

Improved model contract

In 2023, to improve competitiveness and attract investment in geological exploration of complex projects, the Company introduced an improved model contract providing for fiscal and regulatory benefits. These measures seek to increase the profitability of exploration at fields with high geological risks, including:

- subsalt deposits with a salt thickness of over 100 m;
- non-structural traps and deep deposits (below 4,500 m);
- deposits with high hydrogen sulphide concentration (more than 3.5%) and abnormally high reservoir pressures;

- offshore projects in Kazakhstan's part of the Caspian Sea and the Aral Sea;
- gas fields with a minimum share of oil saturated part of reservoirs (less than 0.25%).

Thanks to the improved model contract, KMG signed profitable agreements for Kalamkas-Sea, Khazar, Auezov, Karaton Subsalt, Karazhar, Taisoigan, and East Urikhtau, which unlocked opportunities for further exploration and development of complex projects.

Plans for 2025

- Completion of drilling at Turgai Palaeozoic, Karaton Subsalt, and Karazhar
- Drilling extra wells at Taisoigan-1 and Taisoigan-2
- 3D seismic survey for 220 km² within Tsentralnoye
- Obtaining subsoil exploration licences and start of seismic survey at Shu-Sarysu, Bereke, and Shygys



OIL AND GAS PRODUCTION

Strategic goals

KMG seeks to achieve a sustainable increase in production with a focus on:

- 1

maintaining current production at operating assets
- 2

launching new fields
- 3

increasing gas production
- 4

expanding and extending production plateau at major oil and gas projects

Oil and gas condensate production

Oil and gas are produced by KMG's operating assets and major domestic projects (megaprojects) where KMG has non-operating interests.

The Company is well integrated into the global oil and gas ecosystem and cooperates with recognised global leaders, which enables us to introduce best practices, cutting-edge solutions and high standards to support the industry's sustainable growth.

- In 2024, oil and gas condensate production went up 1.3% to 23,837 thous. tonnes (490 thous. bbl per day):
- Ozenmunaigas grew its oil and gas production by 4.5% to 5,098 thous. tonnes and by 2.7% to 612 mln m³, respectively. At Embamunaigas, oil production went up 2.5% to 2,790 thous. tonnes, while gas output shrank by 5.5% to 205 mln m³. Mangistaumunaigaz increased its oil and gas production by 0.3% to 3,085 thous. tonnes and by 3.7% to 443 mln m³, respectively. An increase in production at these assets is due to fewer power outages by Mangistau Nuclear Power Plant year-on-year and additional well interventions to boost output.
  - Other assets increased production by 15.1% to 3,321 thous. tonnes mainly as a result of robust volumes at Dunga acquired in late 2023, and the launch of Rozhkovskoye (Ural Oil and Gas) in December 2023 along with new wells at Urikhtau. At the same time, production at mature Kumkol fields (Kazgermunai, PetroKazakhstan Inc.) continued to decline due to the natural depletion of reserves.
  - At Tengiz, oil production attributable to KMG went down 3.7% to 5,562 thous. tonnes (121 thous. bbl per day) largely on the back of plant overhauls.
  - At Kashagan, oil production attributable to KMG also declined by 7.2% to 2,885 thous. tonnes (62 thous. bbl per day) due to the scheduled overhaul

of a slag catcher in October 2024. At Karachaganak, oil and gas condensate production attributable to KMG went up by 1.0% to 1,097 thous. tonnes (24 thous. bbl per day) driven by the growth in raw gas reinjection.

Production assets

Operating assets	KMG's share, %
Ozenmunaigas, Embamunaigas, Kazakhturkmunay, Urikhtau Operating	100
Dunga	60
Mangistaumunaigaz, Karazhanbasmunai, Kazgermunai, Kazakhoil Aktobe, Ural Oil and Gas	50
PetroKazakhstan Inc.	33

Non-operating assets (megaprojects)	KMG's share, %
Tengiz	20
Kashagan	16.88
Karachaganak	10

Oil and gas condensate production, thous. tonnes

Indicator	2022	2023	2024
Oil and gas condensate production	22,012	23,532	23,837
Operating assets	13,761	13,559	14,294
Ozenmunaigas	5,096	4,877	5,098
Embamunaigas	2,581	2,722	2,790
Mangistaumunaigaz	3,049	3,075	3,085
Kazgermunai	651	594	521
Karazhanbasmunai	1,071	1,027	1,077
PetroKazakhstan Inc.	554	515	472
Kazakhoil Aktobe	281	253	238
Kazakhturkmunay	436	436	440
Urikhtau Operating	43	20	84
Dunga		40	378
Ural Oil and Gas		1	111
Megaprojects	8,251	9,973	9,544
Tengizchevroil	5,836	5,779	5,562
KMG Kashagan B.V. <sup>1</sup>	1,402	3,108	2,885
KMG Karachaganak	1,013	1,086	1,097

Oil and gas condensate production, thous. bbl per day

Indicator	2022	2023	2024
Oil and gas condensate production <sup>2</sup>	456	486	490
Operating assets	273	268	283
Megaprojects	168	217	207

<sup>1</sup> 16.88% – KMG’s interest after 15 September 2022.  
<sup>2</sup> Assuming indicative individual average weighted bbl/tonne conversion rates used for each asset

Parameters of KMG production assets

The quality of oil produced by KMG’s assets varies by region. The heaviest oil (bbl/tonne conversion rate of 6.68) is produced by Karazhanbasmunai while the lightest one (bbl/tonne conversion rate of 8.27) comes from Ural Oil and Gas.

Main quality indicators for crude oil are API gravity<sup>3</sup> and sulphur content. CPC Blend produced by KMG’s megaprojects has low sulphur content (0.56%) and high API gravity (45.3) ranking among top-quality grades across the globe.

Parameters of KMG production assets

Assets	Porosity	API gravity	Sulphur content, %	Number of fields	Average flow rate of new wells, tonnes / day	Average flow rate of current producing well stock, tonnes /day	Oil barrelisation ratio, bbl/ tonne
Ozenmunaigas	0.19	36.51	0.14	2	6.8	4.0	7.23
Embamunaigas	0.27	32.03	0.62	31	13.4	3.7	7.30
Karazhanbasmunai	7–35	19.81	1–2.5	1	2.317	2.09	6.68
Dunga	0.21–0.22	42.15	0.1	1	9.8	15.2	7.984
Kazgermunai	0.26	39.95	0.14	5	16.4	15.6	7.24
PetroKazakhstan Inc.	0.09–0.30	51.25	0.03–0.08	19	11–18.2	5.6	7.75
Mangistaumunaigaz	0.14	30.77	0.2	15	9.8	4.9	7.23
Kazakhoil Aktobe	0.085	38.89	1.12	2	–	13.6	7.52
Kazakhturkmunay	0.14	36.12	3.17	6	0	43.1	7.21
Urikhtau Operating	0.1	41.7	0.7	1	0	70.7	7.72
Ural Oil and Gas	6.7	55	0.11	1	290	–	8.27

Crude oil brand	API gravity	Sulphur content, %
CPC Blend (Kazakhstan, Novorossiysk)	45.3	0.56
West Texas Intermediate (USA, Cushing)	40.0	0.42
Arab Extra Light (Saudi Arabia)	39.4	1.09
Brent (UK)	37.5	0.40
Urals/KEBCO (Russia, Novorossiysk)	31.3	1.36

S&P Global Platts’ publicly available data.

<sup>3</sup> API gravity is a unit of measurement for the density of crude oil, developed by the American Petroleum Institute (API). API gravity values are used to determine the relative density of oil compared to water at the same temperature.

## Oil production at operating assets

KMG pays special attention to the effective management of mature fields accounting for the majority of the portfolio. Some 85% of total oil production at operating assets comes from seven key fields: Uzen and Karamandybas (Ozenmunaigas), Kalamkas and Zhetybai (Mangistaumunaigaz), S. Nurzhanov and East Moldabek (Embamunaigas), and Karazhanbasmunai.

### Priorities and initiatives

- KMG focuses on streamlining and improving the efficiency of oil production as one of its strategic priorities. Key focus areas:
- Energy security
  - Longer time between repairs
  - Optimised costs
  - Reclamation project at Ozenmunaigas
  - Investment projects at Embamunaigas
  - Upgrade of motor vehicles and special-purpose machinery
  - Automated production and digitalisation

### Dunga development project

#### Phases

- Phase 1 (2000–2012): 26 wells, including horizontal ones, producing up to 1,000 tonnes of oil per day are drilled.
- Phase 2 (2012–2019): 109 wells are added to the stock; oil, gas, and water treatment capacities are expanded to 2,200 tonnes of oil per day.
- Phase 3 (2019–present): infrastructure is expanded and the remaining wells are connected to the central oil gathering facility.

#### Current status (Dunga Phase 3)

Upgrade of the central oil gathering facility is underway to increase throughput from 17.5 to 20.6 thous. bbl per day and support the field’s operations through 2039.

#### Key results

- 61 wells are connected:
  - lines D, C (11 wells);
  - lines N, O (32 wells);
  - lines F–H (18 wells).
- An 8-inch seawater pipeline is built.
- An 8-inch export pipeline is designed, the construction will start in 2025.
- Oil, water, and gas treatment systems and auxiliary facilities are streamlined.
- A new gas compression unit, including the main compressor, will be fully installed in 1Q 2025.

**Progress:** 97 %

**Project cost:** USD 289 mln

### Project significance

Dunga Phase 3 is set to increase production, support field operations in the long run, and improve infrastructure.

### Production efficiency measures

#### Enhancing oil recovery and implementing new technologies

In 2023, KMG drafted roadmaps of technological bottlenecks to develop hard-to-recover reserves. Measures include leveraging new technologies for lab testing, piloting, and industrial use. In 2024, the Company approved standards for the feasibility study of technologies, introducing uniform approaches to selecting and adopting EOR methods.

With a view to streamlining technology implementation, the Testing Centre portal was launched in 2023 to process requests and perform pilot testing. The said measures seek to ensure stable oil and gas production.

#### Developing depleting fields

At mature fields, such as S. Balgimbaev, Botakhan, and Koshkar, where the watercut is high and reserves are depleted, the Company takes optimisation measures, including shut-in of wells with low flow rates and transfer to servicing.

#### Reclamation project at Uzen and Karamandybas fields

In 2023, the Company launched a large-scale project to reclaim the Uzen and Karamandybas fields. In 2024, the production target was 173 thous. tonnes. Key initiatives:

- drilling new production and injection wells;
- using conformance control techniques;
- upgrading the reservoir pressure maintenance system and infrastructure;
- introducing polymer flooding;
- continued transition of wells to employing electric submersible pumps (ESPs).

In 2025, the Company will continue to improve flooding systems and advance digitalisation.

#### Addressing power supply issues at KMG facilities

The reporting year saw significantly fewer emergency power outages caused by power generation and distribution organisations.

### The number of power outages and total oil losses

Subsidiaries and associates	2023 total		2024 total	
	Total number of outages	Total oil losses, thous. tonnes	Total number of outages	Total oil losses, thous. tonnes
Mangistaumunaigaz	87	97.1	8	0.5
Ozenmunaigas	86	294.1	11	0.4
Karazhanbasmunai	81	105.9	10	1.3
Embamunaigas	93	14.4	118	1.1
<b>Total</b>	<b>347</b>	<b>511.5</b>	<b>132</b>	<b>3.1</b>

### Constructing energy infrastructure and improving energy efficiency

#### Hybrid power plant in the Mangistau Region

In 2024, the Company and Eni started to build a 247 MW hybrid power plant to enhance local energy security and reduce dependence on external electricity supply.

#### Gas engine power plants

To meet the energy needs of Karazhanbasmunai and Mangistaumunaigaz, the Company is implementing projects to generate electricity from gas:

- Karazhanbas (Karazhanbasmunai): a 4.9 MW gas engine power plant, processing of gas (11.1 mln m<sup>3</sup> per year), launch in ten months after procurement in December 2024.
- Zhetybai (Mangistaumunaigaz): a 25 MW gas engine power plant, processing of gas (58.4 mln m<sup>3</sup> per year).
- Kalamkas (Mangistaumunaigaz): a 10 MW gas engine power plant, processing of gas (27.5 mln m<sup>3</sup> per year).

Projects for Zhetybai and Kalamkas will be completed before the end of 2025, with power plants to be leased by Mangistaumunaigaz for 15 years.

#### Improving well operability

To improve well operability at subsidiaries and associates, KMG takes the following steps:

- well interventions;
- well servicing: these steps help extend time between repairs as shown by positive changes in the reporting period.

In 2024, the total stock in operation was 17,914 wells, of which 13,830 wells were classified as current production well stock. Most of oil and condensate production comes from the current declining well stock.

Number of drilling rigs involved – 48.

### Number of wells at KMG-operated assets

Indicator	2022	2023 <sup>1</sup>	2024
New wells	523	513	517
Current declining well stock, including idle wells	12,696	13,142	13,313
	649	771	828
Injection wells	3,485	3,869	4,084
		341	379
<b>Total for KMG-operated assets</b>	<b>16,704</b>	<b>17,524</b>	<b>17,914</b>

<sup>1</sup> Starting in 2023, the amount of the rolling stock of wells includes the amount of new wells.



Lifting costs and netbacks (indicative estimates), USD per bbl

Company	Lifting costs	Netbacks	
		Exports	Domestic market
Ozenmunaigas	22.5	43	31
Embamunaigas	14.4	40	22
Mangistaumunaigaz	12.6	32	22
Kazgermunai	6.3	39	28
Kazakhturkmunay	8.8	40	11
Kazakhoil Aktobe	9.7	38	27
Karazhanbasmunai	21.6	39	24
Urikhtau Operating	7.4	65	-

Plans for 2025

Key initiatives seek to develop mature fields:

- drilling horizontal wells at Karsak, East Moldabek, Uzen, and others;
- introducing polymer flooding at Uzen and Kalamkas;
- applying conformance control techniques at key fields;
- using dual injection techniques at Akshabulak Central.

