Welcome to your CDP Climate Change Questionnaire 2021

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.

The National Company produces 25% of the country’s oil and gas condensate and 15% of natural gas and associated gas. The Company’s trunk pipelines transport 56% of oil and 77% of gas in Kazakhstan. The share of oil refined by Kazakhstan oil refineries is 81%. With more than 70 thousand employees, JSC NC “KazMunayGas” is among the major employers.

We recognize that our long-term success depends on how effectively, transparently and responsibly we conduct our business. We are committed to support and develop the expertise and knowledge of our human capital as well as to work closely with the communities to ensure operational excellence in regions where we operate. We also understand that the company holds the responsibility to continuously improve its environmental performance by reducing its environmental footprint, improving the products and introducing innovative green technologies.

KMG, being a member of the UN Global Compact, recognizes the importance of actions to mitigate climate change and intend to contribute to the achievement of SDG 13 "Climate action". Responses to climate change and adaptation to climate change are reflected in our strategic documents and corporate policies.

We have highest regard for sustainable development and more transparent approach to ESG. Over the past four years, we have significantly improved our basic environmental performance. Climate change issues are monitored at the strategic level: by the Board of Directors, by the Board of Directors Health, Safety, Environment and Sustainable development committee (BoD HSE&SD Committee). The following key topics related to climate change issues were discussed in detail at the meetings of the UNCBSD in 2020:
- on the issues of increasing the useful use of associated petroleum gas;
- on issues of water resources management;
- on issues of climate change.
It demonstrates the Board's commitment to best practices and improves our performance in these areas. Starting from 2012, we prepare our sustainability report in compliance with the international non-financial reporting standards developed by the Global Reporting Initiative (GRI). This helps us to increase the transparency of our performance as well as to build trust with our stakeholders.
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KMG once again confirmed the title of the most ecologically transparent and responsible company in Kazakhstan, leading for the fourth straight year the environmental rating of oil and gas companies on the results of 2020, granted by the World Wildlife Fund (WWF) Russia and the group of Capital and the National Rating Agency with the support of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan and in partnership with the United Nations Environment Program in Central Asia (UNEP- CA).

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, 2020	December 31, 2020	Yes	3 years

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

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

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
Board-level committee	In 2018, KMG Board of Directors established separate health, safety, environment and sustainable development committee (BoD HSE&SD Committee) to enhance governance in this area. This demonstrates the Board's commitment to best practices and improves our performance in these areas. The BoD HSE&SD Committee was established to consider a range of issues related to HSE, the implementation of the principles of sustainable development and socio-economic development, social obligations and programs, ensuring

	business continuity and environmental efficiency. This committee is responsible for initiating, in-depth consideration and decision-making on the economic, environmental and social aspects of the impact of the organization.
Other, please specify Board of Directors	BoD reviews and approves the annual sustainable development report and other corporate documents associated with health, safety, environment and sustainable development following the recommendations provided by BoD Committees.

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 – some 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 Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	BoD makes decisions on the allocation of responsibilities relating to SD, and on the establishment of the SD management system. BoD's functions are as follows: - annual approval of the SD report that discloses information on GHG emissions performance, GHG reduction, and energy efficiency initiatives; methane leaks prevention projects; - approval of risk reports (risk matrix) quarterly; -biannual review and approval of the energy efficiency reports; - review of progress reports for the programs implemented to prevent the routine gas flaring in our upstream companies. The reports are provided quarterly and disclose information on APG utilisation rates; - monthly reviews of the company's HSE performance. The following key topics related to climate change issues were discussed in detail at the meetings of the BoD HSE&SD Committee in 2020:

		- on the issues of increasing the useful use of associated petroleum gas; - on issues of water resources management; - on issues of climate change.

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
Environmental, Health, and Safety manager [1]	Both assessing and managing climate-related risks and opportunities	As important matters arise
Safety, Health, Environment and Quality committee	Both assessing and managing climate-related risks and opportunities	As important matters arise
Risk committee	Assessing climate-related risks and opportunities	As important matters arise
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	As important matters arise
Other, please specify Deputy Chairman of the Management Board for Strategy, Investments and Business Development	Managing climate-related risks and opportunities	As important matters arise

[1] HSE Department Director

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 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, 2020, 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 of creating and implementing a sustainable development management system that ensures compliance with the principles of sustainable development, as well as integrating sustainable development into key processes, the Company's development strategy, and decision-making processes;

2. Deputy Chairman of the Management Board for Economics and Finance is responsible for solving a set of issues related to the economic component of sustainable development;

3. Director of the HSE Department: issues of formation and implementation of the strategy and policies of KMG in the field of health, safety and environmental protection, as well as issues of ensuring industrial safety, labor protection, environment and environmental safety.

Prior to the introduction of the new structure of the KMG, which entered into force on July 1, 2020, KMG issues the creation and implementation of a sustainable development management system that ensures compliance with the principles of sustainable development, as well as the integration of sustainable development into key processes, the Company's development strategy and processes. decision-making within the competence was assigned to the Managing Director for Sustainable Development. In connection with the introduction of a new structure of the central office of KMG, this position was abolished, these powers were transferred to the Deputy Chairman of the Management Board for Strategy, Investments and Business Development.

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 Board of Directors.

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 2020 was on HSE, strategic management of ESG (Environmental - Social - Governance) 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 2020 include the following:
- Climate change issues (greenhouse gas emissions, reporting by CDP (Carbon Disclosure Project), WDP (Water Disclosure Project)).
- ESG (Environmental - Social - Governance) rating of KMG.
- Environmental rating of the KMG group of companies.
- Agreeing on the List of priority goals of the United Nations in the field of sustainable development for KMG.
- Implementation of a sustainable development system in KMG and its business units and the inclusion of sustainable development principles in key business processes.

- Establishing a KPI (key performance indicator) for individual managers of the Company associated with the implementation of sustainable development.
- HSE reports of KMG.
- Increase in the useful use of associated petroleum gas in the KMG group of companies.

Risk committee

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

1) Preparation of recommendations and proposals to establish and maintain an effective corporate risk management and internal control framework;

2) The development of processes to identify, assess, monitor and control the risks of the KMG Group of Companies;

3) Coordination of the risk management process for the KMG Group of Companies;

4) To ensure the continuous interaction on the risks of the KMG Group of Companies among the members of the Committee in order to upgrade the risk culture, transparency and effectiveness of corporate risk management.

In November 2020, KMG held an information session with the participation of the KMG Board of Directors, at which global trends in the transition of oil and gas companies to carbon neutrality were considered and the need to update the current KMG Development Strategy for 2018-2028, taking into account the climate agenda.

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	

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 inventivized	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.

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	1	5	The Paris Agreement sent a strong and global signal that the beginning of the transition to a low-carbon economy was imminent. Business plays a significant role in this. The scale of the goals set presupposes the need for universal efforts to successfully achieve them. The current challenges and the global energy transition contribute to the fact that many international oil and gas companies, and not only, are forced to diversify their businesses and create corporate low-carbon strategies. KMG reviewed global trends in the transition of oil and gas companies to carbon neutrality and identified the need to update the current KMG Development Strategy taking into account the climate agenda. In this regard, a Sustainable Development Map was developed, and in order to develop its own approaches in the field of decarbonization with subsequent integration into the updated Development Strategy of the company, a Project Office for low-carbon development was created. The main task of the created Project Office for low-carbon development is to set goals and determine the most effective ways to systematically reduce the carbon footprint and carbon intensity of KMG

			Group products. The following areas of low-carbon development of the Company have been identified: In the short term: • Development of a comprehensive Energy and Resource Efficiency Program, involving the use of new technologies and digitalization. • Development of projects based on RES, including for own needs. • Downgrade of ESG risk rating.
Medium-term	5	10	• Development and application of innovations and new technologies in the field of decarbonization. • Determination of the possibility to implement of a pilot project on CO2 capture, utilization and storage (CCUS). • Implementation of forest carbon projects.
Long-term	10	30	In the reporting period we carry out the Concept in the field of sustainable development of KMG, adopted on 19.03.2014 in accordance with the RK Presidental Message "Strategy: Kazakhstan-2050": new political course of the established state», promoting innovation in corporate social responsibility and sustainable development. The implementation of the Concept enhances the contribution of the Company to the sustainable development of society in the social, economic and environmental spheres, eliminating damage, reducing the negative impact of production on the environment and the population through the introduction of resource-efficient and non-waste technologies, reducing the energy intensity of production in order to increase energy efficiency and reduce greenhouse gas emissions. Hydrogen production (determination of possibility). KazMunayGas will carry out a systematic decarbonization of production while maintaining a focus on the stability of oil production and a socially favorable environment in the regions of its presence.

C2.1b

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

As a member of the United Nations Global Compact, we recognize the importance of mitigation actions and intend to make our contribution into achieving of SDG 13 "Climate action". In accordance with the Corporate Risk Management System Policy of KMG and its subsidiaries and dependent organizations, identified risk factors are evaluated when determining the impact of risk on business in the Company. An assessment is then made of the production/non-production risk associated with the identified risk factors in order to determine the extent of its impact on the achievement of the Company’s production/non-production efficiency.

Production/non-production risks and associated risk factors are analysed according to their probability (likelihood of realization) and degree of influence (potential damage). The selection of methods to respond to production/non-production risks, the development of production/non-production risks Management Plan to ensure an acceptable level of residual risk includes standard methods. For risk/risk-factors that may suspend the operations and operations of the Company, Business Continuity Plans are developed and approved, providing for consistent action by employees to restore the operating activities of the Company. Factors for the continuity of the Company's activities are: greenhouse gas emissions, weather conditions, droughts, floods, water scarcity in the region, the system of emissions accounting, natural disasters, potential damage from industrial accidents, consumer expectations, reliability of information on the state of the environment, decision-making by shareholders, requirements of international standards, court proceedings, «fragile» supply chain, regulators and legislation, etc. Risk management measures are applied so that the aggregate level of risk across the Company does not exceed the acceptable level.
The Company's risk appetite is characterized by its level of risk retention, within which the Company can achieve its stated strategic and operational objectives. Risk appetite determines the critical risk/risk ceiling at the consolidated level that the KMG is willing to accept. It also affects the allocation of resources, the organization of processes and the infrastructure within the organization needed to effectively monitor and respond to risk events.

The Company's risk appetite (risk appetite statement) for the planning period is approved on a consolidated basis by the KMG Board of Directors and has the following characteristics:
1) reflects the KMG Development Strategy, including objectives, business plans, financial restrictions and stakeholder expectations;
2) covers all key aspects (activities);
3) takes into account the desire and possibility to take risks;
4) defines the KMG's relationship to risk;
5) periodically reviewed according to industry and market conditions;
6) requires effective monitoring of the risk itself;
7) includes both quantitative and qualitative indicators.

Environmental/climate risk factors are identified and assessed via KMG's corporate framework using the following methods (inclusive, but not an exhaustive list of methods):
- Process safety assessment, including the assessment of the asset integrity and safety of technical processes; compliance assessment with process standards and rules;
- Collection and analysis of historical data on the realised risks, review of previous reports (for example, history of environmental non-compliances, offenses and fines, production or financial losses as a result of accidents and equipment failures);
- Method of expert interviews to identify and assess the existing and potential risk factors. In-depth discussions of risks associated with the introduction of new GHG emission regulations or climate change adaptation legislation are the relevant examples of 'expert method' application for risk identification and assessment.
Identified risks and risk factors are evaluated based on the three indicators: frequency/probability, time horizon, and impact. We also differentiate the impact assessment approaches when it comes to operational and non-operational risks. More specifically, the assessment of the impact of operational risks based on the determination of damage in

absolute physical terms is carried out at the asset/facility level, whereas assessment of the impact of non-operational risks based on the determination of damage in monetary terms is implemented at the corporate level.
The impact of risks in financial indicators is assessed on a scale from 1 (insignificant) to 5 (catastrophic) and is based on an assessment of potential financial damage of the risk. Furthermore, the degree of financial damage is assessed concerning the quantitative risk appetite of the company. If the assessment of the financial impact of risks is impossible, we use non-financial indicators.

C2.2

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

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

According to the Emission Manegement Policy KMG Group Risk management corporate system collects reliable data on GHG emissions, water abstraction, water use and wastewater discharges, polluting substances, and includes a reliable monitoring, reporting and verification mechanism. Allows cost-effective management of carbon assets (quotas), including sale, purchase, transfer between installations within the same period.
Emission management processes have been defined and implemented, and internal regulations and operating instructions for emissions management have been adopted.

Potential damage due to climate change is projected.
Carbon assets (quotas) are managed by specialized management and technical staff through:
- inventory of greenhouse gas emissions and external and internal reporting management system;
- data archiving and storage systems;
- interface with the State cadastre and register;
- interface with the financial trading platform.

To meet the obligation to comply with legislative and other obligations in the field of emissions management:
- Legal requirements and other obligations are being identified, systematically updated and changes are monitored;
- Information on the legal requirements and other obligations of the Company is being informed to the employees and contractors of the KMG.
KMG annually develops and approves the Raw Gas Development and Processing Programme and obtains a raw gas combustion permission in a timely manner. The KMG plants do not exceed the approved gas flaring norms on the flare and carry out the reduction activities on the basis of Zero Routine Flaring Roadmap. The activities of the Roadmap are carried out as part of the business planning process.

«Carbon Footprint» was calculated and indicators for annual reduction of «Carbon Footprint» were set due to the efficient use of resources and introduction of technologies with greenhouse gas emissions low level.
The Company's emission reduction activities consider the following critical aspects:
reduction of power, heat and steam losses as well as equipment operation time,
introduction of energy-saving technologies,
introduction of alternative energy sources,
vehicles conversion to gas fuel,
optimization of the compressor stations operation modes, etc.

The energy management system to track and improve energy efficiency, which reduces emissions per unit of output was developed and implemented. We calculate gas emission volume after energy efficiency activities as approved in the KMG Energy Saving and Energy Efficiency Action Plan.

The Company takes activities to prevent production plants from methane leaks, which include survey of methane leaks, floating roof installation at new tank farms, installations of vapour recovery unit, and use of mobile compressor stations for gas pipelines repair operations.

The Company invests into the advanced innovative technologies focused on operations and products efficiency and sustainability enhancement.
The Company shall support international cooperation and climate change initiatives and join them.

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

In 2020 the Corporate Standard on Cooperation with Contracting Organizations in the Field of health, safety and environment was approved.

The requirements of the Standard are binding on all contracting organizations for the supply of goods, work and services, including all related works and services at the production facilities of the KMG group of companies.

The management of HSE contractors consist of following three main stages:
1) Prior to commencement of work at the stage of preparation and conclusion of the contract by pre-qualification of the contractor, taking into account criticality in the HSE area;
2) During the mobilization/admittance phase of the contracting organizations through on-site monitoring and collaboration;
3) Upon completion of the work by evaluating the activities of the contracting organizations and establishing a rating.

The critical areas of HSE in the implementation phases are aimed at identifying, assessing and reducing risks when interacting with contracting organizations at the KMG group of company facilities, such as:
1) Pre-qualification – compliance of contracting organizations with HSE requirements (questionnaire and audit);
2) Pre-assessment of risk – determination of criticality of works and services according to HSE;
3) Responsibility of the contracting organizations – signing the HSE agreement to the contract;
4) Pre-mobilization audit – compliance of equipment, technicians and personnel with HSE requirements;
5) Safe execution of work and services accomplishment – development of a HSE Contract Plan with KMG and subsidiary entities;
6) Performance evaluation of contracting organizations – completion of a scorecard on the performance of contracting organizations in the area of HSE.

Performance criteria are as follows:
6.1. The performance of goods, work and services critical contracts in accordance with the Legislative Requirements and the requirements of Standard.
6.2. Improved Contracting Organizations' key performance indicators for goods, work and services.
6.3. Establishment of a Contracting Organizations database on key performance indicators for goods, work and services.

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	18 KMG subsidiary entities are covered by Kazakhstan Emissions Trading Scheme and 3 subsidiary entities are covered by European Emissions Trading Scheme, therefore the risks of current regulation are included in the KMG Key Risk Map, assessed and identified as political and regulatory factors: - Implement carbon pricing/pricing mechanisms to reduce greenhouse gas emissions; - Adoption by the State of the method of allocation of quotas only through the use of specific emission factors, which may result in a quota deficit for some enterprises; - Reduce energy consumption in order to reduce emissions; - Energy efficiency in decision-making; - Strengthening water efficiency measures and promoting sustainable land management practices. Risk monitoring is carried out on a quarterly basis. Subsidiary entities greenhouse gas emissions are monitored. Subsidiary entities must submit annual verified reports on the inventory of greenhouse gas emissions to the authorized environmental protection body and apply for additional quotas in proper time if necessary. In case if problems are detected, the Kazenergy Association participates in the search for solutions, as well as in the relevant negotiations with the authorized body. Minimization of current regulation risks is managed through internal regulations such as: - 2018-2028 Development Strategy - HSE Management Guidance - Environmental Policy - Emission Management Policy “8 environment principles”, - Zero Routine Flaring, - Carbon Footprint - “8 ‘blue’ rules”.
Emerging regulation	Relevant, always included	The risk associated with the adoption of the new Environmental Code is identified as critical. The new Environmental Code, actively discussed by KMG during 2020, will become effective in Kazakhstan as of 1 July 2021. The new

		Environmental Code is based on the polluter pays and fixes principle, which implies that major industrial businesses take measures to prevent pollution and introduce best available technology. The new Environmental Code provides for new approaches to environmental impact assessment, charges for emissions and improved industrial and consumer waste management, significantly contributing to environmental improvements. During the first phase, the 50 largest enterprises, including the oil and gas sector, will begin an orderly transition to best available technologies (BAT). KMG representatives are included in Working Group on the development of a new Environmental Code and are actively participating in the discussions on its provisions. 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.
Technology	Relevant, always included	The risk of environmental damage due to production incidents is identified as visible, with 3 small accidents recorded in 2020, gas kick and fire. The risk of oil spills during maritime operations was identified as significant as it is low-probability. In 2020, there were no reported cases of risk realization. In order to manage the technological risks associated with technological improvements or innovations that facilitate the transition to a low-carbon and energy-efficient economic system, new technologies are being developed and used, such as RES, energy efficient technologies, best available technology, carbon capture and storage technologies, etc.
Legal	Relevant, always included	The risk of environmental damage due to breach of legislative and other environmental requirements is identified as a major, as in 2019 there were sereval reported cases of risk of exceeding emission limits, spilled reagents, extra standard flaring emissions. In order to manage the risk in the subsidiary entities were developed and approved Emission Management Policies to implement the KMG 2028 Development Strategy.
Market	Relevant, always included	The risk associated with the reduction or interruption of the oil, oil products, liquefied gas and dry (general) cargoes supply is identified as noticeable because it is highly probable, although it has not significant financial impact. In 2019, there was a deviation from the planned output. The risk of adverse oil prices in 2019 led to a decline in planned revenues. Risk identified as medium probable, critical.

		Realized risk of decline in petroleum products sales in 2019 resulted in 8% loss of revenue, identified as highly probable, insignificant.
Reputation	Relevant, always included	The risk of negative media exposure is identified as highly probable and critical. In 2020, the reputational risks associated with the change in perception of the Company by stakeholders in terms of its contribution to the transition to a low-carbon economy, or the avoidance of this transition, were not realized. Negative publications concerned only the quality of petrol supplied under the KMG franchise (downstream).
Acute physical	Relevant, always included	The risks directly related to critical physical climate change is identified as medium probable and visible. In 2020, no cases were recorded.
Chronic physical	Relevant, always included	Chronic physical risks are identified together with acute physical risks. The risks directly related to physical changes of climate are assessed and controlled in our subsidiaries under the operational/industrial risk management programs. Thus, risks of flooding, including flooding of plugged and abandoned wells, as well as the risks of changes in weather conditions are managed through the programs and measures for industrial safety. These risks significantly affect the integrity of our production facilities and technical equipment (e.g. power failures on 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

Legal

Exposure to litigation

Primary potential financial impact

Increased direct costs

Company-specific description

In 2020, KMG paid a fine at a rate of about 523,5 K USD for excess emissions for air pollutions.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-low

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)

53,476,159

Potential financial impact figure – maximum (currency)

106,952,318

Explanation of financial impact figure

In order to calculate the figure of KMG activities potential financial impact was used a quantitative value of the total risk-appetite at the beginning of 2020 in the amount of 106,952,318, which is the basis for the calculation of the risk limits

Cost of response to risk

20,901,371

Description of response and explanation of cost calculation

In column "Cost of response to risk" maximum fines for the last few years paid for environmental violations are disclosed. Moreover, the following activities have been carried out to prevent risk:

1 A plan of activities to increase the gas beneficial use was developed;

2 Work on compressor mode is carried out. Equipment inspection. A plan of action to prevent limit-exceeding emission is drawn up.

3 Project documents are revised

4 Document package to obtain additional greenhouse gas credits for new sources is developed and verified

5 The range of potential financial impact is overestimated compared to actual expenditure used to eliminate the consequences of non-compliance with environmental requirements risk realization. The main reason is that depending on the violation, the costs of managing the risk realized may increase (for example, the demand to recover

the environmental condition of the affected territory, to adopt innovative technology, to implement risk management measures

Comment

The production activities of the KazMunaygas Group of Companies are focused on minimizing the impact on the environment, rational use of natural resources and preservation of biodiversity. The implementation of measures in recent years has improved the indicators for the main impacts on the ecological environment.
1 In our subsidiary entities were developed and approved Emission Management Policies to implement the KMG 2028 Development Strategy (in the transition to environmentall responsible companies).
2 HSE unit carried out at subsidiary entities production facilities inspections to ensure compliance with the requirements of environmental protection legislation in the field of industrial safety and environment. Recommendations were prepared.
3 Gas production and flaring amount are monitored on a monthly basis. - Some of the measures were aimed at increasing the useful use of associated petroleum gas, as a result of which the indicator was improved and amounted to 98%, that is, over the past 5 years, the volume of gas flaring has decreased by 82%. We have also managed to reduce air emissions by 20%. Flaring intensity figure in 2020 was 2.2 ton per 1000 ton of hydrocarbons produced (IOGP figure – 10.6), which is 25% below the 2019 figure and 79% below the IOGP industry average .
4 Greenhouse gases intensity monitoring. CO2 emission intensity figure in 2020 year was 87 ton per 1000 ton of hydrocarbons produced (IOGP figure – 123).
5 Monitoring of verified greenhouse gas emission inventory reports submission by subsidiary entities.
6 Monitoring of up to date obtained additional quotas for new emission sources and assets.

Identifier

Risk 2

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 indirect (operating) costs

Company-specific description

With the introduction of new environmental legislation in Kazakhstan, operators of industrial facilities will have to introduce resource-saving, energy-efficient and environmentally safe BATs to comply with the requirements of the integrated permitting system. This will require significant CAPEX. Even though we are continuously working

on the modernisation of our assets and the application of the best production and management practices, we are exposed to technological risk associated with the high costs for the introduction of innovative technologies. The risk may be especially high for those mature fields that have been operated since Soviet times and are at a late stage of development. The introduction of new technologies and/or premature write-off of fixed assets due to non-compliance with new technological standards of BATs may significantly increase the cost of oil production. This, in turn, will affect the financial performance of our company.

Within the framework of the new Environmental Code, our subsidiaries and affiliates were among the first to carry out comprehensive technological audits to analyze the current state of production facilities, and are now participating in the development of industry reference books of the best available techniques (BAT) for the subsequent transition to BAT.

Time horizon

Medium-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)

336,391.9

Potential financial impact figure – maximum (currency)

448,522.53

Explanation of financial impact figure

In order to calculate the figure of KMG activities potential financial impact was used a quantitative value of the total risk-appetite at the beginning of 2020 in the amount of 448,522.53, which is the basis for the calculation of the risk limits.

Cost of response to risk

Description of response and explanation of cost calculation

Due to the uncertainty associated with future developments of the environmental legislation in Kazakhstan, we cannot estimate the exact financial impact figure. Nevertheless, considering the extent of our operational activities across Kazakhstan and the high regulatory requirements of BATs implementation, we assume that the cost of

compliance will be substantial. More precise data on the cost of response to risk calculation can be calculated no earlier than 2024, when the best available technologies manuals and the Corporate Eco-efficiency Programmes will be approved.

Comment

KMG explores the market of green, energy-efficient and resource-saving technologies regularly. To ensure the environmental and economic efficiency of the application of new technologies, we engage local and international experts. Thus, in 2018, we continued working on pilot programs to detect and measure methane leaks in our industrial facilities. Those pilot projects allow us to assess the cost-effectiveness of the implemented technologies and assist our decision making in regards whether to expand the implementation of technology on a large scale.

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

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

69 km + 10 km infield road

Time horizon

Short-term

Likelihood

Virtually certain

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Emissions are expected to decrease up to 3,87 tons/year+1000m3

Comment

Dust control activities in the excavation operations and on infield roads

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Identifier

Opp2

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

Returns on investment in low-emission technology

Company-specific description

KalamkasMG
ZhetybayMG

Time horizon

Short-term

Likelihood

Very likely

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

99% of gas is expected to be recycled

Comment

Gas recovery from the plant's fields and its use as fuel for heating water for industrial needs

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resilience

Primary climate-related opportunity driver

Resource substitutes/diversification

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Kalamkas Field

Time horizon

Short-term

Likelihood
Very likely

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation
Audit, repair and maintenance of process and gas equipment. Emissions are expected to decrease

Comment
Production manufacturing equipment repair

Identifier
Opp4

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
Installation of gas-dynamical span system operations

Time horizon

Short-term

Likelihood

Very likely

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Emissions are expected to decrease up to 20%

Comment

Introduction of catalysts (converters in power plants)

Identifier

Opp5

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Introduction of technology at 3 sites

Time horizon
Short-term

Likelihood
Very likely

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation
Emissions are expected to become stable

Comment
Modernization of equipment

Identifier
Opp6

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
Development of sites of gas operator, track heater, compressor unit, etc.

Time horizon

Short-term

Likelihood

Virtually certain

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

GHG emissions are expected to decrease

Comment

Development of internal projects to reduce greenhouse gas emissions

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Identifier

Opp7

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Participation in carbon market

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

Reduces harmful emissions, eliminates leakage of hydrocarbons to the environment, ensures maintenance of specified technological parameters

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

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

99% of light leakage to the atmosphere is expected to be eliminated

Comment

Introduction of automatic light fraction capture

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1b

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years		In 2021, KMG faces an important task to determine the potential for reducing the carbon footprint and carbon intensity of KMG's products, taking into account the impact of national and international carbon regulation on the Company's activities, and then setting goals to reduce carbon intensity through an optimal set of decarbonization projects.

C3.2

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

No, but we anticipate using qualitative and/or quantitative analysis in the next two years

C3.2b

(C3.2b) Why does your organization not use climate-related scenario analysis to inform its strategy?

In November 2020, KMG held an information session with the participation of the KMG Board of Directors, at which global trends in the transition of oil and gas companies to carbon neutrality were considered and the need to update the current KMG Development Strategy for 2018-2028, taking into account the climate agenda.

In this regard, the management of KMG made a decision to create at the level of the corporate center a Project Office for low-carbon development in order to develop its own approaches in the field of decarbonization with subsequent integration into the updated Development Strategy of the company. The work of the Project Office will be focused on the following key areas:

1. Organizational and managerial measures (carbon footprint assessment, development of a methodology for calculating direct and indirect greenhouse gas emissions in accordance with international requirements, implementation of a reporting and monitoring system, setting medium and long-term climatic targets for the company in terms of greenhouse gas emissions, increasing ESG rating, etc.).

2. Development of a program for saving resources and increasing energy efficiency (including setting targets for energy intensity, monitoring and recording energy consumption, implementing projects and improving the energy management system).
Energy efficiency is one of the most efficient approaches in this sector. According to research by the International Renewable Energy Agency (IRENA), a rapid transition to renewables,

combined with energy efficiency strategies, could provide more than 90% of energy-related CO2 emissions reductions to meet nationally announced climate targets. In addition, the efficient use of resources and the reduction of leaks and emissions of hydrocarbons and their consumption for the own needs of the oil and gas sector also helps to reduce greenhouse gas emissions.

3. Transition to low-carbon energy sources. KMG is studying the possibility of using renewable energy technologies in production, as well as replacing traditional energy sources by increasing its own generation of renewable energy sources through mergers and acquisitions, and the construction of new facilities.

4. Additional methods of decarbonization. KMG is exploring the possibility of using CCUS technology (capture, utilization and storage of CO2) at its own fields, as well as the prospects for hydrogen production and implementation of forest carbon projects.

5. Introduction of financial mechanisms to attract investment in low-carbon projects.

In 2021, KMG faces an important task to determine the potential for reducing the carbon footprint and carbon intensity of KMG's products, taking into account the impact of national and international carbon regulation on the Company's activities, and then setting goals to reduce carbon intensity through an optimal set of decarbonization projects.

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	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. Therefore, climate-related issues are aligned with our business interests and integrated into our Business Strategy - 2028 following three key areas: • GHG emissions management; • reduction of gas flaring; • energy efficiency improvement.

		The key mechanisms for implementing these climate aspects are: • national legislation on energy efficiency, GHG emissions and subsoil use; and • our goals on reducing the environmental impact of our activities. In accordance with the priorities of the Development Strategy, the Company approved the Environmental Policy in 2019. KMG chief executives follow the principle of zero tolerance for environmental loss and damage. In 2015, KMG supported the World Bank's GGFR initiative to completely stop the regular burning of APG by 2030. Within the framework of the initiative, was approved the KMG Emission Management Policy in 2019. The policy, consisting of eight key principles, six of which are directly related to climate change, aims at zero routine gas flaring in hydrocarbon production. KMG is implementing the roadmap for improving the state of HSE in the group of companies of JSC NC "KazMunayGas" - 2020, which contains major strategic initiatives for environmental protection and sustainable development.
Supply chain and/or value chain	No	
Investment in R&D	Yes	Through an integrated and systematic approach to GHG emissions management, and with the support of our operational and financial departments, we aim to significantly reduce carbon footprint across the company. The NAMA climate project plans to further increase the share of gaseous road transport and special machinery in its own vehicle fleet as part of the action «Conversion of motor vehicles from traditional fuel to the use of compressed natural gas (park renewal)». Between 2020 and 2024, the share of gas vehicles (not less than Euro-3 class) should increase to 35 per cent by modernizing the structure of the vehicle fleet. Improvement in fuel consumption and vehicle class due to the upgrading (acquisition) of 16 new vehicles using liquefied hydrocarbon gases and 46 vehicles using compressed natural gas, will significantly reduce transport emissions.

Operations	Yes	The company annually builds new facilities for gas utilization, performs reconstruction of existing plants, invests in construction of pipelines and infrastructure. For example, construction of complex gas processing, construction of main gas pipeline «Saryraka», which is to gasify the capital of Kazakhstan, central and northern regions of the country. The changeover from traditional fuel sources to natural gas will have a positive impact on the ecological status of settlements, reducing emissions of pollutants into the atmosphere and conserving land and water resources.

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	Climate-related risks and opportunities have a significant impact on the financial planning of the company. Those impacts will arise from external factors such as changes in oil prices and other commodities and internal processes such as the implementation of programs for reducing GHG emissions. The impact on profitability will be both positive and negative. Thus, increasing demand for low-carbon products in the market may substantially impact on our business. However, the increase in production and sales of gas due to the expansion of APG processing capacity will allow us to increase revenue in the long term. As noted above, changes in consumer attitudes, as well as the introduction of stringent legislation for the oil and gas industry, could have a significant impact on the growth of CAPEX and OPEX in our subsidiaries. Thus, for example, failure to timely meet the requirements for the BATs implementation may result in increased compliance costs and increased tax payments. On the other hand, the implementation of measures on improvement of energy efficiency has already resulted in significant reductions in production costs in our major subsidiaries. Transition to a low-carbon economy could have a significant impact on investment in new technologies across KMG. Thus, commitments to implement BAT in Kazakhstan from 2020 may increase our CAPEX, particularly in our large fields and refineries. We have not evaluated future investments due to the uncertainty of further development of the new environmental legislation in Kazakhstan. However, we expect that implementation of BAT will substantially affect the allocation of our financial resources in the future.

		Environmental assessment of M&As and divestments is a common procedure in our company. HSE unit is actively involved in decision-making processes for the acquisition of any companies and assets. Our environmental and energy experts examine the environmental performance of companies and identify all environmental and financial risks associated with the acquisition and divestment of assets. As a result, we issue a comprehensive report for our management team outlining the information on environmental risks, such as the possibility of exceeding emission limits and permitted gas flaring volumes, the possibility of environmental damage, investment in technology, etc. Environmental assessment of the acquisition of assets is a common practice in our company. HSE team is actively involved in decision-making processes for the acquisition of any companies and assets. Our environmental and energy experts examine the environmental performance of companies and identify all environmental and financial risks associated with the acquisition and divestment of assets. As a result, we issue a comprehensive report for our management team outlining the information on environmental risks, such as the possibility of exceeding emission limits and permitted gas flaring volumes and the possibility of causing environmental damage.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

No target

C4.1c

(C4.1c) Explain why you did not have an emissions target, and forecast how your emissions will change over the next five years.

	Primary reason	Five-year forecast	Please explain
Row 1	We are planning to introduce a		KMG held an information session with the participation of the KMG Board of Directors, at which global trends in the transition of oil and gas companies to carbon neutrality were considered

	target in the next two years		and the need to update the current KMG Development Strategy for 2018-2028, taking into account the climate agenda, was determined on November 2020. The management of KMG made a decision to create at the level of the corporate center a Project Office for low-carbon development in order to develop its own approaches in the field of decarbonization with subsequent integration into the updated Development Strategy of the company. The work of the Project Office will be focused on the following key areas: 1. Organizational and managerial measures (carbon footprint assessment, development of a methodology for calculating direct and indirect greenhouse gas emissions in accordance with international requirements, implementation of a reporting and monitoring system, setting medium and long-term climatic targets for the company in terms of greenhouse gas emissions, increasing ESG rating, etc.). 2. Development of a program for saving resources and increasing energy efficiency (including setting targets for energy intensity, monitoring and recording energy consumption, implementing projects and improving the energy management system). 3. Transition to low-carbon energy sources. KMG is exploring the possibility of using renewable energy technologies in production, as well as replacing traditional energy sources by increasing its own generation of renewable energy sources through mergers and acquisitions, and the construction of new facilities. 4. Additional methods of decarbonization. KMG is exploring the possibility of using CCUS technology (capture, utilization and storage of CO2) at its own fields, as well as the prospects for hydrogen production and implementation of forest carbon projects. 5. Introduction of financial mechanisms to attract investment in low-carbon projects. In 2021, KMG faces an important task to determine the potential for reducing the carbon footprint and carbon intensity of KMG's products, taking into account the impact of national and international carbon regulation on the Company's activities, and then setting goals to reduce carbon intensity through an optimal set of decarbonization projects.

C4.2

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

No other climate-related targets

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.

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		
To be implemented*		
Implementation commenced*		
Implemented*	55	232,907.24
Not to be implemented		

C4.3b

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

Initiative category & Initiative type

Estimated annual CO2e savings (metric tonnes CO2e)

232,907.24

Scope(s)

Scope 1

Voluntary/Mandatory

Mandatory

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

1,103,471

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

6,835,935

Payback period

4-10 years

Estimated lifetime of the initiative

3-5 years

Comment

Presents data on 55 activities carried out in the framework of energy efficiency improvement by jointly controlled companies in 2020.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	Strict legal requirements on gas flaring and GHG emission control, including high tax rates and penalties, are one of the key mechanisms for driving investments in emission reduction activities. KMG takes all necessary steps to prevent non-compliance with legislative requirements and standards. We also strive to implement proactive measures to improve our overall environmental performance, regardless of the legislative requirements. Research for assessing the possibility of production of own biofuels in our European refinery is an excellent example of how the legal requirements for the mandatory production of biofuels affected our investment decisions. As part of the research project, our engineers examined different biomaterials available in Europe and calculated the required CAPEX for the retrofitting of existing technologies.
Dedicated budget for energy efficiency	The objectives for the HSE management are connected with the Group's Development Strategy. The strategy of JSC "KazMunayGas" - 2028 includes strategic initiatives to increase environmental responsibility. Priorities for KMG in the field of greenhouse gas management include greenhouse gas emissions management, gas flaring reduction and energy efficiency improvement. In order to achieve corporate-wide objectives, a plan incorporating the necessary budget, time frame and efficiency of activities is periodically approved by subsidiary entities. Thus, for 2020 the the planned annual savings of fuel and energy resources amounted to 0.9 million GJ, in physical

	terms - 6.9 million kW of electricity, 10.3 thousand tons of fuel gas, 11 803 thousand cubic meters of natural gas.
Financial optimization calculations	Cost-benefit analysis of GHG and/or energy efficiency projects is one of the methods to drive investment in emissions reduction activities. This mechanism is particularly relevant to our shareholders and the Management Board who make decisions on cost optimisation and allocation of funds. We thoroughly examine the economic benefits of the implementation of energy efficiency projects by estimating the payback periods and ROI. Therefore, the decisions to carry out organisational, technological or technical measures are based not only on the assessment of environmental and energy performance but also with consideration of the financial benefit/loss.
Employee engagement	KMG annually holds an HSE Directors forum. The forum is organised to discuss the annual HSE performance and determine the future vision and HSE goals. We also use this platform to exchange knowledge and lessons learnt among employees as well as to recognise the best HSE improvement practices and reward our employees for their achievements in HSE. To support our people, we also allocate a special budget for the implementation of their ideas and projects. For example, in 2018, the idea of the “Green office” proposed by our employee was implemented in one of the KMG subsidiaries.
Partnering with governments on technology development	As a national company that represents the interests of the government in the oil and gas industry in Kazakhstan, we work closely with local government authorities and international intergovernmental organizations on the implementation of green and energy-efficient projects. With support from the Norwegian and US agencies for environmental protection and international consultants, we implemented several pilot projects for direct detection and measurement of methane leaks in six subsidiaries of KMG. Following the results of the projects, we estimated that KMG would require about 8 million US dollars for the implementation of the vapour recovery units (payback period — 4 years). For LDAR projects in 10 KMG subsidiaries — CAPEX of 1,4 million US dollars is required (the payback period is approximately 2 years, depending on the size of the project). To carry out full-scale methane emission projects in KMG, we are actively discussing investment opportunities with our Management Board and shareholders.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

Use of natural gas instead of coal

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

% revenue from low carbon product(s) in the reporting year

Comment

Over the past decade, our midstream company has been extensively implementing gasification in regions and modernising gas distribution networks in several cities of Kazakhstan.

For example, the project of gasification in Almaty. According to the project, gas infrastructure development of residential areas/parks with private houses in Almaty shall be conducted, which are not yet connected to the gas supply system, existing gas distribution networks in Almaty shall be updated. The project contributes to the improvement of environmental situation in the city and will allow connecting about 4.1 thousand new subscribers with average annual gas consumption of 15.8 million m³ to the gas supply system. At the beginning of 2021, 1,846 residences were connected, and the remaining 2,254 residences also have access to gas and will be connected as possible.

The NAMA climate project plans to further increase the share of gaseous road transport and special machinery in its own vehicle fleet as part of the action «Conversion of motor vehicles from traditional fuel to the use of compressed natural gas (park renewal)». Between 2020 and 2024, the share of gas vehicles (not less than Euro-3 class) should increase to 35 per cent by modernizing the structure of the vehicle fleet. Improvement in fuel consumption and vehicle class due to the upgrading (acquisition) of 16 new vehicles using liquefied hydrocarbon gases and 46 vehicles using compressed natural gas, will significantly reduce transport emissions.

In accordance with the requirements of the Technical Regulations of the Customs

Union, since 2018, domestic refineries have been producing motor fuels that meet the environmental classes K4, K5 (Euro-4, Euro-5).
The quality of gasoline at oil refineries of the Republic of Kazakhstan corresponds to:
• The volume fraction of benzene is not more than 1% for environmental classes K4, K5;
• Volume fraction of aromatic hydrocarbons no more than 35% for ecological classes K4 and K5
• Mass fraction of sulfur no more than 50 mg / kg for class K4, no more than 10 mg / kg for class K5;
• The volume fraction of monomethylaniline is not more than 1% for the ecological class K4 and no for the class K5.
• When preparing gasolines of ecological classes K4 and K5, metal-containing additives (containing iron, manganese, lead) are not used.

Level of aggregation

Product

Description of product/Group of products

Distribution of fuel containing bio-components

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

% revenue from low carbon product(s) in the reporting year

Comment

Our Romanian refinery supplies low-carbon products to European markets: Euro plus 10 ppm Bio Gasoline and Euro 5 Diesel, mixed with bio-diesel. We believe that our commitment to the production and distribution of fuel mixed with bio components is a good start to the production of low-carbon products. This will minimise the negative environmental and human health impacts from the use of our sold products. In 2018, we were very proud to receive the international certification of ISCC (International Sustainability and Carbon Certificate) for our fuel containing biocomponents. The NAMA climate project plans to further increase the share of gaseous road transport and special machinery in its own vehicle fleet as part of the action «Conversion of motor vehicles from traditional fuel to the use of compressed natural gas (park renewal)». Between 2020 and 2024, the share of gas vehicles (not less than Euro-3 class) should increase to 35 per cent by modernizing the structure of the vehicle fleet. Improvement in fuel consumption and vehicle class due to the upgrading (acquisition) of 16 new vehicles using liquefied hydrocarbon gases and 46 vehicles using compressed natural gas, will significantly reduce transport emissions.

C-OG4.6

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

In 2014, with the support of the Ministry of Energy of Kazakhstan, the Norwegian EPA Agency and international consultants, we began extensive work on identifying opportunities for reducing methane emissions through the implementation of projects on detection and measurement of methane leaks.

As part of a large-scale project on reduction of GHG emissions, we have put into operation vapour recovery units that processed light hydrocarbon vapour from the oil filling, transportation and storage facilities. We also pay special attention to programs for detection and elimination of methane leaks at our midstream facilities.

"DLS-Pergam" mobile complex for detection of gas leaks based on Toyota Hilux - remote methane alarm "DLS-Pergam" is designed to detect natural gas leaks within 60 meters by remote method, without sampling, additional probes and measuring cuvettes. Over the period of DLS-Pergam operation, 3,963 gas leaks have been detected and confirmed (as of December 31, 2020) .

Our corporate policy on emissions management contains the following measures to prevent methane leaks at production facilities by:

- carrying out programs for detection and measurement of methane leaks;
- installation of floating lids on new tanks;
- introduction of vapor recovery units;
- use of mobile compressor stations.

Additionally, KMG joined the Global Methane Initiative in 2017 and is actively involved in the promotion of new technologies, policies, and opportunities associated with the cost-effective methane emission reduction measures.

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.

KMG monitors methane leaks on an ongoing basis. Inspections are carried out in three main areas: the main gas pipeline, compressor stations and gas distribution stations. The company formed working groups for site inspections to identify possible leaks. To identify methane leaks, we use a visual method, by-pass inspections of sites (once per month), walkthroughs (twice a year); and instrumental method using distant laser methane detectors (once a year). During the inspections, the following devices are used:

1. FLIR GasFindIR based on infrared cameras for rapid detection of methane leaks. The device is able to scan large sections of pipelines at high speed and provide thermal images of gas leaks in real-time.
2. Flow Sampler PVT is designed to measure the intensity of leaks. The device allows to accurately measure the volume and intensity of leaks from any control valves, compressor seals in main lines, storage facilities, and compressor stations for natural gas.

KMG also uses a mobile methane leak detection system equipped with a distant laser detector DLS-Pergam. Its main objective is to detect the slightest gas leaks. This device is used to detect gas leaks from underground and above-ground main, distribution and urban gas pipelines of high and low pressure. The device detects natural gas leaks at a distance of up to 60 meters. Laser and built-in GPS accurately record locations of leaks on the map and save GPS coordinates of the route. The obtained data are provided to the teams, which then carry out repair work on the gas leak sites.

The main reason for leaks at the facilities is the long service life of the equipment (over 40 years). The period within which we fix methane leaks depends on the nature and location of the leak, the volume, and the gas transportation mode. Most detected methane leaks are micro-leaks, which are eliminated immediately after the detection.

KMG systematically modernises technological equipment to minimise methane leaks, which, in turn, reduces not only GHG emissions but also financial losses.

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.

One of our most important tasks in reducing greenhouse gas emissions is increasing the useful use and utilization of associated petroleum gas (APG), minimizing flaring. As a result of to the measures taken in the Programs for the Development and Processing of Sour Gas, the use of APG for own needs has increased to generate heat and electricity.

Over the years, KMG has implemented various programs and projects aimed at elimination of routine gas flaring by 2030.

In 2020, KMG reached the highest level of APG utilization – 98%. Produced amount of APG in 2020 was 2,904.3 million m3 (2,357.2 million m3 in 2019), and amount of gas flared was 57,6 million m3 (79,4 million m3 in 2019). Despite a 19% increase in APG production compared to 2018, gas flaring has declined by 27%. Gas flaring intensity rate is at the level of 2.2 tons per

1,000 tons of hydrocarbon produced (6 in 2018, 2.95 in 2019), which is 25% lower than the indicator for 2019 and 79% lower than the industry average IOGP

We achieved this by fully setting into operation the integrated gas treatment plant of Prorvinskaya cluster of fields and integrated gas treatment plant at Kozhasay field.

Thus, since the setting into operation one of the integrated gas processing plants at the field (Kozhasai) in 2020, the gas flaring reduced from 173 million m3 to 23 million m3, representing a 80 per cent emissions reduction.

KMG is in the upper quartile of IOGP compared to other oil and gas organizations in the world. Emissions are also reduced due to the reduction of gas flaring. In 2020, the intensity figure of CO2 emissions was 87 tons per 1000 tons of hydrocarbons produced (IOGP 123).

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1, 2018

Base year end
December 31, 2018

Base year emissions (metric tons CO2e)
14,695,106

Comment
As 2018 is the first year for which we have verified data for both direct and indirect emissions, it has been chosen as a base year.

Scope 2 (location-based)

Base year start
January 1, 2018

Base year end
December 31, 2018

Base year emissions (metric tons CO2e)
3,241,891

Comment

As 2018 is the first year for which we have verified data for both direct and indirect emissions, it has been chosen as a base year.

Scope 2 (market-based)

Base year start
January 1, 2018

Base year end
December 31, 2018

Base year emissions (metric tons CO2e)
3,296,542

Comment
As 2018 is the first year for which we have verified data for both direct and indirect emissions, it has been chosen as a base year.

C5.2

(C5.2) 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
Details are provided in C5.2a

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

In addition to the standards and methodologies specified in C5.2, the *National guidelines for the calculation of GHG emissions* were used to assess direct emission amounts for our facilities located in Kazakhstan. These guidelines include 19 methodologies for various types of industrial activities. In particular, we have used methodologies intended to assess emissions associated with specific oil and gas operations, such as stationary combustion, exploration, production, transportation, storage, and oil and gas refining.

For the assessment of scope 2 emissions, we also considered detailed recommendations provided in the *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 CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
15,764,732

Start date
January 1, 2020

End date
December 31, 2020

Comment
Gross global Scope 1 emissions for the reporting year.

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)
15,240,134

Start date
January 1, 2019

End date
December 31, 2019

Comment
Gross global Scope 1 emissions for the 2019 year.

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)
14,695,106

Start date
January 1, 2018

End date
December 31, 2018

Comment
Gross global Scope 1 emissions for the 2018 year.

Past year 3

Gross global Scope 1 emissions (metric tons CO2e)

13,893,254

Start date

January 1, 2017

End date

December 31, 2017

Comment

Gross global Scope 1 emissions for the 2017 year.

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 CO2e?

Reporting year

Scope 2, location-based

3,513,860

Scope 2, market-based (if applicable)

3,574,095

Start date

January 1, 2020

End date

December 31, 2020

Comment

Gross global Scope 2 emissions for the reporting year.

Past year 1

Scope 2, location-based

3,351,740

Scope 2, market-based (if applicable)

3,406,853

Start date

January 1, 2019

End date

December 31, 2019

Comment

Gross global Scope 2 emissions for 2019.

Past year 2

Scope 2, location-based

3,241,891

Scope 2, market-based (if applicable)

3,296,542

Start date

January 1, 2018

End date

December 31, 2018

Comment

Gross global Scope 2 emissions for 2018.

Past year 3

Scope 2, location-based

2,654,313

Scope 2, market-based (if applicable)

2,708,327

Start date

January 1, 2017

End date

December 31, 2017

Comment

Gross global Scope 2 emissions for 2017.

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%).

Source

GHG emissions other than CO2

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.

Source

Filling stations in Romania, Georgia, Moldova and Bulgaria

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not evaluated

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

Emissions are not evaluated

Explain why this source is excluded

We are currently unable to collect reliable data and quantify emissions on our entire network of filling stations in Europe, with over 600 stations in Romania and over 200 stations in Bulgaria, Georgia and Moldova. We believe that scope 1 emissions from KMGI retail network are not significant for our total GHG emissions, while scope 2 emissions require a more detailed assessment. We are actively exploring the possibility of improving the data collection process from our retail operations in Europe in order to be able to disclose information in the future.

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 factors for calculating emissions from different categories of goods (services) under national programs.

Capital goods

Evaluation status

Relevant, not yet calculated

Please explain

There is no data from producers and national established factors 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. GHG emissions from mobile sources are excluded due to regulatory requirements of Kazakhstan and EU emissions trading schemes. 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

Whereas GHG emissions from mobile sources are excluded due to regulatory requirements of Kazakhstan and EU emissions trading schemes, KGM suppliers also do not calculate GHG emissions from transport.

Waste generated in operations

Evaluation status

Relevant, not yet calculated

Please explain

It is possible to calculate in the future when the system of accounting of initial data for all KMG subsidiaries and affiliates will be introduced.

Business travel

Evaluation status

Relevant, not yet calculated

Please explain

It is possible to calculate in the future, when the system of accounting of actually made business trips of employees in kilometers will be introduced, as well as tracking data on indirect emissions from hotel activities.

Employee commuting

Evaluation status

Not evaluated

Please explain

As GHG emissions from mobile sources are excluded due to regulatory requirements of Kazakhstan and EU emissions trading schemes, providers of transportation of workers from home to work also do not calculate GHG emissions from transport.

Upstream leased assets

Evaluation status

Not evaluated

Please explain

Emissions from the leased property are not classified under Scope 3, as the leased property is operationally taken under the control of KMG and emissions from it are considered in Scope 1,2.

Downstream transportation and distribution

Evaluation status

Not evaluated

Please explain

As GHG emissions from mobile sources are excluded due to regulatory requirements of Kazakhstan and EU emissions trading schemes, KGM suppliers also do not calculate GHG emissions from transport.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

We assume that emissions associated with the processing of goods sold fall within the “use of goods sold” section of our main Scope 3 emissions, as the use of hydrocarbons involves processing. Emissions from goods processed by KMG's subsidiaries and affiliates are accounted for in Scope 1.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

63,288,615.7

Emissions calculation methodology

GHG emissions were calculated using a production method. Data on the activities is data on clean production. Our evaluation of Scope 3 emissions does not include production data from refineries in Kazakhstan in accordance with the specific business model of our operations in Kazakhstan. The carbon content in the products was calculated based on the results of laboratory analyzes of the gas composition. Specific GHG emission factors are taken from the Order of the Minister of Energy of the Republic

of Kazakhstan dated June 28, 2017 No. 222 "On Approval of the List of Specific GHG Emission Factors". Standard CH4 and N2O emission factors were determined based on the 2006 IPCC guidelines and national publications. The latest GWP values reported in the Fifth IPCC Assessment Report were used to estimate emissions in tons of CO2 equivalent.

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

12

Please explain

There is a decrease in emissions from the use of products sold due to an increase in manufactured products depended on restrictions on 2020.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

There is no data on disposal of products purchased from KMG by third-party consumers. We have independently assessed the end-of-life emissions of our polymer products. These emissions account for less than 4% of our gross Scope 3 emissions.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Emissions from the leased property are not classified under Scope 3, as the leased property is operationally taken under the control of KMG and emissions from it are considered in Scope 1,2.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

We assume that emissions from retail network of filling stations operated by franchised companies are not relevant compared to our main Scope 3 emissions related to “use of goods sold”, especially since the number of franchised companies decreased in 2019 compared to 2018.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

For GHG emissions from those JVs in which the share of KMG's investments is more than 50%, KMG reported 100% as Scope 1, 2, 3 emissions. We assume that the emissions associated with our investments are operationally less than 50% irrelevant compared to our main Scope 3 emissions related to “use of goods sold”.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

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 CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.00172

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

19,281,610

Metric denominator

unit total revenue

Metric denominator: Unit total

11,218,137,346

Scope 2 figure used

Location-based

% change from previous year

63

Direction of change

Increased

Reason for change

Intensity was increased. The decrease in revenue is due to the imposed restrictions on production activities in 2020 related to the coronavirus pandemic.

C-OG6.12

(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.

Unit of hydrocarbon category (denominator)

Other, please specify

Thousand tonnes of hydrocarbon crude production

Metric tons CO2e from hydrocarbon category per unit specified

87

% change from previous year

6

Direction of change

Decreased

Reason for change

Emissions rates decreased from 93 t CO2 per 1,000 t of hydrocarbon production in 2019 to 87 t CO2 per 1,000 t of hydrocarbon production in 2020. The decrease in the intensity of CO2 emissions in the oil industry is caused by the measures taken to reduce the volume of gas flaring.

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 CO2e from hydrocarbon category per unit specified

248

% change from previous year

8

Direction of change

Increased

Reason for change

Emissions rates increased from 229 tons of CO2 per 1,000 tons of processed crude hydrocarbon in 2019 to 248 ton of CO2 per thousand tons of processed crude hydrocarbon in 2020. The 6% growth is due to new sources of emissions.

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 CO2e from hydrocarbon category per unit specified

40

% change from previous year

46

Direction of change

Increased

Reason for change

Emission intensity has increased from 27 tonnes of CO2e per thousand barrels of actual production at our refineries in 2019 to 40 tonnes of CO2e per thousand barrels, respectively.

Comment

The main growth in greenhouse gas emissions is observed at one of the refineries due to new sources, and 2 refineries have changed their approach to calculating methane emissions, resulting in an increase in emissions.

Unit of hydrocarbon category (denominator)

Other, please specify

Thousand tonnes of processed hydrocarbon crude

Metric tons CO2e from hydrocarbon category per unit specified

187

% change from previous year

26

Direction of change

Increased

Reason for change

The emission intensity increased from 148 tons of CO2e per thousand tons of hydrocarbon produced in 2019 to 187 tons of CO2e per thousand tons of hydrocarbon produced in 2020.

Comment

In 2020, as a result of energy efficiency measures at Kazakhstani refineries, more than 430 thousand GJ of energy were saved.

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

1.95

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

0.25

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

0.14

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

0.09

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

Downstream

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

0.14

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

0.27

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.

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	8,699,629	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	6,600,282	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	464,821	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

Gross Scope 1 CO2 emissions (metric tons CO2)

1,845,292

Gross Scope 1 methane emissions (metric tons CH4)

1,754

Total gross Scope 1 emissions (metric tons CO2e)

2,289,973

Comment

Emissions refer to all upstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type. There is a decrease in greenhouse gas emissions in 2020 in this business area due to a decrease in production capacity.

Emissions category

Flaring

Value chain

Upstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

143,661

Gross Scope 1 methane emissions (metric tons CH4)

188

Total gross Scope 1 emissions (metric tons CO2e)

198,291

Comment

Emissions refer to all upstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category

Venting

Value chain

Upstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

1,790

Gross Scope 1 methane emissions (metric tons CH4)

8,592

Total gross Scope 1 emissions (metric tons CO2e)

242,358

Comment

Emissions refer to all upstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category

Fugitives

Value chain

Upstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

4,470

Gross Scope 1 methane emissions (metric tons CH4)

48,190

Total gross Scope 1 emissions (metric tons CO2e)

1,355,544

Comment

Emissions refer to all upstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category

Other (please specify)

Value chain

Upstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

0

Gross Scope 1 methane emissions (metric tons CH4)

1

Total gross Scope 1 emissions (metric tons CO2e)

33

Comment

Methane emissions from wastewater treatment plants

Emissions category

Combustion (excluding flaring)

Value chain

Midstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

2,125,210

Gross Scope 1 methane emissions (metric tons CH4)

1,376

Total gross Scope 1 emissions (metric tons CO2e)

2,157,790

Comment

Emissions refer to all oil transportation assets operated by KMG.

Emissions category

Flaring

Value chain

Midstream

Product

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

Gross Scope 1 CO2 emissions (metric tons CO2)

82

Gross Scope 1 methane emissions (metric tons CH4)

3,424

Total gross Scope 1 emissions (metric tons CO2e)

95,963

Comment

Emissions refer to all oil transportation assets operated by KMG.

Emissions category
Fugitives

Value chain
Midstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)
980

Gross Scope 1 methane emissions (metric tons CH4)
50,678

Total gross Scope 1 emissions (metric tons CO2e)
1,436,305

Comment
Emissions refer to all oil transportation assets operated by KMG.

Emissions category
Other (please specify)

Value chain
Midstream

Product
Gas

Gross Scope 1 CO2 emissions (metric tons CO2)
119

Gross Scope 1 methane emissions (metric tons CH4)
65,266

Total gross Scope 1 emissions (metric tons CO2e)
1,827,556

Comment
Emissions refer to all oil transportation assets operated by KMG.

Emissions category
Combustion (excluding flaring)

Value chain
Downstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)
4,271,201

Gross Scope 1 methane emissions (metric tons CH4)
63

Total gross Scope 1 emissions (metric tons CO2e)
4,280,601

Comment
Emissions refer to all downstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category
Flaring

Value chain
Downstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)
29,921

Gross Scope 1 methane emissions (metric tons CH4)
1

Total gross Scope 1 emissions (metric tons CO2e)
30,087

Comment
Emissions refer to all downstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category
Venting

Value chain
Downstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

3,970

Gross Scope 1 methane emissions (metric tons CH4)

55,402

Total gross Scope 1 emissions (metric tons CO2e)

1,555,218

Comment

Emissions refer to all downstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category

Fugitives

Value chain

Downstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

15

Gross Scope 1 methane emissions (metric tons CH4)

789

Total gross Scope 1 emissions (metric tons CO2e)

22,095

Comment

Emissions refer to all downstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

Emissions category

Process (feedstock) emissions

Value chain

Downstream

Product

Gross Scope 1 CO2 emissions (metric tons CO2)

272,918

Gross Scope 1 methane emissions (metric tons CH4)

Total gross Scope 1 emissions (metric tons CO2e)

272,918

Comment

Emissions refer to all downstream assets operated by KMG. We are unable to disaggregate GHG emissions from upstream activities by product type.

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Kazakhstan	14,898,636
Romania	858,101
Georgia	7,995

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 CO2e)
Oil and gas exploration and production activities (upstream)	4,086,199
Oil and gas transportation activities (midstream)	5,517,614
Oil and gas refining activities (downstream)	6,160,919

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 CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment

Oil and gas production activities (upstream)	4,086,196	GHG emissions in upstream increased by 293 144 tons of CO2e in 2020han in 2019, due to a change in the approaches to calculating methane at one of the enterprises. At the same time, in the main production assets, there is a decrease in emissions by 300,000 tons of CO2e.
Oil and gas production activities (midstream)	5,517,614	GHG emissions in midstream in 2020 decreased by 1 124 118 tons of CO2e than in 2019, due to production activities decrease.
Oil and gas production activities (downstream)	6,160,919	GHG emissions in downstream in 2020 increased by 1 355 572 tons of CO2e than in 2019, due to a change in the approaches to calculating methane at one of the enterprises.

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Kazakhstan	3,259,605	3,259,605	5,083,378	4,493
Romania	253,430	313,665	985,226	223,305
Georgia	825	825	7,052	5,501

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 CO2e)	Scope 2, market-based (metric tons CO2e)
Oil and gas exploration and production activities (upstream)	1,441,163	1,441,163
Oil and gas transportation activities (midstream)	297,486	297,486

Oil and gas refining activities (downstream)	1,775,211	1,835,446

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 CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Oil and gas production activities (upstream)	1,441,163	1,441,163	Upstream scope 2 value considers emissions from our upstream activities. Scope 2 emissions increased.
Oil and gas production activities (midstream)	297,486	297,486	Midstream Scope 2 value considers emissions from our midstream activities. There is a decrease of scope 2 emissions compare 2019.
Oil and gas production activities (downstream)	1,775,211	1,835,446	Downstream emissions include emissions from oil and gas refining activities, as well as petrochemical production. There is a slightly decrease of scope 2 emissions copmare 2019.

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	3,434	Decreased	80	The volume of purchased green energy from the financial settlement center of renewable energy network has been reduced due to production reduction.
Other emissions reduction activities				
Divestment				
Acquisitions				
Mergers				
Change in output	1,480,833	Decreased	10	There is a decrease in production capacity associated with the imposed restrictions due to the coronavirus pandemic across the group of companies in 2020, This decrease in production capacity led to a decrease in greenhouse gas emissions in the amount of 1,480,833 tonnes of CO2 equivalent (10%)
Change in methodology	2,005,428	Increased	721	2 our subsidiaries and affiliates changed the coefficients when calculating methane emissions, and therefore, when converting them to CO2 equivalent, the total volume of greenhouse gas emissions increased by 721% and amounted to 2,328,113 tons of CO2 equivalent instead of 322,685 in 2019. All data has been verified. This year, we plan to develop a corporate methodology for calculating direct and indirect greenhouse gas emissions and unify approaches for all organizations.
Change in boundary				
Change in physical operating conditions				
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)		41,846,694.4	41,846,694.9
Consumption of purchased or acquired electricity		233,297.8	4,430,507.5	4,663,805.3
Consumption of purchased or acquired heat			40,758.65	40,758.65
Consumption of purchased or acquired steam			1,539,293.86	1,539,293.86
Consumption of self-generated non-fuel renewable energy		188,774.23		188,774.23
Total energy consumption		422,072	47,857,254.4	48,279,326.5

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.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

19,948,118.7

MWh fuel consumed for self-generation of electricity

5,665,965

MWh fuel consumed for self-generation of heat

13,210,268.6

MWh fuel consumed for self-generation of steam

1,071,885.2

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

0.00197

Unit

metric tons CO2e per m3

Emissions factor source

Emission factors are presented in the form of weighted average values for each type of fuel.

Comment

Fuels (excluding feedstocks)

Other, please specify

(Associated Petroleum Gas (APG))

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

6,269,199.7

MWh fuel consumed for self-generation of electricity

1,780,672.5

MWh fuel consumed for self-generation of heat

4,151,660.2

MWh fuel consumed for self-generation of steam

336,870

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor
0.00195

Unit
metric tons CO2e per m3

Emissions factor source
Emission factor refers to Associated Petroleum Gas (APG). Emission factors are presented in the form of weighted average values for each type of fuel.

Comment

Fuels (excluding feedstocks)
Refinery Gas

Heating value
LHV (lower heating value)

Total fuel MWh consumed by the organization
4,810,349

MWh fuel consumed for self-generation of electricity
1,366,307.7

MWh fuel consumed for self-generation of heat
3,185,563.7

MWh fuel consumed for self-generation of steam
258,477.6

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor
0.00206

Unit
metric tons CO2e per m3

Emissions factor source
Emission factors are presented in the form of weighted average values for each type of fuel.

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 1

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

325,614

MWh fuel consumed for self-generation of electricity

92,485.8

MWh fuel consumed for self-generation of heat

215,631.8

MWh fuel consumed for self-generation of steam

17,496.4

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

3.17

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

16.2

MWh fuel consumed for self-generation of electricity

4.6

MWh fuel consumed for self-generation of heat

10.8

MWh fuel consumed for self-generation of steam

0.9

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

3.1

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

177,911

MWh fuel consumed for self-generation of electricity

50,533

MWh fuel consumed for self-generation of heat

117,818.2

MWh fuel consumed for self-generation of steam

9,559.8

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

2.68

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Fuel Oil Number 2

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,558,041.8

MWh fuel consumed for self-generation of electricity

442,538.5

MWh fuel consumed for self-generation of heat

1,031,784

MWh fuel consumed for self-generation of steam

83,719.3

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

2.8

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

17.1

MWh fuel consumed for self-generation of electricity

4.9

MWh fuel consumed for self-generation of heat

11.3

MWh fuel consumed for self-generation of steam

0.9

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

0.87

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Crude Oil

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

102,576.1

MWh fuel consumed for self-generation of electricity

29,135.2

MWh fuel consumed for self-generation of heat

67,929.1

MWh fuel consumed for self-generation of steam

5,511.8

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

2.997

Unit

metric tons CO2e per m3

Emissions factor source

"National guidelines for the calculation of GHG emissions from thermal power plants and boilers, Astana, 2010".

Comment

Fuels (excluding feedstocks)

Fuel Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

8,654,850.8

MWh fuel consumed for self-generation of electricity

2,458,281

MWh fuel consumed for self-generation of heat

5,731,513.1

MWh fuel consumed for self-generation of steam

465,056.7

MWh fuel consumed for self-cogeneration or self-trigeneration

Emission factor

0.00194

Unit

metric tons CO2e per m3

Emissions factor source

Emission factors are presented in the form of weighted average values for each type of fuel.

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	11,885,928.1	11,885,928.1	1,198.11	1,198.11
Heat	27,712,190.8	27,712,190.8	187,576.12	187,576.12
Steam	2,248,575.5	2,248,575.5	0	0
Cooling				

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Other, please specify

(Grid mix of renewable electricity)

Low-carbon technology type

Low-carbon energy mix

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Romania

MWh consumed accounted for at a zero emission factor

223,305

Comment

According to the European Residual Mix data, 43.63% of the energy consumed by our Romanian assets was classified as renewable with the following breakdown: solar - 3.17% , wind - 10.2% , hydroelectric power plants - 12.03%.

Sourcing method

Other, please specify

(Purchasing or production of low-carbon emission factor heat, power or electricity)

Low-carbon technology type

Hydropower

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Georgia

MWh consumed accounted for at a zero emission factor

5,501

Comment

According to «IPCC Special Report on Renewable Energy and Mitigation of Climate Change Impacts» (2011) Power Factors for River Systems lie in a range (20-95%) depending on geographical and climate conditions, technology and performance.

Sourcing method

Other, please specify

(Purchasing or production of low-carbon emission factor heat, power or electricity)

Low-carbon technology type

Solar

Country/area of consumption of low-carbon electricity, heat, steam or cooling

Kazakhstan

MWh consumed accounted for at a zero emission factor

4,492.7

Comment

Solar energy from the renewable energy provider. The RES consumption rate is taken as 100% because the figure is given for RES only

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Waste

Metric value

1,031.2

Metric numerator

thousand tonnes

Metric denominator (intensity metric only)

% change from previous year

346

Direction of change

Increased

Please explain

For the KMG group of companies, the total mass of waste in circulation in 2020 amounted to 1,031.2 thousand tons, of which 993.7 thousand tons were classified as “hazardous”, and 37.5 thousand tons were “non-hazardous”. Volumes increased due to the start of recycling works historic oily waste. Utilization of historical oil waste and cleaning up oil-contaminated lands is planned to be completed in 2024.

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	134	In 2020, as part of commitments of the Republic of Kazakhstan to cut oil supply under the OPEC+ agreement.
Natural gas liquids, million barrels		
Oil sands, million barrels (includes bitumen and synthetic crude)		
Natural gas, billion cubic feet	98	In 2020, as part of commitments of the Republic of Kazakhstan to cut oil supply under the OPEC+ agreement.

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 international standard PRMS, KMG’s proved plus probable hydrocarbon reserves (2P) were 635 mln toe (4,894 mln boe) as at 31 December 2020. 2P reserves decreased by 6.1% year-on-year, driven mainly by technical (natural decline in production from mature fields) as well as macroeconomic reasons (lower oil price and FX volatility). The proved reserves (1P) life is 16 years, far exceeding the average for global oil majors (about 11 years). Reaffirming its commitment to transparency, KMG, for the first time ever, disclosed a summary of its reserves report prepared under the internationally used PRMS guidelines. According to the reserves audit by the international independent consulting firm DeGolyer & MacNaughton, KMG’s proved plus probable hydrocarbon (2P) reserves were at 676 mln tonnes of oil equivalent (5,220 mmboe) as of 31 December 2019.

The proved reserves (1P) life of oil and condensate is 16 years (based on 2019 production level), far exceeding the average for the global oil majors (about 12 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	4,894	5,832		Net Reserves are defined as that portion of the gross reserves attributable to the interest held by KMG after deducting all interests held by others, as well as interests that are not held 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				
Natural gas				
Oil sands (includes bitumen and synthetic crude)				

C-OG9.2e

(C-OG9.2e) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

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	

C-OG9.3b

(C-OG9.3b) Disclose feedstocks processed in the reporting year in million barrels per year.

	Throughput (Million barrels)	Comment
Oil		
Other feedstocks		
Total		

C-OG9.3c

(C-OG9.3c) Are you able to break down your refinery products and net production?

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

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	

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	Average % of total R&D	R&D investment	Comment

	the reporting year	investment over the last 3 years	figure in the reporting year (optional)	
Other energy efficiency measures in the oil and gas value chain	Full/commercial-scale demonstration		48,485,179	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	Pilot demonstration		53,780,000	Today, digital technologies are permeating all sectors of the economy, offering fundamental improvements in efficiency and safety. The use of digital technologies contributes to: • reduction of capital and operating expenses; • improved profitability amid volatile oil prices; • increasing efficiency, including through data analysis; • predicting failures; • ensuring safety at work. Given the growing relevance of digitalization in the world, in 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.

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.

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)	No third-party verification or assurance
Scope 3	No third-party verification or assurance

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
Moderate assurance

Attach the statement

Page/ section reference
More detailed information is provided in C15

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
95

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?
No, we do not verify any other climate-related information reported in our CDP disclosure

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

Period start date

January 1, 2020

Period end date

December 31, 2020

Allowances allocated

858,101

Allowances purchased

Verified Scope 1 emissions in metric tons CO2e

858,101

Verified Scope 2 emissions in metric tons CO2e

Details of ownership

Facilities we own and operate

Comment

GHG Permits were issued in 2013 and revised in 2019, valid until the end of 2020 (Phase III - 2013 - 2020), both for Rompetrol Rafinare - Petromidia, as well as for Rompetrol Rafinare – Vega, with annual external audits being conducted in order to verify CO2 calculations for the previous year.

All compliance obligations were fulfilled in 2020.

Moreover, all the necessary documentation for Phase IV allocation (2021 - 2030) stage 1 (2021 - 2025) authorization was prepared and submitted to the National Environmental Authority. Furthermore, a questionnaire was prepared, verified by the auditor, and submitted to NEPA as request to access the New Entry Reserve for Petromidia (in respect with upgraded production capacities) and 188090 additional certificates were obtained.

Kazakhstan ETS

% of Scope 1 emissions covered by the ETS

98

% of Scope 2 emissions covered by the ETS

Period start date

January 1, 2020

Period end date

December 31, 2020

Allowances allocated

28,345,322

Allowances purchased

318,087

Verified Scope 1 emissions in metric tons CO2e

7,710,102

Verified Scope 2 emissions in metric tons CO2e

Details of ownership

Facilities we own and operate

Comment

Quotas for plant operators were allocated for a period of 3 years for the period of validity of the National Plan, 18 subsidiaries and affiliates of KMG are included in the quota system of the Republic of Kazakhstan. Data on allocated quotas for 2020 in this section is presented in tons of CO2 per year, in accordance with the National Quota Allocation Plan for 2018-2020. Some subsidiaries and affiliates will receive in 2021 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 3 year performance of the National Quota Allocation Plan. As per results of 3 year the 318 087 tons of CO2 need to be purchaged in 2021 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 commits to reducing its carbon footprint, complying with the climate legislation, reasonably using natural resources and constantly improving the environmental performance of its operations.

We conduct our operations following the climate change regulations of regions where we operate. More specifically, we own and operate 18 facilities and three refineries that are regulated under the Kazakhstan and European cap and trade systems, respectively.

To ensure compliance with the schemes mentioned above, we are committed to our GHG reduction strategies consisting of the following core aspects:

1. GHG emissions monitoring, reporting and verification.

GHG emissions monitoring, reporting and verification is the key mechanism of ensuring regulatory compliance and data transparency. Thus, our facilities that are regulated under emission trading schemes conduct the following activities on an annual basis:

- Inventory of GHG emissions sources;
- Monitoring and assessment of GHG performance (for direct emissions only);
- Third-party verification of GHG emissions, and
- GHG emissions reporting to the competent authorities in Kazakhstan and Romania.

2. GHG performance analysis and control.

At the corporate level, we conduct continuous monitoring and control of activities related to emission reduction projects implemented by our operational facilities. Moreover, the corporate HSE department identifies and analyses potential risks associated with the deficit of GHG allowance holdings. We conduct risk assessment activities to proactively manage identified risks, adjust our strategic decisions when needed and direct our investments appropriately.

It is worth mentioning that our Kazakhstan facilities can apply for the additional cap-and-trade allowances in the following cases:

- introduction of new GHG emissions sources/installations;
- increases in capacity of existing installations.

3. Emission reduction activities.

Our emission reduction activities are mainly focused on the implementation of energy efficiency measures, methane leaks management and gas flaring reduction in our upstream companies.

As part of the modernisation of refineries, we have implemented several measures such as the launch of vapour recovery unit and installation of floating lids on new tanks. Additional emission reductions have been achieved as the result of energy efficiency measures, such as switching fuel for boilers from diesel to gas, workload optimisation of compressor stations with gas turbine drive, reconstruction of manufacturing equipment and fueling our company-owned vehicles with gas. To reduce methane emissions, we

implemented pilot projects on the detection and measurement of methane leaks with support of the Norwegian EPA and international consultants.

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, and we do not currently 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

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

Code of conduct featuring climate change KPIs

% of suppliers by number

100

% total procurement spend (direct and indirect)

% of supplier-related Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Contractors make up over 50% of our workforce, and their increased focus on climate change will ultimately influence on KMG's overall performance. The company strives to

increase the criteria for selecting potential suppliers to ensure that the work is performed at a high level and with full transparency of the entire service cycle.

Impact of engagement, including measures of success

The main indicator of success is the implementation of mechanisms for managing certain types of risks, control procedures associated with the implementation of processes supervised by the owners of KMG risk factors aimed at reducing the risk level. At the moment, we are not able to determine the level of effect of interaction with suppliers based on the implemented Standard, however this is undoubtedly a big step towards increasing the involvement of our suppliers in the process of managing climate issues.

Comment

In 2019, the Committee on Health, Safety, Environmental Management and Sustainable Development, reviewed and approved the Corporate standard for interaction with contracting companies in the field of health, safety and environmental protection at KMG which is a structural element of the management] system and contains requirements for agreements with contractors, including:
- HSE agreement for compliance with the HSE requirements and penalties for their violation;
- pre-mobilization audit of machinery and equipment readiness, contractor personnel;
- assessment of the contractor based on the results of activities in the field of HSE.
In addition, the Company regularly holds forums, meetings with potential service providers to discuss future joint partnerships and KMG requirements in the field of health, safety and environmental protection.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Collaboration & innovation

Details of engagement

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

KMG encourages its clients to implement energy efficiency measures. As the major supplier of gas to the population in the regions where it operates, KMG is constantly

striving to modernize the supply process, both from an economic and environmental point of view.

According to the project, gas infrastructure development of residential areas/parks with private houses in Almaty shall be conducted, which are not yet connected to the gas supply system, existing gas distribution networks in Almaty shall be updated. The project contributes to the improvement of environmental situation in the city and will allow connecting about 4.1 thousand new subscribers with average annual gas consumption of 15.8 million m³ to the gas supply system. At the beginning of 2021, 1,846 residences were connected, and the remaining 2,254 residences also have access to gas and will be connected as possible.

Impact of engagement, including measures of success

As of 01.01.2021, 262 km of new gas pipelines were built and 58 km of existing gas pipelines were reconstructed, 30 gas control cabinets and one gas control unit were installed. Up to the end of 2021 it is planned to reconstruct 40 km of gas pipelines, 4 gas regulation stations.
As a result of realization of the project in cooperation with the akimat of Zhambyl oblast 10 residential areas with population more than 62 thousand people: 7177 residences, 29 objects of social sphere, 243 objects of small and medium business are supplied with natural gas. There are prospects of gasification of 7 more residential areas. Execution of the work was carried out from June to October 2020.

Construction of the 1st and 2nd commissioning and start-up complexes of the 2nd stage of the gas distribution nets in Nur-Sultan Under the 1st commissioning and start-up complex gas is supplied from AGDS-2 to the Vostok main gas distribution station (MGDS) and the South-East MGDS, and under the 2nd commissioning and start-up complex gas is supplied from the Vostok MGDS to the residential areas of International, Michurino, Kuygenzhar and to boiler
houses.
Construction of 83.7 km of gas pipelines, installation of 5 gas-distributing block points and 8 gas-distributing cabinet points is planned. It is expected to complete all works by August 31, 2021.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers
Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution

Mandatory carbon reporting	Support	KMG subsidiaries and affiliates carry out an inventory of GHG emissions and submit verified reports as required by the Environmental Code on an annual basis. The reports are prepared both for the entities subject to quota and administration, as well as on installations with insignificant emissions. Since 2019, KMG published reports on greenhouse gas emissions as part of the CDP Climate Program (Carbon Disclosure Project 2), which included data on the volumes of direct and indirect greenhouse gas emissions for all KMG assets, including subsidiaries and affiliates in Romania and Georgia.	KMG is one of the key stakeholders in developing the environmental legislation. KMG is an active member of associations and working groups at the ministerial level and takes an active part in the development and discussion of the new edition of the Environmental Code of the Republic of Kazakhstan. During 2020 KMG actively participated at Working Groups meeting to discuss the draft of the new Environmental Code of the Republic of Kazakhstan. Within the framework of the meeting, the current status of the draft of the new Environmental Code of the Republic of Kazakhstan, the accompanying draft law (key changes, unresolved issues) was presented, as well as proposals were worked out for further steps to improve the environmental legislation of the Republic of Kazakhstan, taking into account the interests of the oil and gas industry, including the regulation of carbon reporting.
Cap and trade 1	Support with minor exceptions	In 2020 KMG has written off 7 710 102 (Kazakhstan ETS) carbon units in the Kazakhstan Emission Trading Scheme. The purchase of emission quotas was not made, but according to the application from the government, quotas in the amount of 149 127 tons is expected on a gratuitous basis due to the expansion of production. KMG takes part in the discussion of the emission trading scheme in the process of developing the Environmental Code, as well as in	On 2 January 2021, the President of the Republic of Kazakhstan signed the new Environmental Code of the Republic of Kazakhstan. The new Environmental Code is based on the polluter pays and fixes principle, which implies that major industrial businesses take measures to prevent pollution and introduce best available technology. The new Environmental Code provides for new approaches to

		the framework of the current legislation.	environmental impact assessment, charges for emissions and improved industrial and consumer waste management, significantly contributing to environmental improvements. During the first phase, the 50 largest enterprises, including the oil and gas sector, will begin an orderly transition to best available technologies (BAT). The new Environmental Code, actively discussed by KMG during 2020, will become effective in Kazakhstan as of 1 July 2021.
Clean energy generation	Support with minor exceptions	KMG participates in the implementation of the Concept of Kazakhstan on transition to a "green" economy, introduces renewable energy sources at its enterprises. In 2020, total energy consumption amounted to 156.6 mln GJ, down 14% yearon-year, including 13.2 mln GJ in electricity, 4.2 mln GJ in heat, 1.5 mln GJ in motor fuel, and 137.7 mln GJ in boiler and heating fuel. KMG's total energy consumption is divided between three business segments: Upstream, Midstream and Downstream. The year-on-year energy consumption decrease was mainly due to reduced gas transportation and lower hydrocarbon production because of the pandemic. In 2020, KMG Group's self-generated energy amounted to	On 2 January 2021, the President of the Republic of Kazakhstan signed the new Environmental Code of the Republic of Kazakhstan. The new Environmental Code is based on the polluter pays and fixes principle, which implies that major industrial businesses take measures to prevent pollution and introduce best available technology. The new Environmental Code provides for new approaches to environmental impact assessment, charges for emissions and improved industrial and consumer waste management, significantly contributing to environmental improvements. During the first phase, the 50 largest enterprises, including the oil and gas sector, will begin an orderly

		406.0 mln kWh in electricity and 4,096 ths Gcal in heat. The use of innovative technologies and renewable energy sources is a relatively new yet promising trend in the oil and gas industry.	transition to best available technologies (BAT). The new Environmental Code, actively discussed by KMG during 2020, will become effective in Kazakhstan as of 1 July 2021.
Energy efficiency	Support with minor exceptions	Participates in the implementation of the Concept of Kazakhstan on transition to a "green" economy, makes proposals for the development and implementation of national strategies on improving energy efficiency. Since 2017, KMG has a Roadmap for energy saving and energy efficiency of subsidiaries and affiliates, as well as jointly controlled organizations and joint ventures of KMG for 2017-2020. In 2020, total energy consumption amounted to 156.6 mln GJ, down 14% yearon-year, including 13.2 mln GJ in electricity, 4.2 mln GJ in heat, 1.5 mln GJ in motor fuel, and 137.7 mln GJ in boiler and heating fuel.	In accordance with the Roadmap for energy saving, KMG comes forward with initiatives to ensure energy efficiency in the procurement of construction, reconstruction, overhaul of power equipment; attracting private investments to improve energy efficiency; improving the control system for compliance with the requirements and indicators of energy efficiency; The main proposal in the field of energy efficiency was to reduce the burden or abolish environmental taxes for entities that introduce clean technologies.
Climate finance	Support with minor exceptions	KMG Group of Companies steadily adheres to the principles of social responsibility, which are: creation of new jobs, implementation of social programs for personnel, sponsorship and charity, environmental and educational campaigns.	To effectively manage environmental risks, the Company is constantly improving approaches to environmental management and allocates the necessary resources for environmental protection. Environmental costs include the payment of taxes for regulatory emissions, costs of environmental protection measures, insurance, compensatory measures in the field of environmental protection, investments to prevent environmental impact, etc.

			Costs for environmental protection in 2020 amounted to 41 billion tenge (96.2 mln USD).
Regulation of methane emissions	Support with minor exceptions	KMG takes an active part in the flaring reduction program, providing technical consultancy in developing legal and regulatory requirements for methane regulation. One of the most important tasks to reduce greenhouse gas emissions, in particular methane, is to increase the beneficial use and utilization of associated petroleum gas, and to minimize flaring. Salvaging of associated petroleum gas in 2020 amounted to 98%, the rate of gas flaring is at the level of 2.2 tons per 1,000 tons of crude hydrocarbons produced (6 in 2018, 2.95 in 2019). The company annually builds new disposal facilities, reconstructs existing facilities, invests in the construction of pipelines and infrastructure.	KMG proposed to discuss the possibilities of implementing projects to reduce methane emissions and interacting with international organizations on similar projects.
Other, please specify General issues	Support	On August 6, 2019, JSC NC “KazMunayGas” (hereinafter referred to as KMG) and the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan (hereinafter referred to as the Ministry of Ecology) signed a Memorandum of Cooperation in the field of environmental protection (hereinafter referred to as the Memorandum). The memorandum was signed in order to improve the quality of the environment, ensure environmental safety and strengthen cooperation.	As per the provisions of the Memorandum, KMG, together with subsidiaries and affiliated companies, ensure mandatory observance of the environmental requirements and standards, carry out an inventory of wastes in contract areas, involve advanced methods and environmentally friendly technologies for waste processing, reclamation and restoration of oil-contaminated lands, and also ensure the subsequent utilization of waste products (treated soil) in economic activities, etc.

			In its turn, the Ministry of ecology monitors compliance with the requirements of environmental legislation, coordinates the implementation of measures to reduce the negative impact of the KMG group of companies on the environment. The Ministry also plans to implement a whole range of measures aimed at environmental protection.
Other, please specify	Support	On 14 September 2020, in Baku, KazMunayGas signed a memorandum of understanding with 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 stipulates the establishment of the Caspian Environmental Protection Initiative (CEPI).	As declared, the main goals of the Initiative are the establishment of the first platform to protect the environment and conduct joint research by international oil companies operating in the region. The participating companies will take active joint efforts to address climate change threatening the sustainability of the Caspian region and prevent the emissions of greenhouse gases and hazardous substances into the environment. In addition, cooperation under CEPI implies researching and promoting best practice, standards and technologies in environmental protection, developing and implementing joint preventive measures to fight climate change, arranging awareness-raising and advocacy campaigns, involving regional stakeholders and regulators in addressing environmental protection, and pursuing other efforts.

[1]GHG emissions regulation

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

"KAZAKHSTAN ASSOCIATION OF OIL-GAS AND ENERGY SECTOR ORGANIZATIONS "KAZENERGY"

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

KAZENERGY Association unites over 80 major energy companies in Kazakhstan and its overall aim is to support the sustainable development of its members and represent the energy sector's interests at the country level.

The Association is actively involved in the development of environmental legislation in the country. It ensures a unified position of the Association members on the further developments of environmental and climate legislation in Kazakhstan.

How have you influenced, or are you attempting to influence their position?

KMG management participates in several committees and working groups of the Association. KMG sees chairmanship in KAZENERGY Coordination Council as an opportunity for promoting sustainable development in the oil and gas sector in Kazakhstan. KMG also plays a significant role in the development and implementation of the Association's programs and initiatives.

Since 2017, KMG and KAZENERGY have been working together under the memorandum of cooperation. In the reporting year, KMG co-financed KAZENERGY's research project on best international practices of environmental regulation, including climate law in the developed countries such as Canada, the UK, Norway, Germany and the United States. This work allowed Association and its members to deepen their knowledge about the international practices of GHG emission trading, carbon taxing, banking, carbon pricing and EITE in OECD countries. This project was implemented as a part of the ongoing work of the drafting of proposals for the new Environmental Code in Kazakhstan.

Trade association

National Chamber of Commerce "ATAMEKEN", Kazakhstan

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Ataмeken is a not-for-profit organization established to enhance relationships between the Government and business community in Kazakhstan. The Chamber represents the interests of small, medium and large companies from all business areas, including internal and external trade.

The main function of the Chamber is to protect the rights and interests of the business community and to ensure the active involvement of all entrepreneurs in the process of legislation development in Kazakhstan.

https://atameken.kz/en/

How have you influenced, or are you attempting to influence their position?

In 2017, KMG and Atameken signed a cooperation agreement on legal matters. The agreement provides for cooperation in the following areas:
− improvement of legislation;
− implementation of joint programs and projects;
− legal support in cases of disputes, etc.

KMG actively participates in Atameken activities related to the development of commercial, tax, environmental and climate law in Kazakhstan.

Trade association

International Association of Oil & Gas Producers (IOGP)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

IOGP supports the commitment of the international community in addressing the global challenge of climate change. IOGP believes that an effective policy should:
- reduce emissions most cost-effectively;
- promote global participation;
- maximise transparency;
-provide flexibility for adaptation to future changes in climate science and the economic effects of climate policies.

KMG supports the vision, objectives and initiatives of IOGP for HSE improvement on a global scale.

How have you influenced, or are you attempting to influence their position?

Since 2014, KMG has been disclosing its HSE performance data as per the IOGP standards. It also conducts benchmarking with peer companies in the oil and gas sector for identifying areas for improvement. Since 2018, KMG has been a member of IOGP and provides the Association with the annual reporting, including the data on GHG emissions and gas flaring.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

In accordance with the Development Strategy of KMG, the KMG HSE Director is responsible for the development of long-term priorities and targets of the KMG group of companies in the field of labor protection, industrial safety and environmental protection in strict accordance with the requirements of the legislation of the Republic of Kazakhstan. Thus, our corporate team ensures consistency in KMG's activities, directly or indirectly influencing government policies. Thus, the activities affecting the state policy on climate change are coordinated by the HSE functional committee with representatives of all major KMG subsidiaries. One of their key roles of the Committee is to align and build KMG's vision regarding the development of environmental legislation. Committee considers the production specifics of upstream, midstream and downstream companies, and evaluate all environmental and legal risks associated with legislation developments. Responsibility of the corporate centre is to develop corporate objectives and policies on GHG emission management, energy efficiency improvement, reduction of gas flaring, as well as protection of interests of our companies in Associations and industry working groups.

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).

Publication

In mainstream reports

Status

Complete

Attach the document

KMG_AR2020_ENG.pdf

Page/Section reference

https://www.kmg.kz/uploads/reports/KMG_AR2020_ENG.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

The attached KMG annual report for 2020.

Publication

In mainstream reports

Status

Underway – previous year attached

Attach the document

KMG_OUR_2019_EN_v1_022.pdf

Page/Section reference

https://www.kmg.kz/uploads/reports/KMG_OUR_2019_EN_v1_022.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

The attached KMG report on sustainable development for 2019. The sustainable development report for 2020 will be available to the public in the second half of 2021.

Publication

In mainstream reports

Status

Underway – previous year attached

Attach the document

KazMunayGas National Company JCS - Climate Change 2020.pdf

Page/Section reference

https://www.kmg.kz/uploads/reporting-and-financial-result/59d6270f61784ab7/KazMunayGas%20National%20Company%20JCS%20-%20Climate%20Change%202020.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

The attached CDP 2019 Climate change Report. The 2020 GHG emissions report will be available to the public in the second half of 2021.

Publication

In mainstream reports

Status

Underway – previous year attached

Attach the document

KazMunayGas National Company JCS - Water Security 2020.pdf

Page/Section reference

https://www.kmg.kz/uploads/reporting-and-financial-result/66a3cad3d4374a27/KazMunayGas%20National%20Company%20JCS%20-%20Water%20Security%202020.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

The attached CDP 2019 Water security report. The 2020 report will be available to the public in the second half of 2021.

C15. 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.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Environmental, health and safety Director	Environment/Sustainability manager

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission
I am submitting my response	Investors	Public

Please confirm below

I have read and accept the applicable Terms