was issued a fine of KZT 32.3 billion, which is currently being contested in court.

The Company continues its efforts to ensure full compliance with environmental requirements, minimize environmental risks, and implement the best available techniques to reduce environmental impact.

NVIRONMENTAL FINES, MILLION KZT