

Improved model contract

In 2023, to improve competitiveness and attract additional investment in geological exploration of complex projects, as well as replenish hydrocarbon reserves, as instructed by the President of the Republic of Kazakhstan, the Government drafted amendments and modifications to relevant legislative acts (Code on Subsoil and Subsoil Use and Code on Taxes and Other Mandatory Payments to the National Budget, and other laws), providing for the introduction of a new mechanism – the improved model contract.

The resulting package of amendments related to the improved model contract includes a number of regulatory and fiscal preferences that help increase the profitability of exploration in complex projects:

- with high hydrogen sulphide concentration (3.5% or more);
- subsalt deposits with a salt thickness of at least 100 m;

- non-structural traps and deep deposits with the top at depths below 4,500 m;
- deposits with abnormally high reservoir pressures (anomaly ratio of 1.5 or more);
- new offshore projects (all exploration blocks or fields in Kazakhstan's part of the Caspian Sea and the Aral Sea);
- gas projects (gas or gas condensate fields where the share of oil saturated part of reservoirs is less than 0.25 in the total volume of hydrocarbons of all deposits of the field).

Thanks to improved model contract preferences, it became possible to obtain subsoil use contracts for the Kalamkas-Sea / Khazar / Auezov and Karaton Subsalt blocks on more favourable terms. Subsequently, it will be possible to explore and develop more complex projects with reliance on preferences of improved model contracts and better project economics.

Geography of KMG'S exploration projects



Upstream

KMG's key strategic objectives in terms of production are as follows:

- stabilisation of production at existing operating assets;
- commencement of production at new fields;
- gas production ramp-up;
- successful implementation of projects to expand and extend production plateau at major oil and gas projects.

Oil and gas are produced by KMG's operating assets and megaprojects where KMG has non-operating interests.

KMG participates in three major oil and condensate production projects in Kazakhstan, with interests of 20%, 16.88% and 10% in Tengiz, Kashagan, and Karachaganak, respectively.

The Company partners with the world's oil giants to deliver on its megaprojects. These include Chevron, ExxonMobil, Shell, Eni, Total, INPEX, CNPC, and LUKOIL.

Oil production

In 2023, KMG's total output was 23.5 mln tonnes or 486 thous. bbl per day, up 6.9% year-on-year. The share of operating projects and megaprojects in its total oil and condensate production was 58% (13.56 mln tonnes) and 42% (9.97 mln tonnes), respectively.

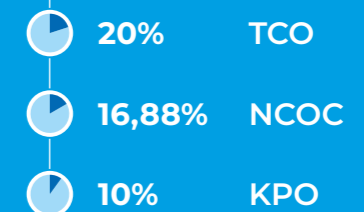
One of the main drivers behind a 6.9% increase in oil and condensate production in 2023 was a 121.8% production growth at Kashagan following the expansion of KMG's share in the project from 8.44% to 16.88%. The suspension of production in the summer of 2022 and completion of overhaul and repair works at the offshore and onshore facilities also supported the subsequent production growth in 2023. The reporting year also saw a 5.5% rise in production at Embamunaigas following the launch of operations at the eastern flank of the S. Nurzhanov and North Uaz fields, while also witnessing an increase in production at the Karachaganak field as a result of higher raw gas intake by Orenburg GPP. The increase in total production was offset by a decline at one of our operating assets, Ozenmunaigas, and some other fields mainly as a result of power outages and capacity limitations imposed by Mangistau Nuclear Power Plant (an external supplier) from July to October 2023, as well as a decline in production at mature fields.

Production assets¹

OPERATING ASSETS



NON-OPERATING ASSETS (MEGAPROJECTS)



¹ KMG's stake.

Oil and gas condensate production, thous. tonnes

Indicator	2021	2022	2023
Oil and gas condensate production	21,651	22,012	23,532
Operating assets	13,963	13,761	13,559
■ Ozenmunaigas	5,332	5,096	4,877
■ Embamunaigas	2,522	2,581	2,722
■ Mangistaumunaigaz	2,944	3,049	3,075
■ Kazgermunai	727	651	594
■ Karazhanbasmunai	1,048	1,071	1,027
■ PetroKazakhstan	600	554	515
■ Kazakhoil Aktobe	298	281	253
■ Kazakhturkmunay	434	436	436
■ Amangeldy Gas (KTG)	11	—	—
■ Urikhtau Operating	47	43	20
■ Dunga			40
■ Ural Oil and Gas			1
Megaprojects	7,688	8,251	9,973
■ Tengizchevroil	5,311	5,836	5,779
■ KMG Kashagan ¹	1,344	1,402	3,108
■ KMG Karachaganak	1,034	1,013	1,086

Oil and gas condensate production, thous. bbl per day

Indicator	2021	2022	2023
Oil and gas condensate production²	444	456	486
Operating assets	277	273	269
■ Ozenmunaigas	106	101	97
■ Embamunaigas	50	52	54
■ Mangistaumunaigaz	58	60	61
■ Kazgermunai	15	13	12
■ Karazhanbasmunai	19	20	19
■ PetroKazakhstan	16	12	11
■ Kazakhoil Aktobe	6	6	5
■ Kazakhturkmunay	9	9	9
■ Urikhtau Operating	1	1	0.4
■ Dunga			1
■ Ural Oil and Gas			0.03
Megaprojects	168	183	217
■ Tengizchevroil	116	128	126
■ KMG Kashagan	29	34	68
■ KMG Karachaganak	22	22	23

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
OMG	0.19	36.51	0.14	2	6.8	4.0	7.23
EMG	0.27	32.03	0.62	31	13.4	3.7	7.30
KBM	7–35	19.81	1–2.5	1	2.317	2.09	6.68
KGM	0.26	39.95	0.14	5	16.4	15.6	7.24
PKI	0.09–0.30	51.25	0.03–0.08	19	11–18.2	5.6	7.75
MMG	0.14	30.77	0.2	15	9.8	4.9	7.23
KOA	0.085	38.89	1.12	2	–	13.6	7.52
KTM	0.14	36.12	3.17	6	0	43.1	7.21
UO	0.1	41.7	0.7	1	0	70.7	7.72
UOG	6.7	55	0.11	1	290	–	8.27

The technical characteristics of KMG's oil differ from region to region. The heaviest oil is produced by Karazhanbasmunai (bbl/tonne conversion rate of 6.68), the lightest one – by PetroKazakhstan (bbl/tonne conversion rate of 7.75).

There are two main parameters of high-quality crude oil: high API gravity and low sulphur content. The sulphur content of the CPC Blend brand (KMG's main megaprojects) is 0.56%, API gravity – 45.3, which makes it one of the world's highest quality oils.

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.

¹ 16.88% – KMG's interest after 15 September 2022.

² Assuming indicative individual average weighted bbl/tonne conversion rates used for each asset.

Megaprojects

KMG develops world class projects through partnerships with international oil and gas companies.

Tengiz

The agreement on Tengizchevroil was signed between the Republic of Kazakhstan and Chevron Corporation on 2 April 1993, with a 40-year hydrocarbon exploration and production licence granted to Tengizchevroil in 1993. Tengizchevroil focuses on the exploration, production and sales of hydrocarbons from the Tengiz and Korolevskoye fields in the Atyrau Region.

The largest gem in Kazakhstan's oil and gas industry, a unique supergiant oil field.

Key indicators

Oil production in 2023 (total)

28,893 thous. tonnes
(632 thous. bbl per day)¹

2P oil reserves life

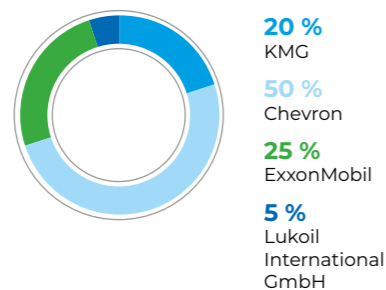
Over **20** years

Operator: Tengizchevroil

Oil production (attributable to KMG) (20%)

5,779 thous. tonnes
(126 ths bbl per day)¹

Interests



Associated gas production (total)

16.01 bln m³
Associated gas production (total), including gas consumed in own operations and gas reinjection

Outlook

As part of production capacity expansion, TCO is implementing the Future Growth Project (FGP) and the Wellhead Pressure Management Project (WPMP), which are designed to boost oil production from the Tengiz field by 12 mln tonnes per year

Tengizchevroil (TCO) operates a licence that includes the unique supergiant Tengiz field and the adjacent Korolevskoye field with significant reserves. The Tengiz oil field was discovered in 1979. It is one of the world's largest oil fields.

Currently, oil is produced and processed by highly reliable modern operating facilities, including complex technology lines (CTL), Second-Generation Plant (SGP) and sour gas injection unit (SGI).

In 2023, oil output declined by 1% year-on-year to 28,893 thous. tonnes (including KMG's share of 5,779 thous. tonnes), while gas output also went down by an insignificant 0.9% year-on-year to 16.01 bln m³ (including KMG's share of 3.2 bln m³). The decrease in production was caused by the suspension of oil intake by the CPC system during scheduled maintenance of the oil pipeline and temporary closure of the sea terminal in 4Q 2023 due to unfavourable weather conditions. The production of associated gas declined by 0.9% to 3,202 mln m³.

Progress on the Future Growth Project and the Wellhead Pressure Management Project

TCO is finishing the implementation of the Future Growth Project (FGP) and the Wellhead Pressure Management Project (WPMP), which are designed to boost oil production by 12 mln tonnes per year. By now, the mechanical works have been fully completed, with system preparation and pre-commissioning efforts currently underway.

In September 2023, TCO announced a projected increase in total project costs and shifting of the project completion dates. Key reasons behind the project's rescheduling are weak construction and pre-commissioning performance and a significant amount of unforeseen extra work (gap elimination).

Projected launch dates for the facilities are as follows: 2Q 2024 for the WPMP and 2Q 2025 for the FGP. The costs are estimated at USD 48.9 bln.

At the end of 2023, the total cost of FGP-WPMP was USD 45.6 bln, with the overall project progress at 99.3%.

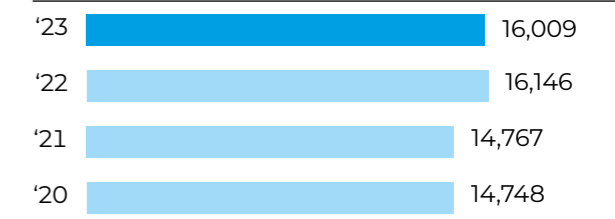
TCO has spent over USD 19 bln on the procurement of domestic products, works, and services since the start of FGP-WPMP.

Tengizchevroil's operational highlights

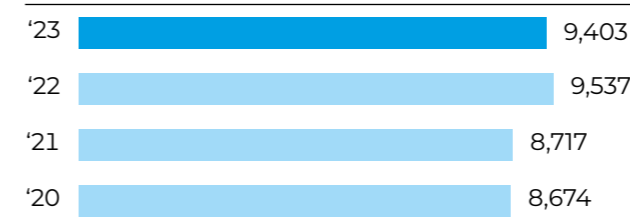
Oil production, thous. tonnes



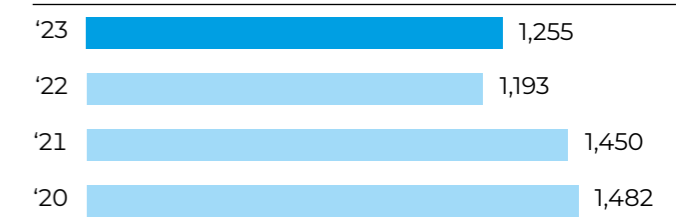
Associated gas production, mln m³



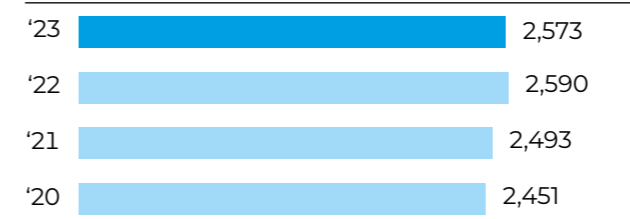
Dry gas production, mln m³



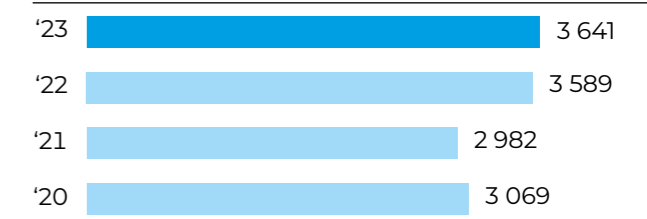
Liquefied petroleum gas (LPG) production, thous. tonnes



Sulphur production, thous. tonnes



Gas injection, mln m³



¹ 1 tonne = 7.98 bbl

Kashagan

The Production Sharing Agreement in respect of the North Caspian Sea (NCSPSA) was signed by the Republic of Kazakhstan and an international consortium in November 1997. North Caspian Operating Company is the project operator, acting on behalf of the project contractors.

The huge Kashagan field is the largest discovery in recent four decades. Kashagan is one of the most complex projects in the industry globally.

Key indicators

Oil and condensate production in 2023 (total)

18.8 mln tonnes
(408 thous. bbl per day)¹

2P oil and condensate reserves life

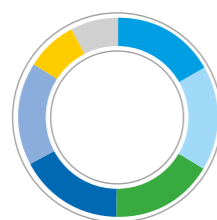
Over **97** years

Operator: North Caspian Operating Company

Oil and condensate production (attributable to KMG) (16.88%)

3.1 mln tonnes
(68 thous. bbl per day)

Interests



16.88 %
KMG Kashagan

16.81 %
Eni S.p.A.

16.81 %
ExxonMobil

16.81 %
Shell

Gas production (total)

11.9 bln m³

16.81 %
Total S.A.

8.33 %
CNPC

7.56 %
INPEX North Caspian Sea

The North Caspian project is the first major offshore oil and gas project in Kazakhstan. It includes three fields: Kashagan, Kairan, and Aktoty. The Kashagan South-West field is currently being returned to the government.

The Kashagan field lies in an offshore location 75 km from Atyrau, at water depths of 3 to 4 m. The field reservoir lies at a depth of over 4 km and is characterised by high pressures (over 700 bar) and high hydrogen sulphide (H₂S) concentration. At the same time, sour gas reinjection at high pressure improves oil recovery.

Kashagan is one of the most challenging industry projects globally due to harsh environmental conditions at sea and significant design, logistics, and safety challenges. Located in the subarctic climate, the North Caspian Sea is covered with ice for about five months a year, requiring innovative technical solutions. KMG, together with international partners, is successfully implementing the project, having achieved sustainable production rates with further growth potential.

The Kashagan field infrastructure comprises onshore and offshore facilities. Onshore facilities include the Bolashak Onshore Processing Facility (an integrated oil and gas treatment plant), while the offshore facilities comprise a range of manmade structures including an operations and process complex on Island D, Island A, and early production

islands EPC-2, EPC-3, and EPC-4. A total of 40 wells were drilled at the Kashagan field, including six injection wells, 33 production wells, and one monitoring well.

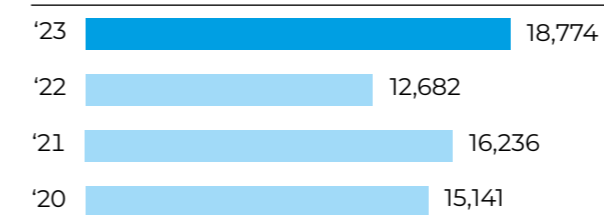
Currently, KMG (through Cooperative KazMunayGaz²) owns KMG Kashagan, which, in turn, has a 16.88% interest in the North Caspian project. As a result, KMG indirectly owns 16.88% of the project.

In 2023, oil production in the North Caspian project went up by 121.8% to 18.8 mln tonnes, while gas output increased by 123.8% to 11.9 bln m³. The spike in production came following the increase in KMG's share from 8.44% to 16.88% on 15 September 2022, but also thanks to stable production uninterrupted by any major accidents or setbacks as opposed to scheduled mid-year overhauls at the offshore and onshore facilities in 2022 and repairs after the discovery of a gas leak at the preliminary gas separation unit (slug catcher) in August 2022. Moreover, completion of the Package 1 project (upgrade of injection compressors) at the end of 2022 increased annual production to above 117 mln tonnes per year.

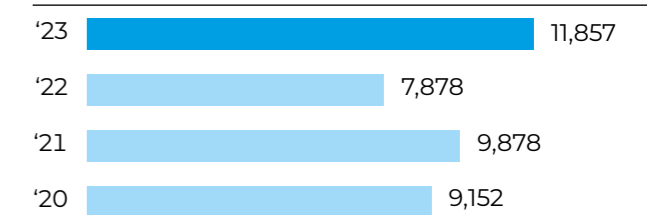
Under the terms of the PSA, all oil produced at the Kashagan field is exported, including KMG's share of the oil. The produced oil is mostly exported to Europe, East Asia and India via Novorossiysk, where the oil is delivered by the CPC pipeline.

NCOC's operational highlights

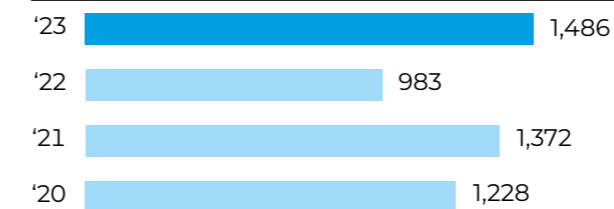
Oil production, thous. tonnes



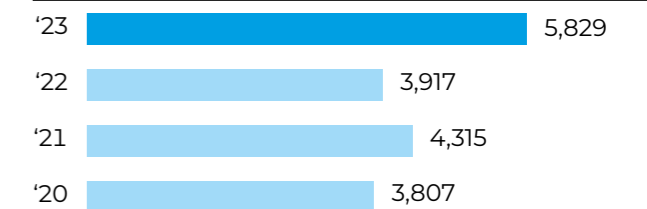
Natural and associated gas production, mln m³



Sulphur production, thous. tonnes



Gas injection, mln m³



² 1 tonne = 7.9272 bbl

³ A wholly-owned subsidiary of KMG, with the direct ownership of 99.7440256% and indirect ownership via KMG Kumkol of 0.2559744%.

Arbitration dispute

Pursuant to the Production Sharing Agreement in respect of the North Caspian Sea dated 18 November 1997 (NCSPSA), the Republic of Kazakhstan and the Contracting Companies have a dispute regarding the reimbursement of costs incurred by the Consortium (Contracting Companies). This dispute is subject to arbitration and/or expert settlement in accordance with the NCSPSA. An Arbitration Tribunal has been set up, with the schedule for hearings currently discussed. Once the schedule is approved, the parties will begin to exchange claims and objections.

The Contracting Companies believe that they are acting in accordance with the NCSPSA, the laws of the Republic of Kazakhstan, applicable standards, and best practices.

Environmental audits

The Environment Department of the Atyrau Region under the Committee for Environmental Regulation and Control of Kazakhstan's Ministry of Ecology, Geology and Natural Resources (the "Environment Department") inspected the onshore facilities of North Caspian Operating Company acting as the operator under the Production Sharing Agreement in respect of the NCSPSA (the "Operator"). Following the inspection, the Operator was served a prescription to rectify the identified breaches, including those regarding sulphur placement.

The Operator disagreed with the audit findings and filed an administrative lawsuit challenging the said prescription. On 14 June 2023, the Specialised Interdistrict Administrative Court of Astana ruled in favour of the Operator in the sulphur placement case. On 27 February 2024, after considering the appeal of the Environment Department, the Specialised Interdistrict Administrative Court of Astana ruled against the Operator. The ruling will be appealed to the Supreme Court. If the Operator is held liable for administrative offences, the amount of the fine will be determined in accordance with the Administrative Procedure Code of the Republic of Kazakhstan.

Projects in progress:

Supply of 1 bln m³ of raw gas per year to QazaqGaz gas processing plant

- The aim is to increase oil production at Kashagan to the projected level of 57 thous. tonnes per day (450 thous. bbl per day) by way of supplying raw gas to the gas processing plant of QazaqGaz.
- The increase in oil production over the remaining life of the PSA will amount to 18 mln tonnes (with ~3 mln tonnes attributable to KMG Kashagan).
- The overall progress of NCOC against the project is 72.5% (as compared to the target of 68%). The installation of the gas pipeline is currently underway.
- The manufacturing of pipeline materials is over, with the materials delivered to Kazakhstan. The installation of the gas pipeline is ongoing (with roughly 8 km completed so far). Manufacturing of the fiscal metering unit is over.
- The completion of the project is slated for 2Q 2026, with a delay on the side of QazaqGaz due to the rescheduling of the gas processing plant commissioning.
- The costs for NCOC amount to USD 160.3 mln.

New wastewater treatment unit:

- The project is not considered an investment project (that is to say it does not imply economic benefits) as it was initiated to ensure compliance with environmental standards and concentration limits for applicable pollutants.
- Concentrations of pollutant substances (H₂S, iron, oil, methanol, insoluble impurities) are within permissible limits.
- The overall progress against the project is 99.7% (as compared to the target of 100%). Drafting of the final report is underway.

- The units have been commissioned.
- The project completion report is expected in 1Q 2024.
- The project's cost is USD 216.6 mln.

Outlook for Kashagan

There is a need to build a new slug catcher to replace the temporary configuration of the existing one. The new slug catcher project is currently at the pre-FEED stage.

- The project aims to replace the existing temporary slug catcher unit with a new one boasting improved material characteristics (anti-corrosion layer) to ensure long-term production safety and reliability.
- The FID and award of the EPC contract are currently under planning.
- The FEED stage is completed. Materials with long lead times have been ordered, with the manufacturing ongoing.
- The preliminary replacement deadline is 4Q 2024.
- The budget is estimated at USD 307 mln.

Projects under consideration

Phase 2A

- Seeks to increase oil production at Kashagan to 63 thous. tonnes per day (500 thous. bbl per day) by supplying raw gas to the projected own gas processing plant with a capacity of 2.5 bln m³ per year.
- The increase in oil production over the remaining life of the PSA is estimated at 36 mln tonnes (with ~6 mln tonnes attributable to KMG Kashagan).
- The GPP construction project is currently at the pre-FEED stage.

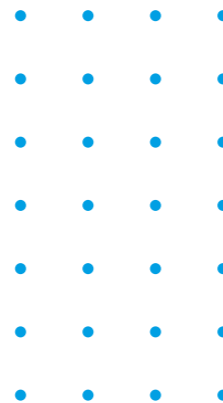
- According to the preliminary estimates, commissioning is expected in 2029–2030.
- Total cost is to be determined.

Phase 2B

- Seeks to increase oil production by 26.5 thous. tonnes per day (210 thous. bbl per day) to the total production of 89 thous. tonnes per day (710 thous. bbl per day) through extraction of 6 bln m³ of associated gas per year.
- The increase in oil production is yet to be determined due to implementation deadline uncertainties.
- Synergies with the the Tengiz field are under consideration. The Operator and KMG Kashagan have developed assumptions on input parameters to discuss them with the engineering contractor (TKJV).
- The Operator has completed a pre-FEED for the option implying the supply of raw gas to a third party plant. Due to uncertainties regarding the raw gas recipient, the FEED stage was postponed.
- The commissioning deadline and total costs are to be determined going forward.

Liquefied petroleum gas (LPG) marketing

The project seeks to commercialise LPG through its fractionation at a third-party plant for further propane and butane exports. Commercial evaluation of third-party bids for the construction of an LPG fractionation plant is in progress. It will be possible to make a FID on the project once its economic feasibility is confirmed and approved.



Karachaganak

The Final Production Sharing Agreement (FPSA) in respect of the Karachaganak oil and gas condensate project was signed by the Republic of Kazakhstan and an international consortium on 18 November 1997. Shell and Eni are the joint operators of the Karachaganak project (development via Karachaganak Petroleum Operating).

One of the world's largest gas and condensate fields.

Key indicators

Production of liquid hydrocarbons (stable)¹ (total)

10.9 mln tonnes
(234 thous. bbl per day)²

2P oil and condensate reserves life

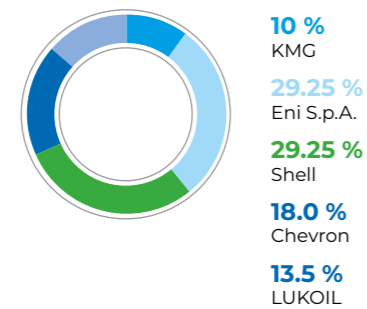
Over **23** years

Operator: Shell and Eni are the joint operators of the Karachaganak field (Karachaganak Petroleum Operating)

Production of liquid hydrocarbons (stable) (attributable to KMG) (10%)

1,086 thous. tonnes
(23 thous. bbl per day)

Interests, %



Gas production (total)

22.4 bln m³

Outlook

The implementation of investment projects to maintain the achieved liquid hydrocarbon production plateau levels

Karachaganak oil and condensate field is one of the largest oil and condensate fields in the world, located in the West Kazakhstan Region and covering an area of over 280 sq km. The field was discovered in 1979, with pilot development started in 1984.

The Karachaganak project has three core process facilities, comprising a single system of interrelated and interdependent process units within the production process:

- KPC – the Karachaganak Processing Complex, located in the northwestern part of the field and processing liquid hydrocarbons coming from wells as well as feedstock transported from Unit 2 and 3, while also partially preparing gas for export, injection, and internal production needs;
- Unit 2 – a gas treatment unit located in the southeastern part of the field, which separates and reinjects raw gas at high pressure and feeds liquid hydrocarbons to the KPC for stabilisation before shipment for export;
- Unit 3 – a gas treatment unit located in the northeastern part of the field, which separates and partially stabilises liquid hydrocarbons and gas before shipment for export.

In 2023, the field's operating well stock was 160 production wells and 20 injection wells.

In 2023, liquid hydrocarbon production from Karachaganak increased by 7.1% year-on-year to 10.858 thous. tonnes, including KMG's share of 1.086 thous. tonnes. Gas production grew by 15.1% year-on-year to 22.385 mln m³ in total, with KMG's share of 2.239 mln m³. Higher raw gas intake by Orenburg GPP had a positive impact on the operational results of the Karachaganak field in 2023, as it led to an increase in oil and condensate production. In 2022, Orenburg GPP reduced its intake of raw gas due to the scheduled preventive maintenance of its facilities.

Arbitration dispute

Pursuant to the Final Production Sharing Agreement (FPSA) in respect of the contracted plot at the Karachaganak oil and gas condensate field dated 18 November 1997, the Republic of Kazakhstan and the Contracting Companies have a number of disputes regarding the application of certain FPSA provisions that are subject to arbitration. The Contracting Companies believe that they are acting in accordance with the FPSA, the laws of the Republic of Kazakhstan, applicable standards, and best practices.

An Arbitration Tribunal has been set up. The schedule for hearings is currently being discussed. Once the schedule is approved, the parties will begin to exchange claims and objections.

Karachaganak Petroleum Operating B.V.'s operational highlights

Gas production, mln m³



Liquid hydrocarbon production, thous. tonnes



Gas injection, mln m³



Pursuant to the notification served on the Operator on 13 April 2023, KMG Karachaganak was fully excluded from the negotiation process due to a conflict of interests in accordance with the Joint Venture Agreement (JVA).

Outlook for Karachaganak

KEP1 A, 5th injection compressor:

The first stage of the Karachaganak Expansion Project (KEP1) focuses on the 5th injection compressor facility, including construction of the gas injection compressor and other related units. KEP1 A envisages the use of dehydration units installed as part of the KPC gas debottlenecking project at the Karachaganak Processing Complex to increase gas injection capacities, as well as integration of the facilities to be constructed as part of the project with the existing systems, utility

¹ A conversion factor of 0.9 is applied to total oil and condensate production to estimate stable liquid hydrocarbons.

² 1 tonne = 7.86 bbl

networks, and production units. This approach will unlock integration-driven synergies and reduce capital expenditures.

Construction, installation, and pre-commissioning are currently underway. No deviations or digressions from the target indicators have been identified.

As of 1 January 2023, actual costs amounted to USD 685.7 mln (as compared to the target of USD 638.9 mln). Progress against the Execute-stage scope of works is 93.33% (as compared to the P50 target of 94.4%). The commissioning is slated for 4Q 2024. The cost forecast for the project completion date is USD 809.6 mln.

KEPI B, 6th injection compressor:

The second stage of KEPI focuses on the 6th injection compressor facility, including the gas injection compressor, gas dehydration unit, expansion of the system for gathering well products, and other related units. The 5th and 6th injection compressors are designed to boost liquid hydrocarbon production by maximising the utilisation efficiency of the existing units.

Planned installation and construction works are ongoing.

As of 1 January 2023, actual costs amounted to USD 178.4 mln (as compared to the target of USD 162.8 mln). Progress against the Execute-stage scope of works is 35.3% (as compared to the P50 target of 12.9%). The commissioning is slated for 4Q 2026. The cost forecast for the project completion date is USD 585.8 mln.

Gas commercialisation:

The project aims to create economic value by:

- monetising the extracted gas and its derivatives (LPG);
- increasing condensate production;
- contributing to the energy independence of Kazakhstan.

The project envisages production of around 3.8 bln m³ of commercial gas per year, including 0.6 bln m³ per year in the form of purified gas for the production needs of Karachaganak Petroleum Operating. Approximately 3.2 bln m³ of commercial gas per year is expected to be transported via the existing Karachaganak–Uralsk pipeline to QazaqGaz, which will be responsible for its subsequent distribution.

The project is currently at the Selection stage of its lifecycle, with the FEED+EPC tender for GPP construction in progress. By the end of 2024, the following key tasks are planned to be addressed:

- ensuring economically viable project parameters that would be acceptable to the Partners;
- agreeing and finalising commercial agreements for gas sales;
- negotiating logistic routes and entering into commercial agreements with potential LPG buyers;
- introducing and approving amendments to the design documents (Field Development Project, Environmental Impact Assessment).

The preliminary construction cost estimate for a GPP with an annual capacity of 4.5 bln m³ is USD 3.2 bln. The commissioning is scheduled for 2028.

Oil production at operating assets

With a legacy of more than one hundred years in the oil and gas industry, KMG has a portfolio of producing assets that mainly consists of mature fields. In this regard, the Company's key priority is to improve production efficiency. The Company is committed to energy saving across operations while also maintaining a strong focus on continuous production process optimisations and improvements and driving higher oil recovery rates.

Today about 85% of total oil production at the Company's operating assets comes from seven key fields: Uzen and Karamandybas (Ozenmunaigas), Kalamkas and Zhetybai (Mangistaumunaigaz), S. Nurzhanov and East Moldabek (Embamunaigas), and Karazhanbas (Karazhanbasmunai).

Oil and condensate production across KMG's operating assets went down by 1.5% to 13,559 thous. tonnes (269 thous. bbl per day). Emergency power cuts and capacity limitations imposed by Mangistau Nuclear Power Plant in July–September 2023 had a significant impact on the performance of Ozenmunaigas and some other fields, leading to a decrease in production. There is also a natural production decline at some mature fields. That said, the decline was partly offset by oil production increases at Embamunaigas, which successfully completed well interventions at mature fields and launched operations at the eastern flank of the S. Nurzhanov and North Uaz fields.

Dunga

In November 2023, KMG completed the acquisition of a 100% stake in Total E&P Dunga (holder of subsoil use rights in the Dunga project) from TotalEnergies EP Danmark, a subsidiary of TotalEnergies, with KMG's interest in the Dunga project now standing at 60%. In accordance with the deal terms, it was decided to change the company's name to Dunga Operating.

The Dunga project is implemented under the Production Sharing Agreement dated 1 May 1994 (PSA) signed by Oman Oil Company and the Government of Kazakhstan.

Key indicators

- The Dunga field is located in the Mangistau Region 50 km away from the city of Aktau.
- Recoverable oil reserves include 24,662 thous. tonnes in the B+C1 category and 3,028 thous. tonnes in the C2 category.
- Recoverable gas reserves include 1,601 mln m³ in the C1 category and 1,039 mln m³ in the C2 category.

Production highlights

- In 2023, actual oil and condensate production came in at 546.9 thous. tonnes, with 39.9 thous. tonnes (including the share of KMG) produced since KMG joined the project on 20 November 2023. The volume of gas produced since KMG joined the project was 2,701 thous. m³ (including the share of KMG).

Development stages:

- Stage 1 (2000–2012): 26 wells.
- Stage 2 (2012–2015): +170 wells drilled, 109 wells started production.
- Stage 3 (2015–2024): extension of the surface infrastructure + start of production at the 61 remaining wells.

The key objective of Stage 3 is to enhance the field's potential and to extend the period of peak production.

Stage 3 envisages:

- connection of the 61 wells drilled in the Aptian deposits to 6 trunk pipelines;
- installation of new primary and fuel gas compressor packages;
- conversion of up to 45 injectors;
- replacement of the pipeline for seawater coming from SWIS (the Seawater Injection System) to increase capacity to 20,000 bbl per day;
- replacement of the export oil pipeline with an 8-inch pipeline;
- expansion of the utility and support systems.

Reclamation project at the Uzen and Karamandybas fields (Ozenmunaigas)

2023 saw the launch of a project to reclaim the Uzen and Karamandybas fields.

- Ozenmunaigas set up a project management team (PMT) comprising experienced production professionals from Ozenmunaigas and R&D experts from KMG Engineering.
- The first year of the project implementation was funded at the expense of KMG.
- On 26 February 2024, the Ministry of National Economy of Kazakhstan, as part of the Republican Budget Commission meeting, submitted a proposal for the Government of Kazakhstan to adopt a resolution On the Application of Preferential MET Rates to Ozenmunaigas in 2024–2036.

The project's objectives include:

- cumulative production increase of 19 mln tonnes in 2024–2036;
- annual reinvestment of capital released as a result of tax incentives into drilling new wells, applying new reservoir recovery enhancement technologies, and upgrading surface infrastructure at the Uzen and Karamandybas fields;
- keeping jobs for more than 10,000 people and increasing tax revenues for the state budget.

Progress against the reclamation project at the Uzen and Karamandybas fields (Ozenmunaigas) in 2023:

- 23 new production wells drilled;
- hydraulic fracturing completed at 15 wells;
- electric submersible pumps (ESP) from Kudu Industries Kazakhstan (a subsidiary of Schlumberger) installed in 83 wells, resulting in a production increase of over 100 tonnes per day;
- contracts signed with Weatherford Oilfield Services and Kudu Industries Kazakhstan for the supply of sucker-rod screw pumps in 2024;
- design and estimate documentation developed for the project to upgrade the underground equipment diagnostics and repair section.

Plans for 2024

The project has a comprehensive range of initiatives planned for 2024, with oil production expected at 135 thous. tonnes:

- drilling of 31 wells and well intervention activities;
- implementation of new technologies to enhance oil recovery (radial drilling, thermochemical and gas treatment of bottomhole zones, etc.);
- polymer flooding tests at one pilot site for increasing ultimate oil recovery rates;

- injection of volumetric polymer solutions into injection wells using the conformance control techniques to regulate the growing water cut;
- initiatives to increase the time between repairs for production wells (running ESPs into up to 200 wells, installation of tubing with protective coating and wear-resistant rods, installation of sucker-rod screw pumps);
- reconstruction of two modular cluster pumping stations and modernisation of surface infrastructure;
- initiatives to replace seawater used for process purposes and to maintain reservoir pressure with Albian-Cenomanian water (drilling of water supply wells, etc.).

There are plans to start using state-of-the-art geonavigation technologies in 2025 for drilling complex horizontal wells at a pilot site of the Uzen field.

Power supply issues at KMG facilities

Persistent emergency power outages caused by the power generation and distribution organisations lead to significant oil losses at the production facilities and, consequently, irrecoverable economic losses. In the reporting year, large-scale power outages and capacity limitations imposed by external suppliers – Mangistau Nuclear Power Plant and Mangistau Regional Electricity Network Company – had a significant negative impact on KMG's operations. Emergency power outages were the cause of equipment downtime at the sites of four oil producing KMG companies (Ozenmunaigas, Mangistaumunaigaz, Karazhanbasmunai, and Embamunaigas). In 2023, we saw an overall negative trend towards a higher number and larger scale of power outages, which cumulatively led to oil losses.

The majority of daily power outages and capacity limitations was recorded in the second half of the year, including:

- from 3 to 24 July;
- from 4 to 25 August;
- from 23 to 29 September;
- from 13 to 31 October.

2023 saw a total of 347 power cuts. The total number of idle wells exceeded 330 thousand, resulting in oil losses of over 511 thous. tonnes.

Subsidiaries and associates	Total	
	Total number of outages	Total oil losses, thous. tonnes
Mangistaumunaigaz	87	97.120
Ozenmunaigas	86	294.067
Karazhanbasmunai	81	105.897
Embamunaigas	93	14.438
Total	347	511.522

In order to ensure energy security and uninterrupted power supply to oilfield facilities, KMG's subsidiaries and associates are pursuing the following initiatives:

- construction of a hybrid power plant leveraging renewable energy sources (solar + wind) and gas-fired energy;
- implementation of the project titled "Strengthening the Power Grid in the Western Zone of the Unified Power System of Kazakhstan. Construction of Power Grid Facilities" to enhance the reliability of power supply to consumers in the western zone of KEGOC;
- allocation of KZT 4.9 bln by the Government of Kazakhstan to finance the refurbishment of Mangistau Nuclear Power Plant;
- commissioning of a backup gas turbine unit (GTU) from Siemens in line with the plan envisaging simultaneous operation of GTU 1 and GTU 2 (2x45 MW Gas Turbine Power Plant) at the Kalamkas field as a way to ensure emergency power supply to the Kalamkas and Zhetybai facilities.

Construction of a hybrid power plant in the Mangistau Region

On 1 June 2023, the joint Steering Committee of KMG and Eni approved the Project's feasibility study. Based on the feasibility study:

- a construction site for the Project was identified;
- a preliminary site layout was developed for the solar, wind, and gas-fired power plants;
- a land plot was reserved for the Project;
- the point of connection to the existing power grid was determined.

On 27 March 2023, the Project was included in the KMG investment portfolio and approved for further implementation by the Company's Investment Committee.

On 8 June 2023, KMG and Eni signed an Agreement on the Principles of Joint Project Implementation at a meeting attended by Kazakhstan's President Kassym-Jomart Tokayev.

In October 2023, the wind measurement campaign was completed. The FEED stage is over, with the preparation of the full FEED documentation package ongoing.

A Power Distribution Circuit (PDC) was developed for the Project. It is currently being approved by the System Operator (KEGOC). Following the approval, we expect to receive the terms of reference from Mangistau Regional Electricity Network Company.

KMG and Eni are jointly considering potential commercial options. There are legislative initiatives for designating power generation and power supply organisations (PGO/PSO) as balance providers for renewable energy and a single sales point for renewables with an ambition to expand the customer pool and roll out the Project to Mangistaumunaigaz and Karazhanbasmunai.

On 15 December 2023, the Investment Committee held a meeting to adopt KMG's Final Investment Decision (FID) on the Project.

The Project tenders are nearing completion. The plan is to set up two joint ventures and commence the Project in 1Q 2024.

Indicative commissioning schedule: solar power plant – 1Q 2025, wind power plant – 3Q 2025, gas-fired power plant – 3Q 2025. The Project is expected to reach full capacity in October 2025.

The hybrid power plant's capacity: solar power plant – 50 MW, wind power plant – 77 MW, gas-fired power plant – 120 MW.

Well stock

In 2023, the total well stock in operation was 17,540 wells, of which 13,160 wells were classified as the current declining well stock. Most of oil and condensate production comes from the current declining well stock.

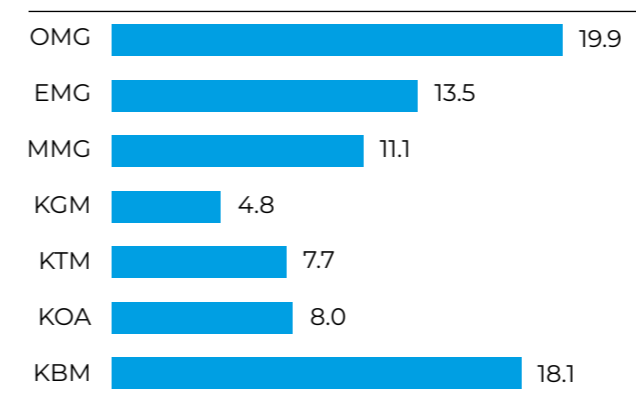
48

Number of drilling rigs involved

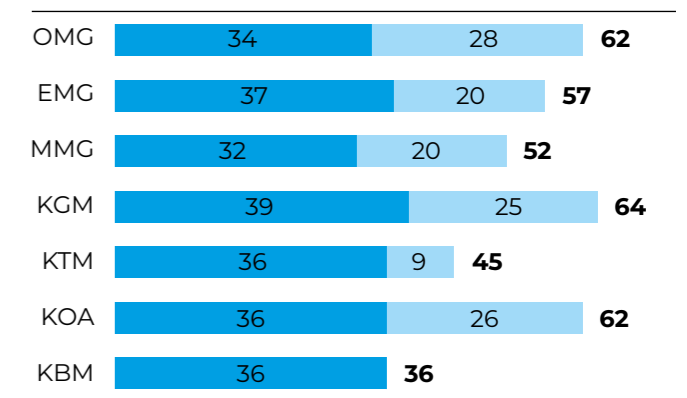
Number of wells at KMG-operated assets

Indicator	2021	2022	2023
New wells	475	523	575
Current declining well stock, including idle wells	11,206	12,696	13,160
	781	649	771
Injection wells	3,400	3,485	3,805
			341
Total for KMG-operated assets	15,081	16,704	17 540

Lifting costs (indicative estimates), USD per bbl



Netbacks (indicative estimates), USD per bbl



Exports
Domestic market

Gas production

Natural and associated gas production increased by 14.8% to 9,459 mln m³ in 2023. Operating assets produced 2,055 mln m³ (22% of the total), while 7,403 mln m³ (78%) came from megaprojects,

Gas production values are the actual volume of gas produced, including injected gas and own gas needs. Gas injection is used to maintain reservoir pressure, which is essential for sustaining high oil production rates.

Commercial gas production in 2023 was 5,130 mln m³, of which 1,711 mln m³ came from operating assets and 3,419 mln m³ from megaprojects. Year-on-year, KMG's commercial gas production increased by 601 mln m³, or 13% cumulatively.

Natural and associated gas production, mln m³

Indicator	2021	2022	2023
Natural and associated gas production by asset (attributable to KMG)	8,081	8,241	9,459
Operating assets	2,411	2,190	2,055
■ Ozenmunaigas	665	623	596
■ Embamunaigas	202	213	217
■ Mangistaumunaigaz	376	431	427
■ Kazgermunai	185	115	129
■ Karazhanbasmunai	31	33	33
■ PetroKazakhstan	125	127	112
■ Kazakhoil Aktobe	412	430	402
■ Kazakhturkmunay	167	197	127
■ Amangeldy Gas	224	-	-
■ Urikhtau Operating	24	21	9
■ Dunga			3
■ Ural Oil and Gas			2
Megaprojects	5,669	6,051	7,403
■ Tengizchevroil	2,953	3,229	3,202
■ KMG Kashagan	818	877	1,963
■ KMG Karachaganak	1,898	1,944	2,239

Commercial gas production from KMG-operated assets, mln m³

Indicator	2021	2022	2023
Ozenmunaigas + KazGPZ ¹	636	496	689
Mangistaumunaigaz (PD Zhetybaimunaigaz)	172	156	239
Kazgermunai	303	182	203
Kazakhoil Aktobe	383	374	338
Embamunaigas	145	164	171
Kazakhturkmunay	121	144	71
PetroKazakhstan	0	0	0
Total for operating assets	1,760	1,516	1,711

¹ Raw gas from Ozenmunaigas and Mangistaumunaigaz's PD Zhetybaimunaigaz is supplied to the KazGPZ plant.

Commercial gas production from megaprojects (attributable to KMG), mln m³

Indicator	2021	2022	2023
Tengiz	1,743	1,907	1,881
Karachaganak ²	818	745	881
Kashagan	304	263	657
Total for megaprojects	2,865	3,013	3,419

Kazakh Gas Processing Plant

Kazakh Gas Processing Plant (KazGPZ) produces commercial gas using feedstock supplied by KMG's other operating assets and subsoil users that do not produce commercial gas themselves.

KazGPZ is the first gas processing plant built in Kazakhstan and the only plant in the Mangistau Region. The first stage of the plant was commissioned in 1973, followed by the second stage in 1976, which brought the plant's gas processing capacity to 1.5 bln m³ per year. The assembly and commissioning of all process units envisaged by the project were completed in 1980. The sulphur removal unit and the 95% ethane fraction production unit were constructed in 1978–1979.

In 2022, the project "Construction of a Compressor Unit at the Compressor Shop of KazGPZ" helped replace outdated and technically worn-out gas-powered compressors with new modern Ariel KBK4 reciprocating compressors driven by Waukesha L7044GSI S5 gas engines for the intake of associated petroleum and natural gas. The construction project boosted the volume of processed raw gas and increased the output of finished products.

KazGPZ receives and processes associated petroleum and natural gas from the fields of Ozenmunaigas, Mangistaumunaigaz, Tasbulat Oil Corporation, and Tenge Oil and Gas, while also processing gas condensate from

the gas condensate fields of Ozenmunaigas and natural gas liquids from the fields of Karakudukmunai and Ken-Sary by purchasing relevant feedstock from the above subsoil users.

Today, KazGPZ plays an important role in the industrial agglomeration of the Mangistau Region by providing the region's inhabitants and production facilities with liquefied gas, commercial dry gas, and household heating oil.

Construction of a new gas processing plant in Zhanaozen

The construction of a gas processing plant in Zhanaozen aims to fully replace the existing gas processing plant commissioned in 1973. The new plant will process associated petroleum and natural gas coming from the fields of the Mangistau Region to provide the region's inhabitants and production facilities with industrial and socially significant gas processing products such as liquefied petroleum gas, dry (commercial) gas, and pentane-hexane fraction.

The planned installed capacity is 900 mln m³ per year for associated petroleum and natural gas, whereas the nominal intake capacities for natural gas liquids and gas condensate are 40 thous. tonnes and 5 thous. tonnes per year, respectively. The commissioning is expected in 2026.

² Raw gas supplies to the Orenburg Gas Processing Plant.



Development of the gas segment

On 1 September 2023, the President of Kazakhstan in his address to the nation urged relevant stakeholders to ramp up the construction of new gas processing plants, fully utilise existing processing capacities, and attract investments in the exploration and development of new gas fields.

Gasification of the country and domestic gas consumption growth over the past few years have been among key drivers behind economic expansion, which emphasises the need to keep increasing the availability of gas resources. Considering this, enhancing gas availability is currently a top priority for KMG, which is why the Company created a new business unit responsible for gas projects.

The Company has outlined key parameters of its Gas Strategy (KMG's Gas Strategy) with respect to the existing associated and natural gas producing fields, as well as new oil and gas, gas, and gas condensate fields. Those include:

- as-is analysis of technical and economic parameters in the gas production, transportation, and processing operations of the Company's subsidiaries and associates;
- gas savings and energy efficiency improvements;

- gas production increases and higher output of finished products (commercial gas, liquefied petroleum gas);
- promising areas for gas monetisation (manufacturing of products with high added value).

The development of KMG's Gas Strategy requires detailed consideration of each key parameter to determine measures that need to be taken to improve technical, production, and economic performance.

Additionally, the Company will consider proposals on further processing of gas into products with high added value.

Launch of production at new gas fields

On 10 May 2023, Kazgermunai, a subsidiary of KMG, began supplying gas from the South Aksay field to consumers in the Kyzylorda Region. The production and supply of commercial gas by Kazgermunai is expected to increase from the current 200 mln m³ to 300 mln m³ per year. The field is being developed by Kazgermunai, a 50% subsidiary of KMG.

On 4 December 2023, Urikhtau Operating, a 100% subsidiary of KMG, put the East Urikhtau field into commercial operation. This was the first project in Kazakhstan where the improved model contract was applied. In 2023, oil and gas production amounted to 19.7 thous. tonnes and 9.2 mln m³, respectively. VU-5 and VU-6 wells are expected to be completed and put into operation by September 2024.

On 21 December 2023, Ural Oil and Gas, a 50% subsidiary of KMG, successfully put the Rozhkovskoye gas condensate field in the West Kazakhstan Region into commercial operation. In 2023, gas and condensate production attributable to KMG (50%) amounted to 1.6 mln m³ and 1.2 thous. tonnes, respectively.

Once the field reaches peak production, the annual output of gas, condensate, and liquefied petroleum gas will be around 1 bln m³, over 500 thous. tonnes and more than 150 thous. tonnes, respectively. The extracted raw gas will be transported to the gas processing facilities of Zhaimkunai, and the resulting marketable gas will be supplied to domestic market consumers.

The development project of the Rozhkovskoye field is divided into two phases.

Phase 1 (A, B) involves the launch of five wells (U-10, U-12, U-21, U-23, and U-26), while Phase 2 envisages the launch of four suspended wells.

Phase 1 (A, B) progress: U-21 well has been put into operation. Phase 1 (B) progress: the sequential development of the remaining four wells (on a rolling progress basis) is expected by 3Q 2024, with approximate dates as follows:

1. 1) U-10 well by 10 June 2024
2. 2) U-12 well by 12 June 2024
3. 3) U-23 well by 20 July 2024
4. 4) U-26 well by 19 August 2024

A detailed schedule has been drafted for the Phase 2 development and launch of four suspended wells, with the start of operations expected in 2027.