

## RESERVES

According to the reserves audit report prepared by the international independent consulting firm DeGolyer and MacNaughton in accordance with the PRMS international standard, KMG's proved plus probable hydrocarbon reserves (2P)

were 645 mln toe (4,983 mln boe) as at 31 December 2021. 2P reserves increased by 1.8% year-on-year. The increase is mainly attributable to comprehensive initiatives in hydrocarbon reserves management, including recalculation of hydrocarbon

reserves at the Uzen, Kashagan and other fields, as well as positive macroeconomic changes (higher oil price).

The proved reserves (1P) life is 16.5 years, far exceeding the average for global oil majors (about 11 years).

### Net reserves<sup>1</sup> under PRMS (as at 31 December 2021)

Hydrocarbon reserves, mln boe

Proved (1P)

2021	3,694
2020	3,550
2019	3,860

Proved plus Probable (2P)

2021	4,983
2020	4,894
2019	5,220

Proved plus Probable plus Possible (3P)

2021	5,869
2020	5,832
2019	6,089

Hydrocarbon reserves, mln toe

Proved (1P)

2021	477
2020	459
2019	499

Proved plus Probable (2P)

2021	645
2020	635
2019	676

Proved plus Probable plus Possible (3P)

2021	761
2020	757
2019	790

## EXPLORATION

KMG pursues its previously developed strategy for exploration and reserve growth.

Exploration costs totalled KZT 20.7 bln (excluding shares) in 2021, up KZT 2.7 bln year-on-year. The cost growth was mostly driven by CAPEX for developing new promising fields, maintaining the current production level and replenishing reserves in the medium term.

### Reserve replacement

through organic and inorganic growth

- Exploration at current contract areas
- Further exploration of producing assets
- Prospect evaluation and acquisition

### Finding strategic partners

for joint exploration projects

- Attraction of foreign investments
- Knowledge and technology transfer
- Risk optimisation

### Improvement

of exploration performance

- Improvement of available technologies and deployment of new technologies
- Process digitalisation
- Implementation of a project management system in exploration

<sup>1</sup> Net Reserves are defined as the portion of gross reserves attributable to (1) the interest held by KMG after deducting all interests held by others, and (2) interests that are not held, but controlled by KMG.



## 2021 highlights

- The drilling and development of appraisal well No. 8 following a 3D high-resolution seismic survey at the East Zhetybay field produced 38 tonnes per day in a gushing flow of Jurassic oil. The presence of oil was proved for the field's western block, which had not been developed previously.
- The drilling and development of appraisal well No. 42 following a 3D high-resolution seismic survey at the South Zhetybay field produced 36 tonnes per day in a flow of Jurassic oil. The presence of oil was proved in a previously unexplored horizon.
- The drilling and development of three appraisal wells following a 3D high-resolution seismic survey on edges of the Kalamkas field produced 30 tonnes per day in a flow of Jurassic oil. We found horizons

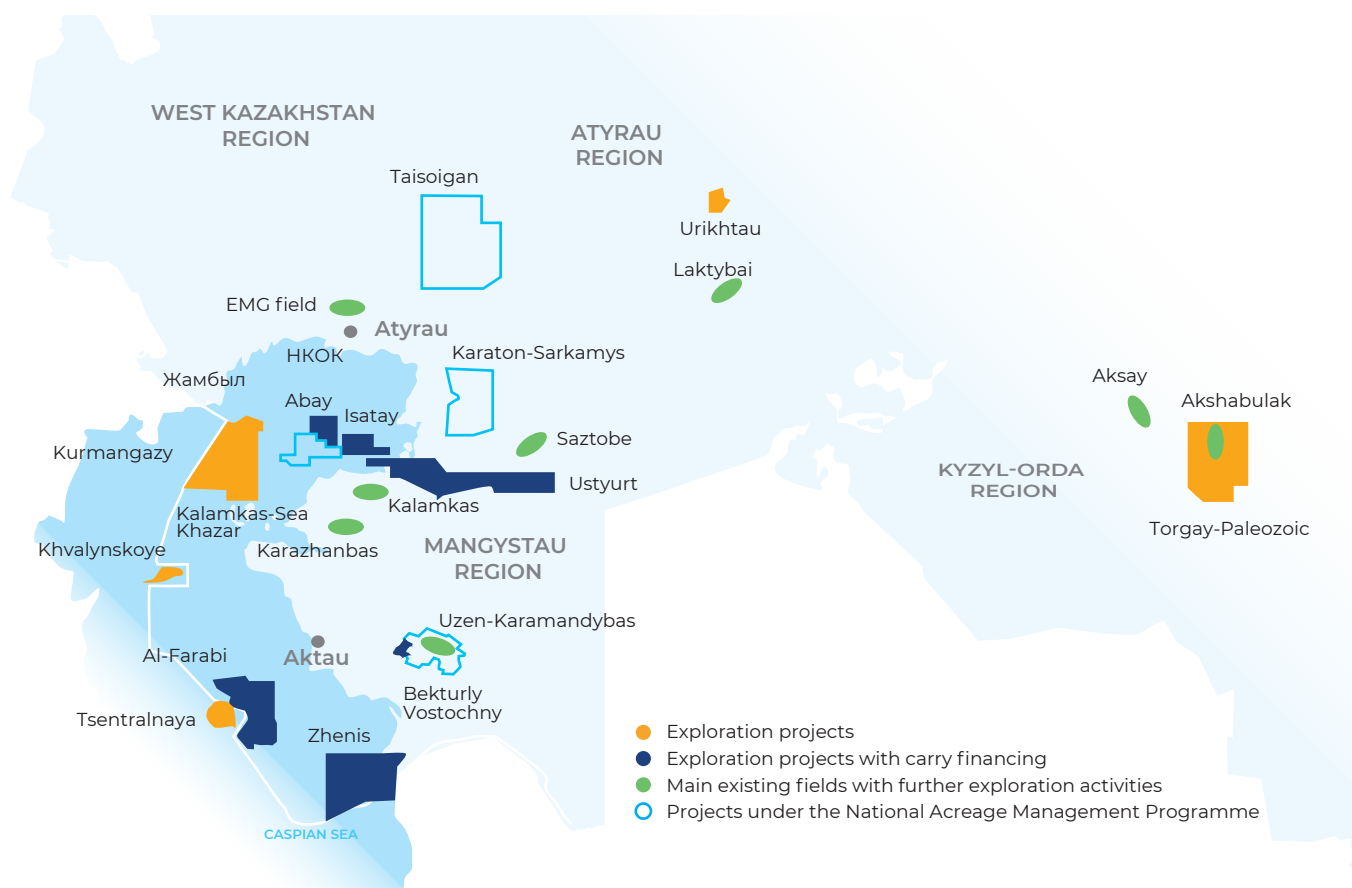
that had been previously missed and obtained more exact information on the structure of productive horizons in the edge areas.

- Following surveys, the location of the first offshore exploration well on the Zhenis site was adjusted and approved with drilling scheduled for 2022.
- In late December 2021, the Company started drilling an exploration well on the Bekturly Vostochny block.
- As part of the search for new exploration and follow-up exploration areas jointly with KMG International, we identified ten prospective targets for development in the short and long term.
- New oil deposits were found during further exploration at Uzen in the Mangystau Region. As a result, the recoverable reserves grew by 39.9 mln tonnes.

## New exploration projects

In 2021, two greenfields (Al-Farabi and Turgai Palaeozoic) were assigned to the Company on the government's list for the National Acreage Management Programme. Three more projects – Karaton-Sarkamys, Taisoigan, and Uzen-Karamandybas – are expected to be included in the Programme's list soon.

A new project involving the exploration of Palaeozoic deposits in the South Turgai basin is based on a comprehensive approach using basin modelling and changes in the conventional concept of the region's subsurface geology. As of today, the Turgai Palaeozoic project has been approved by KMG's Investment Committee



and the exploration well drilling programme has been submitted for corporate approval.

The Company seeks to attract strategic partners for joint exploration of Uzen-Karamandybas, Taisoigan, and Karaton-Sarkamys.

As part of a virtual data room, we conduct joint studies of sedimentary basins, attract partners for joint exploration and development of the existing assets, and for contributing to the National Acreage Management Programme. Over ten data rooms were held for potential partners: potential collaborations are being negotiated with PJSC Tatneft, CNPC, CJSC Zarubezhneft, etc. We continue our cooperation with PJSC LUKOIL under a joint exploration agreement.

## Deploying new technologies, optimising exploration, and improving performance

Since 2017, we have been successfully deploying the high-resolution 3D seismic survey technology at major fields (Kalamkas, Uzen, Zhetybai) and other fields such as Asar, Burmasha, South Zhetybai, East Zhetybai, etc. Such surveys helped

identify new targets, which had been previously considered of little promise, and succeed in drilling appraisal wells in the fields' edge areas.

To address geological issues at the existing assets, we plan to employ the latest global geophysical solutions for 2D and 3D seismic data processing (3D Multiple, SWIM, FWI, etc.). Implementation of seismic data interpretation technologies (ResOP, forecasts powered by neural networks, inversion analysis of seismic data) is also underway.

Exploration	2019	2020	2021
2D seismic, linear km	240	–	1,099
3D seismic, sq km	6,928	347	2,982
Number of wells drilled	39	19	15



## Expansion of partnership projects

### Al-Farabi

Subsoil user under the contract is Al-Farabi Operating LLP with the following ownership structure:

- JSC NC KazMunayGas – 50.01% in the authorised capital of Al-Farabi Operating LLP;
- PJSC LUKOIL – 49.99% in the authorised capital of Al-Farabi Operating LLP.

During the period stretching from the commencement of exploration until approval of the field development project, the funding is provided by PJSC LUKOIL covering 100% of project costs on the basis of carry-financing under the Financing Agreement dated 11 November 2021 between JSC NC KazMunayGas and Eni Isatay B.V.

### Zhenis project

with the following participants:

- JSC NC KazMunayGas – 50% of subsoil use rights;
- LUKOIL Kazakhstan Upstream LLP – 50% of subsoil use rights.

The project operator is Zhenis Operating LLP.

During the period of exploration, the funding is provided by LUKOIL Kazakhstan Upstream LLP covering 100% of project costs on the basis of carry-financing under the Financing Agreement between JSC NC KazMunayGas and LUKOIL Kazakhstan Upstream LLP.

### Isatay project

with the following participants:

- JSC NC KazMunayGas – 50% of subsoil use rights;
- Eni Isatay B.V. – 50% of subsoil use rights.

The project operator is Isatay Operating Company LLP.

During the period of exploration, the funding is provided by Eni Isatay B.V. covering 100% of project costs on the basis of carry-financing under the Financing Agreement between JSC NC KazMunayGas and Eni Isatay B.V.

### Abay project

with the following participants:

- JSC NC KazMunayGas – 50% of subsoil use rights;
- Eni Isatay B.V. – 50% of subsoil use rights.

The project operator is Isatay Operating Company LLP.

During the period stretching from the commencement of exploration until approval of the field development project, the funding is provided by Eni Isatay B.V. covering 100% of project costs on the basis of carry-financing under the Financing Agreement between JSC NC KazMunayGas and Eni Isatay B.V.

### Bekturly Vostochny project

with the following participants:

- JSC NC KazMunayGas – 50% of subsoil use rights;
- Kokel Munay LLP – 50% of subsoil use rights.

The project operator is Bekturly Energy Operating LLP.

During the period of exploration, the funding is provided by Kokel Munay LLP covering 100% of project costs on the basis of carry-financing.

### Turgai project

with the following participants:

- JSC NC KazMunayGas – 100%.

Currently, the Turgai project is implemented by KMG at its own expense.

### Khvalysnkoye project

with the following participants:

In 2005, authorised entities from Kazakhstan and Russia, JSC NC KazMunayGas and PJSC LUKOIL respectively, established a 50/50 joint venture, Caspian Oil and Gas Company, which will be the authorised subsoil user under the Khvalysnkoye project once the Production Sharing Agreement is executed.

The project funding is provided by JSC NC KazMunayGas and PJSC LUKOIL in the form of loans at an interest on a parity basis.

### Tsentralnaya project

with the following participants:

- JSC NC KazMunayGas – 50%;
- TsentrCaspneftegaz LLC (a 50/50 joint venture of PJSC LUKOIL and PJSC Gazprom) – 50%.

The operator and subsoil user is Central Oil and Gas Company LLC incorporated in the Russian Federation.

During the period of exploration, the funding is provided by TsentrCaspneftegaz LLC covering 100% of project costs on the basis of carry-financing.

### Kurmangazy project

with the following participants:

- JSC MNC KazMunayTeniz – 50% share in the PSA;
- RN-Exploration LLC (wholly-owned subsidiary of Rosneft) – 50% share in the PSA.

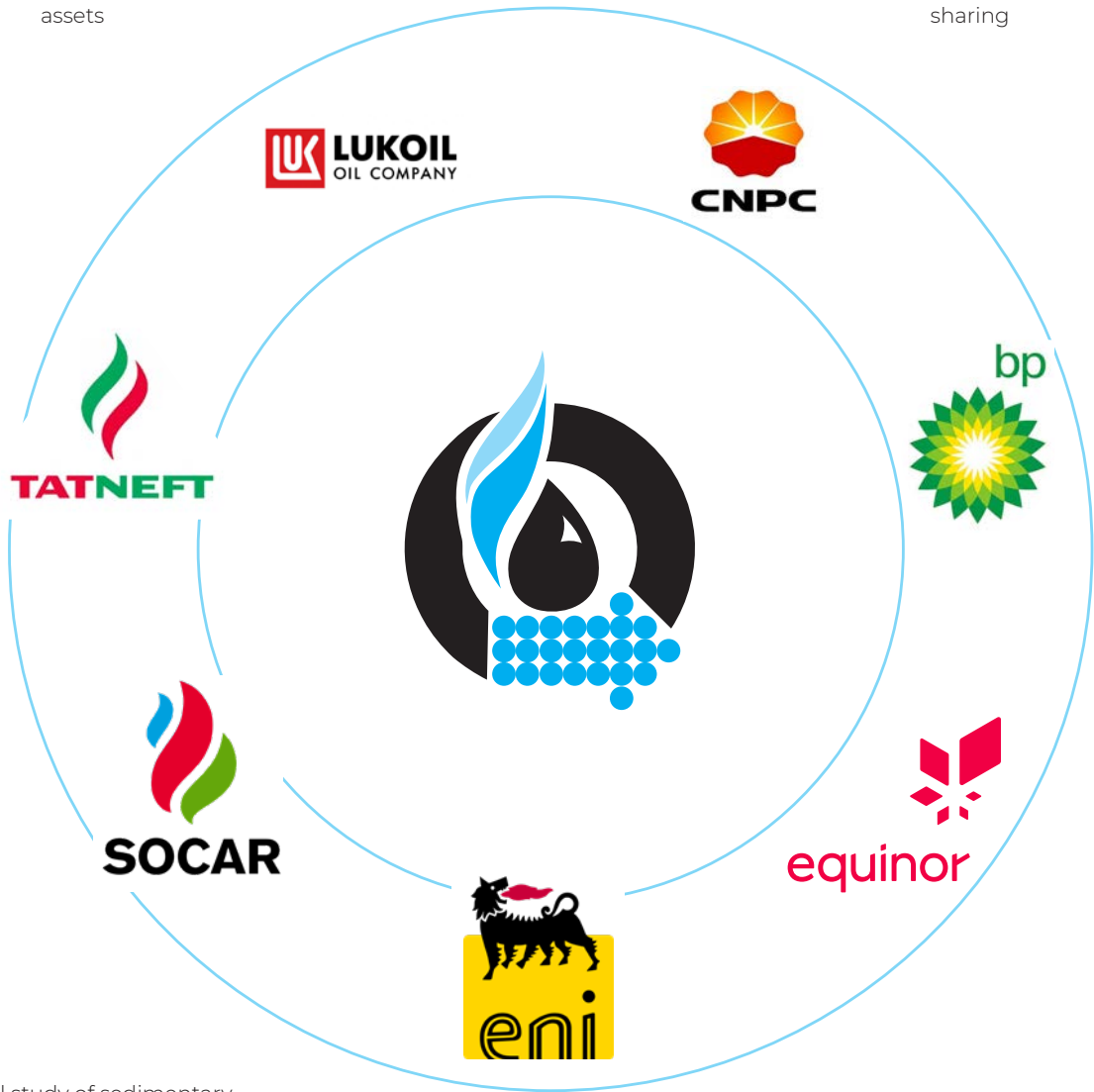
The project operator is Kurmangazy Petroleum LLP, a wholly-owned subsidiary of JSC NC KazMunayGas.

The project funding is provided by JSC NC KazMunayGas and RN-Exploration LLC on a parity basis – 50% of costs each.

R&D COOPERATION WITH INTERNATIONAL PLAYERS

Joint evaluation of exploration assets

Knowledge and technology sharing



Regional study of sedimentary basins

Multiple MOUs signed