

# Welcome to your CDP Climate Change Questionnaire 2022

## C0. Introduction

### C0.1

#### **(C0.1) Give a general description and introduction to your organization.**

JSC National Company KazMunayGas (KMG, the Company) is Kazakhstan's leading vertically integrated oil and gas company, operating assets across the entire production cycle from the exploration and production of hydrocarbons to transportation, refining and services. Established in 2002, the Company represents the interests of the Republic of Kazakhstan in the national oil and gas industry.

Outside of Kazakhstan, KMG has more than a thousand fuel sales points in Romania, Moldova, Bulgaria, and Georgia. KMG International N.V. is a strategic enterprise for oil refining and marketing in Romania and the countries of the Black Sea and Mediterranean basins with the access to the end-user market with a population of more than 300 million people.

As a member of the UN Global Compact, KMG recognizes the importance of climate change mitigation actions and intends to contribute to the achievement of SDG 13 "Climate Action". Climate change response and adaptation measures are incorporated in our strategic documents and corporate policies.

In 2021, the Low-Carbon Development Program of JSC NC "KazMunayGas" for the period 2022-2031 (hereinafter - the Program) was developed and approved by the Board of Directors. The Program was developed in accordance with the legislation of the Republic of Kazakhstan, the KMG Charter, the Development Strategy of JSC NC "KazMunayGas" for the period 2022-2031, the Emissions Management Policy in the group of companies of JSC NC "KazMunayGas", as well as other internal documents of KMG. This Program defines a unified low-carbon development framework as an integrated component of corporate governance and systematizes the Company's activities in the field of carbon footprint reduction. The integration of the low-carbon agenda into the company's development strategy will not only contribute to the reduction of greenhouse gas emissions, but will also increase the investment attractiveness and competitiveness of the company in the context of the energy transition.

The main objective of developing the Program is to identify KMG's climate ambitions, systematize main approaches and measures to reduce its carbon footprint, including, in particular:

- (i) Analysis of the available capacity and definition of KMG's climate goals.
- (ii) Identification of key areas of the company's development in the field of decarbonization and measures to achieve the established goals.
- (iii) Improving the company's capacity and awareness.

Since 2020, the Company has been evaluated ESG-rating by the international rating agency "Sustainalytics" (Amsterdam, Netherlands). The key ESG-issues for KMG are carbon emissions from operations and emissions from the use of the Company's products, as well as the relationship with the communities in the regions of operation. KMG intends to continue systematic work to improve the level of ESG-rating and meet the objectives of managing and reducing ESG-risk ratings.

Since 2012, the Company has been preparing a Sustainability Report in accordance with international non-financial reporting standards developed by the Global Reporting Initiative (GRI).

The Company annually participates in the " Ranking of transparency of environmental information of oil and gas companies" from the World Wildlife Fund of Russia (WWF), Creon Group and the rating agency ACRA and for the fifth year in a row has taken first place among Kazakhstan's companies.

KMG takes part in the Global Methane Initiative. Reduction of methane emissions is one of the strategic objectives of the Company.

JSC NC "KazMunayGas" in 2020 signed a Memorandum on the creation of a joint research platform Caspian Environmental Protection Initiative (CEPI) for international oil companies operating in the Caspian region, in order to protect the environment and combine efforts to prevent emissions of pollutants into environment by developing and implementing joint preventive measures to combat climate change, which threatens the environmental stability factors of the Caspian region. Several global oil and gas companies have joined the initiative, including BP Azerbaijan, Equinor Absheron and Total Absheron.

In 2021, in connection with the withdrawal of JSC "KazTransGas" from KMG, the approval of the company's development strategy for 2022-2031 years and the approval of the Low-Carbon Development Program of JSC NC "KazMunayGas" for the 2022-2031 period, some sections have been revised and the reporting limits on greenhouse gas emissions have been changed.

## C0.2

**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1, 2021	December 31, 2021	Yes	3 years

## C0.3

**(C0.3) Select the countries/areas in which you operate.**

- Georgia
- Kazakhstan
- Romania

## C0.4

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

USD

## C0.5

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## C-OG0.7

**(C-OG0.7) Which part of the oil and gas value chain and other areas does your organization operate in?**

Row 1

### Oil and gas value chain

- Upstream
- Midstream
- Downstream
- Chemicals

### Other divisions

## C0.8

**(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?**

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	KZ1C00001122
Yes, an ISIN code	ISIN XS1595713782 (RegS), US48667QAN51 (144A)
Yes, an ISIN code	ISIN XS1595714087 (RegS), US48667QAP00 (144A)
Yes, an ISIN code	ISIN XS1807299174 (RegS), US48667QAR65 (144A)
Yes, an ISIN code	ISIN XS1807300105 (RegS), US48667QAQ82 (144A)

Yes, an ISIN code	ISIN XS1807299331 (RegS), US48667QAS49 (144A)
Yes, an ISIN code	ISIN XS2242422397 (RegS), US48126PAA03 (144A)

## C1. Governance

### C1.1

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

#### C1.1a

**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Other, please specify Board of Directors	<p>In accordance with the Corporate Governance Code, the Board of Directors and the Management Board within their competence ensure the formation of an appropriate system in the field of sustainable development and its implementation, while managers and all employees at all levels contribute to low-carbon development. Corporate governance in KMG is improved systematically and consistently. To determine the level of corporate governance practices, the Company regularly conducts independent diagnostics of corporate governance on the performance of the BoD and the management board, risk management, internal control and audit, sustainable development, shareholders' rights and transparency.</p> <p>The Board of Directors approves the climate change policy and strategy, energy and climate change targets.</p> <p>In order to improve the Company's performance on sustainable development indicators for 2021, the KMG Board of Directors approved the corporate KPI - ESG-rating for the first time. Targets of the approved KPI have been achieved.</p> <p>In 2021 the KPIs of the Directors of KMG's Health, Safety and Environment, Refining and Petrochemicals, Transportation and Logistics Departments included the indicators related to the approval of the action plan and targets until 2030 on reduction of pollutant emissions, greenhouse gases, water saving and energy saving across KMG Group of Companies.</p> <p>The Board of Directors in 2021 approved the Low Carbon Development Program</p>

	of JSC NC "KazMunayGas" for the period 2022-2031.
Chief Executive Officer (CEO)	<p>The Chairman of the Management Board is the company's top executive for making strategic decisions and setting directions with regard to climate change. In particular, responsibilities in this regard include the following:</p> <ul style="list-style-type: none"> <li>- Initiates the development of the Low-Carbon Development Program and sets climate change goals, oversees their implementation and achievement.</li> <li>- Monitors sustainability activities, evaluates achievement of sustainability goals and KPIs, supervises the implementation of the Low Carbon Development Program and periodically reviews the dynamics of GHG emissions and compliance with climate change mitigation goals (GHG emissions reduction and carbon intensity rate).</li> </ul> <p>In order to systematize the main approaches and measures to reduce the Company's carbon footprint, the Low-Carbon Development Program for the period 2022-2031 was developed. Its goals are aimed to reduce direct and indirect CO2 emissions by 15% by 2031 from the level of 2019, carbon intensity and energy intensity of production by at least 10%, implementation of RES projects with a total capacity of at least 300 MW per KMG share.</p>
Board-level committee	<p>Committee on Safety, Health, Environment and Sustainable Development</p> <p>The Committee was established to consider a set of issues related to labor protection, implementation of the principles of sustainable development and socio-economic development, social obligations and programs, ensuring business continuation and environmental efficiency. This committee is responsible for initiating, in-depth consideration and decision-making on the economic, environmental and social aspects of the organization's impact.</p> <p>On a regular basis, the implementation of the sustainable development system is reviewed by the Health, Safety, Environment and Sustainability Committee of the Board of Directors.</p> <p>In 2021, the Committee held five meetings, at which 52 issues were considered; 115 decisions and instructions were issued based on the results of the Committee meetings. The main focus of the Committee in 2021 was on health, safety and environment, strategic management of ESG (Environmental - Social - Governance) aspects, as well as implementation of the sustainable development system. Confirming its commitment to the implementation of the principles of sustainable development:</p> <ul style="list-style-type: none"> <li>- In March 2021, launched the project " Formation of the Program for Development of Renewable Energy Sources and Emissions Reduction in the KMG Group of Companies until 2031" in order to develop KMG's own approaches in the field of decarbonization;</li> <li>- August 2021 approved the Company's new Environmental Policy;</li> <li>- in August 2021 a Plan of Measures for improvement of KMG's ESG ranking was developed and approved;</li> </ul>

	<p>- In November 2021, the Company's Low-Carbon Development Program was developed and approved.</p> <p>Great attention is paid to improving the culture of sustainable development. Training courses on sustainable development for employees of the corporate center and subsidiaries and affiliates are held on a regular basis.</p>
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## C1.1b

**(C1.1b) Provide further details on the board's oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Weekly staff meetings are held on Mondays with the Chairman of KMG's Management Board, at which the Deputy Chairman of the Management Board for Strategy, Investment and Business Development reports on low-carbon development related activities. These issues are often reviewed and monitored at many levels of the company, in addition to the meetings of the Health, Safety, Environment and Sustainable Development Committee of the BoD. <ol style="list-style-type: none"> <li>1. The Board of Directors has approved KMG's Low Carbon Development Program.</li> <li>2. The Deputy Chairman of the Management Board for Economics and Finance is responsible for resolving a set of issues related to the economic component of KMG's sustainable development and implementation of the KMG Low-Carbon Development Program.</li> <li>3. Deputy Chairman of the Management Board for Strategy, Investment and Business Development is responsible for the development of the Climate Change Strategy and Targets, as well as monitoring the implementation of the strategy and periodic review of GHG emissions, and the implementation of climate change mitigation goals (reduction of GHG emissions and carbon intensity indicator). He oversees of the following divisions:                             <ul style="list-style-type: none"> <li>- The Low Carbon Development Project Office, which was established in 2021 to assess climate risks, develop a Low Carbon Development Program for the period 2022-2031, and develop a list of potential</li> </ul> </li> </ol>

		<p>decarbonization projects. Timely and effective implementation of the Program will require a monitoring and coordinating body, which will, among other things, be charged with the duties to coordinate climate change activities that are consistent with the Program, to provide support to the SDEs, to check KMG's investment projects for compliance with the decarbonization and sustainable development policy. Having said that, by the decision of the Board of Directors dated December 9, 2021, changes were made to the structure of the central office of KMG and the Department of Low-Carbon Development was created on the basis of Project Office.</p> <ul style="list-style-type: none"> <li>- The Risk Management and Internal Control Service oversees the effectiveness of the company's risk management and internal control system, generally and on a quarterly basis oversees emerging risks and climate change as part of the review of KMG's risk map.</li> <li>- Department of Business Development and Divestments is responsible for acquisition of new assets under the approved Low-Carbon Development Program, as well as ensuring reliable technical and economic evaluation of new investment projects.</li> <li>- The Department of Strategy and Portfolio Management develops and implements the Company's development Strategy, ESG ranking and sustainability reporting.</li> </ul> <p>4. The Health Safety and Environment Department reports directly to the Chairman of the Management Board. It monitors changes in the environmental legislation of the Republic of Kazakhstan, as well as the development of proposals for its further improvement.</p>
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## C1.1d

**(C1.1d) Does your organization have at least one board member with competence on climate-related issues?**

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	Scientific works and research on environmental safety in the oil and gas sector.

		<p>One of the members of the Board of Directors has a degree of Doctor of Engineering. Thesis research topic: "Theoretical bases of drilling works safety improvement and development of environmental protection technologies of offshore oil-and-gas fields exploration" (2010). Author of more than 40 publications, articles, books and 5 inventions.</p> <p>Additionally, we would like to inform you that in 2022, the former Minister of Ecology of the Republic of Kazakhstan (2019-2021) was appointed as the Chairman of the Management Board (CEO) of the Company.</p>
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## C1.2

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other, please specify Board of Directors	Assessing climate-related risks and opportunities	As important matters arise
Other, please specify Health, Safety, Environment and Sustainable Development Committee	Both assessing and managing climate-related risks and opportunities	As important matters arise
Risk committee	Assessing climate-related risks and opportunities	Quarterly
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Other C-Suite Officer, please specify Deputy Chairman of the Management Board for Strategy, Investment and Business Development	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Chief Financial Officer (CFO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly

## C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**



In accordance with the Code of Corporate Governance, the Board of Directors (BoD) and the Management Board, within their competencies, ensure the formation of an appropriate system in the field of sustainable development and its implementation, while officials and all employees at all levels contribute to sustainable development.

As of December 31, 2021, at the executive body level, responsibility for addressing sustainable development issues was distributed as follows:

- 1. Deputy Chairman of the Management Board for Strategy, Investments and Business Development:** Issues related to the creation and implementation of a sustainability management system to ensure compliance with sustainability principles, as well as integration of sustainability into the Company's key processes, development strategy and decision-making processes. He also coordinates implementation of the Low-Carbon Development Program, which is integrated into the Company's strategy.
- 2. The Deputy Chairman of the Management Board for Economics and Finance** is responsible for resolving a set of issues related to the economic component of KMG's sustainable development and implementation of the KMG Low-Carbon Development Program.

The above persons are accountable to the Chairman of the Management Board of KMG. The accountability of those responsible for resolving economic, environmental and social issues is regulated in detail by internal regulations, internal control procedures and the continuity of the Company. So, on a regular basis, in accordance with development plans, issues are submitted for consideration by the Management Board, which in turn is accountable to the BoD.

**The BoD Health, Safety, Environment and Sustainable Development Committee (HSE&SD Committee)** exercises general management over the activities of the above officials. The main focus of the BoD HSE&SD Committee in 2021 was on HSE, strategic management of ESG aspects, as well as the implementation of a sustainable development system.

The key issues on the agenda of the Committee in the field of climate change in 2021 include the following:

- Climate change issues (greenhouse gas emissions, reporting by CDP, WDP).
- ESG ranking of KMG.
- Environmental ranking of KMG.
- Approval of the list of priority Sustainable Development Goals of the United Nations for KMG.
- Implementation of the system of sustainable development in KMG and its business units and inclusion of the principles of sustainable development in the key business processes.
- Establishment of KPIs (key performance indicators) for individual managers of the Company related to the implementation of sustainable development.
- KMG reports on HSE and environmental protection;
- Increasing the utilization of associated petroleum gas in the KMG group.

#### **Risk Committee**

The purpose of the Committee is to assist the KMG Management Board in ensuring the effective functioning of KMG Group's corporate risk management system, prompt and in-depth consideration of risk management issues. The main tasks are:

- 1) Preparation of recommendations and proposals for the creation and maintenance of an effective system of corporate risk management;
- 2) Development of processes for risk identification, assessment, monitoring and control at KMG Group;
- 3) Coordination of the risk management process for the KMG Group;
- 4) Ensure continuous interaction between the members of the Risk Committee of KMG Group in order to improve the risk management culture, transparency and effectiveness of corporate risk management.

**The Strategy and Portfolio Management Department** conducts macro analysis, forecasting and research, preparation of analytical reports in terms of climate policy, assists in the establishment of the Company's strategic objectives of Sustainable Development and progressive reduction of the carbon intensity of production, energy transition and reduction of the carbon footprint of products.

**The Low-Carbon Development Project Office** reports to the Deputy Chairman of the Management Board for Strategy, Investment and Business Development. It's tasks include:

- Performing a comprehensive analytical study and development of climate strategy of the Company to reduce it's carbon footprint and implement low-carbon projects and initiatives;
- Preparation of information on the effects of climate change on the oil and gas sector (global trends in decarbonization, changes in the energy balance, tariff and tax legislation, etc.);
- Research and selection of projects for the development of emissions trading system for KMG;
- Analysis of environmental regulatory policies (CBAM, Green Deal, new Environmental Code of Kazakhstan and etc.);
- Development of program documents on energy efficiency and resource saving in KMG group, development of proposals for RES and decarbonization projects in the KMG group for the short-, medium- and long-term periods.

## C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	Corporate KPIs are formed on the basis of strategic indicators. Low-carbon development issues are included in the updated KazMunayGas Development Strategy for 2022-2031 (Strategic goal-4 "Sustainable development and continuous reduction of the carbon intensity of production"), and are also reflected in the KPIs of members of the management board and SDEs covered within the scope of the Program. In 2021, the Department of Health and Environmental Protection was responsible for climate change issues and the Director of the

		<p>department had KPI "Approval of the Action Plan with targets for energy and resource efficiency and reduction of emissions into the atmosphere until 2030".</p> <p>Starting from 2022 the KPIs will include specific target indicators for reducing greenhouse gas emissions based on the approved Action Plan (to be developed in 2022).</p>
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### C1.3a

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

Entitled to incentive	Type of incentive	Activity incentivized	Comment
All employees	Monetary reward	Behavior change related indicator	The incentive is held as part of the annual "HSE Chairman Award". The Award is organised to identify the best HSE and sustainability ideas and practices as well as to increase engagement and raise awareness of HSE matters among our employees.
All employees	Non-monetary reward	Behavior change related indicator	Recognition is carried out in the form of awarding the employees with certificates of honour and gratitude letters for active participation in environmental and sustainable activities and international forums. The Human Resources Management Unit offers international training to employees.
All employees	Non-monetary reward	Efficiency project	<p>National competition "Qazaqstan Project Management Awards" project "Implementation of Lean 6 Sigma"</p> <p>The Lean 6 Sigma methodology helps to engage the staff in a continuous effort to improve the company's performance while optimizing resources. The program encourages the continuous search for and implementation of simple, low-cost, short-term projects to reduce operating costs.</p> <p>Overall, 13 LSS projects were implemented in oil production in 2021. Most of the improvements were related to increasing the time between well repairs and reducing the number of equipment repairs.</p> <p>"Oil Refining and Petrochemicals" was recognized as the best project of 2021 in Kazakhstan.</p> <p>The 3rd place in the competition was taken by the project on introduction of computer simulation</p>

			complexes, implemented at the Atyrau Oil Refinery and the Pavlodar Petrochemical Refinery.
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## C2. Risks and opportunities

### C2.1

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

#### C2.1a

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	0	1	Short-term time horizons are determined based on the information in the Cash Budget Form, which includes income and expenses of the company, affecting the possibility of occurrence and prevention of risk. Short-term horizons are determined on the basis of annual and current plans of production activities and development of the company, which determine the position of the Company, promptly responding to global challenges and meeting the requirements of sustainable development.
Medium-term	1	5	Medium-term planning corresponds to the KMG Group Development Plan and business plans of subsidiaries and affiliates, which are adopted for a 5-year period.
Long-term	5	10	The long-term horizons are determined on the basis of KMG's development strategy for 2022-2031, which defines the Company's target state, promptly responding to global challenges and meeting the requirements of sustainable development. With long-term energy transition trends in mind, KMG is building its portfolio of low-carbon projects in order to maintain future financial success in a zero-emissions world. As part of long-term planning, KMG's Low-Carbon Development Program for the period 2022-2031 has been developed and approved.

#### C2.1b

**(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

In accordance with the Methodology for identifying and assessing risks and selecting KMG's risk management methods, the risk appetite is calculated in quantitative and qualitative terms. When calculating the risk appetite, a decrease in the total amount of cash flows and an

increase in the total amount of cash outflows provided for in the cash budget for the forecast period are considered.

The company analyzes the external environment, global key trends that have a significant impact on the business and on determining the strategic priorities of the company. The analysis of global trends included five key aspects: the global oil and gas market, ecology, global economy, technology and digitalization, geopolitical context.

KMG has an Internal Audit Service (IAS), which assesses the effectiveness of the risk management process, notifies the KMG Board of Directors of significant impacts in the KMG Corporate Risk Management System, and develops recommendations to improve the risk management process; assesses the effectiveness of preventive measures on the risk/risk factor (control procedures) and prepares recommendations to address the identified deficiencies (if necessary); notifies the responsible division KMG conducts a strategic risk assessment that identifies a significant financial or strategic impact on our business.

### **Energy Transition and Tougher Carbon Regulation**

As the world becomes increasingly aware of the global challenges of climate change, the carbon regulatory environment is becoming more stringent. The forth energy transition based on the wide use of renewable energy sources and toughening of carbon regulation in the world will drive out the use of fossil fuels.

Kazakhstan is an active participant in international climate policy to mitigate greenhouse gas emissions. By ratifying the Paris Agreement in 2016, Kazakhstan made voluntary unconditional commitments to reduce greenhouse gas emissions by 15% by 2030, compared to the 1990 level. The President of Kazakhstan has declared the achievement of carbon neutrality of Kazakhstan by 2060.

In 2021, the Financial Strategy of KMG until 2028 was approved by the Samruk-Kazyna Fund and approved by the KMG Board of Directors. It defines the basic principles of rational management of own and borrowed funds to ensure the balance of interests of KMG's main stakeholders: creditors, the shareholder represented by the Fund "Samruk-Kazyna", the state, as well as the interests of the Company itself.

KMG's investment policy is focused on improving the Company's efficiency in all areas of its core activities by investing in efficient, profitable and competitive strategic projects with a significant potential of free cash flow generation, with due regard to the Company's strategic objectives.

Within the framework of KMG's Low-Carbon Development Programme, the assessment of investment projects is carried out with consideration of their impact on the reduction of the carbon footprint and carbon intensity of products.

One of the strategic goals of KMG - Sustainable development and progressive reduction of the carbon intensity of production, which includes 25th initiative - "Energy transition and carbon footprint reduction".

## C2.2

**(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

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### **Value chain stage(s) covered**

Direct operations

### **Risk management process**

Integrated into multi-disciplinary company-wide risk management process

### **Frequency of assessment**

More than once a year

### **Time horizon(s) covered**

Short-term

Medium-term

Long-term

### **Description of process**

Climate risk management is an integrated, interdisciplinary, company-wide risk management process. The purpose of this procedure is to identify and control risks to ensure the positive development of the organization's business and effective risk reporting in compliance with laws and regulations.

The process used to determine which climate-related risks and opportunities may have a significant financial or strategic impact applies to all stages of the value chain and consists of the following parts:

#### **Part 1 IDENTIFICATION:**

Identification of inherent risks/risk factors is the determination of the exposure of all KMG Group activities and business processes to risks, the occurrence of which could adversely affect the ability to achieve planned goals and objectives.

Identification of risks and the corresponding risk factors is carried out by Risk Owners and Risk Factor Owners at all levels of management. The mechanism of identification and appointment of Risk Owners, Risk Factor Owners for all KMG business processes is described in the internal documents in the field of risk management.

To identify risks and corresponding risk factors, a combination of various techniques and tools is used. The procedure for identification, as well as methods and tools to identify risks and related risk factors are described in internal risk management documents.

#### **Part 2 ASSESSMENT AND ANALYSIS:**

The assessment of the identified risk factors and the subsequent assessment of the production/non-production risk to which the identified risk factors are relevant is performed to determine the extent of its impact on the achievement of the Company's production/non-production KPIs.

Production/non-production risks and corresponding risk-factors are analyzed according to probability of their occurrence (probability of realization) and degree of influence (potential damage).

The assessment of parameters of risk can have quantitative or qualitative character. The company will aspire to develop and apply mainly quantitative methods of an assessment of risks/risk-factors, constantly to improve modern methods of a quantitative assessment of risks.

The horizon for assessing risk parameters corresponds to the horizon for achieving the relevant goal (objective) of KMG and its subsidiaries and affiliates. Methods and tools for quantitative and qualitative assessment of risk/risk parameters, risk/risk factor analysis are disclosed in internal risk management documents.

Climate risk management is an integrated, interdisciplinary, company-wide risk management process. The purpose of this procedure is to identify and control risks to ensure the positive development of the organization's business and effective risk reporting in compliance with laws and regulations.

The process used to determine which climate-related risks and opportunities may have a significant financial or strategic impact applies to all stages of the value chain and consists of the following parts:

#### Part 3 RISK MANAGEMENT:

Risk management includes the development of controls by the Risk Owner/Risk Factor Holder, including a description of mechanisms to ensure implementation of standard risk management practices and timelines for control procedures in practice.

Policies and procedures connected with implementation of control procedures on management of separate kinds of risks, are defined in internal documents on management of separate kinds of risks by Owners of risks and Owners of risk - factors. Selection of methods of response to production/non-production risks, development of the Plan of measures on management of production/non-production risks in order to provide an acceptable level of residual risk includes the standard methods described in the internal documents on risk management. Through the development of regulatory documents by the Owner of the risk/risk-factor, the KMG group of companies achieves the application of uniform controls to reduce the level for the same risks/risk-factors. For the risks/risk factors, the implementation of which may suspend the activities and operations of the Company, Business Continuity Plans which provide for consistent actions of employees to restore the operating activities of the Company being developed and approved. Factors that may affect the continuity of the Company's operations include: natural disasters, potential damage from industrial accidents, customer expectations, shareholder decision-making, international standard requirements, litigation, information system security, "fragile" supply chain, regulatory authorities and legislation, etc.

Production/non-production risk must be viewed from the perspective of the entire Company. Risks of individual divisions/subsidiaries may exceed the risk tolerance level, but are naturally balanced out throughout the Company (correlation of risks within the group). Measures on risk management should be applied so that the cumulative level of risk on all Company did not exceed an admissible level. The portfolio of risks of the



Company is formed by consolidation of industrial/non-productive risks at KMG level. Proposals for standard methods and measures for risk management shall be submitted by Risk Owners/Risk Factor Owners and shall be entered into the Plan of measures for production/non-production risk management. The Risk Management Plan and Business Continuity Plans shall be approved by the Company's management bodies within the period corresponding to the time of approval of KMG's Consolidated Development Plan. Monitoring of the Action Plan by the Company's management bodies is carried out as part of the quarterly risk reporting.

**Part 4. MONITORING AND REPORTING:**

Monitoring of risk management is the control of the dynamics of changes in risk parameters and effectiveness of the implementation of measures and control procedures for risk management. Monitoring is carried out by the responsible division of KMG through the quarterly collection of information on the dynamics of risks and the implementation of action plans and control procedures for their management, coming from the Risk Owners, Risk Factor Owners of KMG / subsidiaries in accordance with the internal documents on risk management.

In 2022 KMG plans to initiate technical analysis to identify core risk factors under various climate scenarios, complete a stress-test, and prepare TCFD aligned reporting. This will help the Company to identify, assess and manage the risks and opportunities associated with climate change and allow identifying and setting measurable climate-related metrics and targets to be included in the climate strategy ensuring effective climate action and to inform it's investment planning.

## C2.2a

**(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>14 KMG subsidiary entities are covered by Kazakhstan Emissions Trading System and 3 subsidiary entities are covered by European Emissions Trading System, therefore the risks of current regulation are included in the KMG Key Risk Map, assessed and identified as political and regulatory factors.</p> <p>As an oil and gas company, we are subject to the regulatory requirements of the Environmental Code of the Republic of Kazakhstan ( RoK) related to climate change, including the Kazakhstan Emissions Trading System, the requirements of the RoK Law "On Energy Efficiency and Energy Conservation Improvement", the RoK Law "On Support for Renewable Energy Development". The Company complies with legislative requirements closely monitors and assesses risks associated with any changes by incorporating them into our enterprise risk management process. Also, we take into account the risks</p>



		<p>associated with the transition of the global economy to a low-carbon development path and with the measures taken in the countries where the Group operates to tighten regulation of greenhouse gas emissions and assess the necessary financial costs.</p>
Emerging regulation	Relevant, always included	<p>KMG constantly monitors changes in climate legislation and participates in discussions of draft regulations affecting the climate agenda to provide a detailed explanation of the Company's position on these issues and the risks and uncertainties that new legislative initiatives entail.</p> <p>The risk of change in greenhouse gas credits allocation is also taken into account. If a State adopts the quota allocation method based on the use of intensity emission factors, some of our subsidiary entities may have a quota deficit, which would entail financial costs. This risk is identified and assessed on a quarterly basis.</p>
Technology	Relevant, always included	<p>KMG constantly monitors and develops its own solutions to improve energy efficiency. Improvement of energy efficiency of production through energy saving, energy management, optimization of industrial processes is a key tool of the Company's carbon management. The Company is developing and using new technologies, such as construction of RES, introduction of energy efficient technologies, BAT - the best available technologies, carbon capture and storage technologies and others.</p> <p>There are the following risks associated with the use of alternative energy sources: Monopolization in energy storage systems, leads to higher prices, costs, respectively, technically (short life, rapid degradation, losses) and is economically inefficient solution for the RES market. It is necessary to create a market in the system of accumulation and distribution of energy.</p>
Legal	Relevant, always included	<p>14 subsidiaries of KMG fall under the Kazakhstan Emissions Trading Scheme and 3 subsidiaries fall under the European Emissions Trading Scheme, so the risks of current regulation are included in the Map of key risks of KMG, assessed and identified as political and regulatory factors:</p> <ul style="list-style-type: none"> <li>- volumes of issued quotas;</li> <li>- withdrawal of issued quotas due to reduction of production capacity carbon pricing/ pricing mechanisms to reduce greenhouse gas emissions;</li> <li>- allocation of quotas on the basis of benchmarking;</li> <li>- reducing energy consumption to reduce emissions;</li> <li>- consideration of Energy Efficiency parameters in decision making.</li> </ul>

		<p>Risks are monitored on a quarterly basis. Subsidiaries monitor greenhouse gas emissions. Subsidiaries are required to submit annual verified greenhouse gas emissions inventory reports to the authorized environmental authority and apply for additional allowances in a timely manner, if necessary.</p> <p>Current regulatory risks are minimized through internal regulations, such as:</p> <ul style="list-style-type: none"> <li>- Strategy 2022-2031;</li> <li>- Low Carbon Development Program 2022-2031;</li> <li>- Environmental Policy;</li> <li>- Emissions Management Policy.</li> </ul>
Market	Relevant, always included	<p>Global decline in demand for hydrocarbons due to accelerated low-carbon development, as well as increased volatility in commodity markets</p> <p>Risks associated with changes in demand and consumer preferences Companies apply a scenario approach to the forecasting of macroeconomic indicators, including the use of various climate scenarios. In particular, a study of the potential from production to consumption of hydrogen, hydrogen technology in the climatic conditions of Kazakhstan is underway.</p> <p>Climate-related risks and opportunities may have a significant impact on financial planning. These impacts will be driven by external factors, such as changes in oil and other commodity prices, and internal processes, such as the implementation of GHG reduction programs. The impact on profitability will be both positive and negative. Thus, the growing demand for low-carbon products in the market could significantly affect business.</p>
Reputation	Relevant, always included	<p>Risks associated with stakeholder perceptions of the Company's participation in the transition to a low-carbon economy or refusal from such participation.</p> <p>The Company regularly discloses information on the management of climate issues and greenhouse gas emissions, taking into account stakeholder requests.</p>
Acute physical	Relevant, always included	<p>Risks associated with changes in weather and climatic conditions and other characteristics of the natural environment in the regions of the Group's presence, which may affect the reliability of equipment and human health (including risks of natural disasters, deposit inundation, drought).</p> <p>An assessment of the impact of climatic changes in the design and construction of facilities, including the most vulnerable areas (low-water regions and offshore facilities), is performed, and environmental</p>

		conditions are monitored on a relevant range of parameters, which allows us to take the necessary measures in a timely manner.
Chronic physical	Relevant, always included	Chronic physical risks are identified together with acute physical risks. Risks directly related to physical climate change are assessed and monitored in our subsidiaries as part of our operational/industrial risk management programs. Thus, flooding risks, including the flooding of plugged and abandoned wells, as well as weather-related risks, are managed through industrial safety programs and activities. These risks significantly affect the integrity of our production facilities and technical equipment ( for example, electricity outages at one of our facilities where 30% of failures were caused by weather conditions).

## C2.3

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

## C2.3a

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

### Identifier

Risk 1

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Current regulation  
Carbon pricing mechanisms

### Primary potential financial impact

Increased direct costs

### Company-specific description

14 subsidiaries of KMG are subject to the Kazakhstan Emissions Trading System (KazETS).

### Time horizon

Long-term

### Likelihood

Very likely

### **Magnitude of impact**

High

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

### **Potential financial impact figure (currency)**

#### **Potential financial impact figure – minimum (currency)**

1,155,070,000

#### **Potential financial impact figure – maximum (currency)**

1,529,792,157

### **Explanation of financial impact figure**

The minimum costs include the purchase of a carbon credit shortfall, which is calculated from the forecast cost of carbon credits until 2030, and the cost of electricity, taking into account its rise in price due to rising carbon prices.

The maximum costs include the payment of penalties for exceeding the amount of credits for GHG emissions until 2030 and the cost of electricity, including its rise due to increasing carbon prices.

### **Cost of response to risk**

755,800,000

### **Description of response and explanation of cost calculation**

KMG has developed a Low-Carbon Development Program, which includes a direction to improve the energy efficiency of the Company and covers all business areas ( mining, transportation and downstream). Energy efficiency measures have been selected taking into account the MACC-analysis (Marginal Abatement Cost Curve), which allows presenting measures to reduce GHG emissions in order of their cost-effectiveness. The list of measures, which is considered cost-effective according to the results of the MACC-analysis, has the total implementation budget ( CAPEX ) in the amount of 305.77 million USD. The GHG emission reduction effect is 1.05 mln tCO<sub>2</sub>.

In addition to energy efficiency measures, the Company has developed a portfolio of projects related to the increase of the share of renewable energy. In particular, KMG has set a goal of commissioning Renewable Energy facilities with a total capacity of at least 300 MW. Preliminarily, the balance of RES portfolio is expected to look as follows: the share of Wind Power Plants - 80%, Solar Power Plants - 20%. The total investment for implementation of RES projects will be at least 450 million USD. The annual electric power generation by RES will reach 945 million kWh (by 2031).

The implementation of projects in this area will make it possible to achieve an additional reduction of CO<sub>2</sub> emissions by 0.6 million tonn. Thus, the total portfolio of available measures (energy efficiency + renewables) currently has a small reserve compared to the Company's GHG emission reduction target (reduction of 1.62 mln tCO<sub>2</sub> by 2031).

### **Comment**

KMG, in modeling the costs of the risk of increasing the price of carbon, considers the hard option, as the results of preliminary estimates indicate that at current prices for CO<sub>2</sub> (\$ 1 per ton), the Republic of Kazakhstan will not be able to achieve Nationally Determined Contributions (NDCs). In this regard, KMG expects a tightening of carbon regulation, which will drive the growth of prices in the carbon market. In turn, the rising cost of carbon regulation will lead to an increase in prices for energy resources.

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**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type & Primary climate-related risk driver**

Current regulation

Mandates on and regulation of existing products and services

**Primary potential financial impact**

Increased direct costs

**Company-specific description**

In accordance with Article 289 of the Environmental Code of the Republic of Kazakhstan, greenhouse gas emissions from hydrocarbon production are subject to carbon regulation.

In the case of exceeding the volume of the established quota, the quota subject is prohibited from operating activities until the quota deficit is compensated or the fine for exceeding the amount of quotas is paid.

In turn, some subsidiaries and affiliates of KMG due to the maturity of the fields have higher GHG emissions than set by the quota.

**Time horizon**

Short-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

11,429,549

**Potential financial impact figure – minimum (currency)**

## Potential financial impact figure – maximum (currency)

### Explanation of financial impact figure

The financial impact includes the amount of penalties, which, in accordance with the Code of Administrative Offences of the Republic of Kazakhstan, is \$35.9 per ton of carbon dioxide, which exceeds the assigned quota.

### Cost of response to risk

373,149

### Description of response and explanation of cost calculation

In order to prevent quota shortages, intra-holding procurement was carried out between two KMG subsidiaries at an exchange quotation price, which is regulated by the Environmental Legislation of the Republic of Kazakhstan. The cost of one quota in 2021 on the exchange was \$1.2 USD.

### Comment

To avoid further risks of fines and the need to buy quotas, which will become more expensive as carbon regulation tightens, KMG has developed and approved a Low-Carbon Development Program for the period 2022-2031, which implementation will reduce to 1.6 million tons of CO<sub>2</sub> by 2031.

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### Identifier

Risk 3

### Where in the value chain does the risk driver occur?

Direct operations

### Risk type & Primary climate-related risk driver

Emerging regulation  
Enhanced emissions-reporting obligations

### Primary potential financial impact

Increased direct costs

### Company-specific description

Currently, only carbon dioxide falls under the regulation of greenhouse gases. At the moment, the issue of including methane in the regulation of greenhouse gas emissions is being discussed. In Kazakhstan, when regulating methane, the most vulnerable sector is the oil and gas sector. In particular, KMG has a sufficient number of fugitive sources which are not currently metered. Methane emissions regulation, in turn, will require tracking all methane leaks and taking measures to eliminate them, which will require additional financial costs and re-equipment of the Company's technological Park.

### Time horizon

Medium-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

not available

**Cost of response to risk**

1,408,000

**Description of response and explanation of cost calculation**

This sum includes the cost of LDAR equipment and personnel training.

**Comment**

To reduce this risk and determine reliable methane leaks, KMG, as part of its Low Carbon Development Program, has set a goal to implement an LDAR system at its upstream assets.

## C2.4

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

## C2.4a

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

---

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Resource efficiency

**Primary climate-related opportunity driver**

Use of more efficient production and distribution processes

**Primary potential financial impact**

Reduced indirect (operating) costs

**Company-specific description**

KMG has its own heat and electricity generation assets and buys these types of resources from third parties. Improvement of energy efficiency will allow the Company to reduce energy dependence on third parties and save financial resources. By improving operational efficiency, KMG plans to reduce its own consumption of fuel resources (gas, fuel oil), which can be sold to third parties.

**Time horizon**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

830,467,800

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Additional costs for the purchase of electricity from third parties, associated with tariffs that are increasing due to the tightening of carbon regulation, as well as the modernization and commissioning of new power assets.

**Cost to realize opportunity**

305,800,000

**Strategy to realize opportunity and explanation of cost calculation**

The possibility of improving operational efficiency, based on the recommendations of energy audits, proposals from the energy services of KMG subsidiaries and affiliates



was assessed. A MACC analysis was carried out, which ranked the measures in terms of payback, taking into account the price of carbon. The implementation of the planned set of measures will reduce the energy intensity of the Company by 10%.

### **Comment**

Improving the Company's energy efficiency is a minimum plan, with a more significant rise in the cost of energy resources, the MACC-analysis demonstrates that KMG is able to increase the number of energy efficiency measures.

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### **Identifier**

Opp2

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

### **Primary potential financial impact**

Increased revenues resulting from increased demand for products and services

### **Company-specific description**

KMG plans to implement RES projects both for its own needs and for the sale of green energy to third parties. At the same time, producing gas at its own fields, KMG is able to independently carry out the construction of gas plants to compensate for the time of lower energy production from RES. This significantly increases the Company's competitiveness in comparison with Renewable Energy facilities, which have to seek balancing capacity in the general market or install batteries.

### **Time horizon**

Long-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

235,671,574

### **Potential financial impact figure – minimum (currency)**

### **Potential financial impact figure – maximum (currency)**

### **Explanation of financial impact figure**

It takes into account revenues from the sale of green energy and carbon offsets.

### **Cost to realize opportunity**

450,000,000

### **Strategy to realize opportunity and explanation of cost calculation**

The estimate is based on the assumption that construction of one MW of RES costs \$1,500,000. KMG plans to build at least 300 MW of RES.

### **Comment**

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### **Identifier**

Opp3

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Ability to diversify business activities

### **Primary potential financial impact**

Other, please specify

Revenue increase through the sale of carbon credits and carbon offsets

### **Company-specific description**

Due to the improvement of operational efficiency, subsidiaries and affiliates of KMG within the framework of carbon regulation and operation of the national ETS have a surplus of carbon credits. It is planned to sell these credits to obtain additional funds for further modernization of production facilities.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

950,958

**Potential financial impact figure – maximum (currency)**

56,552,146

**Explanation of financial impact figure**

In the minimal impact, the estimation is based on the amount surplus and the price of credits that KMG can sell.

In the maximum estimate we also take into account the possibility of selling carbon credits from the construction of Renewable Energy facilities.

**Cost to realize opportunity**

394,163

**Strategy to realize opportunity and explanation of cost calculation**

The costs include only the costs of validation and verification of offset projects, as KMG receives credits on a free basis, and RES projects will be built under the policy of diversification of the business and increasing the energy security of the Company.

**Comment**

KMG made a a breakdown into minimal and maximal effect, as KMG being a national company of Kazakhstan must obtain approval from the Government of the Republic of Kazakhstan for the types of activities it plans to carry out.

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**Identifier**

Opp4

**Where in the value chain does the opportunity occur?**

Downstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of new products or services through R&D and innovation

**Primary potential financial impact**

Other, please specify

Opportunity to generate additional revenue through the sale of new low-carbon products

**Company-specific description**

KMG has experience in the production of gray hydrogen, which is being used in the production of petroleum products. In order to reduce greenhouse gas emissions, KMG is

studying the possibility of production of blue hydrogen (as KMG has gas resources) or green hydrogen (as RES construction are planned). In addition, KMG is considering selling carbon-neutral hydrogen to metallurgical companies in Kazakhstan.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Unknown

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

not available

**Cost to realize opportunity**

0

**Strategy to realize opportunity and explanation of cost calculation**

KMG has formed a Center of Competence for Hydrogen Energy on the basis of KMG Engineering LLP, involving its own scientists and scientists from universities and research centers involved in the production of hydrogen with zero or low carbon emissions. Further, this group will have to assess the potential for the use of blue/green hydrogen at KMG assets and other Kazakhstani companies, estimate the necessary production costs and possible revenues from the sale of such types of hydrogen.

**Comment**

Detailed calculations of the financial costs of the opportunity will be carried out later, after the potential for project implementation is determined.

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**Identifier**

Opp5

**Where in the value chain does the opportunity occur?**

Upstream

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Development of new products or services through R&D and innovation

**Primary potential financial impact**

Other, please specify

Reduction of carbon costs and revenue growth by increasing the oil recovery factor

**Company-specific description**

KMG started studying the use of CCUS technology to carbon capture and storage. KMG sees an opportunity to use carbon injection to increase the oil recovery factor of old fields. In addition, KMG believes that carbon injection and storage can be performed in exhausted wells, either from its own or from third parties.

**Time horizon**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

In the reporting year, KMG began geological studies at one of its subsidiaries and affiliates to assess the possible volume of carbon injection and evaluate the possibility of increasing the oil recovery factor through carbon injection. Therefore, detailed calculations of the financial effect of this possibility will be performed later.

**Cost to realize opportunity**

0

**Strategy to realize opportunity and explanation of cost calculation**

KMG has formed a team of CCUS technology specialists and geologists at KMG Engineering LLP, who are studying design solutions and geological information to determine the feasibility of CCUS application.

**Comment**

Detailed calculations of the financial costs of the opportunity will be carried out later, after the potential for project implementation is determined.

## C3. Business Strategy

### C3.1

**(C3.1) Does your organization’s strategy include a transition plan that aligns with a 1.5°C world?**

Row 1

**Transition plan**

Yes, we have a transition plan which aligns with a 1.5°C world

**Publicly available transition plan**

Yes

**Mechanism by which feedback is collected from shareholders on your transition plan**

We have a different feedback mechanism in place

**Description of feedback mechanism**

**Frequency of feedback collection**

Annually

**Attach any relevant documents which detail your transition plan (optional)**

 Low-Carbon Development Program of JSC NC KazMunayGas for 2022-2031.pdf

### C3.2

**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

### C3.2a

**(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.**

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
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<p>Transition scenarios                  Customized publicly available transition scenario</p>	<p>Company-wide</p>	<p>1.5°C</p>	<p>Three scenarios were considered in the preparation of the Low-Carbon Development Program of JSC NC KazMunayGas - a baseline scenario, a green development scenario and a deep decarbonization scenario.</p> <p>The green scenario assumes reduction of GHG emissions while maintaining the current assets operating structure through energy efficiency programs, leakage and flaring reduction, as well as the use of low-carbon energy through renewable energy projects.</p> <p>In the deep decarbonization scenario, projects for active implementation of hydrogen production technologies, carbon capture and storage, and active offset policy (development of climate projects) are added to the above measures.</p> <p>Considering the current prices of carbon the green development scenario was chosen as the most promising scenario until 2031.</p> <p>The largest costs are associated with the growth of payments for purchased electricity and with the tightening of carbon regulation. The difference in costs between the baseline and green scenarios will create support for investments in energy efficiency and decarbonization.</p>
<p>Physical climate scenarios                  Customized publicly available physical scenario</p>	<p>Company-wide</p>	<p>1.6°C – 2°C</p>	<p>In 2022, KMG plans to improve the level of climate risk management and bring the disclosure of information in the reporting in accordance with the principles of TCFD. The work is planned to focus on stress-testing the Company's supply chains under various climate change scenarios, identifying appropriate priorities for climate change actions, including (i) assessing financial materiality, (ii) identifying appropriate science-based indicators and targets that lead to improved corporate climate change performance and (iii) preparing reports, in accordance with TCFD.</p> <p>We plan to adopt a set of simplified climate change scenarios and build scenarios for each priority area and the corresponding value chain. This simplified approach will include the following:</p>

		<p>- A set of scenarios according to the RCP 2.6-4.5 IPCC AR5 scenarios, assuming rapid decarbonization and minimal physical impacts on climate over the next decade.</p> <p>- A set of scenarios according to scenarios RCP 6.0-8.5 AR5, which assume slower decarbonization and significant physical impacts on the climate.</p> <p>Also, detailing the impact of these scenario parameters on the value chain will be worked out, in order to:</p> <ul style="list-style-type: none"> <li>- Identify potential risks in each value chain in the form of loss of production and/or loss of value due to carbon transition and physical climate impacts to be prioritized in terms of their likely materiality and severity, and quantified in financial terms and based on available metrics (e.g., loss of profitability due to increased carbon regulation and taxation, reduced demand for oil and oil products).</li> <li>- Identify potential opportunities in each value chain corresponding to possible increases in production and/or value due to the carbon transition and the physical impacts of climate, including effective management of the risks, which should be prioritized in terms of their likelihood and, where possible, quantified in financial terms (e.g., additional revenue from renewable assets and related services).</li> </ul> <p>A climate stress test is planned according to the scenarios developed.</p> <ul style="list-style-type: none"> <li>- Develop tools for integration into the financial model of KazMunayGas in order to analyze the impact on key financial indicators;</li> <li>- Perform sensitivity analysis on key physical risk variables;</li> <li>- Perform sensitivity analysis on key transition risk variables.</li> </ul> <p>All this will ultimately help us prioritize climate action for low-carbon and climate-resilient business development.</p>
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## C3.2b

**(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.**

### Row 1

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#### **Focal questions**

1. Increase in carbon payments and the cost of purchased electricity due to tightening of national regulation.
2. Impact of lower demand on revenue under the current 2025 oil and petroleum product sales plan.

#### **Results of the climate-related scenario analysis with respect to the focal questions**

1. As a result, the analysis, as in other cases, provides two options for modeling the growth of electricity prices in the country:
  - soft scenario (assuming moderate growth in carbon unit prices and moderate amounts of capital investment);
  - tight scenario, respectively (assuming a hard carbon unit price growth scenario) and more significant capital expenditures.

Assessment of the financial impact of regulatory options, the formation of the company's carbon budget to support decarbonization initiatives:

The most feasible direction of decarbonization for KMG until 2030 is operational improvements, as this direction is the most common and understandable among companies in the industry and allows the use of known tools to optimize equipment and management within the existing operating structures.

Based on the model analysis, the cost of electricity in the country will inevitably grow, both under the influence of national carbon regulation, and given the need to cover additional capital and investment costs in capacity renewal and implementation of RES in the energy system of the country.

#### **2. Impact of CBAM carbon payments**

The soft modeling option assumes a slight reduction in oil demand until 2030 and full coverage of oil and petroleum products by the CBAM quota equivalent, at least until 2030.

The tight option is based on projections of a more ambitious reduction in demand for oil and petroleum products and the inclusion of "covered industries" from the beginning of the full CBAM (reducing the share of free covered imports).

The impact of cross-border carbon regulation may manifest itself at later intervals, starting in 2036. KMG, as an exporter, is likely to be obliged to cover the entire carbon footprint associated with production, through the purchase of carbon units on the EU ETS exchange or other national and subnational platforms with price indices equivalent

to the EU ETS.

KMG, as an importer under the EU CBAM, should pay attention to such regulatory proposals in the EU ETS as mandatory measurement, reporting and verification of all methane emissions data based on the methodology of the Oil and Gas Partnership on Methane (OGMP 2.0), and Refusal of emissions and flaring in the oil and gas sector, throughout the entire supply chain, up to the point of production. These requirements are also more likely to be adapted as part of national carbon regulation.

### C3.3

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>As the largest national oil and gas producer in Kazakhstan, we significantly contribute to the economic growth of the country. We understand the extent of our environmental impact and the responsibility we have towards society. KMG also understands its role towards the fulfilment of the country's obligations under the Paris agreement given its role as one of the key national companies and contributors to the development of climate legislation in Kazakhstan.</p> <p>In connection with climate risks, tighter carbon regulation and increased demand for low-carbon products, in 2021 the Company's strategy until 2031 was renewed, where one of the 4 main strategic goals of the company was set as "Sustainable development and continuous reduction of carbon intensity of production". In order to achieve this goal, a project office has been formed for the creation of a Low-Carbon Development Program for the period 2022-2031. Following the approval of this Program by the Board of Directors in November 2021, the Board of Directors decided to establish a Low-Carbon Development Department, which will carry out consolidated management of decarbonization.</p> <p>Reported carbon regulation risks, projected deficit of the carbon allowances, rising of the electricity prices (as noted in C2.3a, C2.4a), and an increase in the number of emergency power outages associated with outdated infrastructure of the national electricity grid and power generating facilities, KMG decided to increase its portfolio of</p>

		<p>renewable energy projects to reduce its carbon footprint as well as improve its energy security. In the medium term, the company will supply green energy both for its own needs and to the unified energy system of the country.</p> <p>Moreover, in the field of potential production of "green" fuel KMG launched in 2021 a joint project with Eni focused on assessment of the feasibility and economic attractiveness of cultivation of oilseeds in Kazakhstan as biofeedstock for biofuel production.</p> <p>Our Romanian refinery produces Low-carbon products, which are supplied to European markets: Euro plus 10 ppm biobenzene and Euro 5 diesel blended with biodiesel. It has international certification ISCC (International Sustainability and Carbon Certificate) for fuels containing bio-components.</p>
Supply chain and/or value chain	Not evaluated	<p>KMG's Low-Carbon Development Program noted the need to improve procurement procedures in order to work more closely with suppliers to identify and further manage greenhouse gas emissions. Given that the rules of procurement procedures are developed by the parent company (Samruk-Kazyna JSC) and apply to all of its subsidiaries, the improvement of procurement rules will take several years.</p>
Investment in R&D	Yes	<p>In 2021, KMG began work on the development and implementation of a pilot project to capture, store carbon dioxide (CCUS) and determine the potential of CO2 injection to increase the oil recovery of depleted oil reservoirs, which will allow in the long term until 2031:</p> <ol style="list-style-type: none"> <li>1. Reduce the level of greenhouse gas emissions at KMG's industrial facility by capturing and injecting them into depleted oil reservoirs or aquifers.</li> <li>2. To test the technology (working out the results for the formation of the legislative and permitting framework of the Republic of Kazakhstan to implement projects for carbon dioxide capture, storage (CCUS) and their subsequent scaling).</li> </ol> <p>As part of this work is supposed to conduct screening of sources of CO2 emissions at the subsidiaries with the allocation of potential objects-sources, study and evaluation of prospects for CO2 injection to increase the oil recovery of depleted oil reservoirs, the performance of research work with subsequent design, construction and commissioning of an experimental facility (taking into account the specifics of the chosen location). The preliminary stage of works on</p>

		<p>conducting the screening of KMG's assets is planned to be completed as early as 2023, which will make it possible to implement the first stage of the Project (Research and Design) in 2024-2025.</p> <p>In 2021 the Center of Competence for Hydrogen Energy was established on the basis of KMG Engineering LLP, which will be a research hub / center of search for green fuels (including hydrogen and chemical compounds from hydrogen), whose development will significantly expand the scientific and production potential of both the company and the country, will contribute to increased technological growth and accelerate the formation of market foundations of hydrogen economy and become an investment in training of domestic staff.</p> <p>Establishment of the Center of Competence enables scientists and researchers from universities and research institutes to work together to implement projects for production, storage, transportation, and use of hydrogen.</p>
Operations	Evaluation in progress	<p>As an oil and gas company, we are subject to the regulatory requirements of the Environmental Code of the Republic of Kazakhstan (RoK) related to climate change, including the Kazakhstan Emissions Trading System. 14 KMG subsidiary entities are covered by national ETS and 3 subsidiary entities are covered by EU ETS.</p> <p>In addition, investors and the parent company are demanding the implementation of ESG principles in operations. This trend is on the rise and could result in increased operational costs for our company.</p> <p>Thus, taking into account the adopted Low-Carbon Development Program, KMG considers it advisable to focus its future activities on issues of improving operational efficiency and energy saving, as well as on the development of renewable energy projects portfolio. We aim to implement the Company's Energy Efficiency and Carbon Footprint Reduction Policy in order to achieve the climate goals in an orderly manner. The policy shall become a mandatory document for all employees of KMG and its subsidiaries and affiliates. We plan to achieve at least 10% reduction of energy and carbon intensity, and develop at least 300 MW of renewable power by 2031. As part of this strategy, we launched a prefeasibility study jointly with Eni for 150 MW hybrid power plant in Mangystau region around our key upstream assets and jointly with Total Eren for 1000 MW</p>

		<p>wind power plant in Zhambyl region.</p> <p>In order to integrate climate-related risks into our strategy, we aim to develop TCFD aligned governance and risk management processes. The internal carbon pricing methodology will be developed to create additional incentives with KMG group of companies to support decarbonization initiatives and facilitate investment decisions. It is expected that this tool will be fully functional in 2023.</p>
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### C3.4

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Capital expenditures Acquisitions and divestments Assets	<p>1. Acquisitions and divestments. Climate risks and opportunities have a significant impact on a company's financial planning. Change in the market structure - the development of renewable energy sources, transformation of the energy mix, increase of electric transport - leads to a decrease in oil demand in the energy sector for the long term. However, there is a growing demand for natural gas as an alternative reserve fuel in the electric power industry, as well as a raw material for polymers. Increasing gas production and sales by expanding APG processing capacities and building gas chemical complexes will allow us to increase revenue in the long term.</p> <p>2. Revenues. Revenues from the realization of KMG's energy transition opportunities will still be calculated. However, the development of renewable energy, offset policy and energy efficiency will provide a monetary financial effect in the amount of 160.19 million USD per year.</p> <p>3. Direct costs. To estimate the direct costs, KMG conducted modeling of the impact of carbon regulation. In the Business as Usual scenario, direct cost growth for KMG will increase by \$1,155.07 million per year. In this regard, the implementation of the Low Carbon Development Program will reduce direct costs by \$200 million compared to the Business as Usual scenario and generate additional income in the amount of 160.19 million USD per year.</p> <p>4. Capital Expenditures. The total amount of capital expenditures for the implementation of</p>

		<p>KMG's Low-Carbon Development Program will amount to 755.8 million USD.</p> <p>5. Assets.                  As part of the energy transition strategy, KMG plans to develop renewable energy sources both through the construction of its own assets and through M&amp;A transactions with existing projects.</p>
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### C3.5

**(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s transition to a 1.5°C world?**

No, but we plan to in the next two years

## C4. Targets and performance

### C4.1

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Absolute target

Intensity target

#### C4.1a

**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

---

**Target reference number**

Abs 1

**Year target was set**

2021

**Target coverage**

Country/region

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Base year**

2019

**Base year Scope 1 emissions covered by target (metric tons CO2e)**

7,360,760

**Base year Scope 2 emissions covered by target (metric tons CO2e)**

3,304,832

**Base year Scope 3 emissions covered by target (metric tons CO2e)**

**Total base year emissions covered by target in all selected Scopes (metric tons CO2e)**

10,665,592

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

100

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

100

**Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

100

**Target year**

2031

**Targeted reduction from base year (%)**

15

**Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]**

9,065,753.2

**Scope 1 emissions in reporting year covered by target (metric tons CO2e)**

**Scope 2 emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

**Total emissions in reporting year covered by target in all selected scopes  
(metric tons CO<sub>2</sub>e)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

According to the Low-Carbon Development Program, the emission reduction targets only account for tons of CO<sub>2</sub>.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the carbon reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

Based on the results of the analysis, as well as taking into account the country policy and development forecasts of KMG, it was determined that the achievable goal for the Company is to reduce carbon dioxide emissions by 15% by 2031 from the level of emissions in 2019 or 1.6 million tons of CO<sub>2</sub>. This target will be achieved through the implementation of measures in energy efficiency and the development of renewable energy, which have the greatest potential at the moment.

We aim to improve the energy efficiency of the Company covering all business areas (upstream, midstream and downstream). Energy efficiency measures have been selected taking into account the MACC-analysis (Marginal Abatement Cost Curve), which allows presenting measures to reduce GHG emissions in order of their cost-effectiveness based on carbon prices. The list of measures, which is considered cost-effective according to the results of the MACC-analysis, has the total implementation budget (CAPEX) in the amount of 305.77 million USD. The GHG emission reduction effect is 1.05 mln tCO<sub>2</sub>.

In addition to energy efficiency measures, the Company has developed a portfolio of projects related to the increase of the share of renewable energy. In particular, KMG has set a goal of commissioning Renewable Energy facilities with a total capacity of at least 300 MW. Preliminarily, the balance of RES portfolio is expected to look as follows: the share of Wind Power Plants - 80%, Solar Power Plants - 20%. The total investment for implementation of RES projects will be at least 450 million USD. The annual electric power generation by RES will reach 945 million kWh (by 2031). The implementation of



projects in this area will make it possible to achieve an additional reduction of CO<sub>2</sub> emissions by 0.6 million tonn.

In addition to the aforementioned areas that form the basis of the LCDP, the Company is exploring the possibility of implementing additional decarbonization measures that may be effective in the long term. These include CCUS projects, lowcarbon hydrogen, forest climate projects.

**List the emissions reduction initiatives which contributed most to achieving this target**

## C4.1b

**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

---

**Target reference number**

Int 1

**Year target was set**

2021

**Target coverage**

Business activity

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

Metric tons of CO<sub>2</sub>-e per thousand tons of produced hydrocarbons

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

93

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

54.6

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

147.6

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

30

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

37

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

32

**Target year**

2031

**Targeted reduction from base year (%)**

10

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

132.84

**% change anticipated in absolute Scope 1+2 emissions**

-15

**% change anticipated in absolute Scope 3 emissions**

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

The target of carbon intensity reduction by 10% by 2031 has been set for upstream facilities in Kazakhstan, which are under our operational control. According to the Low-Carbon Development Program, the emission reduction targets only account for tons of CO<sub>2</sub>.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the carbon intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The carbon intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 2

**Year target was set**

2021

**Target coverage**

Business activity

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

metric tons of CO<sub>2</sub>-e per thousand tons of crude oil

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

229.9

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

100.4

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

330.3

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

50

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

49

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

50

**Target year**

2031

**Targeted reduction from base year (%)**

10

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

297.27

**% change anticipated in absolute Scope 1+2 emissions**

-15

**% change anticipated in absolute Scope 3 emissions**

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

The target of carbon intensity reduction by 10% by 2031 has been set for 3 large refineries in Kazakhstan. According to the Low-Carbon Development Program, the emission reduction targets only account for tons of CO<sub>2</sub>.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the carbon intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The carbon intensity target will be achieved through the improvement of energy

efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 3

**Year target was set**

2021

**Target coverage**

Site/facility

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

metric tons of CO<sub>2</sub>-e per thousand tons of crude oil

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

38.49

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

15.9

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

54.4

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

0.5

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

0.4

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

0.5

**Target year**

2031

**Targeted reduction from base year (%)**

10

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

48.96

**% change anticipated in absolute Scope 1+2 emissions**

**% change anticipated in absolute Scope 3 emissions**

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

The target of carbon intensity reduction by 10% by 2031 has been set for bitumen production facility in Kazakhstan.

According to the Low-Carbon Development Program, the emission reduction targets only account for tons of CO<sub>2</sub>.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the carbon intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The carbon intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 4

**Year target was set**

2021

**Target coverage**

Business activity

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify

metric tons of CO<sub>2</sub>-e per thousand tons of crude oil



**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

3.76

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

5.51

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

9.3

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

4

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

8

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

5

**Target year**

2031

**Targeted reduction from base year (%)**

10

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

8.37

**% change anticipated in absolute Scope 1+2 emissions**

**% change anticipated in absolute Scope 3 emissions**

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this a science-based target?**

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

The target of carbon intensity reduction by 10% by 2031 has been set for midstream facilities in Kazakhstan.

According to the Low-Carbon Development Program, the emission reduction targets only account for tons of CO<sub>2</sub>.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the carbon intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The carbon intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the emissions reduction initiatives which contributed most to achieving this target**

## **C4.2**

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Target(s) to increase low-carbon energy consumption or production  
Other climate-related target(s)

## C4.2a

**(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.**

---

**Target reference number**

Low 1

**Year target was set**

2021

**Target coverage**

Country/region

**Target type: energy carrier**

Electricity

**Target type: activity**

Consumption

**Target type: energy source**

Renewable energy source(s) only

**Base year**

2019

**Consumption or production of selected energy carrier in base year (MWh)**

211

**% share of low-carbon or renewable energy in base year**

0.01

**Target year**

2031

**% share of low-carbon or renewable energy in target year**

15

**% share of low-carbon or renewable energy in reporting year**

0.17

**% of target achieved relative to base year [auto-calculated]**

1.0673782522

**Target status in reporting year**

New

**Is this target part of an emissions target?**

Yes, the construction of at least 300 MW of renewable energy will allow KMG to get credit for 0.6 million tons of CO2 emissions, which will ensure that by 2031 the target of a 15% reduction in carbon dioxide emissions from 2019 levels will be met.

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

This target takes into account the consumption of energy from renewable sources by our assets in Kazakhstan, which are under our operational control.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development program was developed in 2021 for the 2022-2031 period; therefore, targets for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

At the same time, the share of Renewable Energy consumption increased to 0.17% in the reporting year.

KMG has developed a portfolio of projects related to the increase of the share of renewable energy. In particular, KMG has set a goal of commissioning Renewable Energy facilities with a total capacity of at least 300 MW. Preliminarily, the balance of RES portfolio is expected to look as follows: the share of Wind Power Plants - 80%, Solar Power Plants - 20%. The total investment for implementation of RES projects will be at least 450 million USD. The annual electric power generation by RES will reach 945 million kWh (by 2031).

The implementation of projects in this area will make it possible to achieve an additional reduction of CO2 emissions by 0.6 million tons.

**List the actions which contributed most to achieving this target**

## C4.2b

**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

---

**Target reference number**

Oth 1

**Year target was set**

2021

**Target coverage**

Business activity

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

Other, please specify

MJ

**Target denominator (intensity targets only)**

toe

**Base year**

2019

**Figure or percentage in base year**

2,281.3

**Target year**

2031

**Figure or percentage in target year**

2,053.2

**Figure or percentage in reporting year**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this target part of an emissions target?**

no

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target of energy intensity reduction by 10% by 2031 has been set for upstream sector facilities in Kazakhstan, which are under our operational control.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the energy intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The energy intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the actions which contributed most to achieving this target**

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**Target reference number**

Oth 2

**Year target was set**

2021

**Target coverage**

Business activity

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

Other, please specify

MJ

**Target denominator (intensity targets only)**

toe

**Base year**

2019

**Figure or percentage in base year**

3,732.4

**Target year**

2031

**Figure or percentage in target year**

3,359.2

**Figure or percentage in reporting year**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this target part of an emissions target?**

no

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target of energy intensity reduction by 10% by 2031 has been set for 3 large refineries in Kazakhstan.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the energy intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The energy intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the actions which contributed most to achieving this target**

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**Target reference number**

Oth 3

**Year target was set**

**Target coverage**

Site/facility

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

Other, please specify

MJ

**Target denominator (intensity targets only)**

toe

**Base year**

2019

**Figure or percentage in base year**

650.1

**Target year**

2031

**Figure or percentage in target year**

585.1

**Figure or percentage in reporting year**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this target part of an emissions target?**

no

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target of energy intensity reduction by 10% by 2031 has been set for bitumen production facility in Kazakstan.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the energy intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The energy intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the actions which contributed most to achieving this target**

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**Target reference number**

Oth 4

**Year target was set**

2021

**Target coverage**

Site/facility

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency



Other, please specify  
MJ

**Target denominator (intensity targets only)**

Other, please specify  
cubic meters of gas

**Base year**

2019

**Figure or percentage in base year**

3,296.5

**Target year**

2031

**Figure or percentage in target year**

2,966.7

**Figure or percentage in reporting year**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this target part of an emissions target?**

No

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target of energy intensity reduction by 10% by 2031 has been set for gas processing plant in Kazakhstan.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the energy intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The energy intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the actions which contributed most to achieving this target**

**Target reference number**

Oth 5

**Year target was set**

2021

**Target coverage**

Business activity

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Energy consumption or efficiency

Other, please specify

MJ

**Target denominator (intensity targets only)**

toe

**Base year**

2019

**Figure or percentage in base year**

120.9

**Target year**

2031

**Figure or percentage in target year**

108.9

**Figure or percentage in reporting year**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

New

**Is this target part of an emissions target?**

No

**Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

**Please explain target coverage and identify any exclusions**

The target of energy intensity reduction by 10% by 2031 has been set for midstream assets in Kazakhstan.

**Plan for achieving target, and progress made to the end of the reporting year**

The Low-Carbon Development Program (LCDP) was developed in 2021 for the 2022-2031 period; therefore, the energy intensity reduction goals for 2021 have not been set. Starting from 2022, it is planned to track progress towards the goals defined by 2031.

The energy intensity target will be achieved through the improvement of energy efficiency and energy management system of the Company as well as using potential of renewable energy.

**List the actions which contributed most to achieving this target**

**C-OG4.2d**

**(C-OG4.2d) Indicate which targets reported in C4.1a/b incorporate methane emissions, or if you do not have a methane-specific emissions reduction target for your oil and gas activities, please explain why not and forecast how your methane emissions will change over the next five years.**

The absence of methane targets is due to the fact that methane is not subject to carbon regulation in Kazakhstan, and current carbon prices do not provide an incentive to expand the scope of voluntary reduction. At the same time, KMG aims to implement an LDAR system, which will allow to identify methane leaks and develop measures to reduce emissions. Methane leakage detection and quantification campaign will let us detect and quantify methane emissions and their main sources, so we would be more prepared to develop appropriate action plan to reduce emissions in next five years.

**C4.3**

**(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

**C4.3a**

**(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	3	939,730
To be implemented*	0	0
Implementation commenced*	11	270,015
Implemented*	49	25,191

Not to be implemented	0	0
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## C4.3b

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

### Initiative category & Initiative type

Low-carbon energy generation

Other, please specify

Solar and Wind

### Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)

939,730

### Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (location-based)

### Voluntary/Mandatory

Voluntary

### Annual monetary savings (unit currency – as specified in C0.4)

### Investment required (unit currency – as specified in C0.4)

### Payback period

11-15 years

### Estimated lifetime of the initiative

>30 years

### Comment

As part of the Low-carbon Development Program, KMG has planned the construction of RES facilities with a total capacity of at least 300 MW.

In 2021, KMG signed a Memorandum of Understanding with the largest Italian oil and gas company Eni S.p.A., on a number of projects for the construction of Renewable Energy facilities (at least 200 MW solar and wind power plant), as well as on the assessment of the feasibility and economic attractiveness of cultivation of oilseeds in Kazakhstan as biofeedstock for biofuel production.

Also, in 2021 KMG signed a Memorandum of Understanding with Total Eren S.A. on the development, financing, construction and operation of hybrid power plant using wind

energy with a total capacity of 1000 MW, and using energy storage system. A feasibility study is planned for the next year.

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

270,015

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1  
Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

2,980,244

**Investment required (unit currency – as specified in C0.4)**

56,199,498

**Payback period**

16-20 years

**Estimated lifetime of the initiative**

21-30 years

**Comment**

In 2021, the subsidiaries launched a number of measures on process optimization, on replacement of technically obsolete burners, optimization of heat flows, replacement of electric motors, reduction of electricity consumption by technological and pumping equipment, work on installation of heat exchanger, installation and strapping of process lines. These measures will be implemented in next few years.

---

**Initiative category & Initiative type**

Energy efficiency in production processes  
Process optimization

**Estimated annual CO2e savings (metric tonnes CO2e)**

25,191

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1  
Scope 2 (location-based)

**Voluntary/Mandatory**

Mandatory

**Annual monetary savings (unit currency – as specified in C0.4)**

528,600

**Investment required (unit currency – as specified in C0.4)**

6,158,791

**Payback period**

11-15 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

In 2021, 49 energy saving and energy efficiency measures were implemented at subsidiaries and affiliates, aimed at modernizing technological equipment, introducing energy-saving technologies, and optimizing heat generation and consumption.

In addition, energy audits were conducted, which helped to:

- get an analysis of the condition of power, heat and water supply systems;
- evaluate the condition of the technical equipment of industrial enterprises;
- reveal the causes of losses.

Based on the results of the energy audits, recommendations to improve the energy efficiency of the audited subsidiaries and affiliates were developed.

**C4.3c**

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Compliance with regulatory requirements/standards	<p>KMG's investment policy is focused on improving the Company's efficiency in all areas of its core activities by investing in effective, profitable and competitive strategic projects with a significant potential to generate free cash flow, considering the strategic objectives of the Company. The Company's tasks in support of its investment policy are:</p> <ol style="list-style-type: none"> <li>1) Formation of an optimal and cost-effective investment portfolio of the Company focused on the achievement of the Company's Strategic Goals by ranking and balancing investment projects.</li> <li>2) Increasing the level of maturity in project management by applying the Stage Gate Process and increasing control over the proper implementation of projects on time, budget, with the specified level of quality and obtaining direct financial benefits and declared results.</li> </ol>

	<p>3) As a part of the low-carbon strategy, KMG considers any investment projects through the lens of their potential impact on reduction of the carbon footprint. New projects are evaluated by the level of profitability index for the owner (PI) (except for projects at the stage of exploration, projects implemented by order of the President or the Government of the Republic of Kazakhstan and socially important projects).</p>
<p>Dedicated budget for energy efficiency</p>	<p>In 2021, in accordance with the Rules for determining the tariff to support renewable energy sources, our subsidiaries and affiliates purchased electric power in the amount of 7,264 thousand kW for their own needs, produced by renewable energy sources from the Financial Settlement Center for Renewable Energy LLP. Generation of electricity by solar panels of subsidiaries and affiliates for street lighting of territories in 2021 amounted to 47 thousand kWh.</p>
<p>Financial optimization calculations</p>	<p>Cost-benefit analysis of greenhouse gas emission and/or energy efficiency projects is one of the methods we use to stimulate investment in emission reduction activities. This mechanism is particularly relevant for our shareholders and the Management Board, who are responsible for making decisions on cost optimization and allocation of funds. We scrutinize the economic benefits of energy efficiency projects by evaluating the payback period and return on investment. Decisions on organizational, technological or technical measures are therefore taken not only on the basis of environmental and energy performance assessments, but also with consideration of the financial benefit/loss.</p>
<p>Employee engagement</p>	<p>KMG pays great attention to professional development of employees in the field of sustainable development and conducts training courses for employees of the corporate center and subsidiaries and affiliates. In 2021 the third series of Massive Open Online Course was launched with the theme: "Energy Transition: Innovation Towards a Low-Carbon Future", where our employees were trained for 5 weeks in an online format.</p> <p>As part of the cooperation with Shell, during the week-long course the KMG employees were able to learn about Shell's experience in implementing CCUS projects and receive recommendations on the application of CCUS at KMG assets.</p> <p>In December 2021 the training "Sustainable development of the company and practical tools for implementation and assessment of the project portfolio" was held for the employees of JSC NC KazMunayGas. The training was conducted by Oksana Klimenko, an international expert in project management, Vice President of the International Project Management Association IPMA, Executive Director of the global organization Green Project Management in</p>

	<p>Russia and CIS countries.</p> <p>During the program based on the methodology of Green Project Management Global, the participants learned about the concept of sustainable development in the context of corporate project portfolio management, familiarized themselves with the best practices of applying the concept of sustainable development in projects, programs and portfolios, and mastered practical tools for evaluation, risk reduction and increase of project success.</p> <p>Special attention during the program was paid to methods of selection and estimation of project portfolio on the basis of international standard GPM P5™ and application of methodology GPM PRiSMTM (Projects integrating sustainable methods), project estimation models GPM 3600 and organization GPM PSM3™.</p> <p>The GPMP5™ standard (People, Planet, Prosperity, Products and Processes) is the world's only methodology incorporating the principles and tools of sustainable development into projects, programs and portfolio management. The standard combines more than 100 project and process indicators to ensure that sustainability goals are achieved both in the project and in the subsequent operation of the created product.</p>
<p>Partnering with governments on technology development</p>	<p>In 2021, the Ministry of Energy of the Republic of Kazakhstan, Samruk-Kazyna JSC, KazMunayGas NC JSC and Total Eren S.A. signed a Memorandum of Understanding. The signed document is aimed to the development, financing, construction and operation of hybrid power plants, using wind energy, on the territory of the Republic of Kazakhstan with the total capacity of about 1GW.</p> <p><a href="https://www.kmg.kz/eng/press-centr/press-relizy/?cid=0&amp;rid=431">https://www.kmg.kz/eng/press-centr/press-relizy/?cid=0&amp;rid=431</a></p>

## C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?**

Yes

## C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.**

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**Level of aggregation**



Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

**Type of product(s) or service(s)**

Biofuels

Bioethanol

**Description of product(s) or service(s)**

Our Romanian refinery produces Low-carbon products, which are supplied to European markets: Euro plus 10 ppm biobenzene and Euro 5 diesel blended with biodiesel. Our Romanian refinery supplies European markets with low-carbon products: Euro plus 10 ppm biobenzene and Euro 5 diesel blended with biodiesel. We believe that our commitment to the production and distribution of fuels blended with biocomponents is a good start for the production of low-carbon fuels. This will minimize negative environmental and human health impacts from the use of our products. In 2018, we were very proud to receive international ISCC (International Sustainability and Carbon Certificate) certification for our biocomponent fuel.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

No

**Methodology used to calculate avoided emissions**

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

**Functional unit used**

**Reference product/service or baseline scenario used**

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

**Explain your calculation of avoided emissions, including any assumptions**

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

## C-OG4.6

### **(C-OG4.6) Describe your organization's efforts to reduce methane emissions from your activities.**

Since 2017, KMG has been a member of the Global Methane Initiative (GMI) project network, demonstrating its commitment to the reduction of methane emissions from the oil & gas sector. In addition, KMG has previously conducted a pilot campaign with Carbon Limits for several years to detect and quantify emissions of methane and volatile non-methane compounds at several production facilities of KMG subsidiaries and affiliates using infrared cameras.

Based on the results of the pilot projects, short-term measures were proposed:

- Development of a systematic leak detection and repair (LDAR) program, with plans to purchase equipment, train personnel, and conduct regular identification and measurement at all facilities.
- Regular inspection and replacement of compressor seals.

Among the long-term measures recommended is the installation of vapor recovery units (VRUs) to collect dry gas and fugitive emissions.

The above measures were included in the KMG Low Carbon Development Program in 2021, and the mandatory introduction of LDAR at all production subsidiaries and affiliates having the largest number of leaks across the KMG group of companies is one of the goals of the Program.

## C-OG4.7

### **(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?**

Yes

## C-OG4.7a

### **(C-OG4.7a) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.**

Starting from 2014, JSC NC KazMunayGas is actively cooperating with Carbon Limits to detect and measure methane leaks at the production facilities of its subsidiaries and affiliates. This project is implemented within the framework of the Methane Emission Reduction Program, which is one of the tools to help reduce greenhouse gas emissions in the Republic of Kazakhstan provided by Norway and is supported by the Ministry of Energy of the Republic of Kazakhstan.

In 2015-2016, 3 surveys were conducted with the participation of Carbon Limits specialists in the detection and measurement of methane leaks in 4 SDEs in Atyrau, Aktobe and South Kazakhstan regions. The carried out work made it possible to detect and quantify methane

leaks from various emission sources, the prevention of which could lead to potential financial savings.

Unfortunately, KMG does not have a unified protocol for the detection and repair methane leaks. However, given the targets of KMG to implement the LDAR system in our upstream sector, such a protocol will be developed in the future.

## C-OG4.8

**(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.**

**The World Bank Initiative "Complete cessation of regular flaring of APG by 2030"**  
KMG supported this initiative in 2015. It unites governments, oil companies and development organisations that are ready to cooperate to stop the practice of regular associated petroleum gas (APG) flaring by 2030. Our goal is to increase the beneficial use and disposal level of APG, to minimise flaring. We submit annual progress reports to the World Bank.

Management of greenhouse gas emissions and reduction of gas flaring are among the priority tasks for KMG Group of companies. According to the approved Environmental Policy, the Company strives to achieve zero routine gas flaring and reduce emissions into the atmosphere from flares. One of our most important tasks in reducing greenhouse gas emissions is to increase the beneficial use and utilization of raw gas and to minimize flaring. Thanks to the implemented measures of the programs for the development and processing of raw gas, the use of gas for our own needs to generate heat and electricity has increased.

The result of purposeful actions on KMG Group of companies for the period of 2017-2021 was the reduction of APG flaring by 83%. This allowed us to reduce emissions of pollutants and greenhouse gases generated during the combustion and spreading of raw gas.

In 2021, the Company's level of rational use of raw gas was 98%. The flaring rate is 2.1 tons per 1,000 tons of produced UGC (2.2 in 2020, 2.95 in 2019), which is 5% lower than in 2020 and 74% lower than the average IOGP indicator for the oil&gas industry.

According to our Low-Carbon Development Programme approved on November 2021, KMG aims to achieve zero routing flaring by 2031.

## C5. Emissions methodology

### C5.1

**(C5.1) Is this your first year of reporting emissions data to CDP?**

No

## C5.1a

**(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?**

### Row 1

**Has there been a structural change?**

Yes, other structural change, please specify

**Name of organization(s) acquired, divested from, or merged with**

In 2021, from the operational boundaries of KMG the companies were withdrawn 5 subsidiaries and affiliates of KazTransGas JSC group of companies: KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent gas pipeline LLP, Asian gas pipeline LLP, Amangeldy Gas LLP.

**Details of structural change(s), including completion dates**

In 2021 the following companies were withdrawn from KMG's operational boundaries: KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP in connection with the transfer of a full share package to the National Welfare Fund Samruk-Kazyna JSC. In this connection, the CDP recalculated data for 4 years excluding KazTransGas JSC. On November 9, 2021, in accordance with the terms of the agreement for the sale and purchase of 100% of ordinary shares of KazTransGas JSC (hereinafter referred to as KTG) concluded between KMG and Samruk-Kazyna JSC (hereinafter referred to as the Fund) dated November 3, 2021, KTG shares were transferred in favor of the Fund, including all indicators on GHG emissions for 2021 are transferred to the boundaries of the Fund.

## C5.1b

**(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?**

	<b>Change(s) in methodology, boundary, and/or reporting year definition?</b>	<b>Details of methodology, boundary, and/or reporting year definition change(s)</b>
Row 1	Yes, a change in boundary	In 2021 the following companies were withdrawn from KMG's operational boundaries due to the transfer of a full package of shares to the National Welfare Fund of Samruk-Kazyna JSC: KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy

	Gas LLP . In this connection, the data for 4 years excluding KazTransGas JSC was recalculated in the CDP.
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## C5.1c

**(C5.1c) Have your organization’s base year emissions been recalculated as result of the changes or errors reported in C5.1a and C5.1b?**

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	Yes	<p>In 2021 the following companies were withdrawn from KMG’s operational boundaries due to the transfer of a full package of shares to the National Welfare Fund of Samruk-Kazyna JSC: KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP .</p> <p>In this connection, the volume of base year emissions was recalculated after deduction of subsidiaries and affiliates of KazTransGas JSC.</p> <p>Also, as part of the development of the Low-Carbon Development Program, 2019 was established as the base year, as it is closest to the typical operations of KMG Group, unlike 2021, which was affected by the economic crisis and 2020, which was affected by the pandemic coronavirus infection.</p>

## C5.2

**(C5.2) Provide your base year and base year emissions.**

### Scope 1

**Base year start**

January 1, 2019

**Base year end**

December 31, 2019

**Base year emissions (metric tons CO2e)**

8,890,714.502

**Comment**

2019 was established as the base year, as it is closest to the typical operations of KMG Group, unlike 2021, which was affected by the economic crisis and 2020, which was affected by the pandemic coronavirus infection.

In the new KMG Development Strategy for 2022-2031, the strategic KPI "Reduce KMG Group's carbon footprint by 15% by 2031 from 2019 levels" has been enshrined.

### Scope 2 (location-based)

**Base year start**

January 1, 2019

**Base year end**

December 31, 2019

**Base year emissions (metric tons CO2e)**

3,304,832

**Comment**

2019 was established as the base year, as it is closest to the typical operations of KMG Group, unlike 2021, which was affected by the economic crisis and 2020, which was affected by the pandemic coronavirus infection.

In the new KMG Development Strategy for 2022-2031, the strategic KPI "Reduce KMG Group's carbon footprint by 15% by 2031 from 2019 levels" has been enshrined.

**Scope 2 (market-based)**

---

**Base year start**

January 1, 2019

**Base year end**

December 31, 2019

**Base year emissions (metric tons CO2e)**

3,359,945.3

**Comment**

2019 was established as the base year, as it is closest to the typical operations of KMG Group, unlike 2021, which was affected by the economic crisis and 2020, which was affected by the pandemic coronavirus infection.

In the new KMG Development Strategy for 2022-2031, the strategic KPI "Reduce KMG Group's carbon footprint by 15% by 2031 from 2019 levels" has been enshrined.

**Scope 3 category 1: Purchased goods and services**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 2: Capital goods**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 4: Upstream transportation and distribution**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 5: Waste generated in operations**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 6: Business travel**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 7: Employee commuting**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 8: Upstream leased assets**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**Scope 3 category 9: Downstream transportation and distribution**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**



### **Scope 3 category 10: Processing of sold products**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

### **Scope 3 category 11: Use of sold products**

---

**Base year start**

January 1, 2019

**Base year end**

December 31, 2019

**Base year emissions (metric tons CO<sub>2</sub>e)**

71,698,130,618

**Comment**

2019 was established as the base year, as it is closest to the typical operations of KMG Group, unlike 2021, which was affected by the economic crisis and 2020, which was affected by the pandemic coronavirus infection.

In the new KMG Development Strategy for 2022-2031, the strategic KPI "Reduce KMG Group's carbon footprint by 15% by 2031 from 2019 levels" has been enshrined.

### **Scope 3 category 12: End of life treatment of sold products**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

### **Scope 3 category 13: Downstream leased assets**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 14: Franchises**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 15: Investments**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3: Other (upstream)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

### Scope 3: Other (downstream)

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

## C5.3

**(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2009

European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

Other, please specify

The National guidelines for the calculation of GHG emissions were used to assess direct emission amounts for our facilities located in Kazakhstan - 4 methodologies. GHG Protocol Scope 2 Guidance and CDP Technical Note: Accounting of Scope 2 emissions

## C6. Emissions data

### C6.1

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?**

**Reporting year**

---

**Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

10,611,089.791

**Start date**

January 1, 2021

**End date**

December 31, 2021

### Comment

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2021 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies. In 2021, emissions increased by 199 thousand tons of CO<sub>2</sub> eq. compared to 2020 due to an increase in emissions at one of the upstream companies due to the increase in fuel consumption.

### Past year 1

---

#### Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)

10,411,278.349

#### Start date

January 1, 2020

#### End date

December 31, 2020

### Comment

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2020 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

### Past year 2

---

#### Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)

8,890,714.502

#### Start date

January 1, 2019

#### End date

December 31, 2019

### Comment

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2019 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

### Past year 3

---

**Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

8,807,356.856

**Start date**

January 1, 2018

**End date**

December 31, 2018

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2018 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

## C6.2

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

Location-based Scope 2 emissions for our assets located in Kazakhstan and Georgia are calculated using available national energy production emissions factors. Market-based Scope 2 emissions for our assets in Romania are calculated using RE-DISS residual mix factors.

## C6.3

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?**

**Reporting year**

**Scope 2, location-based**

3,340,708.763

**Scope 2, market-based (if applicable)**

3,314,720.483

**Start date**

January 1, 2021

**End date**

December 31, 2021

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2021 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

There is a decrease in emissions due to downtime of a number of equipment in some companies in connection with ongoing repairs.

**Past year 1**

---

**Scope 2, location-based**

3,448,136.199

**Scope 2, market-based (if applicable)**

3,508,371.083

**Start date**

January 1, 2020

**End date**

December 31, 2020

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2020 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

**Past year 2**

---

**Scope 2, location-based**

3,304,832

**Scope 2, market-based (if applicable)**

3,359,945.3

**Start date**

January 1, 2019

**End date**

December 31, 2019

### Comment

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2019 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

### Past year 3

---

#### Scope 2, location-based

3,138,003.167

#### Scope 2, market-based (if applicable)

3,192,654.113

#### Start date

January 1, 2018

#### End date

December 31, 2018

### Comment

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Samruk-Kazyna National Welfare Fund JSC. In this regard, for 2018 the volume of greenhouse gas emissions are recalculated without taking into account the above-mentioned companies.

## C6.4

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

### C6.4a

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

---

#### Source

Transport

#### Relevance of Scope 1 emissions from this source

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

No emissions from this source

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

No emissions from this source

**Explain why this source is excluded**

GHG emissions from mobile sources are excluded due to the regulatory requirements of Kazakhstan and EU Emission Trading Schemes. Analysis of data of fuel consumption by the company-owned vehicles allows us to make a conclusion that the GHG emissions from the mobile sources are insignificant in relation to our gross Scope 1 emissions (less than 1%).

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

**Explain how you estimated the percentage of emissions this excluded source represents**

---

**Source**

GHG emissions other than CO2 in Scope 2.

**Relevance of Scope 1 emissions from this source**

No emissions excluded

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

Indirect GHG emissions in CO2e were estimated without consideration of CH4 and N2O contributions due to the limitations associated with emission factors availability.

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

**Explain how you estimated the percentage of emissions this excluded source represents**



## C6.5

### (C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

#### Purchased goods and services

---

##### Evaluation status

Relevant, not yet calculated

##### Please explain

A very large range of purchased goods and services for which it is not possible to accurately calculate indirect emissions, as there are no established emission calculation rates from different categories of goods (services) in the framework of national programs.

#### Capital goods

---

##### Evaluation status

Relevant, not yet calculated

##### Please explain

No data from manufacturers and no nationally established rates for calculating emissions from different categories of goods (services).

#### Fuel-and-energy-related activities (not included in Scope 1 or 2)

---

##### Evaluation status

Not evaluated

##### Please explain

Fuel related activities occur only during the operation of vehicles. Greenhouse gas emissions from mobile sources are excluded due to the regulatory requirements of the emissions trading systems of Kazakhstan and the EU.

Fuel consumption by mobile sources is insignificant in relation to fuel consumption by stationary sources (less than 1%).

#### Upstream transportation and distribution

---

##### Evaluation status

Not evaluated

##### Please explain

While GHG emissions from mobile sources are excluded under the regulatory requirements of the Kazakh and EU emissions trading systems, KMG suppliers also do not calculate GHG emissions from transportation.

#### Waste generated in operations

---

##### Evaluation status

Relevant, not yet calculated

**Please explain**

This can be calculated in the future, when the system of recording baseline data for all subsidiaries and affiliates of KMG will be implemented.

**Business travel**

---

**Evaluation status**

Relevant, not yet calculated

**Please explain**

This can be calculated in the future, when a system for recording the actual trips made by employees in kilometers, as well as tracking data on indirect emissions from hotel activities, will be implemented.

**Employee commuting**

---

**Evaluation status**

Not evaluated

**Please explain**

Because GHG emissions from mobile sources are excluded due to the regulatory requirements of the Kazakhstan and EU emissions trading systems, providers of employee home-to-work transportation also do not calculate GHG emissions from transportation.

**Upstream leased assets**

---

**Evaluation status**

Not evaluated

**Please explain**

Emissions from leased property are not classified in Scope 3 because the leased property is under the operational control of KMG and emissions from it are covered in Scope 1,2.

**Downstream transportation and distribution**

---

**Evaluation status**

Not evaluated

**Please explain**

Since GHG emissions from mobile sources are excluded by the regulatory requirements of the emissions trading systems of Kazakhstan and the EU, KMG suppliers also do not calculate GHG emissions from transportation.

**Processing of sold products**

---

**Evaluation status**

Not relevant, explanation provided

### **Please explain**

We assume that emissions associated with the processing of goods sold fall under the "use of goods sold" section of our primary Scope 3 emissions because the use of hydrocarbons involves processing. Emissions from goods processed by subsidiaries and affiliates of KMG are accounted in Scope 1.

## **Use of sold products**

---

### **Evaluation status**

Relevant, calculated

### **Emissions in reporting year (metric tons CO<sub>2</sub>e)**

62,095,594.746

### **Emissions calculation methodology**

Other, please specify

Specific GHG emission factors are taken from the Order of the Minister of Energy of the RoK dated June 28, 2017 No. 222 "On Approval of the List of Specific GHG Emission Factors". The latest GWP values reported in the Fifth IPCC Assessment Report

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Please explain**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full package of shares of JSC to Sovereign Wealth Fund Samruk-Kazyna. In this regard, the volume of greenhouse gas emissions for 2021 is recalculated without consideration of the above-mentioned companies.

There is a decrease in emissions compared to last year from the use of products sold, dependent on a decrease in oil production in 2021.

The Scope 3 emissions estimate does not include production data from refineries in Kazakhstan due to our specific business model in Kazakhstan.

## **End of life treatment of sold products**

---

### **Evaluation status**

Not relevant, explanation provided

### **Please explain**

No data is available on the disposal of products purchased from KMG by third-party customers. We have independently evaluated end-of-life emissions from our polymer products. These emissions are less than 4% of our Scope 3 gross emissions.

## Downstream leased assets

---

### Evaluation status

Not relevant, explanation provided

### Please explain

Emissions from leased property are not classified in Scope 3 because the leased property is under the operational control of KMG and emissions from it are covered in Scope 1, Scope 2.

## Franchises

---

### Evaluation status

Not relevant, explanation provided

### Please explain

We assume that emissions from the retail petrol station chain operated by franchisees are irrelevant compared to our Scope 3 emissions associated with "use of goods sold."

## Investments

---

### Evaluation status

Not relevant, explanation provided

### Please explain

In terms of greenhouse gas emissions from those JVs in which the share of KMG investments is more than 50%, KMG reported 100% emissions in scope 1, 2, 3. We assume that the emissions associated with our investments have no operational significance less than 50% compared to our main area 3 emissions associated with "use of goods sold".

## Other (upstream)

---

### Evaluation status

### Please explain

## Other (downstream)

---

### Evaluation status

### Please explain

## C6.5a

**(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.**

## Past year 1

---

**Start date**

January 1, 2020

**End date**

December 31, 2020

**Scope 3: Purchased goods and services (metric tons CO2e)**

**Scope 3: Capital goods (metric tons CO2e)**

**Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)  
(metric tons CO2e)**

**Scope 3: Upstream transportation and distribution (metric tons CO2e)**

**Scope 3: Waste generated in operations (metric tons CO2e)**

**Scope 3: Business travel (metric tons CO2e)**

**Scope 3: Employee commuting (metric tons CO2e)**

**Scope 3: Upstream leased assets (metric tons CO2e)**

**Scope 3: Downstream transportation and distribution (metric tons CO2e)**

**Scope 3: Processing of sold products (metric tons CO2e)**

**Scope 3: Use of sold products (metric tons CO2e)**

62,369,380.819

**Scope 3: End of life treatment of sold products (metric tons CO2e)**

**Scope 3: Downstream leased assets (metric tons CO2e)**

**Scope 3: Franchises (metric tons CO2e)**

**Scope 3: Investments (metric tons CO<sub>2</sub>e)**

**Scope 3: Other (upstream) (metric tons CO<sub>2</sub>e)**

**Scope 3: Other (downstream) (metric tons CO<sub>2</sub>e)**

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to the National Welfare Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2019 is recalculated without consideration of the above-mentioned companies.

**Past year 2**

---

**Start date**

January 1, 2019

**End date**

December 31, 2019

**Scope 3: Purchased goods and services (metric tons CO<sub>2</sub>e)**

**Scope 3: Capital goods (metric tons CO<sub>2</sub>e)**

**Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO<sub>2</sub>e)**

**Scope 3: Upstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Scope 3: Waste generated in operations (metric tons CO<sub>2</sub>e)**

**Scope 3: Business travel (metric tons CO<sub>2</sub>e)**

**Scope 3: Employee commuting (metric tons CO<sub>2</sub>e)**

**Scope 3: Upstream leased assets (metric tons CO<sub>2</sub>e)**

**Scope 3: Downstream transportation and distribution (metric tons CO<sub>2</sub>e)**

**Scope 3: Processing of sold products (metric tons CO2e)**

**Scope 3: Use of sold products (metric tons CO2e)**

71,698,130.617

**Scope 3: End of life treatment of sold products (metric tons CO2e)**

**Scope 3: Downstream leased assets (metric tons CO2e)**

**Scope 3: Franchises (metric tons CO2e)**

**Scope 3: Investments (metric tons CO2e)**

**Scope 3: Other (upstream) (metric tons CO2e)**

**Scope 3: Other (downstream) (metric tons CO2e)**

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to the National Welfare Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2019 is recalculated without consideration of the above-mentioned companies.

**Past year 3**

---

**Start date**

January 1, 2018

**End date**

December 31, 2018

**Scope 3: Purchased goods and services (metric tons CO2e)**

**Scope 3: Capital goods (metric tons CO2e)**

**Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)  
(metric tons CO2e)**

**Scope 3: Upstream transportation and distribution (metric tons CO2e)**

**Scope 3: Waste generated in operations (metric tons CO2e)**

**Scope 3: Business travel (metric tons CO2e)**

**Scope 3: Employee commuting (metric tons CO2e)**

**Scope 3: Upstream leased assets (metric tons CO2e)**

**Scope 3: Downstream transportation and distribution (metric tons CO2e)**

**Scope 3: Processing of sold products (metric tons CO2e)**

**Scope 3: Use of sold products (metric tons CO2e)**

70,618,325.736

**Scope 3: End of life treatment of sold products (metric tons CO2e)**

**Scope 3: Downstream leased assets (metric tons CO2e)**

**Scope 3: Franchises (metric tons CO2e)**

**Scope 3: Investments (metric tons CO2e)**

**Scope 3: Other (upstream) (metric tons CO2e)**

**Scope 3: Other (downstream) (metric tons CO2e)**

**Comment**

In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to the National Welfare Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2018 is recalculated without consideration of the above-mentioned companies.



## C6.7

**(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No

## C6.10

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

---

**Intensity figure**

0.00119

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

13,925,810.27

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

11,707,804,451

**Scope 2 figure used**

Market-based

**% change from previous year**

33

**Direction of change**

Increased

**Reason for change**

The increase in emission intensity per unit of gross revenue is associated with a 50% increase in revenue compared to the previous year. While scope 1 and 2 emissions remained at 2020 levels. Data are presented excluding KTG.

## C-OG6.12

**(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO<sub>2</sub>e) per unit of hydrocarbon category.**

---

**Unit of hydrocarbon category (denominator)**

Other, please specify

Thousand tonnes of hydrocarbon crude production

**Metric tons CO<sub>2</sub>e from hydrocarbon category per unit specified**

102

**% change from previous year**

17

**Direction of change**

Increased

**Reason for change**

The intensity of emissions increased from 87 tons of CO<sub>2</sub> per thousand tons of hydrocarbons produced in 2020 to 102 tons of CO<sub>2</sub> per thousand tons of hydrocarbons produced in 2021. The increase in the intensity of greenhouse gas emissions is associated with a change in approaches to calculating greenhouse gas emissions, as well as with an increase in fuel consumption.

**Comment**

The reported value corresponds to the emission rate data we provide to IOGP. Thus, the emission rate is estimated based on data provided by only seven upstream companies (in the upper segment)

---

**Unit of hydrocarbon category (denominator)**

Other, please specify

The reported value corresponds to the emission rate data we provide to IOGP. Thus, the emission rate is estimated based on data provided by only seven upstream companies (in the upper segment)

**Metric tons CO<sub>2</sub>e from hydrocarbon category per unit specified**

157

**% change from previous year**

16

**Direction of change**

Decreased

**Reason for change**

The intensity of emissions decreased from 187 tons of CO<sub>2</sub>e per thousand tons of hydrocarbons produced in 2020 to 157 tons of CO<sub>2</sub>e per thousand tons of hydrocarbons produced in 2021.

**Comment**

The reported value corresponds to the emission rate data we provide to IOGP. Thus, the emission rate is estimated based on data provided by only seven upstream companies (in the upper segment).

---

**Unit of hydrocarbon category (denominator)**

Other, please specify

Thousand tonnes of processed hydrocarbon crude

**Metric tons CO<sub>2</sub>e from hydrocarbon category per unit specified**

225

**% change from previous year**

9

**Direction of change**

Decreased

**Reason for change**

The intensity of emissions decreased from 248 tons of CO<sub>2</sub> per thousand tons of recycled hydrocarbons in 2020 to 225 tons of CO<sub>2</sub> per thousand tons of recycled hydrocarbons in 2021.

**Comment**

The reported value corresponds to the emission rate data, which we calculate by analogy using IOGP approaches. Therefore, the emission rate is estimated based on data provided by only our three refineries in Kazakhstan.

---

**Unit of hydrocarbon category (denominator)**

Thousand barrels of refinery throughput

**Metric tons CO<sub>2</sub>e from hydrocarbon category per unit specified**

30

**% change from previous year**

25

**Direction of change**

Decreased

**Reason for change**

Emissions intensity decreased from 40 tons of CO<sub>2</sub>e per thousand barrels of actual throughput of our refineries in 2020 to 30 tons of CO<sub>2</sub>e per thousand barrels, respectively. The change is due to improvements in the energy and operational efficiency of our refineries.

**Comment**

Main strategic directions of development energy saving and energy efficiency of the Group KMG companies — modernization of technological equipment, introduction of energy-saving technologies, optimization of generation and consumption of thermal energy, as well as the development of own sources of generation.

## C-OG6.13

**(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.**

---

### **Oil and gas business division**

Upstream

**Estimated total methane emitted expressed as % of natural gas production or throughput at given division**

1.66

**Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division**

0.22

### **Comment**

The reported values are obtained by dividing the total methane emissions of our upstream companies by gas production and hydrocarbon production volumes, respectively. To calculate the indicator, methane emissions and production volumes were given in metric tons.

---

### **Oil and gas business division**

Midstream

**Estimated total methane emitted expressed as % of natural gas production or throughput at given division**

0

**Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division**

0

### **Comment**

The values presented are obtained by dividing the total methane emissions of our midstream companies by the volume of oil transported. The recalculation for the volume of gas transportation was not taken into account in connection with the withdrawal of gas transportation assets from the company's structure in 2021.

---

### **Oil and gas business division**

Downstream

**Estimated total methane emitted expressed as % of natural gas production or throughput at given division**

43.26

**Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division**

0.3

**Comment**

The reported values are obtained by dividing the total methane emissions of our upstream companies by gas production and hydrocarbon production volumes, respectively. To calculate the indicator, methane emissions and production volumes were given in metric tons.

The increase in the indicator is due to the fact that one of the gas processing assets was transferred from the Upstream to Downstream, in connection with which the volumes of gas processing increased compared to the previous year.

## C7. Emissions breakdowns

### C7.1

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

### C7.1a

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	6,902,064.589	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	3,248,233.729	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	460,791.473	IPCC Fifth Assessment Report (AR5 – 100 year)

### C-OG7.1b

**(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.**

**Emissions category**

Combustion (excluding flaring)

**Value chain**

Upstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

2,059,231.849

**Gross Scope 1 methane emissions (metric tons CH4)**

45.03

**Total gross Scope 1 emissions (metric tons CO2e)**

2,067,303.625

**Comment**

Emissions relate to all upstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from upstream activities by product type.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: upstream emissions were reduced by 500 thousand tons of CO2-eq, including reduction in emissions from combustion by 221 thousand tons of CO2-eq.

---

**Emissions category**

Flaring

**Value chain**

Upstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

112,031.415

**Gross Scope 1 methane emissions (metric tons CH4)**

1.942

**Total gross Scope 1 emissions (metric tons CO2e)**

112,371.128

**Comment**

Emissions relate to all upstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from upstream activities by product type.

In 2021, one of the enterprises was transferred from the upstream to the downstream

sector, therefore, the emissions in the downstream and upstream sectors are varied: upstream emissions were reduced by 500 thousand tons of CO<sub>2</sub>-eq, including reduction in emissions from flaring by 85.9 thousand tons of CO<sub>2</sub>-eq.

---

**Emissions category**

Venting

**Value chain**

Upstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO<sub>2</sub> emissions (metric tons CO<sub>2</sub>)**

1,813.648

**Gross Scope 1 methane emissions (metric tons CH<sub>4</sub>)**

8,705.511

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**

245,567.961

**Comment**

Emissions relate to all upstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from upstream activities by product type. In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: upstream emissions were reduced by 500 thousand tons of CO<sub>2</sub>-eq. However, emissions by venting rose by 3.2 thousand tons of CO<sub>2</sub>-eq. due to an increase in venting at one of the upstream facilities.

---

**Emissions category**

Fugitives

**Value chain**

Upstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO<sub>2</sub> emissions (metric tons CO<sub>2</sub>)**

4,031.026

**Gross Scope 1 methane emissions (metric tons CH<sub>4</sub>)**

41,248.626

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**

1,158,992.567

**Comment**

Emissions relate to all upstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from upstream activities by product type.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: upstream emissions were reduced by 500 thousand tons of CO<sub>2</sub>-eq, including a reduction of fugitive emissions by 196.29 thousand tons of CO<sub>2</sub>-eq.

---

**Emissions category**

Process (feedstock) emissions

**Value chain**

Upstream

**Product**

**Gross Scope 1 CO<sub>2</sub> emissions (metric tons CO<sub>2</sub>)**

0

**Gross Scope 1 methane emissions (metric tons CH<sub>4</sub>)**

0

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**

0

**Comment**

---

**Emissions category**

Other (please specify)

**Value chain**

Upstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO<sub>2</sub> emissions (metric tons CO<sub>2</sub>)**

0

**Gross Scope 1 methane emissions (metric tons CH<sub>4</sub>)**

0

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**



0

**Comment**

---

**Emissions category**

Combustion (excluding flaring)

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

170,220.926

**Gross Scope 1 methane emissions (metric tons CH4)**

3.42

**Total gross Scope 1 emissions (metric tons CO2e)**

172,035.096

**Comment**

Emissions relate to all midstream assets operated by KMG.  
The slight growth of GHG emissions of 6 thousand tons of CO2 eq. from the combustion is associated with increased fuel consumption.

---

**Emissions category**

Flaring

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

0

**Comment**

---

**Emissions category**

Venting

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

0

**Comment**

---

**Emissions category**

Fugitives

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0.078

**Gross Scope 1 methane emissions (metric tons CH4)**

0.858

**Total gross Scope 1 emissions (metric tons CO2e)**

24.088

**Comment**

Emissions relate to all midstream assets operated by KMG. Fugitive emissions are almost unchanged.

---

**Emissions category**

Process (feedstock) emissions

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

0

**Comment**

---

**Emissions category**

Other (please specify)

**Value chain**

Midstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

0

**Comment**

---

**Emissions category**

Combustion (excluding flaring)

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

4,261,798.227

**Gross Scope 1 methane emissions (metric tons CH4)**

1,283.269

**Total gross Scope 1 emissions (metric tons CO2e)**

4,627,359.584

**Comment**

Emissions relate to all downstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from operations by product.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: downstream emissions were increased by 693.88 thousand tons of CO2-eq, including an increase of combustion emissions by 346.76 thousand tons of CO2-eq.

---

**Emissions category**

Flaring

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

35,506.131

**Gross Scope 1 methane emissions (metric tons CH4)**

479.747

**Total gross Scope 1 emissions (metric tons CO2e)**

171,285.987

**Comment**

Emissions relate to all downstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from operations by product.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: downstream emissions were increased by 693.88 thousand tons of CO2-eq, including an increase in emissions from flaring by 141.2 thousand tons of CO2-eq.

---

**Emissions category**

Venting

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

4,261.66

**Gross Scope 1 methane emissions (metric tons CH4)**

59,465,020

**Total gross Scope 1 emissions (metric tons CO2e)**

1,669,282.22

**Comment**

Emissions relate to all downstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from operations by product.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: downstream emissions were increased by 693.88 thousand tons of CO2-eq, including an increase in emissions from venting by 114.06 thousand tons of CO2-eq.

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**Emissions category**

Fugitives

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

49,484

**Gross Scope 1 methane emissions (metric tons CH4)**

4,774,925

**Total gross Scope 1 emissions (metric tons CO2e)**

133,747,390

**Comment**

Emissions relate to all downstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from operations by product.

In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: downstream emissions were increased by 693.88 thousand tons of CO2-eq, including an increase in fugitive emissions by 111.65 thousand tons of CO2-eq.

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**Emissions category**

Process (feedstock) emissions

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

253,120.145

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

253,120.145

**Comment**

Emissions relate to all downstream assets operated by KMG. We cannot disaggregate greenhouse gas emissions from operations by product. In 2021, one of the enterprises was transferred from the upstream to the downstream sector, therefore, the emissions in the downstream and upstream sectors are varied: downstream emissions were increased by 693.88 thousand tons of CO2-eq. However, process emissions were reduced by 19.8 thousand tons of CO2 eq, due to a decrease in hydrogen production at one of the processing plants.

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**Emissions category**

**Value chain**

Downstream

**Product**

Unable to disaggregate

**Gross Scope 1 CO2 emissions (metric tons CO2)**

0

**Gross Scope 1 methane emissions (metric tons CH4)**

0

**Total gross Scope 1 emissions (metric tons CO2e)**

0

**Comment**

## C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO <sub>2</sub> e)
Kazakhstan	9,854,711.791
Romania	745,618
Georgia	10,760

## C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

### C7.3c

**(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

Activity	Scope 1 emissions (metric tons CO <sub>2</sub> e)
Oil and gas exploration and production activities (upstream)	3,584,235.281
Oil and gas transportation activities (midstream)	172,059.184
Oil and gas refining activities (downstream)	6,854,795.326

## C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

**(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO<sub>2</sub>e.**

	Gross Scope 1 emissions, metric tons CO <sub>2</sub> e	Comment
Oil and gas production activities (upstream)	3,584,235.281	Upstream GHG emissions decreased by 500.1 thousand tons of CO <sub>2</sub> -eq. compared to 2020, due to the transfer of one enterprise from the upstream sector to the downstream sector in 2021.
Oil and gas production activities (midstream)	172,059.184	Midstream GHG emissions in 2021 increased by 6 thousand tons of CO <sub>2</sub> -eq, compared to 2020, due to increased operations.

Oil and gas production activities (downstream)	6,854,795.326	Downstream GHG emissions increased by 693 thousand tons of CO <sub>2</sub> -eq. compared to 2020, due to the transfer of one enterprise from the upstream sector to the downstream sector in 2021.
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## C7.5

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
Kazakhstan	3,177,014	3,177,014
Romania	163,365	137,377
Georgia	329	329

## C7.6

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By activity

### C7.6c

**(C7.6c) Break down your total gross global Scope 2 emissions by business activity.**

Activity	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
Oil and gas exploration and production activities (upstream)	1,382,531.32	1,382,531.32
Oil and gas transportation activities (midstream)	229,551.01	229,551.01
Oil and gas refining activities (downstream)	1,728,626.44	1,702,638.16

## C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

**(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO<sub>2</sub>e.**

	Scope 2, location-based, metric tons CO <sub>2</sub> e	Scope 2, market-based (if applicable),	Comment
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		metric tons CO2e	
Oil and gas production activities (upstream)	1,382,531.32	1,382,531.32	<p>In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Sovereign Wealth Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2021 was calculated without taking into account the above-mentioned companies.</p> <p>Emissions reduction is observed due to downtime of some equipment at some facilities in connection with ongoing repair work.</p>
Oil and gas production activities (midstream)	229,551.01	229,551.01	<p>In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Sovereign Wealth Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2021 was calculated without taking into account the above-mentioned companies.</p> <p>Emissions reduction is observed due to downtime of some equipment at some facilities in connection with ongoing repair work.</p>
Oil and gas production activities (downstream)	1,728,626.44	1,702,638.16	<p>In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Sovereign Wealth Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2021 was calculated without taking into account the above-mentioned companies.</p>

			Emissions reduction is observed due to downtime of some equipment at some facilities in connection with ongoing repair work.
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## C7.9

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Increased

## C7.9a

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption				
Other emissions reduction activities				
Divestment	7,347,077.9	Decreased		In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Sovereign Wealth Fund Samruk-Kazyna JSC. All GHG emissions for the 2018-2021 period have been recalculated excluding these companies.
Acquisitions				
Mergers				

Change in output	92,384.44	Increased		<p>In 2021, there is an increase in GHG emissions due to an increase in Scope 1 emissions by 199.8 thousand tons of CO2 eq. This was due to an increase in the combustion of fuel at one of the upstream facilities.</p> <p>At the same time, Scope 2 emissions decreased by 107.4 thousand tons of CO2 eq. due to downtime of some equipment at some facilities in connection with ongoing repair work.</p>
Change in methodology				
Change in boundary	7,347,077.93	Decreased		<p>In 2021, KazTransGas Aimak JSC, Intergas Central Asia JSC, Beineu-Shymkent Gas Pipeline LLP, Asian Gas Pipeline LLP, Amangeldy Gas LLP were withdrawn from the operational boundaries of KMG in connection with the transfer of a full shareholding to Sovereign Wealth Fund Samruk-Kazyna JSC. In this regard, the volume of greenhouse gas emissions for 2021 was calculated without taking into account the above-mentioned companies.</p>
Change in physical operating conditions	207,739	Increased		<p>At one of the upstream facilities, GHG emissions rose by 207. thousand CO2 eq. due to an increase in the volume of fuel combusted as well as a change in the composition of the combustion gas, which affected the CO2 emission rate (also increased).</p>
Unidentified				
Other				

### C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Location-based

## C8. Energy

### C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 0% but less than or equal to 5%

### C8.2

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

### C8.2a

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	35,240,668	35,240,668
Consumption of purchased or acquired electricity		170,354.52	4,027,776.28	4,198,130.8

Consumption of purchased or acquired heat		0	30,035.76	30,035.76
Consumption of purchased or acquired steam		0	1,536,134.69	1,536,134.69
Consumption of self-generated non-fuel renewable energy		47		47
Total energy consumption		170,401.5	43,808,155	60,843,654

## C8.2b

**(C8.2b) Select the applications of your organization’s consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

## C8.2c

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

### Sustainable biomass

#### Heating value

Unable to confirm heating value

#### Total fuel MWh consumed by the organization

#### MWh fuel consumed for self-generation of electricity

#### MWh fuel consumed for self-generation of heat

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

**Other biomass**

---

**Heating value**

Unable to confirm heating value

**Total fuel MWh consumed by the organization**

**MWh fuel consumed for self-generation of electricity**

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

**Other renewable fuels (e.g. renewable hydrogen)**

---

**Heating value**

Unable to confirm heating value

**Total fuel MWh consumed by the organization**

**MWh fuel consumed for self-generation of electricity**

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

**Coal**

---

**Heating value**

Unable to confirm heating value

**Total fuel MWh consumed by the organization**

**MWh fuel consumed for self-generation of electricity**

**MWh fuel consumed for self-generation of heat**

**MWh fuel consumed for self-generation of steam**

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

**Oil**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

55,739

**MWh fuel consumed for self-generation of electricity**

15,832

**MWh fuel consumed for self-generation of heat**

36,912

**MWh fuel consumed for self-generation of steam**

2,995

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

**Gas**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

33,361,903

**MWh fuel consumed for self-generation of electricity**

9,475,950

**MWh fuel consumed for self-generation of heat**

22,093,297

**MWh fuel consumed for self-generation of steam**

1,792,657

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

Emission factors are taken as weighted averages for each type of gas (natural gas, associated petroleum gas, refinery gas, LPG, dry gas, fuel gas).

**Other non-renewable fuels (e.g. non-renewable hydrogen)**

---

**Heating value**

LHV

**Total fuel MWh consumed by the organization**

1,823,026

**MWh fuel consumed for self-generation of electricity**

517,803

**MWh fuel consumed for self-generation of heat**

919,699

**MWh fuel consumed for self-generation of steam**

97,958

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

Emission factors are taken as weighted averages for each type of fuel ( heating oil, diesel, gasoline, fuel oil).

**Total fuel**

---

**Heating value**

LHV



**Total fuel MWh consumed by the organization**

35,240,668

**MWh fuel consumed for self-generation of electricity**

10,009,585

**MWh fuel consumed for self-generation of heat**

23,049,908

**MWh fuel consumed for self-generation of steam**

1,893,610

**MWh fuel consumed for self- cogeneration or self-trigeneration**

**Comment**

## C8.2d

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

	<b>Total Gross generation (MWh)</b>	<b>Generation that is consumed by the organization (MWh)</b>	<b>Gross generation from renewable sources (MWh)</b>	<b>Generation from renewable sources that is consumed by the organization (MWh)</b>
Electricity	466,660	466,660	47	47
Heat	44,769	44,769	0	0
Steam	3,771,566	3,771,566	0	0
Cooling	0	0	0	0

## C8.2e

**(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in C6.3.**

**Sourcing method**

Green electricity products from an energy supplier (e.g. green tariffs)

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify

Solar + Wind + Hydropower

**Country/area of low-carbon energy consumption**

Romania

**Tracking instrument used**

No instrument used

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

157,117

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Romania

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

**Comment**

According to the European residual balances, 43.63% of the energy consumed by our Romanian assets was classified as renewable, with the following distribution: solar - 3.17%, wind - 10.2%, hydropower - 12.03%.

---

**Sourcing method**

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier) from a grid that is 95% or more low-carbon and where there is no mechanism for specifically allocating low-carbon electricity

**Energy carrier**

Electricity

**Low-carbon technology type**

Hydropower (capacity unknown)

**Country/area of low-carbon energy consumption**

Georgia

**Tracking instrument used**

No instrument used

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

5,973

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Georgia

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

2,011

**Comment**

According to the IPCC Special Report on Renewable Energy and Climate Change Mitigation (2011), capacity factors for river systems range from (20-95%), depending on geographic and climatological conditions, technology, and operational characteristics.

---

**Sourcing method**

Other, please specify

According to the legislation of RoK to support RES, all electricity is purchased by a single operator under PPA contracts, after which it sells this electricity at an average tariff to power generating organizations running production on fossil fuels

**Energy carrier**

Electricity

**Low-carbon technology type**

Renewable energy mix, please specify  
Solar PV + Wind

**Country/area of low-carbon energy consumption**

Kazakhstan

**Tracking instrument used**

Contract

**Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)**

7,261

**Country/area of origin (generation) of the low-carbon energy or energy attribute**

Kazakhstan

**Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)**

2,015

**Comment**

Consumption of solar energy from a renewable energy support provider.  
Renewable energy consumption coefficient is taken as 100%, as the figure is given for renewable energy only.

## C8.2g

**(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.**

---

**Country/area**

Kazakhstan

**Consumption of electricity (MWh)**

7,264

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

7,264

---

**Country/area**

Romania

**Consumption of electricity (MWh)**

157,117

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

157,117

---

**Country/area**

Georgia

**Consumption of electricity (MWh)**

5,973

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

5,973

## C9. Additional metrics

### C9.1

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

**Description**

Waste

**Metric value**

1,032

**Metric numerator**

thousand tonnes

**Metric denominator (intensity metric only)**

**% change from previous year**

0

**Direction of change**

No change

**Please explain**

For KMG Group, the total mass of waste handled in 2021 amounted to 1,032.0 thousand tonnes, of which waste classified as "hazardous" - 964.2 thousand tonnes, and "non-hazardous" respectively - 67.8 thousand tonnes.  
The mass of newly formed wastes amounted to 413.1 thousand tonnes, of which 93% were utilized or recycled.  
540.48 thousand tons of historical wastes were utilized, sites of their disposal sites were recultivated.

### C-OG9.2a

**(C-OG9.2a) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).**

	In-year net production	Comment
Crude oil and condensate, million barrels	131.8	The crude oil production volumes covered 7 upstream assets under KMG operational control.
Natural gas liquids, million barrels		

Oil sands, million barrels (includes bitumen and synthetic crude)		
Natural gas, billion cubic feet	107.5	The natural gas production volumes covered 7 upstream assets under KMG operational control.

## C-OG9.2b

**(C-OG9.2b) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries, please explain this.**

According to the reserves audit report prepared by the international independent consulting firm DeGolyer and MacNaughton in accordance with the PRMS international standard, KMG's proved plus probable hydrocarbon reserves (2P) were 645 mln toe (4,983 mln boe) as at 31 December 2021. 2P reserves increased by 1.8% year-on-year. The increase is mainly attributable to comprehensive initiatives in hydrocarbon reserves management, including recalculation of hydrocarbon reserves at the Uzen, Kashagan and other fields, as well as positive macroeconomic changes (higher oil price).

The proved reserves (1P) life is 16.5 years, far exceeding the average for global oil majors (about 11 years).

## C-OG9.2c

**(C-OG9.2c) Disclose your estimated total net reserves and resource base (million boe), including the total associated with subsidiaries and equity-accounted entities.**

	Estimated total net proved + probable reserves (2P) (million BOE)	Estimated total net proved + probable + possible reserves (3P) (million BOE)	Estimated net total resource base (million BOE)	Comment
Row 1	4,982.8	5,869.1	9,079.1	Net reserves are defined as that portion of gross reserves that is assigned to KMG's retained interest after deducting all interest owned by others and interest that is not owned by KMG but which KMG controls.

## C-OG9.2d

**(C-OG9.2d) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.**

	Net proved + probable reserves (2P) (%)	Net proved + probable + possible reserves (3P) (%)	Net total resource base (%)	Comment
Crude oil/ condensate/ natural gas liquids	83	83	71	
Natural gas	17	17	29	
Oil sands (includes bitumen and synthetic crude)	0	0	0	

## C-OG9.2e

(C-OG9.2e) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

### Development type

Onshore

### In-year net production (%)

94

### Net proved reserves (1P) (%)

82

### Net proved + probable reserves (2P) (%)

78

### Net proved + probable + possible reserves (3P) (%)

81

### Net total resource base (%)

67

### Comment

### Development type

Shallow-water

### In-year net production (%)

6

### Net proved reserves (1P) (%)

18

**Net proved + probable reserves (2P) (%)**

22

**Net proved + probable + possible reserves (3P) (%)**

19

**Net total resource base (%)**

33

**Comment**

This indicator takes into account the Kashagan B.V. fields.

### C-OG9.3a

**(C-OG9.3a) Disclose your total refinery throughput capacity in the reporting year in thousand barrels per day.**

	Total refinery throughput capacity (Thousand barrels per day)
Capacity	523.29

### C-OG9.3b

**(C-OG9.3b) Disclose feedstocks processed in the reporting year in million barrels per year.**

	Throughput (Million barrels)	Comment
Oil	148.08	
Other feedstocks	0.37	
Total	148.45	

### C-OG9.3c

**(C-OG9.3c) Are you able to break down your refinery products and net production?**

Yes

### C-OG9.3d

**(C-OG9.3d) Disclose your refinery products and net production in the reporting year in million barrels per year.**

Product produced	Refinery net production (Million barrels) *not including products used/consumed on site
Liquified petroleum gas	7.84
Gasolines	42.98
Kerosenes	5.53
Diesel fuels	52.64



Fuel oils	18.08
Asphalt and tar	5.19
Petroleum coke	3.96
Other, please specify Benzene	0.05
Other, please specify Paraxylene	0.33
Other, please specify Heating oil	0.1
Other, please specify Vacuum gasoil	2.38
Other, please specify Technical (industrial) sulfur	0.69
Other, please specify Marketable oil	3.75
Other, please specify Feedstock for technical carbon	0.19
Naphtha	1.33
Still gas	2.84

### C-OG9.3e

**(C-OG9.3e) Please disclose your chemicals production in the reporting year in thousand metric tons.**

Product	Production, Thousand metric tons	Capacity, Thousand metric tons
High value chemicals (Steam cracking)	51.92	629
Other, please specify LDPE	35.99	72
Other, please specify PP (polypropylene)	70.17	90

## C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	<p>In 2021 the Center of Competence for Hydrogen Energy was established on the basis of KMG Engineering LLP, which will be a research hub / center of search for green fuels (including hydrogen and chemical compounds from hydrogen), whose development will significantly expand the scientific and production potential of both the company and the country, will contribute to increased technological growth and accelerate the formation of market foundations of hydrogen economy and become an investment in training of domestic staff.</p> <p>Establishment of the Center of Competence enables scientists and researchers from universities and research institutes to work together to implement projects for production, storage, transportation, and use of hydrogen.</p>

## C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other energy efficiency measures in the oil and gas value chain				Costs consider works for replacing outdated technological equipment at trunk pipeline sections.
Methane detection and reduction				Pilot projects on the detection and direct measurement of methane leaks at production facilities of KMG subsidiaries are implemented within the program

				on reduction of methane emissions. We expect substantial financial savings in case of full commercialisation of those projects in our production facilities.
Other, please specify Energy efficiency in transport				CNG filling station construction project in the western region of Kazakhstan is ultimately aimed at the promotion of natural gas use as an alternative transportation fuel. With the expansion of CNG filling station network we expect more customers to convert their vehicles to use more affordable and eco-friendly CNG instead of conventional fuels such as gasoline or diesel. Eco-fuel is widely sold in our filling stations in Europe. Moreover, we have introduced the EV charging station one of the filling stations in Romania where free charging service is available to all customers who own electric or hybrid vehicles.
Smart systems				<p>Today, digital technologies are permeating all sectors of the economy, offering fundamental improvements in efficiency and safety. The use of digital technologies contributes to:</p> <ul style="list-style-type: none"> <li>• reduction of capital and operating expenses;</li> <li>• improved profitability amid volatile oil prices;</li> <li>• increasing efficiency, including through data analysis;</li> <li>• predicting failures;</li> <li>• ensuring safety at work.</li> </ul> <p>Given the growing relevance of digitalization in the world, in</p>

				<p>order to ensure the country's competitiveness, a state program is being implemented in Kazakhstan "Digital Kazakhstan". Within the framework of the Digital Kazakhstan program of the KMG group of companies, the Smart Field project is being implemented. The Smart field project is an automated oil and gas field management system that allows achieving maximum efficiency by integrating isolated systems into a single information system. The production monitoring system allows to respond to technological failures timely and appropriately, as well as to make decisions on well intervention and workover based on the results of costbenefit analysis. Since its implementation, the project allowed to automate production processes, provided additional oil production and significantly improved the energy efficiency performance. Additionally, we also aim to reduce carbon footprint by introducing renewable energy sources at our smart fields. We have already deployed solar panels on one of our fields to support the monitoring, measurement and lighting systems. The payback period of smart field projects is 8 years.</p>
Carbon capture and storage/utilisation	Applied research and development	≤20%	338,810	In 2021, KMG began work on the development and implementation of a pilot carbon capture, utilization and storage

			<p>(CCUS) project and determination of the potential of CO2 injection to increase the oil recovery of depleted oil reservoirs, which will allow in the medium term until 2031:</p> <ol style="list-style-type: none"> <li>1. Reduce greenhouse gas emissions at KMG's facilities by capturing and injecting into depleted oil reservoirs or aquifers.</li> <li>2. to test the technology ( the results for the formation of the legislative and permitting framework of the Republic of Kazakhstan to implement projects for carbon capture, utilization, storage (CCUS) and their subsequent scaling).</li> </ol> <p>As part of this work is supposed to conduct screening of sources of CO2 emissions at the subsidiaries with the identification of potential objects-sources, study and evaluation of prospects for CO2 injection to increase the oil recovery of depleted oil reservoirs, the performance of research work with subsequent design, construction and putting into operation of experimental facility (taking into account the specifics of the chosen location).</p> <p>The preliminary stage of works on conducting the screening at KMG's assets is planned to be completed as early as in 2023, which will make it possible to implement the first stage of the Project (Research and Design) in 2024-2025.</p>
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Renewable energy	Applied research and development	0%	<p>In 2021 the Center of Competence for Hydrogen Energy was established on the basis of KMG Engineering LLP, which will be a research hub / center of search for green fuels (including hydrogen and chemical compounds from hydrogen), whose development will significantly expand the scientific and production potential of both the company and the country, will contribute to increased technological growth and accelerate the formation of market foundations of hydrogen economy and become an investment in training of domestic staff.</p> <p>Establishment of the Center of Competence enables scientists and researchers from universities and research institutes to work together to implement projects for production, storage, transportation, and use of hydrogen.</p>
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## C-OG9.7

**(C-OG9.7) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid/ share buybacks.**

36.5

💬 Cash flow breakeven point was calculated for upstream subsidiaries under operational control

## C10. Verification

### C10.1

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

## C10.1a

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.**

### Verification or assurance cycle in place

Annual process


### Status in the current reporting year

Complete

### Type of verification or assurance

Third party verification/assurance underway

### Attach the statement

 Verification statement.pdf

### Page/ section reference

Verification statement № KZ.11002300.00.00.00020, 2022, July 01, page 1

### Relevant standard

ISO14064-3

### Proportion of reported emissions verified (%)

97

## C10.1b

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

### Scope 2 approach

Scope 2 market-based

### Verification or assurance cycle in place

Annual process


### Status in the current reporting year

Complete

**Type of verification or assurance**

Third party verification/assurance underway

**Attach the statement**

 Verification statement.pdf

**Page/ section reference**

Verification statement № KZ.11002300.00.00.00020, 2022, July 01, page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.1c

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

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**Scope 3 category**

Scope 3: Use of sold products

**Verification or assurance cycle in place**

Annual process


**Status in the current reporting year**

Complete

**Type of verification or assurance**

Moderate assurance

**Attach the statement**

 Verification statement.pdf

**Page/section reference**

Verification statement № KZ.11002300.00.00.00020, 2022, July 01, page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100





## C10.2

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes


### C10.2a

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1)	ESG non-financial reporting standards. GRI standards.	KMG developed the Sustainability Report for 2021 using the standard of non-financial reporting GRI standard which was verified by third party. The production figures that were used for calculating the intensity, as well as the data on flaring rates were verified within the verification of the Sustainability report. <a href="https://www.kmg.kz/uploads/reports/KMG-OUR_2021_EN.pdf">https://www.kmg.kz/uploads/reports/KMG-OUR_2021_EN.pdf</a> , p.156-157.  1
C6. Emissions data	Year on year change in emissions (Scope 1)	ISO 14064-3:2006 (or ISO 14064-3:2019) Greenhouse gases — Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions	In accordance with European and national legislation, each subsidiary carries out a separate verification of the annual emissions inventory with the involvement of a third party. The verified inventories for each individual subsidiaries and affiliates cover 97% of KMG NC JSC's emissions. When preparing the consolidated report, the initial information from subsidiaries and affiliates, summary calculations of consolidated data, application of GWP factors adopted in the V assessment report of the IPCC and calculations of coverage Scopes 2 and 3 are verified.  2
C8. Energy	Year on year change in emissions (Scope 2)	Order of the Minister of Investment and Development of the Republic of Kazakhstan on March 31, 2015 № 400 "On	In accordance with the requirements of national legislation ("Order of the Minister for Investment and Development of the Republic of Kazakhstan No. 387 of 31 March 2015 "On Approval of the Rules for Formation and Maintenance of the State Energy Register") all KMG subsidiaries and affiliates annually submit to the State Energy Register data on the volume of production, consumption, transmission

		Approval of the Rules for energy audit"	and losses of energy resources and water in natural and monetary terms, which are formed as a result of energy audits. These data were used to verify the consolidated calculation of emissions of the Scope 2. The information of the State Energy Register is publicly available at <a href="https://aisger.kz/">https://aisger.kz/</a>
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 <sup>1</sup>Sustainability Report 2021.pdf

 <sup>2</sup>Verification statement.pdf

## C11. Carbon pricing

### C11.1

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

Yes

#### C11.1a

**(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.**

EU ETS

Kazakhstan ETS

#### C11.1b

**(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.**

##### EU ETS

**% of Scope 1 emissions covered by the ETS**

100

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

783,571

**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

745,618

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

For the compliance process of 2020 (which had to be completed by 30.04.2021) in January 2021, 770,000 certificates were borrowed with the obligation to return after obtaining the free allocation for 2021; as the free allocation was completed in December 2021, the return of the borrowed certificates was made in January 2022.

**Kazakhstan ETS**

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**% of Scope 1 emissions covered by the ETS**

97

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

7,141,833

**Allowances purchased**

183,701

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

10,440,865.66

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

3,314,720.483

**Details of ownership**

Facilities we own and operate

**Comment**

Quotas for plant operators were allocated for a period of 1 years for the period of validity of the National Plan, 14 subsidiaries and affiliates of KMG are included in the quota system of the Republic of Kazakhstan. Data on allocated quotas for 2021 in this section is presented in tons of CO<sub>2</sub> per year, in accordance with the National Quota Allocation Plan for 2021. Some subsidiaries and affiliates will receive in 2022 additional quotas

from the government on a free basis in the amount due to an increase in production capacity and the launch of new stationary sources. Subsidiaries and affiliates are forecasting a deficit / surplus of quotas based on the results of the National Quota Allocation Plan. As per results the 171251 tons of CO<sub>2</sub> need to be purchased in 2022 based on the verification report.

## C11.1d

### **(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

KMG actively monitors the current legislation on carbon regulation, as well as the trends of its tightening. To reduce the risks associated with carbon regulation, KMG's climate strategy is represented by a number of directions:

1. GHG emission reduction by improving the Company's energy efficiency, developing RES and setting its offset policy;
2. GHG management improvement through introducing the Company's own emission monitoring and inventory system, implementation of the corporate GHG cadastre;
3. Consultations with authorized government bodies and business associations on possible changes to the law and the development of adaptive measures;
4. Studying opportunities to develop new low-carbon products and services to keep the Company competitive.

In particular, on the issues of GHG reduction, currently KMG is not experiencing a deficit of allowances for the group of companies, but the modeling on the forecast of the balance of carbon credits in 2021 shows that, as the carbon budget is reduced, KMG will face a deficit of carbon allowances. In this regard, KMG intends to improve operational efficiency, implement RES projects with a total capacity of at least 300 MW to obtain carbon offsets.

The development and implementation of the corporate system of monitoring and inventory of greenhouse gas emissions will allow to automate the calculations, make their forecasts and take objective measures to reduce, so as not to exceed the issued allowances.

As part of the ongoing consultations, KMG expects that in the future the Government of the Republic of Kazakhstan will regulate methane emissions. To be prepared for this challenge, KMG has planned to implement an LDAR system. Based on the pace of tightening of state regulation of greenhouse gases, different scenarios for the company's development are being developed.

In addition, given the goal of the Republic of Kazakhstan to achieve carbon neutrality, as well as the desire of world markets to purchase products with a low carbon footprint, KMG is engaged in research on the application of CCUS in Kazakhstan. A center of competence for hydrogen energy has also been formed. The possibility of biofuel production for transport is being studied.

## C11.2

### **(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

## C11.3

### (C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

## C12. Engagement

### C12.1

#### (C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers/clients

### C12.1a

#### (C12.1a) Provide details of your climate-related supplier engagement strategy.

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##### Type of engagement

Information collection (understanding supplier behavior)

##### Details of engagement

Other, please specify

In the Low-Carbon Development Program, KMG has identified the necessity of implementing sustainable procurement to reduce emissions in Scope 3. In this regard, it is planned to explore the suppliers' activities.

##### % of suppliers by number

0

##### % total procurement spend (direct and indirect)

0

##### % of supplier-related Scope 3 emissions as reported in C6.5

0

##### Rationale for the coverage of your engagement

In 2021, KMG has not collected information to understand the behavior of suppliers. However, data collection is planned in the future, as in the Low Carbon Development Program KMG has identified the implementation of sustainable procurement as a tool to reduce the Company's carbon footprint at the Scope 3 level and an opportunity to support its suppliers. In 2021, as part of the preparation of the Program, KMG identified that it will begin to introduce minimum energy efficiency requirements for equipment supplied to production facilities.

##### Impact of engagement, including measures of success

This will set minimum energy efficiency standards for appliances and equipment with regular indicator updates.

### **Comment**

KMG plans to develop and approve a document on attracting suppliers that meet the greenhouse gas emission targets of KMG's low-carbon development program for the period 2022-2031. Further, we plan to report on the progress of greenhouse gas emissions in the company's supply chain.

## **C12.1b**

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

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### **Type of engagement & Details of engagement**

Education/information sharing

Run an engagement campaign to education customers about your climate change performance and strategy

### **% of customers by number**

0

### **% of customer - related Scope 3 emissions as reported in C6.5**

0

### **Please explain the rationale for selecting this group of customers and scope of engagement**

KMG plans to collect data on our clients and use it to calculate out clients' carbon footprint.

Also, we plan to provide measures to reduce the carbon intensity of our products, including the possibility of providing new low-carbon products (renewable energy, CCUS, green or blue hydrogen, etc.).

### **Impact of engagement, including measures of success**

Increase of low-carbon products consumption including green electricity. KMG will contribute to the development of the national renewable energy generation providing around 11% of total RES installed capacity in Kazakhstan by 2031.

## **C12.2**

**(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?**

No, but we plan to introduce climate-related requirements within the next two years

## C12.3

**(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?**

Row 1

**Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate**

Yes, we engage directly with policy makers

Yes, we engage indirectly through trade associations

**Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?**

Yes

**Attach commitment or position statement(s)**

[https://www.kmg.kz/rus/ustoichivoe\\_razvitie/low-carbon-development-program/main-directions/](https://www.kmg.kz/rus/ustoichivoe_razvitie/low-carbon-development-program/main-directions/)

**Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy**

In order to ensure a system approach in climate change strategy, KMG has developed and approved Low-Carbon Development Programme until 2031, which defines a unified decarbonization framework for the Company as an integral component of corporate governance.

The key objective of the Programme is to identify KMG's climate ambitions, systematise the main carbon footprint reduction approaches and measures, including, inter alia:

- (i) Analysis of available potential and identification of KMG's climate goals.
- (ii) Identification of key areas of the company's decarbonisation development and measures to achieve the goals.
- (iii) Capacity-building and awareness-raising.

Timely and effective implementation of the Programme will require a monitoring and coordinating body, which will, among other things, be charged with the duties to coordinate climate change activities that are consistent with the Programme, to provide support to the SDEs, to check KMG's investment projects for compliance with the decarbonisation and sustainable development policy. Having said that, by the decision of the Board of Directors dated December 9, 2021, changes were made to the structure of the central office of JSC NC "KazMunayGas" and the Low-Carbon Development Department was created.

In order to determine specific measures to achieve the target indicators of the Program, the KMG Low-Carbon Development Department, together with the structural divisions of KMG and subsidiaries and affiliates, plans to develop an Action Plan for the implementation of the Program in 2022. For the purpose of overall coordination of these

activities, working groups will be formed at the level of SDEs with the involvement of all interested units (approved by orders of the first heads of SDEs).

Low-carbon development issues are included in the updated KazMunayGas Development Strategy for 2022-2031 (Strategic goal-4 "Sustainable development and progressive reduction of the carbon intensity of production"), and are also reflected in the KPIs of members of the management board and SDEs covered within the scope of the Program.

In 2022 KMG plans to initiate financial disclosure related to climate change in accordance with the recommendations of the TCFD. Also, the Internal Carbon Pricing Concept will be developed for further introduction.

## C12.3a

**(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?**

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### **Focus of policy, law, or regulation that may impact the climate**

Climate-related targets

### **Specify the policy, law, or regulation on which your organization is engaging with policy makers**

Development of the Doctrine (Strategy) of the Republic of Kazakhstan to achieve carbon neutrality until 2060.

### **Policy, law, or regulation geographic coverage**

National

### **Country/region the policy, law, or regulation applies to**

Kazakhstan

### **Your organization's position on the policy, law, or regulation**

Support with minor exceptions

### **Description of engagement with policy makers**

KMG participated in the working group to develop a draft of the Doctrine (Strategy) to achieve carbon neutrality of the Republic of Kazakhstan until 2060, sent its comments and suggestions for the development of the oil & gas industry to the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, Ministry of Energy of the Republic of Kazakhstan and business associations representing the interests of KMG, while taking into account its own goals for low-carbon development.

### **Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation**



KMG suggested keeping the goal of reducing greenhouse gas emissions by 2030 from the level of emissions in 1990 at 15%, instead of 25%, suggested by the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan. As a result of the international conference "Ways to achieve the goals of the Paris Agreement and the carbon neutrality of Kazakhstan," it was decided to finalize the draft Doctrine (Strategy) to achieve carbon neutrality of the Republic of Kazakhstan until 2060, particularly taking into account the proposals of KMG.

**Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

---

**Focus of policy, law, or regulation that may impact the climate**

Emissions trading schemes

**Specify the policy, law, or regulation on which your organization is engaging with policy makers**

National Carbon Plan 2022-2025

**Policy, law, or regulation geographic coverage**

National

**Country/region the policy, law, or regulation applies to**

Kazakhstan

**Your organization's position on the policy, law, or regulation**

Support with major exceptions

**Description of engagement with policy makers**

Regarding the impact of the draft National Carbon Plan 2022-2025, KMG provided an official position to the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan on the need for revision of the National Plan. Working meetings were also held with the supervising Vice-Minister and the Minister on this issue. In addition, KMG sent clarifications with financial calculations on the costs of carbon regulation to the Ministry of Energy of the Republic of Kazakhstan with a request to support the Company's position. Also, KMG's position was sent to business associations representing KMG's interests to form the industry position.

**Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation**

KMG disagreed with the proposal of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan to reduce the amount of carbon credits in 2022 by 26% compared to 2021. As arguments KMG noted that the national legislation and planning process of large companies do not allow the possibility of implementing large capital projects in one year. As a result, sharp reductions in credits would push up the price of carbon, but would not provide real emission reductions. KMG has presented its Low-Carbon Development Program, which involves significant investment in

decarbonization until 2026. In this regard, in order to reduce the financial burden from the implementation of the Program and the purchase of credits, KMG proposed to keep the reduction factor at 1.5% from the previous year, as it is prescribed in the Environmental Code of the Republic of Kazakhstan. This proposal was supported by the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan.

**Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Focus of policy, law, or regulation that may impact the climate**

Renewable energy generation

**Specify the policy, law, or regulation on which your organization is engaging with policy makers**

The Law of the Republic of Kazakhstan "On Support of the Use of Renewable Energy Sources"

**Policy, law, or regulation geographic coverage**

National

**Country/region the policy, law, or regulation applies to**

Kazakhstan

**Your organization's position on the policy, law, or regulation**

Support with minor exceptions

**Description of engagement with policy makers**

KMG participated in the discussions as a member of the working group under the auspices of the Ministry of Energy of the Republic of Kazakhstan.

**Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation**

KMG developed and initiated different approaches how to improve corporate PPA mechanism to support new RES projects.

**Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

## C12.3b

**(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.**

**Trade association**

International Association of Oil and Gas Producers (IOGP)

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We are not attempting to influence their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

IOGP actively supports the enhancement of the industry's performance on minimising methane emissions from upstream oil and gas production, including flaring and venting. Since May 2018, IOGP has been a Supporting Organisation to the Methane Guiding Principles. Their Environmental Performance Indicators Report, which presents methane emissions per region, contributes to the improvement of accuracy and transparency. KMG use provided information for comparison with benchmarks on GHG emissions reductions.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

24,105

**Describe the aim of your organization's funding**

We aim to study best energy transition practices among oil & gas companies to use in our strategy.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Caspian Environmental Protection Initiative «CEPI»

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

In September 2020, the Memorandum of Understanding was signed in Baku between JSC NC "KazMunayGas", the state oil company of the Azerbaijan Republic, BP Exploration (Caspian Sea) Limited, Equinor Apsheron AS and TOTAL E&P Absheron B.V. The Memorandum involves creation of Caspian Environmental Protection Initiative. The main goals of the Initiative will be creating the first platform for environmental protection and joint research of international oil companies operating in the region. Activities of the participating companies will be aimed at active joint efforts in order to resolve climate change problems threatening the Caspian Region's ecological stability and prevent environmental emissions of greenhouse gases and harmful substances. KMG participated in a number of CEPI meetings in 2021.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

The National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken"

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We are not attempting to influence their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Membership in the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken" in accordance with the Law of the Republic of Kazakhstan "On the National Chamber of Entrepreneurs of the Republic of Kazakhstan" is mandatory for all Kazakh business entities. At the same time, the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken" is bound to represent the position of its members, including KMG.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

7,000

**Describe the aim of your organization's funding**

Membership fees are mandatory in accordance with the Law of the Republic of Kazakhstan "On the National Chamber of Entrepreneurs of the Republic of Kazakhstan".

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

ASSOCIATION OF LEGAL ENTITIES "KAZAKHSTAN ASSOCIATION OF OIL-GAS AND ENERGY SECTOR ORGANIZATIONS "KAZENERGY"

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We are not attempting to influence their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

KAZENERGY Association unites more than 80 major oil & gas and energy sector companies of Kazakhstan. Closely interacting with state bodies, business representatives and public structures, it promotes sustainable development of the oil & gas and energy complexes of the Republic of Kazakhstan.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

35,000

**Describe the aim of your organization's funding**

Keeping KMG informed of legislative changes in progress and representing KMG's position in the dialogue with state bodies.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

Association of Legal Entities «RES Association «Qazaq Green»

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We are not attempting to influence their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Association is a non-profit organisation, promoting renewable energy in Kazakhstan and uniting investors, developers, equipment manufacturers, international financial institutions and universities. The Qazaq Green Association provides KMG qualified support on the implementation of RES projects, promotion our interests, obtaining up-to-date information on Kazakhstan RES legal framework, making proposals to government bodies in order to update current regulation, as well as obtaining information and analytical support.

Association is accredited by the Ministry of Energy of the Republic of Kazakhstan, the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, National Chamber of Entrepreneurs of the Republic of Kazakhstan 'Atameken' and considered as one of the key expert centers for renewable energy development in Kazakhstan for both government agencies and the business community.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

## C12.4

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

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**Publication**

In voluntary sustainability report

**Status**

Complete

### Attach the document

 Sustainability Report 2021.pdf

### Page/Section reference

30-35; 55; 158-160 page

### Content elements

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets

### Comment

Sustainability Report 2021

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### Publication

In other regulatory filings

### Status

Underway – this is our first year

### Attach the document

 Low-Carbon Development Program of JSC NC KazMunayGas for 2022-2031.pdf

### Page/Section reference

1-37 page

### Content elements

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets

### Comment

Low-Carbon Development Program of JSC NC KazMunayGas for 2022-2031.

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### Publication

In mainstream reports

### Status

Complete

**Attach the document**

 KMG\_Annual Report 2021.pdf

**Page/Section reference**

121-122; 131-132; 157; 205 page

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures

**Comment**

Annual report 2021

## C15. Biodiversity

### C15.1

**(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?**

	<b>Board-level oversight and/or executive management-level responsibility for biodiversity-related issues</b>	<b>Description of oversight and objectives relating to biodiversity</b>
Row 1	Yes, both board-level oversight and executive management-level responsibility	<p>As part of the work of the Committee of the Board of Directors on Health, Safety, Environment and Sustainable Development, five meetings were held in 2021, at which 52 issues related to sustainable development were discussed. Two meetings of the Committee discussed issues related to biodiversity conservation.</p> <p>In addition, a new version of the Environmental Policy was approved by the Board of Directors on September 9, 2021, where the Company's management made a commitment:</p> <ul style="list-style-type: none"> <li>- Take into account the impact on biodiversity and preserve animal migration routes when planning and carrying out production activities;</li> <li>- Not to carry out activities in specially protected natural areas of high importance as a habitat of rare and endangered and valuable animal species, to assess risks when carrying out</li> </ul>



		<p>works in environmentally sensitive areas;</p> <ul style="list-style-type: none"> <li>- Apply a hierarchy of mitigation measures for impacts on biodiversity when planning and implementing operations, considering four key actions: avoidance, minimization, restoration and offsetting potential significant direct impacts;</li> <li>- Participate in research programs and industry partnerships to further develop knowledge and innovative solutions to environmental and biodiversity protection;</li> <li>- Prevent illegal hunting, fishing and other use of flora and fauna by our employees and employees of our contractors and subcontractors in contract areas.</li> </ul>
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## C15.2

**(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?**

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Adoption of the mitigation hierarchy approach Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species	SDG

## C15.3

**(C15.3) Does your organization assess the impact of its value chain on biodiversity?**

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	Yes, we assess impacts on biodiversity in both our upstream and downstream value chain

## C15.4

**(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?**

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy

## C15.5

**(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?**

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No, we do not use indicators, but plan to within the next two years	State and benefit indicators

## C15.6

**(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In other regulatory filings	Content of biodiversity-related policies or commitments	In 2021 the Company's Board of Directors approved the Corporate Standard on Environmental Impact Assessment. In 2021, the Board of Directors approved the Environmental Policy of KMG in a new edition.  📎 <sub>1,2</sub>
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Risks and opportunities	The Company discloses information on biodiversity conservation on an annual basis in the Sustainability Report.  📎 <sub>3</sub>

📎<sub>1</sub> Corporate Standard on Environmental Impact Assessment.pdf

 <sup>2</sup>KazMunayGas Environmental Policy.pdf

 <sup>3</sup>Sustainability Report 2021.pdf

## C16. Signoff

### C-FI

**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

### C16.1

**(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	Job title	Corresponding job category
Row 1	Deputy Chairman of the Management Board for Strategy, Investments and Business Development	Board/Executive board

## Submit your response

**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

**Please confirm below**

I have read and accept the applicable Terms