



Efficient use of APG

In reducing our GHG footprint, we focus on increasing associated petroleum gas (APG) utilisation while minimising flaring. The measures taken so far within our raw gas processing and development programmes have increased internal APG use for heat and electricity generation.

In 2020, APG utilisation rate was 98%, with flaring at 2.2 tonnes per 1,000 tonnes of produced hydrocarbons (6 tonnes in 2018, and 2.95 tonnes in 2019), down 24% year-on-year and 79% lower than the IOGP industry average.

Raw gas flaring

Indicator	2017	2018	2019	2020
Total raw gas flaring, mln m ³	315.8	148.9	80.2	57.6
Raw gas utilisation, %	85	93	97	98
Raw gas flaring rate, tonnes per 1,000 tonnes of produced hydrocarbons	11	6	2.95	2.2

KMG strives to minimise raw gas flaring. In 2015, KMG supported the World Bank's Zero Routine Flaring by 2030 initiative. Raw gas flaring reports under the Initiative are submitted on an annual basis.



For more details, see KMG's Sustainability Report 



WASTE MANAGEMENT

KMG Group's production facilities regularly monitor and control all waste handled by facilities (including contractors' waste), take measures to minimise waste generation and earmark annual funding for recycling/reuse and/or disposal of generated, accumulated and historical waste, with KMG spending on this topping KZT 13 bln in 2020.

Given the urgency of improving the environment and its commitment to environmental safety, KMG carries out projects to reduce waste storage, eliminate historical waste, and remediate oil contaminated soils.

Oil producing assets have landfills for temporary storage of oily waste. OzenMunaiGas had five landfills and Karazhanbasmunai had one with accumulated waste. These landfills were cleaned up and waste disposed of between 2016 and 2019. Mangistaumunaigaz had 10 landfills with oily waste. All landfills have been cleaned up and remediated by now, with land remediation completed on the last remaining landfill in 2020.

Currently, waste generated by OzenMunaiGaz, Mangistaumunaigaz, and Karazhanbasmunai is sent for disposal to specialist contractors without landfilling.

KazTransOil has been remediating disturbed soils along the Uzen–Atyrau–Samara pipeline, with 20.07 ha of land along the pipeline remediated over the past 10 years, and another 4 ha slated for remediation along the pipeline's second section (984–985 km) during 2021. A total of KZT 4.5 bln has been invested in the remediation of historically polluted land, with remediated lands returned to local executive authorities so that they can be put to use.

In 2019, a Memorandum of Cooperation was signed between the Ministry of Ecology, Geology, and Natural Resources and KMG, with waste disposal and oil contaminated soil remediation commitments until 2024 (inclusive) covering Mangistaumunaigaz, OzenMunaiGaz and Karazhanbasmunai. An inventory of contract lands was completed in 2019, identifying waste volumes and profiles and providing inputs for oil contaminated soil remediation projects, which were designed and obtained government approvals in 2020. Safe and effective oily waste disposal solution were selected and recommended, and oil contaminated land remediation schedules were developed as part of the projects.

Under the Memorandum, OzenMunaiGaz and Mangistaumunaigaz disposed of 558,419 tonnes of historical waste in 2020, with all activities under the Memorandum scheduled for completion by the end of 2024.

For more details, see KMG's Sustainability Report.



Asset retirement obligations

Oil and gas assets

Under the terms of certain contracts, in accordance with legislation and regulatory legal acts, KMG has legal obligations to dismantle and liquidate fixed assets and restore land plots at each of the fields. In particular, KMG's obligations include the gradual closure of all non-productive wells and actions to permanently terminate operations, such as dismantling pipelines, buildings and reclamation of the contract area, as well as decommissioning and environmental pollution obligations at the production site.

The Company calculates asset retirement obligations separately for each contract. The amount of the liability is the present value of the estimated costs that are expected to be required to settle the liability, adjusted for the expected inflation rate and discounted using average long-term risk-free interest rates on government debt of transition economies, adjusted for risks inherent in the Kazakhstan market.

As of December 31, 2020, the carrying amount of the Company's provision for liabilities to liquidate oil and gas assets was KZT 66 billion (December 31, 2019: KZT 54 billion) (details in the consolidated financial statements in Note 25).

Trunk oil and gas pipelines

In accordance with the Law of the Republic of Kazakhstan "On Trunk Pipeline", which entered into force on July 4, 2012, two subsidiaries of KMG, JSC "KazTransOil" and JSC "Intergas Central Asia", which is a subsidiary of JSC "KazTransGas", have a legal obligation to liquidate the main pipeline after the end of operation and the subsequent implementation of measures to restore the environment, including land reclamation. The provision for the obligation to abandon pipelines and land reclamation is estimated based on the cost of dismantling and reclamation works calculated by KMG. As of December 31, 2020, the carrying amount of the KMG Group's reserve for the obligation to abandon pipelines and land reclamation of the Company amounted to KZT 114 billion (as of December 31, 2019: KZT 100 billion).

For details, see the consolidated financial statements in Note 25



Environmental remediation

KMG also makes estimates and makes judgments on the formation of reserves for obligations for environmental cleanup and rehabilitation. Environmental costs are capitalized as an expense based on or attributable to their future economic benefits.

The Company's environmental remediation reserve represents management's best estimates based on an independent assessment of the expected costs required for the KMG Group to comply with the existing Kazakh and European regulatory frameworks. As of December 31, 2020, the carrying amount of the provision for environmental liabilities was KZT 65 billion (December 31, 2019: KZT 60 billion).

Details in the consolidated financial statements in Note 25



WATER PROTECTION

KMG's core business is concentrated in Central Asia, a region where water is a precious and scarce resource. We recognise our responsibility to society and the environment and are making every effort to ensure efficient use of water resources.

On 1 July 2019, KMG made an official commitment to contribute to water conservation efforts in Kazakhstan. At an HSE forum held for CEOs of KMG Group companies, Alik Aidarbayev, Chairman of KMG's Management Board, signed a personal Statement of Commitment to efficient water management (KMG's eight water-related principles). His initiative was backed up by the CEOs of KMG subsidiaries and associates, who signed similar statements of commitment on behalf of their respective companies. These signed statements have been made available on the official websites of KMG Group companies.

The statements set out KMG's key principles for water use, the eight water-related principles, structure the water management approach used