

DOWNSTREAM

KMG's 2022–2031 Development Strategy sets the following goals in the downstream segment:

- improving the refining depth at Kazakhstan refineries to at least 89%;
- increasing the output of high-margin petrochemicals at Kazakhstan refineries;

- ramping up vertical integration at KMG International by adding more filling stations across its footprint to boost margins.

Oil and condensate marketing

Sales of KMG-produced oil and condensate, thous. tonnes

Assets	Operating assets ¹	including subsidiaries and associates ²	Megaprojects ³	Total
2022				
Exports	5,472	3,173	8,240	13,712
Domestic market	8,412	4,907	3	8,415
Total	13,884	8,080	8,243	22,126
2023				
Exports	5,406	2,955	9,978	15,384
Domestic market	8,302	4,980	9	8,311
Total	13,708	7,935	9,987	23,695
2024				
Exports	5,884	3,169	9,616	15,500
Domestic market	8,518	5,224	1,04	8,519
Total	14,402	10,131	9,617	24,019

Oil and condensate exports

Year-on-year Brent prices showed negative growth in the reporting period primarily due to oil prices remaining below USD 80 per bbl in 4Q 2024 amidst the ongoing geopolitical and economic challenges.

In 2024, the average KEBCO⁴ price declined by 1.2% or USD 1.01 per bbl year-on-year, coming in at USD 80.73 per bbl. The market difference between KEBCO⁴ (Platts) and premium Brent demonstrated volatility throughout 2024, shifting from positive to negative values. However, the annual average difference turned out to be negligible by the year-end.

Oil and condensate sales to domestic buyers

Pursuant to the President's commission and further commissions from the Government of the Republic of Kazakhstan, KMG continues to introduce the

combined scheme at its refineries, taking into account the amendments being made to the Law of the Republic of Kazakhstan On State Regulation of Production and Sales of Certain Oil Products with respect to oil supplies to local refineries.

The combined scheme and amendments mentioned above provide for a subsoil user's affiliate to be recognised as an oil supplier subject to at least one of the following conditions:

- the oil supplier owns at least 50% of shares in the subsoil user;
- the subsoil user owns at least 50% of shares in the oil supplier;
- the oil supplier and subsoil user are controlled by one or more persons owning, directly or indirectly, a total of at least 50% of shares in the oil supplier and subsoil user.

Ozenmunaigas, Embamunaigas, Kazakhturkmunay and Urikhtau Operating supply Atyrau, Pavlodar and Shymkent refineries with KMG's own crude oil, and

the resulting refined products are subsequently sold wholesale domestically or for export.

In 2024, sales of own oil and gas condensate to meet domestic demand amounted to 8,519 thous. tonnes, including 5,224 thous. tonnes of crude oil supplied from operating assets (Ozenmunaigas, Embamunaigas, Kazakhturkmunay, Urikhtau Operating) to Atyrau, Pavlodar and Shymkent refineries for further refining and oil product sales.

KMG refining assets

Within KMG's asset mix, four refineries in Kazakhstan and two in Romania are responsible for processing liquid hydrocarbons (primarily oil).

Total hydrocarbon refining volumes declined by 2.2% year-on-year to 19,158 thous. tonnes.

KMG refineries

Indicator	Kazakhstan refineries				Romania refineries	
	Atyrau Refinery	Pavlodar Refinery	Shymkent Refinery	Caspi Bitum	Petromidia Refinery	Vega Refinery
Location	Atyrau	Pavlodar	Shymkent	Aktau	Năvodari	Ploiești
Commissioning date	1945	1978	1985	2013	1979	1905
Design refining capacity, mln tonnes	5.5	6.0	6.0	1.0	6.0 ⁵	0.5
Refinery utilisation rate in 2024, %	99	91	95	85	84 ⁶	75
KMG interest, %	99.53	100	49.72	50	54.6	54.6
Nelson Index	13.9	10.5	8.2	–	10.5	–
Refinery co-owners	–	–	CNPC	CITIC	Romanian Government	Romanian Government

Consolidated hydrocarbon refining volumes	2022	2023	2024
Kazakhstan refineries			
Atyrau Refinery	5,224	5,475	5,547
Pavlodar Refinery	5,480	5,434	5,500
Shymkent Refinery (50%)	3,103	2,870	2,872
Caspi Bitum (50%)	461	427	327
Total for Kazakhstan refineries	14,269	14,206	14,246
Romania refineries			
Petromidia Refinery	5,258	5,012	4,619
Vega Refinery	373	374	293
Total for Romania refineries	5,631	5,387	4,912
Total	19,900	19,593	19,158

¹ Ozenmunaigas, Embamunaigas, Karazhanbasmunai, Kazgermunai, PetroKazakhstan Inc., Kazakhturkmunay, Kazakhoil Aktobe, Mangistaumunaigaz, Urikhtau Operating, Dunga, Ural Oil and Gas.

² Ozenmunaigas, Embamunaigas, Kazakhturkmunay, Urikhtau Operating.

³ KMG Kashagan, KMG Karachaganak, Tengizchevroil.

⁴ Kazakhstan Export Blend Crude Oil.

⁵ Design capacity includes refining 5 mln tonnes of crude oil and 1 mln tonnes of other hydrocarbons per year.

⁶ Petromidia Refinery utilisation rate is 97.5% based on Solomon Associates' methodology.

Oil product output at Kazakhstan and Romania refineries decreased by 1.5% to 17,894 thous. tonnes.

- Kazakhstan refineries manufactured 13,085 thous. tonnes of oil products (up 1.0% year-on-year) due to enhanced performance of production units.
- KMG International's refineries (Petromidia, Vega) manufactured 4,809 thous. tonnes of oil products (down 7.9%) primarily as a result of the corresponding decrease in refining volumes at the facilities.



Consolidated oil product output	2022	2023	2024
Kazakhstan refineries			
Atyrau Refinery	4,647	4,858	5,025
Pavlodar Refinery	5,168	5,034	5,084
Shymkent Refinery (50%)	2,857	2,638	2,653
Caspi Bitum (50%)	456	421	323
Total for Kazakhstan refineries	13,128	12,951	13,085
Romania refineries			
Petromidia Refinery	5,142	4,848	4,521
Vega Refinery	370	373	288
Total for Romania refineries	5,512	5,221	4,809
Total	18,639	18,172	17,894

Refining volumes at Kazakhstan refineries

Hydrocarbon refining volumes at Kazakhstan refineries remained comparable to the previous year, coming in at 14,246 thous. tonnes.

Hydrocarbon refining volumes (net to KMG), thous. tonnes

Refinery	2022	2023	2024
Atyrau Refinery	5,224	5,475	5,547
Pavlodar Refinery	5,480	5,434	5,500
Shymkent Refinery (50%)	3,103	2,870	2,872
Caspi Bitum (50%)	461	427	327
Total	14,269	14,206	14,246

In 2024, total oil product output at Atyrau, Pavlodar, Shymkent and Caspi Bitum refineries increased by 1.0% year-on-year to 13,085 thous. tonnes due to enhanced performance of production units. The share of light oil products (petrol, diesel fuel, LPG) came in at 74% at Atyrau Refinery and 79% at Pavlodar Refinery,

reflecting sustained refining depth at Atyrau Refinery and higher refining depth at Pavlodar Refinery. The output of dark oil products (fuel oil, bitumen) declined, with the most pronounced decrease recorded at Caspi Bitum, where the share of dark oil products dropped to 37%.

Oil product output (net to KMG), thous. tonnes

Oil products	2022	2023	2024
Atyrau Refinery			
Light ¹	2,988 (64%)	3,602 (74%)	3,705 (74%)
Dark ²	1,447 (31%)	1,073 (22%)	1,013 (21%)
Petrochemicals ³	85 (2%)	49 (1%)	136 (3%)
Other	127 (3%)	134 (3%)	171(4%)
Pavlodar Refinery			
Light	3,879 (76%)	3,895 (77%)	4,021 (79%)
Dark	927 (18%)	809 (16%)	793 (16%)
Other	331 (6%)	330 (7%)	271 (5%)
Shymkent Refinery (50%)			
Light	2,348 (82%)	2,222 (84%)	2,262 (85%)
Dark	504 (18%)	410 (16%)	385 (15%)
Other	5	6	7
Caspi Bitum (50%)			
Dark	203 (44%)	179 (43%)	121
Other	257 (56%)	242 (57%)	201
Total	13,101	12,951	13,085

In 2024, all three refineries continued to increase their refining depth. Atyrau Refinery reached a refining depth of 85.06% (up 3.6 p.p. year-on-year), Pavlodar Refinery – 91.50% (up 1.9 p.p. year-on-year), and Shymkent Refinery – 85.77% (up 0.9 p.p. year-on-year). These increases came as a result of improvements in refining processes and better equipment performance.

Sufficient oil product reserves were created for the duration of these scheduled maintenance shutdowns, with production at other refineries increased to ensure uninterrupted supplies of lubricants and fuel.

Development projects

Shymkent Refinery

- **Capacity expansion.** Adjustments were made to the pre-feasibility study for increasing the refinery's capacity to 12 mln tonnes by 2030. In 2025, the project is expected to move to the feasibility study stage.

Pavlodar Refinery

- **Treatment of liquefied petroleum gas.** We completed the construction of an LPG treatment facility designed to reduce the content of mercaptan sulphur.
- **Diesel fuel production upgrade.** A project is underway to reconstruct a diesel hydrotreating plant, including a dewaxing unit. The completion is scheduled for late 2025.

Refining depth, %

Refinery	2022	2023	2024
Atyrau Refinery	75.72	82.09	85.06
Pavlodar Refinery	88.19	89.63	91.50
Shymkent Refinery	82.79	84.88	85.77

Scheduled preventive maintenance in 2024

- Atyrau Refinery: In October, the facility completed the maintenance of the ADU-2 and AVDU-3 primary oil refining units, with the transfer pipeline replaced and compressors and heat exchangers repaired.
- Pavlodar Refinery: From June to July, the facility replaced the vacuum system lines, while also repairing the smokestack and compressors.
- Shymkent Refinery: From March to April, the facility replaced furnace coils, and repaired steam generators and electric motors.

¹ Petrol, diesel fuel, jet fuel, and LNG.

² Fuel oil, vacuum gas oil, and bitumen.

³ Benzene and paraxylene.

Caspi Bitum

- **Capacity expansion.** A project is underway to raise the oil refining capacity to 1.5 mln tonnes p.a. and to increase road bitumen output to 700 thous. tonnes p.a. The completion is expected in 2Q 2025.

Atyrau Refinery

- **Comprehensive upgrade.** A large-scale project is underway to enhance the performance of Atyrau Refinery. The project envisions an increase in the output of light oil products and upgrade of the key production units. The implementation timeframe is 2023–2027.

Oil refining tariffs

Kazakhstan refineries provide oil refining services under a processing business scheme, with finished oil products sold by oil suppliers. This approach enables refineries to focus on the optimisation of production processes and cost-cutting initiatives.

The refining tariffs factor in actual operating expenses and an investment component, including capital expenditures to maintain production and repay loans raised for modernisation.

Weighted average tariffs to refine 1 tonne of tolling feedstock, **KZT**

Refinery	2022	2023	2024
Atyrau Refinery	42,515	54,079	54,450
Pavlodar Refinery	23,240	23,240	26,500
Shymkent Refinery	35,336	35,336	35,336
Caspi Bitum	24,901	27,791	45,835

Scheduled maintenance at refineries

- Atyrau Refinery: overhaul (September to November 2025).
- Pavlodar Refinery: routine servicing (June to July 2025).
- Shymkent Refinery: downtime for catalyst replacement (February 2025).
- Caspi Bitum: overhaul (December 2025).

Production and sales of oil products derived from KMG’s own oil

KMG independently refines crude oil produced by Ozenmunaigas, Embamunaigas and Kazakhturkmunay at three Kazakhstan refineries in Atyrau, Pavlodar and Shymkent. In 12 months of 2024, the Company refined 5,257 thous. tonnes of oil to manufacture 4,765 thous. tonnes of commercial oil products, including:

- light products (72%): motor petrol, diesel and jet fuel;

- dark products (17%): fuel oil, vacuum gas oil and bitumen;
- petrochemicals (1.3%): benzene and paraxylene;
- other (9%): liquefied gas, sulphur and coke.

We sold a total of 4,842 thous. tonnes of oil products, with 86% supplied to the domestic market and 14% exported. Key export destinations include the Netherlands, China, Azerbaijan and Turkey.

Refinery output of commercial oil products derived from KMG’s own oil in 2024, **thous. tonnes**

Oil products	Atyrau Refinery	Pavlodar Refinery	Shymkent Refinery	Total	Average oil product wholesale prices in 2024, KZT per tonne
Light	1,579	1,337	508	3,424	229,601
Dark	447	294	92	833	139,575
Petrochemicals	62	0	0	62	315,546
Other	169	234	43	446	28,119
Total	2,258	1,865	643	4,765	195,598

Quality and standards

Our products comply with the K-4 and K-5 environmental standards (equivalent to Euro-4 and Euro-5). Refinery upgrades helped reduce the content of harmful substances as follows:

- sulphur – by 10 times;
- aromatic hydrocarbons – by 1.5 times;
- benzene – by 5 times.

Exports and domestic market

A total of 688 thous. tonnes of oil products were exported, including fuel oil, paraxylene, benzene and coke. Domestic supplies served to meet the needs of the agricultural sector and social infrastructure, including through the supply of fuel oil for heating and jet fuel for aviation services.

Wholesale¹ of KMG oil products produced in the Republic of Kazakhstan¹, **thous. tonnes**

Product	2022			2023			2024		
	Domestic market	Export	Total	Domestic market	Export	Total	Domestic market	Export	Total
Petrol	1,333	7	1,340	1,529	–	1,529	1,582	–	1,582
Diesel fuel	1,513	–	1,513	1,512	–	1,512	1,673	–	1,673
Jet fuel	161	–	161	165	–	165	213	–	213
Fuel oil	265	588	853	205	504	708	215	382	596
Vacuum gas oil	–	105	105	–	81	81	–	112	112
Bitumen	125	–	125	87	–	87	130	–	130
Coke	56	65	121	50	103	154	62	124	186
Sulphur	5	14	19	12	9	21	21	6	27
Benzene	–	3	3	–	12	12	–	13	13
Paraxylene	–	34	34	–	8	8	–	52	52
Liquefied gas	204	–	204	230	–	230	256	–	256
Heating fuel	–	–	–	3	–	3	2	–	2
Process fuel	408	–	408	411	–	411	407	–	407
Other	22	–	22	21	–	21	23	–	23
Total	4,091	816	4,908	4,224	716	4,940	4,583	688	5,272

Export of oil products broken down by share and supply destination

Oil products	2023			2024		
	Volume, tonne	Country	Share	Volume, tonne	Country	Share
Fuel oil	496,582	Europe	99 %	346,759	Netherlands	100 %
	6,955	Uzbekistan	1 %			
Vacuum gas oil	80,704	Europe	100 %	107,552	Netherlands	100 %
High-purity paraxylene	7,579	China	100 %	51,790	China	100 %
Benzene	11,621	China	100 %	11,937	China	100 %
Total coke	82,236	China	84 %	79,866	China	79 %
	7,821	Turkey	8 %	19,967	Azerbaijan	20 %
	5,280	Russia	5 %	680	Tajikistan	1 %
	2,836	Tajikistan	3 %			
Calcined coke	3,761	Russia	72 %	4,704	Azerbaijan	100 %
	1,499	China	28 %			
Sulphur	3,558	Europe	40 %	760	Sweden	30 %
		Turkey	60 %	1,806	Turkey	70 %
Total	715,672			625,823		

¹ Numbers may not add up due to rounding.

Imports

To make up for the petrol shortage in the domestic market, the Government of Kazakhstan assigned KMG to import AI-92 petrol.

In October and November 2024, KMG imported 19,135 tonnes of AI-92 petrol from Russian refineries (TAIF-NK, RI-INVEST, Gazprom Neftekhim Salavat).

The petrol imports helped quickly offset the temporary shortage and ensure uninterrupted supplies of oil products to wholesale distributors and filling stations across Kazakhstan.

KC Energy Group

To secure KMG’s interest in a joint venture with Chinese partners, avoid sanctions from Kazakhstan’s Government and support the Government’s socially responsible efforts to meet the domestic demand for oil products in Kazakhstan, KMG initiated the creation of KC Energy Group LLP and liquidation of PETROSUN LLC in 2024.

KC Energy Group will fully replicate PETROSUN’s operations. The operations will form an integrated cycle, which includes:

- purchasing crude oil from affiliated oil companies;
- refining crude oil at Kazakhstan refineries;
- wholesale distribution of oil products in both domestic and export markets..

Oil products supplied by the above refineries will be distributed:

- in compliance with commissions of Kazakhstan’s Government seeking to meet the agricultural demand for diesel fuel during sowing and harvesting seasons;
- in compliance with commissions of Kazakhstan’s Government seeking to ensure the supply of fuel oil to heating providers during the autumn and winter heating seasons;
- to meet the demand of KTZ (Kazakhstan Railways) for diesel fuel in accordance with the Supply Plans approved by the Ministry of Energy of Kazakhstan on a monthly basis;
- via exchange platforms in accordance with the Supply Plans approved by the Ministry of Energy of Kazakhstan on a monthly basis;
- via stationary filling stations in the Republic of Kazakhstan and through other players in the fuel market.

Ownership structure: KMG – 49%, CNPC – 51%.

KC Energy Group will retain the administrative and management structure of PETROSUN LLC, apply the corporate policies and procedures of PetroKazakhstan Group and sign an agreement with PetroKazakhstan Overseas Services Inc. (PKOSI) to manage operational activities.

Operations of KMG International

Hydrocarbon refining

Refining volumes at KMG International assets (Petromidia and Vega refineries) decreased by 8.8% to 4,912 thous. tonnes due to the delayed restart of the mild hydrocracker following the fire at Petromidia Refinery on 21 June 2023 and also as a result of a shutdown during the scheduled overhaul in March 2024. The refineries of KMG International are currently operating normally and at full capacity.

Hydrocarbon refining volumes¹, thous. tonnes

Refinery	2022	2023	2024
Petromidia Refinery	5,258	5,012	4,619
Vega Refinery	373	374	293
Total	5,631	5,387	4,912

KMG International’s refineries (Petromidia, Vega) manufactured 4,809 thous. tonnes of oil products (down 7.9%) primarily as a result of the corresponding decrease in refining volumes at the facilities.

Oil product output (net to KMG)¹, thous. tonnes

Refinery	2022	2023	2024
Petromidia Refinery	5,142	4,848	4,521
• Light ²	4,075	4,269	3,974
• Dark ³	889	411	548
• Other	178	168	
Vega Refinery	370	373	288
• Dark	100	105	75
• Other	270	268	213
Total	5,512	5,221	4,809

The market refining margin fell short of the target due to the emergence of new refineries in Asia and Africa, which led to the excessive supply of oil products, increased competition and shrinking profits for European refineries.

Petromidia Refinery’s refining margin

Unit	2022	2023	2024
USD per tonne	129,5	64,8	39,7
USD per bbl ⁴	17,8	11,5	5,2

¹ Numbers may not add up due to rounding.
² Petrol, diesel fuel, jet fuel, and LNG.
³ Oil coke, fuel oil and natural gasoline.
⁴ To convert tonnes to bbl a conversion factor of 7.6 was used.

In 2024, crude oil volumes for resale marketed through KMG International’s trading operations totalled 13.7 mln tonnes. Purchases of oil for resale exceeded the 2023 mark by 6,045 thous. tonnes. Tengizchevroil’s shipments (up 5,571 thous. tonnes) to Petraco Energies DMCC made the greatest contribution to this growth. Apart from that, Karachaganak Petroleum Operating increased KEBCO shipments (up 1,102 thous. tonnes) to Rosneft (Germany), Tengizchevroil stepped up supplies of Azerbaijani oil to third parties (up 308 thous. tonnes) and Kashagan grew its shipments by 221 thous. tonnes.

Crude oil for resale, thous. tonnes

Indicator	2022	2023	2024
Crude oil for resale	6,207	7,638	13,690

2024 highlights

1. Recovery at Petromidia Refinery following the 2023 incident

The completion of mild hydrocracker repairs in February 2024 allowed the refinery to resume operations at full capacity. By the end of the year, the production capacity had fully recovered and reached 15.2 thous. tonnes per day. The repairs included diagnostics, replacement of worn-out components, catalyst regeneration, and upgrades of heat exchangers, pumps and compressors.



Plans for 2025

Next year, KMG International will focus on the following key investment initiatives:

- completion of the CHP construction project;
- increase in the production of second-generation biofuels;
- expansion of the retail network with an eye on cutting-edge technologies such as charging stations for electric vehicles.

2. Infrastructure initiatives

Completion of equipment installation under the CHP construction project at Petromidia Refinery paved the way for pre-commissioning efforts. The facility is expected to be launched in 3Q 2025.

3. Expansion of the retail network

In 2024, we completed the construction of 12 new highway filling stations to strengthen the position of KMG International in the Romanian market. Additional stations are planned for opening as part of our long-term strategy.

4. Environmental resilience

In 2024, KMG International continued to implement environmental initiatives. Now 82% of water used in refining is returned to the production cycle to minimise the environmental impact. In October 2024, Petromidia Refinery set a new record, with its energy intensity index (EII) reaching 89.5.

Strategic focus on sustainable development

KMG International is actively aligning itself with the new EU and Romanian regulatory requirements, including the commitment to increase the content of biofuel in oil products and switch to the use of green hydrogen starting 2025. In 2024, the company began to set the stage for its decarbonisation projects, which include the development of infrastructure required for charging electric vehicles and the integration of sustainable technologies for producing jet fuel.