



Organization of the Petroleum Exporting Countries

OPEC Monthly Oil Market Report

13 April 2023

Feature article:
Summer oil market outlook

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Oil Market Highlights

Crude Oil Price Movements

The OPEC Reference Basket (ORB) declined in March by \$3.43, or 4.2%, m-o-m to average \$78.45/b. The ICE Brent first-month contract fell by \$4.33, or 5.2%, m-o-m to \$79.21/b, while the NYMEX WTI first-month contract fell by \$3.49, or 4.5%, m-o-m to average \$73.37/b. The DME Oman first-month contract fell by \$3.63, or 4.4%, m-o-m to settle at \$78.34/b. The front-month ICE Brent/NYMEX WTI spread narrowed in March by 84¢ m-o-m to average \$5.84/b. The futures forward curves of ICE Brent and DME Oman flattened slightly in March, but remained in backwardation. However, the NYMEX WTI price structure remained in contango, although the nearest time spread contracted m-o-m. Hedge funds and other money managers heavily cut bullish positions in ICE Brent and NYMEX WTI last month.

World Economy

The world economic growth forecast for 2022 is revised up slightly to 3.3%, given better-than-anticipated economic performance in 2H22 in various key economies. The 2023 global economic growth forecast remains unchanged at 2.6%. For the US, the economic growth forecast is unchanged at 2.1% for 2022 and 1.2% for 2023. Similarly, the Euro-zone's economic growth forecast remains at 3.5% for 2022 and 0.8% for 2023. Japan's economic growth forecast for 2022 remains at 1%, while growth for 2023 is revised down to 1% from 1.2%. China's economic growth forecast remains at 3% for 2022 and 5.2% for 2023. India's 2022 economic growth estimate remains at 6.7%, with the forecast for 2023 at 5.6%. Brazil's economic growth estimate remains at 2.9% for 2022 and is also unchanged at 1% for 2023. Russia's contraction estimate is unchanged at 2.1% in 2022 and is expected to be followed by a smaller contraction of 0.5% in 2023, unchanged from last month. Although some growth momentum from 2H22 is expected to carry over into 1H23, the global economy will continue to navigate through challenges including high inflation, higher interest rates particularly in the Euro-zone and the US, and high debt levels in many regions.

World Oil Demand

The world oil demand growth estimate for 2022 remains at 2.5 mb/d, broadly unchanged from last month's assessment. For 2023, it is also unchanged from the last month's assessment at 2.3 mb/d. There are minor downward adjustments reflecting the latest developments in the OECD region, primarily in OECD Americas and OECD Europe. However, the stronger-than-expected demand seen in non-OECD in January and February necessitated some upward revisions. Oil demand in the OECD is forecast to increase by 0.1 mb/d in 2023, while the non-OECD is forecast to grow by 2.2 mb/d

World Oil Supply

The non-OPEC liquids supply growth estimate for 2022 remains at 1.9 mb/d, broadly unchanged from the previous month's assessment. The main drivers of liquids supply growth for 2022 were US, Russia, Canada, Guyana, China and Brazil, while the largest declines were from Norway and Thailand. For 2023, non-OPEC liquids supply growth remains broadly unchanged from last month and is forecast to grow by 1.4 mb/d. The main drivers of liquids supply growth are expected to be the US, Brazil, Norway, Canada, Kazakhstan and Guyana, while the decline is expected primarily in Russia. Large uncertainties remain over the impact of the output prospective for US shale in 2023. OPEC NGLs and non-conventional liquids are forecast to grow by 0.1 mb/d in 2022 to average 5.4 mb/d and by 50 tb/d to average 5.4 mb/d in 2023. OPEC-13 crude oil production in March dropped by 86 tb/d m-o-m to average 28.80 mb/d, according to available secondary sources.

Product Markets and Refining Operations

In March, refinery margins regained limited ground, following sharp losses seen the previous month. A contraction in product balances in the Atlantic Basin, due to the onset of heavy refinery maintenance along with product output declines in France due to a nationwide energy workers strike action, led to pressure on product inventories over the month and provided support for product crack spreads. In addition, a decline in feedstock prices further contributed to stronger refinery margins across all main regions. Global refinery processing rates fell further in March, losing nearly 259 tb/d, according to preliminary estimates. In the coming month, refinery intakes are expected to remain under pressure on strong offline capacity, which is projected to peak in the coming month.

Tanker Market

Dirty spot freight rates continued to improve in March, with m-o-m gains across most monitored routes. VLCCs saw the sharpest increase, rising by 45% on the Middle East-to-East route, as renewed buying from China strengthened rates. Suezmax spot freight rates remained at high levels, up 20% m-o-m on the US Gulf-to-Europe route. Aframax rates rebounded from the previous month's decline, with spot freight rates on the intra-Med route up 23% m-o-m. In the clean tanker market, West of Suez spot freight rates were at 29%, supported by strong performance in the Mediterranean. East of Suez rates fell 10% on average m-o-m, amid a winding down of winter product demand in the Far East.

Crude and Refined Products Trade

Preliminary data shows US crude exports set a fresh record high of 4.8 mb/d in March, while US product exports rebounded to average 6.3 mb/d. China's crude imports in February partially recovered from the decline at the start of the year to average around 10.7 mb/d. China's product exports also picked up, averaging a robust 1.7 mb/d. India's crude imports were at their strongest in over 10 months, averaging just shy of 5.0 mb/d in February. India's product exports also returned to relatively robust levels, averaging 1.4 mb/d. Japan's crude imports were broadly unchanged m-o-m at 2.7 mb/d in February. Japan's product exports, including LPG, hit a five-month high in February. Preliminary estimates for March show crude and refined product imports into OECD Europe declining as a workers' strike in France disrupted port activities and refinery operations, curtailing trade flows.

Commercial Stock Movements

Preliminary February 2023 data shows total OECD commercial oil stocks increase by 14.1 mb m-o-m. At 2,865 mb, they were 237 mb higher than the same time one year ago and 18 mb higher than the latest five-year average, but 54 mb below the 2015–2019 average. Within components, crude stocks increased m-o-m by 20.9 mb, while product stocks fell by 6.8 mb m-o-m. At 1,434 mb, OECD crude stocks were 172 mb higher than the same time a year ago, and 49 mb higher than the latest five-year average, but 14 mb lower than the 2015–2019 average. OECD product stocks stood at 1,432 mb, representing a surplus of 65 mb from the same time a year ago, though they were 30 mb lower than the latest five-year average and 40 mb below the 2015–2019 average. In terms of days of forward cover, OECD commercial stocks rose m-o-m by 1.0 day in February to stand at 62.9 days. This is 4.9 days above the February 2022 level, but 1.8 days less than the latest five-year average and 0.3 days higher than the 2015–2019 average.

Balance of Supply and Demand

Demand for OPEC crude in 2022 remained unchanged from last month's assessment to stand at 28.4 mb/d. This is around 0.5 mb/d higher than in 2021. Demand for OPEC crude in 2023 also remained unchanged from the previous assessment to stand at 29.3 mb/d. This is around 0.8 mb/d higher than in 2022.

Feature Article

Summer oil market outlook

In 1Q23, world oil demand is estimated to have grown by a healthy 2.1 mb/d y-o-y, on the back of a strong rebound in China's oil demand, as well as solid oil demand data in other non-OECD regions, particularly the Middle East and Asia. Looking ahead, world oil demand is expected to grow by around 2.4 mb/d y-o-y in 2Q23, 2.5 mb/d y-o-y in 3Q23 and 2.3 mb/d y-o-y in 4Q23.

In terms of products, global demand for gasoline and diesel is forecast to increase by 0.6 mb/d and 0.5 mb/d, y-o-y, respectively, in 2Q23. In 3Q23, demand for these two products is forecast to improve further, with global gasoline demand growth forecast at 0.7 mb/d and diesel at 0.6 mb/d, y-o-y (**Graph 1**).

In the OECD, heightened mobility in the upcoming driving season in the US is expected to provide the usual additional demand for transportation fuels. However, any weakening in the economy on the back of ongoing monetary tightening measures by the US Fed may offset some of this seasonal dynamic. Overall, OECD Americas is forecast to lead demand growth in the region at an average of around 160 tb/d y-o-y in 2Q23 and 3Q23. The demand in

OECD Europe is likely to continue to be challenged, amid slowing economic activity, leading to a slight projected y-o-y decline in 2Q23 and 3Q23 on average. OECD Asia Pacific is expected to show y-o-y growth of around 50 tb/d on average over 2Q23 and 3Q23.

In the non-OECD countries, China is projected to drive oil demand, supported by a pickup in mobility and industrial activity, growing by almost 1.0 mb/d y-o-y in 2Q23 and 0.8 mb/d y-o-y in 3Q23. Similarly, India oil demand is forecast to grow by 0.3 mb/d y-o-y, on average over 2Q23 and 3Q23. Other Asia and the Middle East are also expected to see healthy growth of between 0.3 mb/d-0.4 mb/d on average over 2Q23-3Q23, with requirements for air-conditioning in the summer months adding additional support.

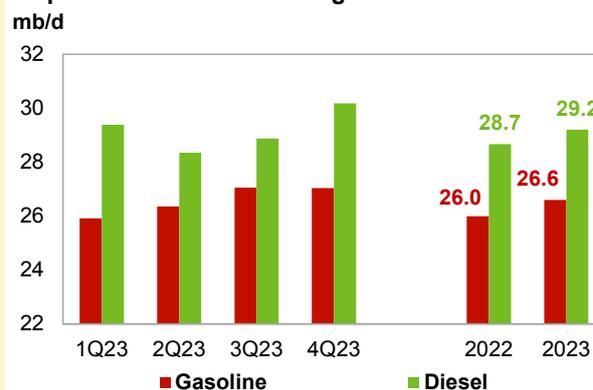
It should be noted that potential challenges to global economic development include high inflation, monetary tightening, stability of financial markets and high sovereign, corporate and private debt levels.

On the refining side, intakes have been on a declining trend since the post pandemic high level seen in November 2022 at 80.8 mb/d, (**Graph 2**). In addition, the start of heavy refinery maintenance around February further weighed on intakes in recent months with some 2.1 mb/d of capacity offline in February and 400 tb/d in March. Although US refiners have recently started returning online, ongoing strikes in France, and impending peak refinery maintenance in Asia are likely to keep intakes suppressed in the weeks ahead. Moreover, the impact of the recent reopening of China has still not been sufficient to reverse the declining trend in global refinery intakes.

On inventories, OECD commercial inventories have been building in recent months, and product balances are less tight than seen at the same time a year ago.

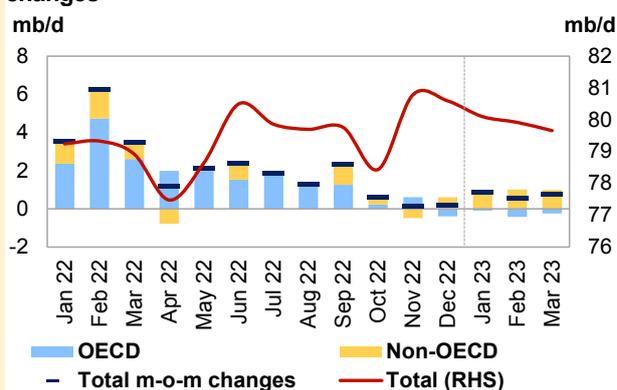
Given these uncertainties surrounding current oil market dynamics, several countries in the Declaration of Cooperation (DoC) have announced additional voluntary adjustments as of May 2023 and until the end of the year, and this was in support of the ongoing relentless and determined DoC effort to support the stability of the oil market.

Graph 1: Global demand for gasoline and diesel



Source: OPEC.

Graph 2: Global refinery crude intake by region, y-o-y changes



Sources: Argus and OPEC.

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Crude Oil Price Movements

Crude oil spot prices declined in March, with international spot benchmark North Sea Dated dropping by about 5% on average m-o-m. The drop was mainly driven by selloffs in futures markets witnessed in the first half of the month amid elevated volatility. The price of North Sea Dated fell most compared with other benchmarks due to weaker demand from European refiners amid refinery strikes in France that reduced demand for crude.

The OPEC Reference Basket (ORB) value fell in March, dropping by \$3.43/b, or 4.2%, m-o-m, to stand at \$78.45/b, as all ORB component values declined alongside their perspective crude oil benchmarks.

Financial markets witnessed heavy selloffs in March triggered by turmoil in the US and European banking sector. Investor fears about potential financial contagion and the risk that banking sector turmoil will extend to the economy pushed crude oil futures prices sharply down to 15-month lows.

On a monthly average, the ICE Brent first-month contract fell by \$4.33 in March, or 5.2%, m-o-m, to stand at \$79.21/b, and the NYMEX WTI first-month contract declined by \$3.49, or 4.5%, m-o-m, to an average of \$73.37/b. DME Oman crude oil futures prices fell in March by \$3.63, or 4.4%, m-o-m, to settle at \$78.34/b.

Hedge funds and other money managers heavily cut their bullish positions in March, which fuelled a drop in futures prices. Speculators sharply reduced net long positions in the first three weeks of March in the two major futures contracts ICE Brent and NYMEX WTI, and were sellers of a net of about 233 mb between the weeks of 7 and 21 March in both contracts.

Front end of ICE Brent and DME Oman forward curves weakened in March compared to February. However, despite a sharp decline in oil futures prices, the market structure of ICE Brent futures and DME Oman benchmarks remained in backwardation in March. The front end of NYMEX WTI forward curve remained in contango over the month, although the first-to-third month spread strengthened slightly m-o-m.

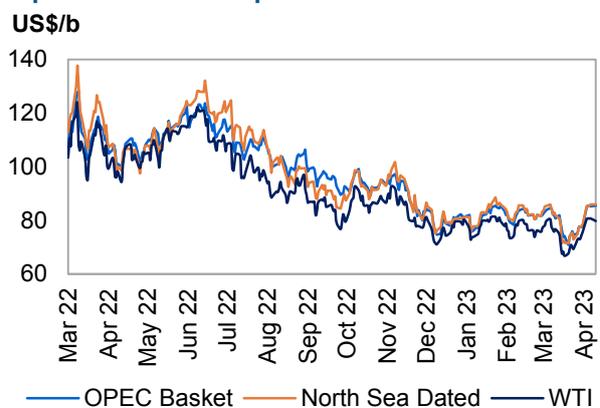
The premium of light sweet to medium sour crudes continued to narrow in March in all major regions amid weaker light sweet crude market fundamentals. The value of medium and heavy sour crudes performed better than light sweet crude amid a narrowed spread between light/medium distillate and heavy distillate product margins. The sour crude market was buoyed by demand from Asia Pacific refiners, higher refining margins for fuel oil and the prospect of a lower supply of medium sour crude Urals.

Crude spot prices

Crude oil spot prices declined in March with the international spot benchmark North Sea Dated dropping by about 5% on average m-o-m. This was mainly driven by selloffs in futures markets witnessed in the first half of the month amid elevated volatility.

Oil prices also came under pressure from softer buying in the spot market compared to the previous month, rising crude supply availability and the building of unsold cargoes for April loading, specifically in the Atlantic Basin. Mixed performance among petroleum products and rising US crude stocks in the first half of March added downward pressure. This is in addition to the expectation of crude releases from US strategic petroleum reserves (SPR) in 2Q23.

Graph 1 - 1: Crude oil price movements



Sources: Argus, OPEC and Platts.

The price of **North Sea Dated** fell most compared with other benchmarks due to weaker demand from European refiners amid refinery strikes in France that reduced demand for crude. A well-supplied market for April loading in the Atlantic Basin amid soft demand for West African crude from Asian refiners and a high volume of WTI arriving in Europe also weighed on the Brent value.

Crude Oil Price Movements

Crude spot prices recouped some losses in the second half of March as declines in futures prices eased. The prospect of lower Urals crude supply in coming months and the temporary halt of some crude exports from Turkey's Ceyhan oil terminal tightened the supply outlook and lent some support to oil prices.

In March, the North Sea Dated first month fell the most among other major benchmarks, declining by \$4.21, or 5.1%, m-o-m, to settle at \$78.29/b. WTI and Dubai's first month dropped by \$3.44 and \$3.63, m-o-m, respectively, or 4.5% and 4.4%, m-o-m, to settle at \$73.37/b and \$78.42/b.

Spot crude prices remained below futures prices since December. On a monthly average, the North Sea Dated-ICE Brent spread averaged a discount of 92¢/b in March, contracting 12¢ from February's level.

Table 1 - 1: OPEC Reference Basket and selected crudes, US\$/b

OPEC Reference Basket (ORB)	Feb 23	Mar 23	Change		Year-to-date	
			Mar 23/Feb 23	%	2022	2023
ORB	81.88	78.45	-3.43	-4.2	98.11	80.56
Arab Light	83.56	80.26	-3.30	-3.9	98.19	82.45
Basrah Medium	78.33	75.33	-3.00	-3.8	96.71	77.08
Bonny Light	82.88	79.24	-3.64	-4.4	102.73	81.40
Djeno	75.05	70.84	-4.21	-5.6	94.27	73.66
Es Sider	81.45	77.39	-4.06	-5.0	101.29	79.85
Girassol	84.06	80.31	-3.75	-4.5	104.15	82.05
Iran Heavy	81.88	78.80	-3.08	-3.8	97.55	80.67
Kuwait Export	83.19	79.86	-3.33	-4.0	98.34	81.91
Merey	61.95	57.25	-4.70	-7.6	74.72	60.19
Murban	83.36	79.55	-3.81	-4.6	97.78	81.72
Rabi Light	82.04	77.83	-4.21	-5.1	101.26	80.65
Sahara Blend	84.05	80.29	-3.76	-4.5	104.19	82.61
Zafiro	82.24	79.29	-2.95	-3.6	103.04	80.87
Other Crudes						
North Sea Dated	82.50	78.29	-4.21	-5.1	101.72	81.11
Dubai	82.05	78.42	-3.63	-4.4	95.84	80.32
Isthmus	68.27	65.13	-3.14	-4.6	92.73	67.32
LLS	80.35	76.03	-4.32	-5.4	97.25	78.92
Mars	75.53	72.83	-2.70	-3.6	93.13	74.30
Minas	81.53	77.10	-4.43	-5.4	96.02	79.95
Urals	51.91	49.74	-2.17	-4.2	91.24	51.23
WTI	76.81	73.37	-3.44	-4.5	94.94	76.03
Differentials						
North Sea Dated/WTI	5.69	4.92	-0.77	-	6.78	5.08
North Sea Dated/LLS	2.15	2.26	0.11	-	4.47	2.18
North Sea Dated/Dubai	0.45	-0.13	-0.58	-	5.89	0.79

Sources: Argus, Direct Communication, OPEC and Platts.

Crude oil differentials were mixed in March, with most light sweet crude values weakening in the second half of the month, including in the Atlantic Basin, amid soft demand from refineries in Europe and Asia Pacific and lower light distillate margins. The competitiveness of Asia Pacific crudes, including ESPO Blend, reduced demand for similar crudes in the Atlantic Basin.

Most North Sea crude differentials fell last month on lower demand from European refiners amid a strike at five French refineries and high supply availability of similar crudes in the Atlantic Basin, as well as the arrival of large amounts of WTI in Europe. Ekofisk and Johan Sverdrup crude differentials declined by \$1.06 and 92¢ m-o-m, respectively, on a monthly average in March to settle at a premium of \$2.11/b and a \$1.00/b discount to North Sea Dated. However, Forties crude differentials gained 78¢ m-o-m in March to stand at 62¢/b.

West African crude differentials also weakened last month, coming under pressure from subdued demand from European and Asia Pacific refiners, despite improving west-to-east arbitrage economics, represented in a narrower Brent/Dubai spread. On a monthly average, crude differentials to the North Sea Dated benchmark by Bonny Light, Forcados and Qua Iboe declined by 73¢, 92¢ and 65¢, respectively, m-o-m in March to settle at premiums of 99¢/b, \$1.55/b and \$1.06/b. However, the crude differential of medium-heavy sweet crude Cabinda strengthened last month by 28¢ m-o-m on average a premium of \$1.30/b on the prospect of lower supply in May.

Likewise in the **Mediterranean**, crude differentials were mixed, with Azeri Light and Saharan Blend crude differentials declining last month, respectively, by 10¢ and 1¢ m-o-m to stand at a premium of \$3.07/b and \$1.04/b. The Caspian CPC Blend differential remained priced at a discount to North Sea Dated in March, although differentials rose m-o-m, increasing by 82¢ to average a discount of \$3.01/b to North Sea Dated.

In the **Middle East**, crude differentials to Dubai fell in March on softer demand from Asia Pacific refiners in the second half of the month, including China, while improved west-to-east arbitrage put downward pressure on some East of Suez grades in the spot market. The value of the Oman crude differential declined by 52¢ m-o-m in March to a premium of \$1.67/b.

On the **US Gulf Coast (USGC)**, crude differentials were mixed. Light sweet crude Light Louisiana Sweet (LLS) weakened amid a surge in crude oil stocks in US PADD3. LLS crude differentials against WTI at Cushing fell m-o-m in March, decreasing by 86¢ on a monthly average, to a premium of \$2.65/b. However, Mars sour strengthened on robust demand for export to the Asia market. Mars sour crude differentials against WTI at Cushing rose m-o-m in March, increasing by 75¢ to a discount of 54¢/b.

OPEC Reference Basket (ORB)

The **ORB value** fell in March, dropping by \$3.43/b, or 4.2%, to stand at \$78.45/b, as all ORB component values declined alongside their perspective crude oil benchmarks. However, higher official selling prices of medium/heavy sour and most light sweet crude components limited the ORB decline compared with all other major futures and spot benchmarks. Compared with the previous year, the ORB was \$17.55 lower, or 17.9%, from \$98.11/b in 2022 to an average of \$80.56/b so far in 2023.

All **ORB component values** fell last month alongside their respective crude oil benchmarks. West and North African Basket components – Bonny Light, Djeno, Es Sider, Girassol, Rabi Light, Sahara Blend and Zafiro – declined by \$3.80 m-o-m in March, or 4.6% on average, to \$77.88/b. Multiple region destination grades – Arab Light, Basrah Light, Iran Heavy and Kuwait Export – also decreased by \$3.18 m-o-m, or 3.9% on average, to settle at \$78.56/b. Murban crude declined by \$3.81 m-o-m, or 4.6% on average, to settle at \$79.55/b, while the Merey crude component fell by \$4.70 m-o-m, or 7.6% on average, to settle at \$57.25/b.

The oil futures market

Financial markets witnessed heavy selloffs in March, triggered by the turmoil in the US and European banking sector. Banking shares and major equity markets fell sharply last month. Investor fears about potential financial contagion effects and the risk that banking sector turmoil will extend to the economy pushed **crude oil futures prices** sharply down to 15-month lows. The drop came amid elevated volatility.

The decline in crude oil futures prices was fuelled by heavy selloffs from hedge funds and other money managers, which sold about 233 mb in two weeks in March. This resulted in the net long positions of the two major futures and options contracts, ICE Brent and NYMEX WTI, falling to their lowest points since August 2022. Financial institutions trying to limit their financial exposure to falling oil prices in the options and futures markets precipitated the drop in oil futures contracts.

Slowing manufacturing activity in the US and Europe, and data from China showing a contraction in China's exports and imports in January and February, added downward pressure on prices. Moreover, the US Energy Secretary stated it will be difficult for the US to take advantage of low prices this year to fill the SPR, with reduced crude demand prospects.

Crude Oil Price Movements

Crude oil futures recovered some losses in the second half of March, as selling in the futures market slowed after investors' fears eased on renewed optimism that turmoil in the banking system has been contained.

The oil price rebound was also buoyed by a tighter supply outlook following the temporary halt of some crude supply from the Ceyhan oil terminal. A declining US dollar value in the second half of March added some support to oil futures. Indeed, the market was further stabilized with several countries in the DoC announcement of additional voluntary adjustments as of May 2023 and until the end of the year.

Table 1 - 2: Crude oil futures, US\$/b

Crude oil futures	Feb 23	Mar 23	Change		Year-to-date	
			Mar 23/Feb 23	%	2022	2023
NYMEX WTI	76.86	73.37	-3.49	-4.5	95.01	75.99
ICE Brent	83.54	79.21	-4.33	-5.2	97.90	82.10
DME Oman	81.97	78.34	-3.63	-4.4	96.13	80.28
Spread						
ICE Brent-NYMEX WTI	6.68	5.84	-0.84	-12.6	2.89	6.11

Note: Totals may not add up due to independent rounding. Sources: CME, DME, ICE and OPEC.

On a monthly average, the ICE Brent first-month contract fell by \$4.33 in March, or 5.2%, m-o-m, to stand at \$79.21/b, and the NYMEX WTI first-month contract declined by \$3.49, or 4.5%, m-o-m, to an average of \$73.37/b. Y-t-d, ICE Brent was \$15.80, or 16.1%, m-o-m, lower at \$82.10/b, and NYMEX WTI was lower by \$19.02, or 20.0%, m-o-m, at \$75.99/b, compared with the same period a year earlier. DME Oman crude oil futures prices fell m-o-m in March by \$3.63, or 4.4%, to settle at \$78.34/b. Y-t-d, DME Oman was lower by \$15.85, or 16.5%, y-o-y, at \$80.28/b.

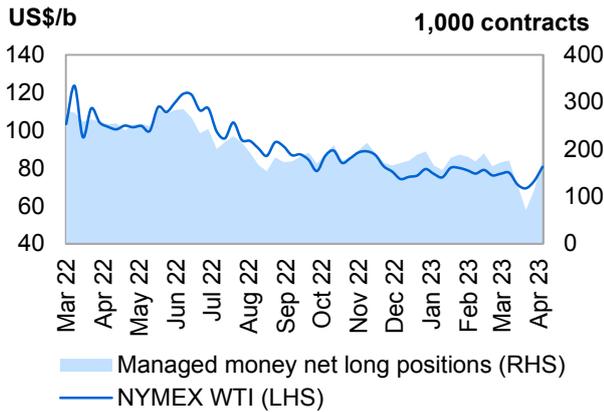
The **spread between the ICE Brent and NYMEX WTI first-month premium** remained significantly wide, although it narrowed slightly in March compared with February, as the value of international benchmark Brent futures weakened more than WTI futures. The value of WTI futures was supported by lower crude stocks at Cushing. Between the weeks of 24 February and 32 March, crude stocks at Cushing fell by 6.5 mb, according to weekly EIA data. On a monthly basis, the ICE Brent/NYMEX WTI differential contracted by 84¢ to stand at an average of \$5.84/b in March. Meanwhile, signs of a well-supplied crude market in the Atlantic Basin amid soft demand from European refiners weighed more in the value of Brent. However, the spread between North Sea Dated and WTI Houston, as well as that between WTI Houston and WTI at Cushing widened last month, as crude in the USGC was under pressure from high supply availability in the Atlantic Basin, specifically of light sweet crude. Crude oil stocks in US PADD3 rose by 26.6 mb between the weeks of 3 February and 17 March, but stock levels declined in the last two weeks of March. The North Sea Dated premium to WTI Houston widened in March by 20¢ m-o-m to average \$3.43/b.

Hedge funds and other money managers heavily cut their bullish positions in March, which fuelled a drop in futures prices. Speculators sharply reduced net long positions in the first three weeks of March in the two major futures contracts ICE Brent and NYMEX WTI, and were sellers of a net of about 233 mb between the weeks of 7 and 21 March in both contracts. Money managers rushed to close long positions, as the long/short ratio in positions related to Brent rose to its highest point since 2019 in early March, also fuelling the oil price decline. NYMEX WTI-related net long positions dropped in the week of 21 March to their lowest level since January 2016. Money managers cut their futures and options net long positions in ICE Brent and NYMEX WTI by 233,157 lots, or 49% of total net long positions, between the week of 7 and 21 March to 241,227 contracts.

Money managers heavily cut bullish **NYMEX WTI** positions in the week of 21 March, as net long positions fell to their lowest point since January 2016. NYMEX WTI futures and options net long positions also declined by 58,941 lots, or 34.2%, between the weeks of 28 February and 28 March, to stand at 113,276 contracts, according to the US Commodity Futures Trading Commission (CFTC). During the same period, gross short positions rose by 13,522 lots, or 20.4%, to 79,858 contracts, while gross long positions fell by 45,419 lots, or 19.0%, to 193,134 contracts.

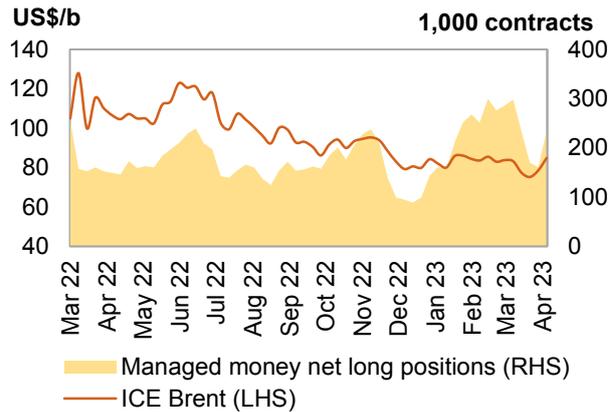
Money managers were sellers of a net of the equivalent of about 125 mb of the **ICE Brent** contract in March, and combined futures and options net long positions related to Brent fell by 124,893 contracts, or 43.7%, to stand at 161,107 lots in the week of 28 March, according to the ICE Exchange. This is a combination of a cut in long positions and an increase in short positions. In the week ending 28 March, gross short positions rose by 42,098 lots, or 192.6%, to stand at 63,953 contracts, while gross long positions declined by 82,795 lots, or 26.9%, to 225,060 contracts during the same period.

Graph 1 - 2: NYMEX WTI vs. Managed Money net long positions



Sources: CFTC, CME and OPEC.

Graph 1 - 3: ICE Brent vs. Managed Money net long positions



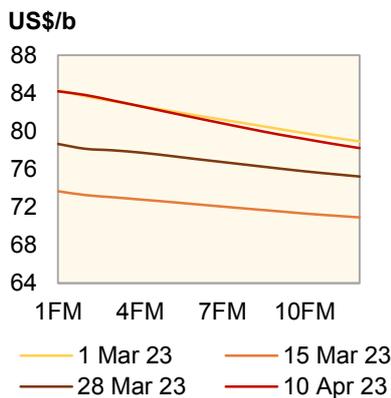
Sources: ICE and OPEC.

The **long-to-short ratio of speculative positions** in the NYMEX WTI contract declined to 2:1 in the week of 28 March, compared with 4:1 in the week of 28 February. The ICE Brent long-to-short ratio also fell to 4:1 in the week of 28 March, compared with 14:1 in the week of 28 February. **Total futures and options open interest volumes** on the two exchanges rose in March, increasing by 7.1% m-o-m, or 343,274 contracts, to stand at 5.2 million contracts in the week ending 28 March.

The futures market structure

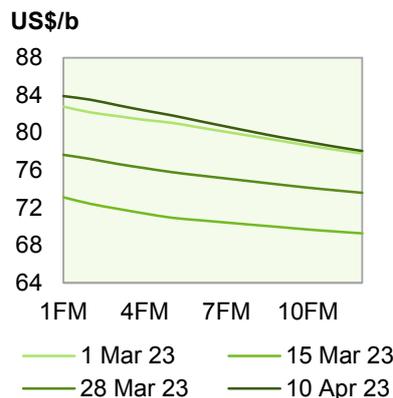
The front end of major futures contracts ICE Brent and DME Oman weakened last month compared with February, signalling a deteriorating oil demand outlook. The **backwardation structure** of the nearest time spreads flattened slightly as near-month prices were under pressure from rising OECD oil stocks, a well-supplied spot market, and growing concerns over a potential slowdown in the global economy. However, despite the sharp decline in oil futures prices and softening economic and oil demand outlook, the market structure of ICE Brent futures and DME Oman benchmarks stayed in backwardation in March. The outlook for oil fundamentals remained supportive in 2H23.

Graph 1 - 4: ICE Brent forward curves



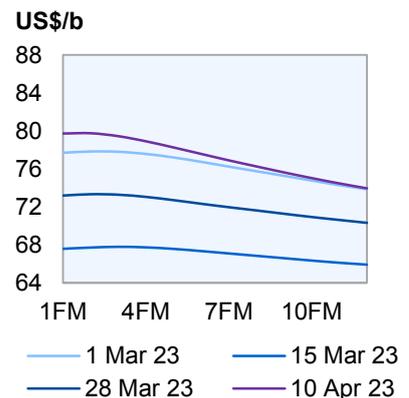
Sources: ICE and OPEC.

Graph 1 - 5: DME Oman forward curves



Sources: DME and OPEC.

Graph 1 - 6: NYMEX WTI forward curves



Sources: CME and OPEC.

The backwardation structure of **Brent futures** softened further in March, as plentiful crude in the Atlantic Basin, high volume arrivals in Europe from the USGC and subdued demand from European refiners amid strikes in France weighed more on the front-month price compared with forward-month contracts. Selloffs in ICE Brent futures also weighed on front-month contracts. The ICE Brent first-month premium to the third month narrowed m-o-m by 11¢ to a backwardation of 70¢/b. Similarly, ICE Brent's M1/M6 backwardation weakened last month by 40¢ to settle at \$1.72 on average, compared with a backwardation of \$2.12 in February.

Crude Oil Price Movements

DME Oman and **Dubai** price backwardation flattened last month, as prompt month prices came under downward pressure due to softer demand from Asian refiners in the second half of the month. Improving west-to-east arbitrage opportunities that should increase crude inflow from the Atlantic Basin weighed on the value of Dubai-linked grades. On a monthly average, the DME Oman M1/M3 spread narrowed by 13¢ m-o-m to a backwardation of \$1.15/b on average in March.

However, the front end of **NYMEX WTI** remained in contango in March, although the third-to-third month spread strengthened slightly m-o-m. Selloffs in NYMEX WTI contracts, rising US crude oil stocks and the prospect of a higher supply of crude from SPR kept the nearest time spreads in contango. The NYMEX WTI M1/M3-month spread widened 21¢ to a contango of 16¢/b on average in March, compared with a contango of 37¢/b in February.

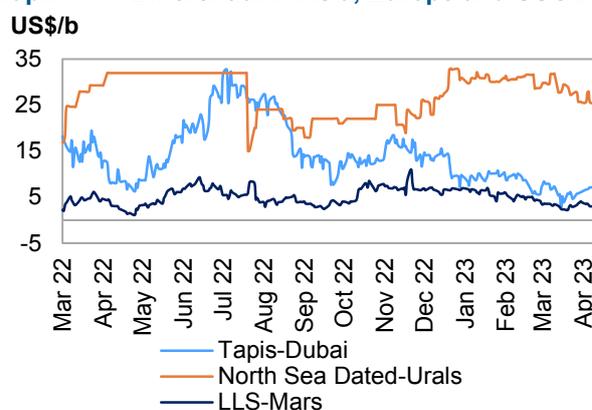
In terms of the **M1/M3 structure**, the North Sea Brent M1/M3 spread widened in March for a monthly average of 18¢ to a backwardation of 75¢/b, compared with 57¢/b in February. The Dubai M1/M3 spread narrowed on average in March by 41¢ to a backwardation of \$1.60/b. In the US, the WTI M1/M3 contango contracted in March by 21¢ to stand at 17¢/b, compared with a backwardation of 38¢/b in February.

Crude spreads

The **premium of light sweet to medium sour crudes** continued to narrow for the fourth month in March in all major regions amid weaker light sweet crude market fundamentals. Moreover, the value of medium and heavy sour crudes performed better than light sweet crudes amid a narrowed spread between light/medium distillates and heavy distillate product margins, such as the diesel/jet fuel-HSFO spread. A decline in margins of light and middle distillate products, specifically naphtha and jet fuel cracks, a well-supplied light sweet crude market and rising US crude exports weighed on the value of light sweet crudes. The sour crude market was buoyed by demand from Asia Pacific refiners, higher refining margins for fuel oil and the prospect of a lower supply of medium sour crude Urals.

In **Europe**, the North Sea Dated-Urals crude spread narrowed in March, as the assessment of Urals crude differentials in the Mediterranean and Northwest Europe was seen higher by reporting agencies, supported by lower loading volumes in April and the prospect of lower supply of the grade in the coming months. The temporary halt of some crude supply from Turkey's Ceyhan oil terminal, mainly sour crude, tightened the supply outlook of sour crude in the Mediterranean. Meanwhile, lower demand from European refiners of light sweet crudes and the high availability of light sweet crude in the Atlantic Basin weighed on Brent values. The crack spread of HSFO in Rotterdam rose by \$4.19/b in March, while jet fuel fell by \$4.40/b.

Graph 1 - 7: Differential in Asia, Europe and USGC



Sources: Argus, OPEC and Platts.

The North Sea Dated-Urals crude differential in the Mediterranean narrowed by \$2.04 on average m-o-m to stand at \$28.55/b in March. The discount of Urals crude differentials to North Sea dated contracted the most in Northwest Europe, narrowing by \$5.03 on average m-o-m to stand at \$30.69/b. The differential between Ekofisk and Johan Sverdrup crude also narrowed m-o-m by 14¢ to an average of \$3.10/b in March.

In **Asia**, the sweet-sour crude differential represented in the Tapis-Dubai spread also narrowed in March, as the decline in sour crude prices was limited amid firm demand and higher heavy fuel oil margins in Asia. Improving west-to-east arbitrage that would raise the flow of light sweet crude from the Atlantic Basin to Asia contributed to pushing the value of sweet crudes in Asia Pacific lower. The Brent-Dubai spread flipped from a premium of 45¢/b in February to a 13¢/b discount, making Brent-related crude more competitive in the East of Suez market. The Brent-Dubai exchange of futures for swaps (EFS) also narrowed to below \$3/b. The Tapis/Dubai spread narrowed by \$2.05 in March to \$6.05/b from \$8.09/b the previous month.

In the **USGC**, the value of light sweet crude weakened last month against the value of sour crude, as the sour crude market was supported by demand for export to the Asia Pacific and higher fuel oil margins. Meanwhile, light sweet crude in the USGC was under pressure from high supply, high crude stocks in US PADD3, and strong competitiveness between similar crude qualities in the Atlantic Basin. The sharp decline in middle distillate margins, specifically diesel, also weighed on the value of light sweet crudes, including LLS. The LLS premium over medium sour Mars narrowed on average in March by \$1.62 to stand at \$3.20/b.

Commodity Markets

Selected commodity price indices fell for the second consecutive month, with the exception of the precious metals index. The energy price index fell for the seventh month in a row in March, while both the non-energy and the base metals indices declined for the second consecutive month. All the indices continued their downward trajectory y-o-y, amid a retraction of the geopolitical risk premium on prices.

In the paper market, overall sentiment continued to be mixed m-o-m, but shifted towards the upside. Money managers increased their net length across selected commodities, and total open interest rose for the third consecutive month.

China's exports of some commodities increased amid healthy inventories and weaker local demand. Outside of China, industrial activity remained weak, particularly in the Euro-zone where the manufacturing PMI receded m-o-m.

Trends in selected commodity markets

The **energy price index** declined for the seventh consecutive month, falling by 6.3% m-o-m. All the index components fell for the second month in a row, led by a decline in natural gas prices in Europe, and followed by a decline in coal, average crude oil, and US natural gas prices. The index was down by 36.5% y-o-y.

The **non-energy index** fell for the second consecutive month, declining by 2.2% m-o-m. Although movement within the index was mixed m-o-m, it was heavily skewed towards the downside as the supply outlook of key agricultural commodities continued to improve, and exports from the Black Sea safe corridor remained steady. The index was down y-o-y by 17.6%.

Table 2 - 1: Commodity prices

Commodity	Unit	Monthly averages			% Change	Year-to-date	
		Jan 23	Feb 23	Mar 23	Mar 23/Feb 23	2022	2023
Energy*	Index	119.3	110.5	103.6	-6.3	140.5	111.1
Coal, Australia	US\$/mt	318.0	207.5	187.2	-9.8	243.6	237.6
Crude oil, average	US\$/b	80.4	80.3	76.5	-4.7	96.6	79.0
Natural gas, US	US\$/mbtu	3.3	2.4	2.3	-3.3	4.6	2.7
Natural gas, Europe	US\$/mbtu	20.2	16.5	13.8	-16.5	32.6	16.8
Non-energy*	Index	117.4	117.1	114.6	-2.2	131.4	116.3
Base metal*	Index	121.0	117.8	113.1	-3.9	140.7	117.3
Precious metals*	Index	144.9	140.3	144.1	2.7	143.6	143.1

Note: * World Bank commodity price indices (2010 = 100).

Sources: World Bank and OPEC.

Average crude oil prices receded for the second consecutive month, falling by 4.7% m-o-m. Prices experienced a sharp decline in the first half of the month amid the banking turmoil, which weighed on investor sentiment toward the futures markets. Prices recovered slightly following the intervention by regulators; however, prices remained under pressure from global macroeconomic headwinds. Y-o-y, prices were down sharply by 32.0%.

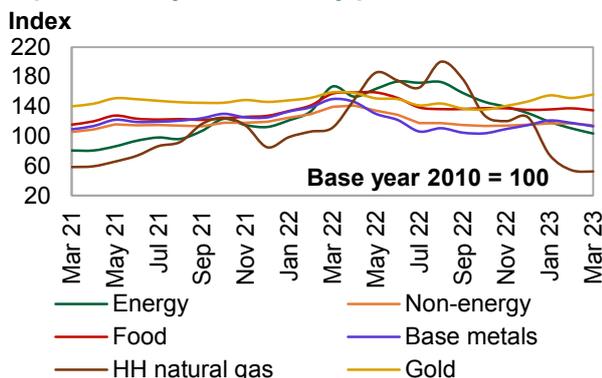
Henry Hub's natural gas prices fell for the third consecutive month, declining by 3.3% m-o-m. Softer demand and robust supplies continued to weigh on prices. Recent data from the US Energy Information Administration (EIA) showed an increase in withdrawals in March, as weekly average underground storage fell by 14.6% m-o-m; nonetheless, underground storage was reported to be at 21.0% higher in March compared with the five-year average in the same period, and over 30% higher y-o-y. This has provided a strong buffer to US gas balances ahead of the storage injection season. Prices were down by 52.8% y-o-y.

Natural gas prices in Europe declined for the third consecutive month. The **average Title Transfer Facility (TTF) price** went from \$16.50/mmbtu in February 2023 to \$13.8/mmbtu in March 2023, a 16.5% decline m-o-m. Natural gas demand for industrial activity rose m-o-m amid price declines from previous periods. The latest data from Gas Infrastructure Europe showed EU gas storage at 55.2% capacity, down from 59.2% in the previous month. That said, storage remained at healthy levels, putting downward pressure on prices.

The EU exited the winter season with a strong buffer ahead of the injection season. Prices were down y-o-y by 67.4%.

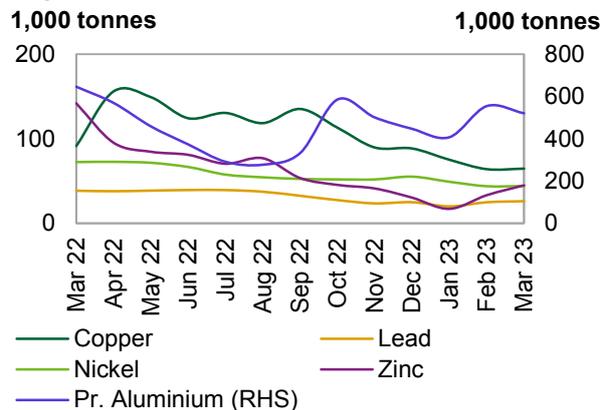
Australian thermal coal prices fell for the third consecutive month, although the decline was less accentuated compared with the previous two months. Prices declined by 9.8% m-o-m as China eased import restrictions on Australian coal, but demand remained subdued by robust inventory levels and increase local production. Outside of China, demand from Europe and Asia Pacific consumer nations declined amid warmer weather. Furthermore, low natural gas prices added more downward pressure on coal prices, with some gas prices reaching parity with coal prices in March. Y-o-y, prices were down by 42.3%.

Graph 2 - 1: Major commodity price indices



Sources: World Bank, S&P Goldman Sachs, Haver Analytics and OPEC.

Graph 2 - 2: Inventories at the LME



Sources: LME, Thomson Reuters and OPEC.

The **base metal index** receded for the second consecutive month, declining by 3.9% m-o-m. Movement within the index components was mixed, but heavily skewed towards the downside. China's industrial activity receded, with the manufacturing PMI falling from 51.6 in February to 50.0 in March; however, it is still in the expansion level; hence, the supply of metals remained robust while demand continued to be weak. Outside of China, industrial activity in the Euro-zone remained weak. The Euro-zone manufacturing PMI fell for the second consecutive month to 47.3, down from 48.5 in February and reaching a four-month low.

Aluminium prices fell for the second consecutive month, declining by 5.0% m-o-m. Aluminium demand rose late in the month, as the London Metal Exchange (LME) warehouses reported a decrease in inventory levels by 6.1% m-o-m. However, weaker industrial activity amid concerns over the global macroeconomic outlook remained a drag on prices. Prices were down by 34.4% y-o-y.

Average monthly copper prices receded for the second consecutive month, falling by 0.9% m-o-m. Prices remained under pressure by increased supplies as the LME reported an inventory build-up by 1.0% m-o-m. Moreover, China's exports rose m-o-m amid weaker local demand. Y-o-y, prices were down by 13.4%.

Lead prices rose in March, increasing by 5.1% m-o-m. LME inventories showed a 5.1% m-o-m build-up. However, stronger sales of electric vehicles in Europe and the US added support to prices. Prices were down by 9.8% y-o-y.

Both **nickel and zinc prices** fell for the second consecutive month on weaker import imports from China and robust local production. Nickel prices declined by 12.9% m-o-m and zinc prices fell by 5.3% in the same period.

Meanwhile, **iron ore prices** rose for the second consecutive month, increasing by 0.6% m-o-m. Prices rose ahead of the peak construction season in China. Y-o-y, nickel prices were down by 31.4% while those for zinc were down by 25.1%.

The **precious metals index** partially recovered in March from the previous month's decline, increasing by 2.7% m-o-m. All index components rose m-o-m, led by gold. Precious metals advanced, supported by investors' shift towards safe haven investments following the banking turmoil earlier in the month. **Gold prices** rose by 3.1% m-o-m, while **silver and platinum** rose by 0.3% and 1.2%, respectively, in the same period. Y-o-y, the index was down by 3.7%; gold was down by 1.8%, silver by 13.2%, and platinum by 7.0%.

Investment flows into commodities

Total money managers' net length rose in March, increasing by 5.4% m-o-m. Natural gas led the gains in net length, followed by gold, but were partially offset by a decrease in copper and crude oil. Meanwhile, total open interest rose for the third consecutive month, increasing by 1.8% m-o-m. Gold also led the gains in open interest followed by natural gas and crude oil, but were partially offset by a decline in copper.

Table 2 - 2: CFTC data on non-commercial positions, 1,000 contracts

Selected commodity	Open interest		Net length			
	Feb 23	Mar 23	Feb 23	%OI	Mar 23	%OI
Crude oil	2,229	2,256	176	8	121	5
Natural gas	1,253	1,277	-62	-5	-13	-1
Gold	600	681	57	10	87	13
Copper	249	233	11	4	-3	-1

Note: Data on this table is based on a monthly average.

Sources: CFTC and OPEC.

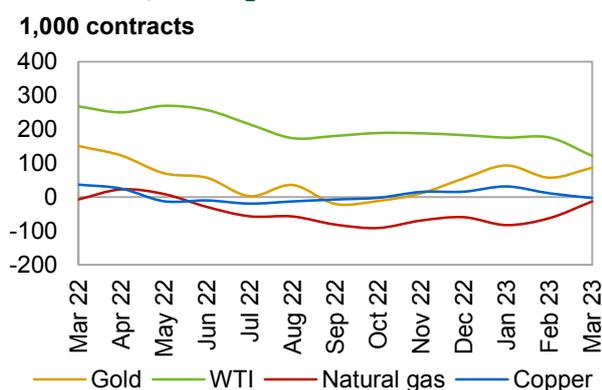
Total crude oil (WTI) open interest (OI) increased for the third consecutive month, rising marginally by 0.4% m-o-m. Meanwhile, money managers' net length decreased by 31.4% over the same period. Money managers turned bearish in March following the banking sector turmoil that saw heavy sell-offs in the futures markets and a shift towards safe haven investments.

Total Henry Hub natural gas OI rose for the sixth consecutive month, increasing by 1.8% m-o-m. Money managers increased their net length for the second consecutive month by 81.7% over the same period. Money managers' increase in net length continued to be driven by a decline in short positions.

Gold's OI rose in March by 11.8% m-o-m. Money managers also increased their net length by 37.9% in the same period. Money managers were bullish on gold amid a shift towards safe haven investments following the banking sector turmoil earlier in March.

Copper's OI decreased in March by 9.8% m-o-m. Meanwhile, money managers also reduced their net length for the second consecutive month by 124.1% in the same period. Weaker industrial activity continued to weigh on money managers' sentiments.

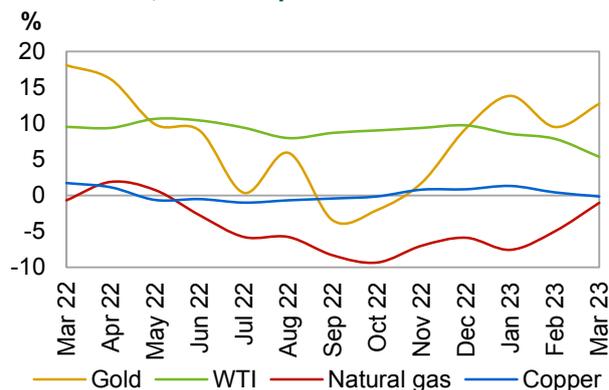
Graph 2 - 3: Money managers' activity in key commodities, net length



Note: Data on this graph is based on a monthly average.

Sources: CFTC and OPEC.

Graph 2 - 4: Money managers' activity in key commodities, as % of open interest



Note: Data on this graph is based on a monthly average.

Sources: CFTC and OPEC.

World Economy

Global growth in 1Q23 appeared well supported by steady economic activity in most OECD economies, the positive effects of China's reopening, and a firm economic growth trend in India and Other Asia. The turbulence experienced by the US banking sector in March has so far had only a limited economic impact. The Euro-zone seems to have weathered the consequences of ongoing tensions in Eastern Europe relatively better than expected, while in Japan, growth at the beginning of the year appears to have picked up from a stagnant 4Q23. In the emerging markets, China's reopening has led to accelerating growth since the beginning of the year, while India's momentum so far in 1H23 has been helped by government-led spending plans and income tax cuts, among other measures.

Global economic growth for 2023 remains unchanged from last month's projections of 2.6%. This compares with a growth estimate of 3.3% for 2022, which represents a slight upward revision from the previous month. Considering the uncertainties surrounding the global economy and particularly the current monetary tightening cycle of major central banks, downside risks for the global growth forecast exist.

Upside potential may come from less accentuated inflation, providing central banks with room for an accommodative monetary policy towards the end of the year. In the Euro-zone, the better-than-expected dynamic at the turn of the year may continue well into 2023. In emerging Asia, an even stronger-than-anticipated rebound in China after the reopening of its economy may be another possibility, while India could surprise, with domestic demand accelerating further.

Table 3 - 1: Economic growth rate and revision, 2022–2023*, %

	World	OECD	US	Euro-zone	UK	Japan	China	India	Brazil	Russia
2022	3.3	2.9	2.1	3.5	4.0	1.0	3.0	6.7	2.9	-2.1
Change from previous month	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2023	2.6	1.1	1.2	0.8	0.0	1.0	5.2	5.6	1.0	-0.5
Change from previous month	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	0.0	0.0

Note: * 2023 = Forecast. The GDP numbers have been adjusted to reflect 2017 ppp.

Source: OPEC.

Update on the latest global developments

The latest available economic indicators were mixed within and among key economies.

The latest data from the start of this year indicated that better-than-expected 2H22 growth in OECD economies continued into 1Q23. This momentum was accompanied by a clear upswing in China's economic activity, following the reopening of the economy at the end of last year. US GDP was confirmed to have reached 2.1% in 2022 and 1Q23 growth appears to be well supported, with some slowing momentum in March. The Euro-zone's GDP stood at 3.5% in 2022 and as economic activity slowed significantly towards the end of the year, this low-growth dynamic is estimated to have carried over into 1Q23.

In Japan, 1Q23 growth appears to have picked up from an almost stagnant 4Q22. While China's 2022 GDP growth was reported at only 3%, the most recent indicators have pointed at a considerable recovery in 1Q23. Similarly, India seems to enjoy ongoing steady growth in 1Q23, supported by a strong services sector.

This momentum appears to have benefited from well-supported disposable income levels, especially in advanced economies. Consumer credit was another factor that helped support consumption. Gross disposable household income in 4Q22 and non-profit institutions serving households (NPISHs) reached 4.5% y-o-y in the US, the highest quarterly level in 2022, after standing at 2.7% y-o-y in 3Q22. In the Euro-zone, disposable income rose by a strong 7.1% y-o-y in 3Q22 from 5.1% y-o-y in 2Q22. This development has been supported by the strong rise in employees' compensation in advanced economies, which grew by 5.9% y-o-y in 3Q22, by 6.8% y-o-y in 4Q22 in the Euro-zone, and by 8.5% y-o-y in 3Q22 and 7.1% y-o-y in 4Q22 in the US, according to the latest data. However, the data on US delinquency rates shows a gradual rise in consumer credit, and the latest US banking sector-related turbulence implies that debt-related fallouts could likely continue.

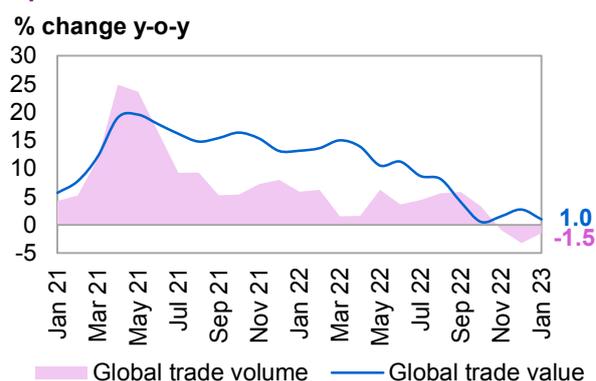
Inflation has retracted but remains high in advanced economies, according to the latest available data. The US recorded an inflation level of 5% y-o-y in March and 6% y-o-y in February. Euro-zone inflation stood at

6.9% y-o-y in March and at 8.5% y-o-y in February. As indicated by leaders of both the US Federal Reserve (US Fed) and the European Central Bank (ECB), continued high inflation – accompanied by tight labour markets and solid underlying consumption and investments – will lead central banks in these major OECD regions to lift interest rates further in 1H23, particularly as core inflation remains high.

Global trade expanded in January in value terms, increasing by 1% y-o-y, after a rise of 2.7% y-o-y in December, based on the CPB World Trade Monitor Index provided by the CPB Netherlands Bureau for Economic Policy Analysis.

Trade in volume terms declined by 1.5% y-o-y in January, compared with a decline of 3.2% y-o-y in December. The December and November declines were triggered by a continued decline in China's export volumes, which fell by 10.9% y-o-y in both December and January.

Graph 3 - 1: Global trade



Sources: Netherlands Bureau for Economic Policy Analysis, and Haver Analytics.

Near-term global expectations

Since the beginning of the year, economic growth appears to have been well supported in several key economies, yet uncertainties have risen recently. Although general global inflation has fallen in recent months, core inflation has remained persistently high, leading key central banks to continue their monetary tightening efforts. The consequences of this inflation-interest rate cycle were mirrored in the latest turbulences of small and medium-sized US banks. The near-term global growth pattern will depend to a large extent on inflation, the consequent monetary policies in key economies – particularly the US – and the consequences that rapid monetary tightening may have on highly indebted areas of the global economy.

It remains to be seen to what extent debt-related casualties continue as many areas of the global economy are exposed to high leverage, balance sheet fragilities and – in the case of sovereign debt – rising fiscal constraints. Areas beyond the banking sector that may be affected by continued monetary tightening measures include the funds industry and other parts of the financial sector. That became evident in the UK's pension fund turbulence in October 2022 before the BoE successfully stepped in. Challenges may also be in store for the highly leveraged real estate sector. Indebted households may also encounter more constraints in repaying consumption-related debt, as can be seen in the gradually rising delinquency rates in US consumer financing. It also remains to be seen how sovereigns will be able to manage the debt they have accumulated in recent years. As in comparable past incidents, growth in the near term may be dampened by the higher interest rate regime.

Inflation could help indebted economies through rising nominal incomes and reduced real debt levels. This has already helped the US and Italy improve their highly indebted public finances as highlighted in the latest findings of the IMF's fiscal analysis. At the same time, the IMF highlighted the importance of using the windfall to cut deficits. The IMF's data shows that the US's net debt fell from 99% of GDP in 2020 to 95% in 2022, despite government measures to counterbalance the fallout from the pandemic via rising fiscal spending. Italy's net debt fell from 142% of GDP in 2020 to 135% in 2022. However, it will be unlikely that this unexpected support will be repeated at the same magnitude as inflation is forecast to gradually slow.

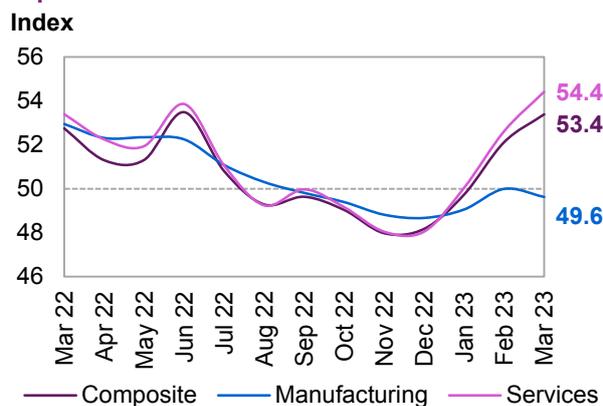
The better-than-expected performance of the global economy in 2H22 lifted last year's global growth estimate to 3.3%, compared to last month's estimate of 3.2%. However, despite possibly stronger-than-expected 1Q23 economic growth in the US, the remainder of the year may be impacted by the consequences of monetary tightening. This was indicated by low US PMIs for the important services and manufacturing sectors. China, the second largest economy in the world, seems to have improved further after its reopening efforts and 1H23 growth appears to be well supported. India is enjoying steady growth, with support from the services sector as well as the industrial side of the economy. The Euro-zone and Japan are forecast to show low growth in 2023. However, the Euro-zone has so far avoided a recession at the turn of the year, as it was expected only some months ago. The carryover of the steady, albeit slowing 2H22 growth dynamic in the US and the Euro-zone and considering the dampening effects of monetary tightening in 2023, accounting for the supportive effects of China's reopening and additional fiscal measures in India, lead to a growth expectation of 2.6% for 2023, unchanged from last month.

Global purchasing managers' indices (PMIs) from March reflect the continuing deceleration in manufacturing and the improvements in the services sectors of major economies.

The global **manufacturing PMI** retraced very slightly to stand at 49.6 in March, compared with 50 in February and 49.1 in January.

The **global services sector PMI** increased to 54.4 in March, compared with 52.6 in February and 50 in January.

Graph 3 - 2: Global PMI



Sources: JP Morgan, S&P Global and Haver Analytics.

Based on better-than-anticipated momentum in 2H22, the annual **2022 GDP growth** forecast was revised up slightly to 3.3%, compared with 3.2% in the March MOMR.

The **growth forecast for 2023** remains at 2.6%. While indicating a slowdown from 2022, it is still solid growth considering the ongoing global economic challenges, particularly strongly rising interest rates as a consequence of persistently high inflation, and the impact this may have on high global debt levels.

Table 3 - 2: World economic growth rate and revision, 2022–2023*, %

	World
2022	3.3
Change from previous month	0.1
2023	2.6
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

OECD

OECD Americas

US

Update on the latest developments

GDP growth in 4Q22 was reported to have stood at 2.6% seasonally adjusted annualised rate (SAAR) in the final and third growth estimate, as provided by the Bureau of Economic Analysis. Growth was at 2.7% q-o-q in the second estimate, while the first estimate stood at 2.9% q-o-q SAAR. Growth in 4Q22 followed a 3.2% q-o-q SAAR rise in 3Q22 and reported GDP declines of 1.6% q-o-q SAAR and 0.6% q-o-q SAAR in 1Q22 and 2Q22, respectively. Momentum in 1Q23 seems to be holding steady, while the most recent March data shows some weakening, as indicated by labour market statistics and lead indicators like PMIs. Relatively warm weather at the beginning of the year provided support for the services sector, while manufacturing was still contracting. Underlying consumption has held up well so far and is expected to constitute a key pillar to US growth in 2023, with disposable income data confirming ongoing sound spending ability. However, the latest indication of gradually rising delinquencies in consumer credit-related financing will need close monitoring in the near term as this could point to rising challenges for debt-financed consumption in the US, usually an important support factor.

While general **inflation** retracted, core inflation increased and remains persistently high. The general price index has now slowed for nine consecutive months to stand at 5% in March, compared with 6% y-o-y in February and 6.4% y-o-y in January. Core inflation stood at 5.6% y-o-y in March, compared with 5.5% y-o-y in February and 5.6% in January. The level remains elevated and the US Federal Reserve (the Fed) has confirmed it will stay its course in its aim to reduce inflation, particularly core inflation, despite recent turbulence in the US banking sector. The Fed is also being steered by its own guideline, the core index of personal consumption expenditures (PCE). This index stood at 4.6% y-o-y in February, following 4.7% y-o-y in January and compared with 4.6% y-o-y in December. Continuing rises in wages and salaries, leading to higher prices in the services sector, are playing a role, as the PCE services price index rose by 5.7% y-o-y in February, after reaching 5.6% y-o-y in January and 5.4% y-o-y in December. Consequently, the Fed has

continued to highlight its efforts to dampen inflation through monetary tightening efforts, after having lifted interest rates by 25 bp in March, with the key policy rate's upper limit now at 5%.

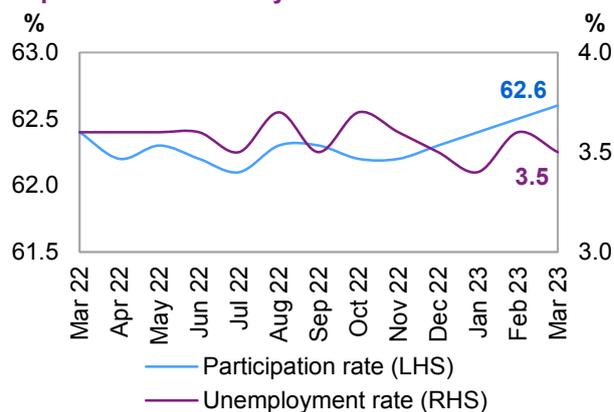
In the meantime, the **consumer confidence index**, as reported by the Conference Board, rose slightly to stand at 104.2 in March, compared with 103.4 in February. This compares to pre-pandemic levels of somewhat below 100.

While the labour market cooled a bit in March, it remained robust. The **unemployment rate** fell, to stand at 3.5%, compared with 3.6% in February.

The **participation rate** continued its gradual improvement in March to stand at 62.6%, compared with 62.5% in February and 62.4% in January.

Non-farm payrolls rose strongly again, albeit at somewhat lower levels than in the past months. There were 236,000 new jobs recorded in March, compared with an upwardly revised number of 326,000 in February and compared with 472,000 in January. Corresponding hourly wage growth remained strong, albeit it continued slowing. Hourly earnings rose by 4.2% y-o-y in March, compared with 4.6% in February and 4.4% y-o-y in January.

Graph 3 - 3: US monthly labour market



Sources: Bureau of Labor Statistics and Haver Analytics.

Near-term expectations

After seemingly ongoing steady growth in 1Q23, the growth dynamic seems to have tapered off somewhat, as indicated by the latest PMIs, manufacturing orders and labour market data. The US economy will perform relatively well this year, but that growth will stand below the 2.1% expansion level of 2022. The combination of ongoing high inflation, especially persistently high core inflation, leading to ongoing monetary tightening, with consequent dampening effects on economic growth, are all factors holding back high growth rates in the current year. After March's US banking sector-related turbulence it should be expected that the fallout of monetary tightening may continue. As the Fed is basically aiming for lower economic growth in order to rein in inflation, very much will depend on its ability to engineer a soft landing, which is currently anticipated in this forecast. The necessary monetary tightening came at a time when a standoff over the debt ceiling debate in Congress continued, a matter that could have consequential effects on business and consumer sentiment, as well as fiscal spending abilities, with severe spillover effects into the real economy on a global level.

As indicated by current data, **1Q23 GDP growth** should remain steady, while decelerating from a consecutive quarterly view. Based on estimates from the Atlanta Fed's GDP analysis, 1Q23 GDP growth should stand at 1.5% q-o-q SAAR. This reflects a strong downward shift in 1Q23 growth expectations, taking into consideration the latest somewhat softening labour market data and retractions in PMI indicators, among other factors. The Atlanta Fed's GDP growth estimate for 1Q23 stood at 2.3% only a month ago. It also marks a considerable downward shift from 4Q22 growth of 2.6% q-o-q SAAR. The gradually softening dynamic is forecast to carry on throughout the year. Inflation will remain high in 1H23 and is forecast to slow only towards 2H23 at a more significant rate. Following core inflation of 6.1% in 2022, the forecast for 2023 is around 4.5%. Despite recent banking woes, monetary tightening is forecast to continue, but is expected to slow. The Fed is expected to lift rates further by 25 bp in May, while further hikes will be carefully considered. In order to avoid a hard landing, and in case of inflation comes back faster than expected, a lowering of interest rates towards the end of the year is also a possibility, as central banks will aim to balance out any further upside trend in inflation and elevated downward momentum in economic growth.

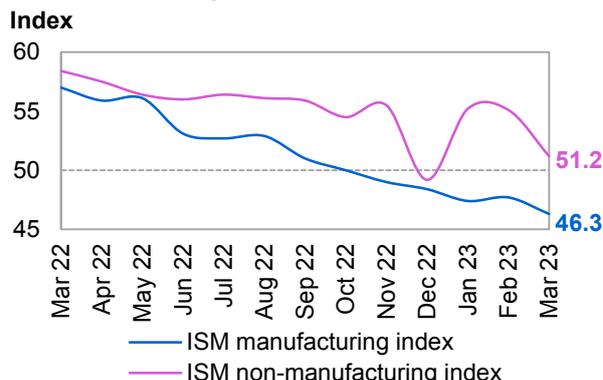
So far **private household consumption** remains supportive and the important housing market is holding up well. However, gradually rising delinquency rates in consumer loans and other debt-related fragilities will need to be carefully monitored in the coming months.

World Economy

March **PMI** levels, as provided by the Institute for Supply Management (ISM), reflect a decelerating trend in both the manufacturing and services sectors. The March **manufacturing PMI** decelerated to stand at 46.3, after reaching 47.7 in February and following an index level of 47.4 in January. It remained below the growth-indicating level of 50 for the fifth consecutive month.

The index level for the **services sector**, representing around 70% of the US economy, retracted sharply by almost 4 index points to stand at 51.2 in March, following a level of 55.1 in February and 55.2 in January.

Graph 3 - 4: US-ISM manufacturing and non-manufacturing indices



Sources: Institute for Supply Management and Haver Analytics.

Considering the slight revision in the 4Q22 GDP growth levels, **US GDP growth** for **2022** remains at 2.1%.

Assumptions for the **2023 GDP growth forecast** are unchanged from last month, integrating sound momentum since the beginning of the year. Moreover, the dampening effects of monetary tightening in 2Q23 and 2H23 are considered. Hence, the forecast for 2023 GDP growth remains at 1.2%.

Table 3 - 3: US economic growth rate and revision, 2022–2023*, %

	US
2022	2.1
Change from previous month	0.0
2023	1.2
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

OECD Europe

Euro-zone

Update on the latest developments

The slow-down from 2H22 seems to have stabilised in 1Q23 and most underlying trends in output and consumption were better than expected in recent months. Only some months ago, a **1Q23 GDP** decline was expected, considering the consequences of monetary tightening and particularly fallout from the conflict in Eastern Europe. Both of these major challenges were mastered to some extent, despite persistently high core inflation. Similar to the US, sufficient disposable income and ongoing high spending in the services sector were major factors supporting the Euro-zone since the beginning of the year. On the other side, manufacturing and merchandise goods exports softened, dampening growth in line with a global trend. Consequently and despite services sector-related spending in 4Q22, GDP was reported to have declined by 0.1% q-o-q SAAR, according to the latest release by Eurostat, the European Statistical Agency. Areas of weakness were especially due to a decline in private household consumption, which fell by 3.4% q-o-q SAAR, contrary to public expenditure, which expanded by 3% q-o-q SAAR and to some extent compensated for the slowing trend. Gross capital formation, i.e. investments, fell by a strong 11.3% q-o-q SAAR.

Inflation in the Euro-zone eased again in March to stand at 6.9% y-o-y, compared with 8.5% y-o-y in February and 8.7% y-o-y in January. However, core inflation remained persistently high, a trend that will likely lead the ECB to further tighten monetary policies in the upcoming meeting in May. When excluding volatile items such as food and energy, inflation stood at 7.5% y-o-y in March, compared with 7.4% in February and 7.1% in January.

Lending to the private sector constitutes an important lifeline to the Euro-zone economy, with banks being an important provider of liquidity, particularly to small- and medium-sized enterprises. Growth in lending has softened since September 2022, given the impact of monetary tightening. Another aspect that will need close monitoring in the near-term is ongoing turbulence in the US banking sector, with consequent spill-overs to the European banking system, as seen already in March. Lending activity expanded by 4.1% y-o-y in February, following 4.6% in January and 5.3% in December. However, with ongoing central bank tightening measures and likely also a tightening in lending standards by European banks in light of the latest banking wobbles, the flow of liquidity is expected to slow further, impacting Euro-zone growth.

The **labour market** has maintained its positive trajectory, with unemployment remaining relatively low. According to the latest numbers from Eurostat, the unemployment rate stood at 6.6% in February, the same as in January, and compared with 6.7% in both December and November.

Growth in **retail sales** in value terms retracted and saw a level-shift as it increased by 5.8% in February, after it was almost unchanged within the preceding three months, standing at 7.3% y-o-y in January, 6.9% in December and 7% in November. This confirms the estimated slow-down in the Euro-zone within the most recent months.

Spending in volume terms, however, fell by 3.1% y-o-y in February, after a contraction of 1.9% y-o-y in January and a December level of -2.7%.

Industrial production (IP) recovered in January, pointing at some improvement from the end of the year. After IP contracted by 2.2% y-o-y in December, it rose by 0.7% in January. On a monthly basis, industrial activity rose by 0.7% m-o-m in January, compared with a decline of 1.3% m-o-m in December.

Near-term expectations

The decelerating 2H22 GDP growth trend in the Euro-zone is forecast to continue into 2023 as economic indicators, like the most recent PMIs, lending activity and manufacturing orders, confirm a slowing trend. Positively, indicators are pointing at a better-than-expected growth trend compared with just some months ago, when it was forecast that the Euro-zone might enter into a recession at the turn of the year. This seems to have been successfully avoided. Nonetheless, growth is forecast to remain low, with the ECB continuing its monetary tightening effort, the Euro-zone's need to digest spill-over effects of the conflict in Eastern Europe and ongoing high inflation dampening consumption, particularly of manufactured goods, while the services sector is performing relatively better.

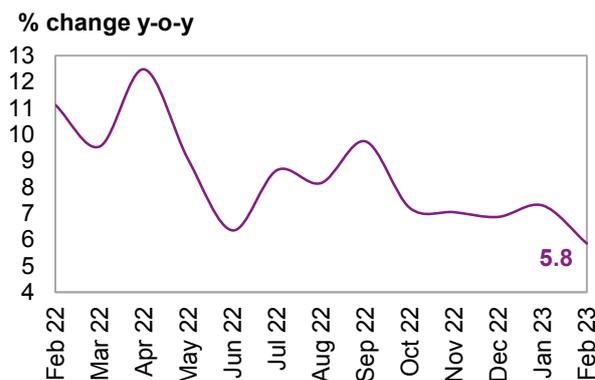
The **ECB's monetary tightening** is forecast to continue as inflation and particularly core inflation is expected to remain high in 2023. Inflation stood at 8.4% y-o-y in 2022, and, while it is forecast to slow, it is anticipated to remain elevated at almost 5% in 2023. The ECB is forecast to lift interest rates by a further 50 pp in 1H23, moving the main key policy rate to 4%, most likely at its upcoming May meeting. Consequently, strong Euro-zone lending activity – an important factor for investment and growth during the post-pandemic recovery – is forecast to slow further with subsequent negative impacts, especially on the real estate sector and business-related investments in general. Bank lending to the private sector constitutes a key funding facility in the Euro-zone. Considering rising interest rates towards 2H23 – dampening GDP growth –, the GDP dynamic in the Euro-zone is skewed towards 1H23. Growth in 1H23 is forecast at 0.8% on an average quarterly annualized rate, while it is forecast to decelerate in 2H23 to stand at 0.4% on an average quarterly annualized rate.

The **Euro-zone's March PMI** pointed to some improvement, particularly in the services sector, while the manufacturing sector remains in contraction.

The **PMI for services**, the largest sector in the Euro-zone, rose to 55 in March, from 52.7 in February and 50.8 in January.

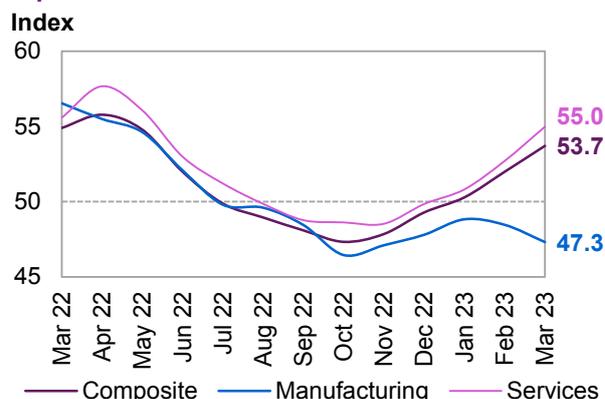
The **manufacturing PMI** remained in contractionary territory, standing at 47.3 in March, compared with 48.5 in February and 48.8 in January.

Graph 3 - 5: Euro-zone retail sales



Sources: Statistical Office of the European Communities and Haver Analytics.

Graph 3 - 6: Euro-zone PMIs



Sources: S&P Global and Haver Analytics.

The **GDP growth forecast for 2023** remains unchanged at 0.8%. This takes into consideration the impact of a variety of dampening factors, including inflation and further monetary tightening, expected ongoing energy supply constraints and other associated issues. This compares with the actual **2022 GDP growth** of 3.5%.

Table 3 - 4: Euro-zone economic growth rate and revision, 2022–2023*, %

	Euro-zone
2022	3.5
Change from previous month	0.0
2023	0.8
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

OECD Asia Pacific

Japan

Update on latest developments

After almost stagnant GDP growth in 4Q22, the 1Q23 growth trend seems to have accelerated, as indicated by the latest output numbers and lead indicators. In 4Q22, GDP growth was reported almost stagnant, showing growth of 0.1% q-o-q SAAR, leading annual 2022 growth to a low level of 1% for the year, as reported by the Ministry of Economics, Trade and Industry. The latest data, particularly from the domestic demand side, is pointing to an improvement in 1Q23. External demand, i.e. exports, also improved in February, likely benefitting from the effect of reopening in China. While the services sector performed relatively well towards the end of the year, the industrial sector was a weak spot, with output declining towards the end of the previous year. This seems to have now improved, supported by the export sector. This is also reflected in the latest manufacturing PMI numbers, which point to some improvement in this area.

Inflation has also increased lately, despite Japan having been a traditionally low-inflationary economy in past years. While inflation has not been an issue for the Japanese economy for a long time, it rose by 3.3% y-o-y in February and 4.4% y-o-y in January, levels not seen since 2014, when a sales tax increase briefly lifted total inflation to around a similar level. Comparable with inflationary trends in other economies, core inflation – excluding food and energy – a main guideline for central bank policies, rose significantly as well, reaching 2.1% y-o-y in February, after reaching 1.9% y-o-y in January and 1.5% y-o-y in December. With this rising inflationary momentum, the Bank of Japan (BoJ) will likely need to respond and tighten monetary policies further, after the central bank at the end of December already announced that it would allow 10-year bond yields to fluctuate by 0.5 pp above or below its target of zero, replacing the previous band of 0.25 pp flexibility. However, for the time being this policy tool and more short-term overnight interest rates, were kept unchanged at minus 0.1%.

Similar to other major economies **industrial production (IP)** remained weak, but signalled the potential onset of an improving trend. February levels declined by 1.9% y-o-y, compared with -2.5% in January and -2.4% in December. The monthly comparison shows a strengthening recovering trend as February levels rose by 4.5% m-o-m on a seasonally adjusted base, following a decline of 5.3% m-o-m in January.

Export growth remained low, but improved in February, when they rose by 6.5% y-o-y on a non-seasonally adjusted base. This compares with growth of 3.5% y-o-y in January. These 2023 trends follow a 4Q22 growth rate of 18.7% y-o-y. With the rebound in China and better-than-expected consumption in major OECD economies, this will likely pick up further.

Retail sales continued their solid trend in February in value terms, rising by 6.6% y-o-y in February and 5% in January, compared with an already high 3.8% in December and 2.5% in November. The trend points at an improving dynamic in domestic consumption.

Consumer confidence improved considerably, standing at an index level of 33.5 in March, compared with 30.7 in February and 30.9 in January, confirming domestic improvements in the Japanese economy towards the end of 1Q23.

Graph 3 - 7: Japan's exports



Sources: Ministry of Finance, Japan Tariff Association and Haver Analytics.

Near-term expectations

Growth in Japan is expected to stay at around the same level as in 2022, but likely with a less volatile growth pattern, as 2022 was very much impacted by lock-down-related impacts. After the almost stagnant growth in 4Q22, which stood at 0.1% q-o-q SAAR, growth is forecast to pick up again in 1Q23 to stand at 1.3% q-o-q SAAR. The GDP growth pattern is then forecast to remain relatively stable, with growth of 1.5% q-o-q SAAR in 2Q23 and a 1.4% q-o-q SAAR quarterly average in 2H23. The economy is forecast to remain constrained by a tight labour market, high inflation, an already sound utilization rate in its industrial base and a global slowdown. Some upside potential may come from trade with China, Japan's most important trading partner in Asia, as its economy is benefitting from the post COVID-19 opening dynamic. Also, better-than-expected consumption in major OECD economies could provide some upside potential in exports.

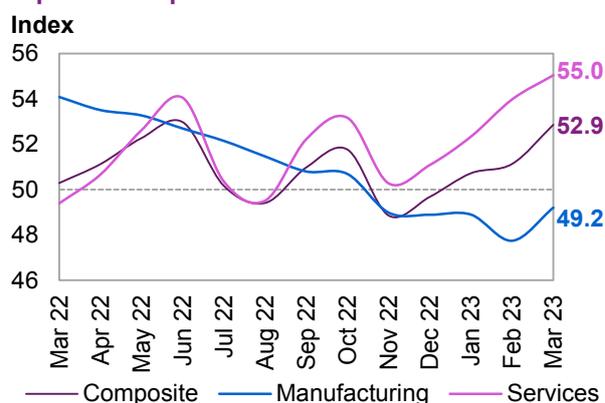
It remains to be seen how the BoJ will deal with currently ongoing rising core inflation, as possibly more aggressive monetary tightening will be needed. After having reached 2.5% in 2022, inflation is forecast at an annual average of around 1.5% in 2023. However, it stood at almost 3.9% in 4Q22 and 3.3% in February. It is still forecast to gradually recede and stand at around 2.2% in 1H23, then taper off towards the end of the year, when it is forecast to be at only around 1%. As a result, long-term rates will foreseeably continue to rise and retract only in 2H23, amid an expected slowdown in inflation. Given ongoing interest rate differentials for 2023, the yen's room for appreciation will remain limited, so that an average rate of around 130 yen/US-dollar for 2023 is expected. However, the latest US banking-related turbulence and potentially more accommodative US monetary policy towards 2Q23 may support an appreciation of the yen. On the other side, the latest comments by the incoming BoJ leadership on keeping the monetary policy tools unchanged for now points in the direction of an ongoing soft yen.

March PMI numbers reflected an improvement in both the manufacturing and services sectors. However, while the manufacturing sector remained in contractionary territory, below the index level of 50, the services sector appears to have recovered further.

The **services sector PMI**, which constitutes around two-thirds of the Japanese economy, rose to 55 in March, compared with 54 in February and 52.3 in January.

The **manufacturing PMI** rose to stand at 49.2 in March, after reaching 47.7 in February and 48.9 in January, all below the growth-indicating level of 50.

Graph 3 - 8: Japan's PMIs



Sources: S&P Global and Haver Analytics.

After Japan saw **2022 GDP growth** of 1%, economic activity is forecast to remain stable. Hence, the 2023 GDP growth forecast was revised down slightly by 0.2 percentage points to stand at 1% as well. This considers a slight pick-up in the growth dynamic throughout the year, after almost stagnant growth at the turn of the year.

Table 3 - 5: Japan's economic growth rate and revision, 2022–2023*, %

	Japan
2022	1.0
Change from previous month	0.0
2023	1.0
Change from previous month	-0.2

Note: * 2023 = Forecast.

Source: OPEC.

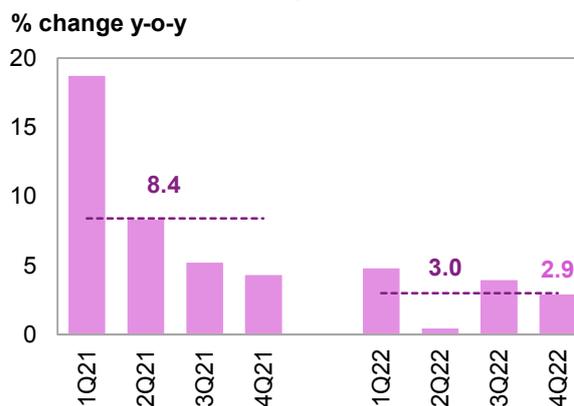
Non-OECD

China

Update on the latest developments

After a slowdown in China's economy in 2022 and relatively lacklustre growth, particularly in 2H22, signposts have emerged that **China's economy is picking up**. The year 2022 was significantly impacted by the lockdowns that dragged down both domestic consumption and output. The latter also created carry-over effects in the form of supply chain problems that were felt across the globe, issues that now seem to have come to an end, albeit new challenges have emerged in the meantime for the global economy. A softening growth trend in 2022 became apparent with China's 4Q22 GDP growth standing at only 2.9% y-o-y.

Graph 3 - 9: China's GDP growth



Sources: National Bureau of Statistics and Haver Analytics.

As the government changed course in December and started to reopen the country, the economic dynamic picked up, as also indicated by the most recent output measures and lead indicators. The rebound, it seems, is very much supported by pent-up demand in the services sector, a dynamic forecast to continue in 2023. Construction activity also rebounded. So far, the manufacturing sector's recovery has been more subdued, as is the case at the global level as well.

The latest available data for January and February shows that the slowdown in **IP** activity picked up again. Combining January and February, IP picked up by 2.4% y-o-y, after growth of only 1.3% y-o-y last December. This also compares with November's level of 2.2% y-o-y.

Similarly, **retail trade** picked up during the latest Luna-year season, with growth of 3.5% y-o-y for January–February, after a decline was seen of 1.8% y-o-y in the last month of the year. Most consumer goods manufacturers also showed consistent improvement in profit growth within retail sale growth in January–February.

Another factor that will require close monitoring is international trade, as China's economy was in past years very much driven by export. Export volumes declined at the turn of the year, falling by 10.9% y-o-y in both January and December, after reaching -8.9% in November, based on data provided by the CPB Netherlands Bureau for Economic Policy Analysis. With rising tensions in global trade, it remains to be seen how this sphere will develop going forward.

The annual inflation rate stood at only 1% in February y-o-y, after hitting an already low level of 2.1% in January and 1.8% in December. While it is forecast that inflation will rise further amid the effects of economic reopening in December, it has not been an issue for Chinese policymakers so far.

Near-term expectations

Given a so far healthy recovery, China's growth aim of 5%, as announced in the latest National People's Congress, seems to be very much achievable. A significant lift will come from the services sector in the coming months, with a recovery especially in the contact-intensive areas of the economy, including leisure, travel and tourism, and hospitality. Also, the easing of curbs in the real estate sector will likely provide some support to the housing sector. In terms of monetary policy, it is forecast that the accommodative policy framework will continue, with authorities remaining prudent and the central bank expected to refrain from broad-based rate cuts.

GDP growth is currently anticipated to be relatively equally spread on a quarterly basis, with the 1Q23 GDP growth forecast to stand at 5.1% y-o-y, followed by 2Q23 GDP growth of 5.3% y-o-y. The 2H23 average quarterly growth levels are forecast to stand at 5.2% y-o-y. In anticipating a continuation of the pick-up in domestic demand from 1Q23 onwards, a continued rebound in the construction sector and also some recovery in industrial output the Chinese economy is forecast to grow by 5.2% y-o-y in 2023. Given the current growth dynamic of improving domestic consumption and external demand, some upside potential may materialise.

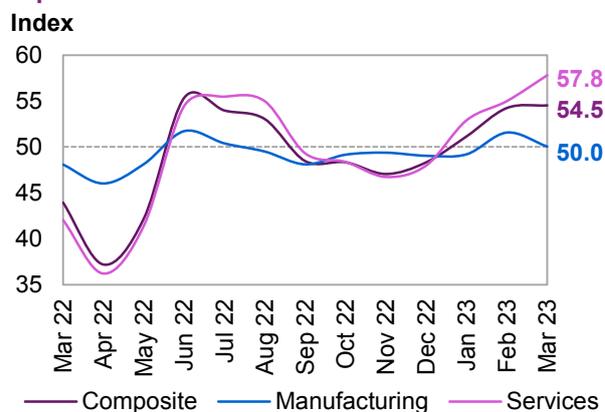
Aside from domestic consumption and real-estate sector dynamics, growth from **exports** will be an important support factor. As export volumes have declined in the past months, it will be important to see how they will develop in a global economy that is being impacted by a general slow-down, especially in important trading partner economies the US and the Euro-zone. Political tensions and trade-related issues seem to be on the rise, with increasing trade barriers rising from G7 economies towards China. The current GDP growth forecast anticipates that exports will continue contracting in 1H23 after a decline was seen in 4Q22, but will pick up from 2H23 onwards. In that respect, it is forecast that the US dollar largely peaked in 2022 and the yuan is expected to appreciate mildly in 2023, with some impact on export income.

March PMI readings as provided by S&P Global show that the services sector is performing very well, while the manufacturing sector continues to expand, albeit at a lower level.

The **manufacturing PMI** retracted, but remained at the edge of the 50 level in March, indicating expansionary territory. This compares with 51.6 in February and 49.2 in January.

Developments in the services sector were improving, with the March **services PMI** standing at 57.8, after reaching 55 in February. This compares with 52.9 in January.

Graph 3 - 10: China's PMI



Sources: Caixin, S&P Global and Haver Analytics.

Expectations for supportive pent-up demand in 1H23 and additional measures undertaken by authorities to prop up economic growth have not changed and were confirmed by the latest indicators. Hence, the **2023 GDP growth forecast** remains at 5.2%, following GDP growth of 3% in **2022**.

Table 3 - 6: China's economic growth rate and revision, 2022–2023*, %

	China
2022	3.0
Change from previous month	0.0
2023	5.2
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

Other Asia

India

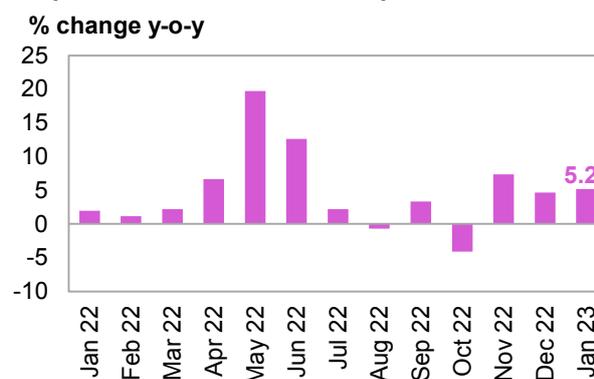
Update on the latest developments

The most recent output and lead indicators support **robust GDP growth in 1Q23**, likely having accelerated compared with 4Q22 GDP growth. GDP growth in 4Q22 stood at 4.4% y-o-y, after growth of 6.3% was seen in 3Q22. As with other major economies, a shift from the manufacturing to the services sector has become increasingly apparent, with healthy support coming from the services sector. This sector expanded by 6.2% y-o-y, contributing 3.2 percentage points to total growth, with a majority of the contribution coming from the contact-intensive service areas. Domestic demand remained soft in the past months and growth is still below pre-pandemic levels. Private household consumer spending in 4Q22 grew by only 1.6% y-o-y.

Monthly indicators pointed to a stabilising momentum in **IP**, which advanced by 5.2% y-o-y in January, following growth of 4.7% in December and 7.3% in November. This solid growth trend comes after a contraction of 4.1% y-o-y was seen in October

The **unemployment rate** rose slightly to stand at 7.8% in March, compared with 7.5% in February and 7.1% in January. While this trend shows some weakness in the labour market, it compares with much higher unemployment rates at the end of last year, which stood at 8.3% in December and 8% in November.

Graph 3 - 11: India's industrial production

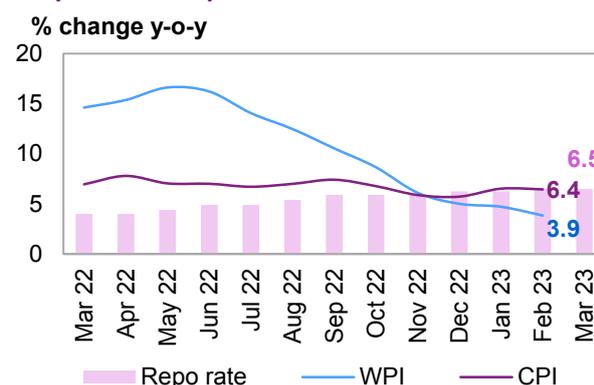


Sources: Ministry of Statistics and Program Implementation of India and Haver Analytics.

An ongoing issue is **inflation**, which remained at a high level. In line with the general global inflationary trend, the consumer price index retracted only very slightly in the latest available month of February, almost unchanged from January. The **general CPI index** rose by 6.4% y-o-y, compared with 6.5% y-o-y in January.

Moreover, **core inflation** remained persistently high at 6.1% y-o-y in February, compared with 6.3% in January and 6.1% in December.

Graph 3 - 12: Repo rate and inflation in India



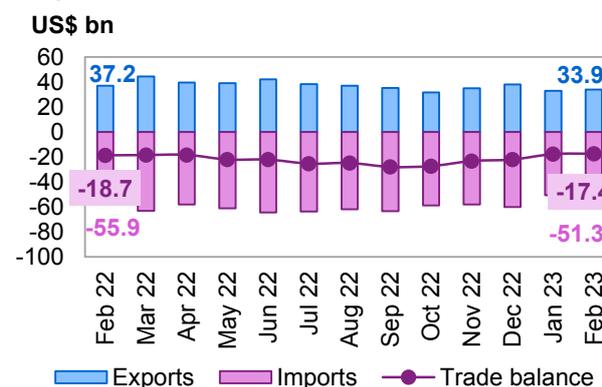
Sources: Ministry of Commerce and Industry, Reserve Bank of India and Haver Analytics.

India's **trade balance** posted a deficit of about \$17.4 billion in February, compared with a deficit of \$17.7 billion in January and \$18.7 billion in February of last year.

Monthly **exports** rose to \$33.9 billion in February from \$32.9 billion in January compared with \$37.2 billion in February of last year.

Meanwhile, monthly **imports** expanded to stand at \$51.3 billion in February, compared with \$50.7 billion in January, after a level of \$55.9 billion was reached in February of last year.

Graph 3 - 13: India's trade balance



Sources: Ministry of Commerce and Industry and Haver Analytics.

Near-term expectations

India is forecast to rebound somewhat from its lacklustre **GDP growth of 4Q22**, which stood at 4.4% y-o-y. As current output numbers and leading indicators are rising, 1H23 growth is forecast to stand at a higher level than 2H22, with an expected further acceleration towards 2H23, supported by rising exports, a potential pick-up in domestic demand and government-led stimulus. GDP growth is forecast to stand at 5.1% y-o-y on a quarterly average in 1H23, and accelerate to 6.1% y-o-y on a quarterly average in 2H23.

As seen in 4Q22, the **services sector** is anticipated to constitute the dominant GDP growth contributor and is forecast to maintain strong momentum in 2023, via strong exports. Domestic demand weakness could be counterbalanced by a capex push that the government announced in its latest budget proposal, which could

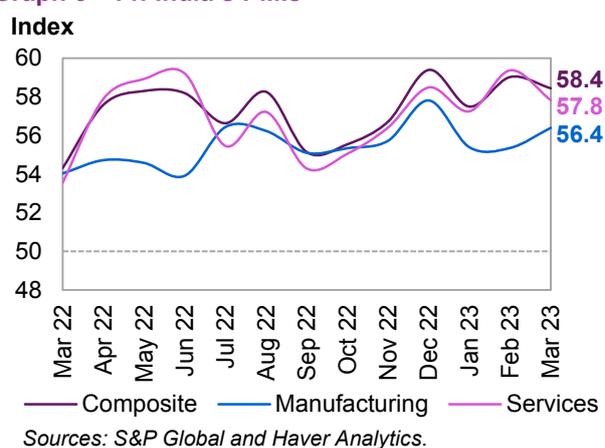
support the manufacturing sector and construction activity in the economy. The government's latest budget proposal foresees tax cuts and large government spending at a magnitude of around 4%, which aims to counterbalance the economy's weaker spots. However, the economy is forecast to show lower growth in 2023, given the global slowdown, ongoing high-interest rates in India and considering the base-effect of exceptionally high growth in 2022.

As the Reserve Bank of India (RBI) kept its key policy rate unchanged in its latest meeting in April, it seems that the hiking cycle has come to an end. The repo rate was kept at 6.5%. Further interest rate hikes are now relatively unlikely, despite inflation being forecast to remain above the RBI's upper band of 6% in the near term. The biggest risk to the expectation of no further rate hikes is the trajectory of near-term commodity price changes, especially weather-related food price changes. In this respect, the upcoming monsoon season will need to be closely monitored. However, if the situation improves on a foreseeably sustainable path in 2H22, the RBI may even move towards monetary easing approaching the end of the year, though it is too early to predict this.

The S&P Global **manufacturing PMI** continued to expand, reaching a strong 56.4 in March, compared with 55.3 in February and following 55.4 in January. This again highlights a further expanding trend going into 2Q23.

The **services PMI** indicated ongoing strong momentum, while it retracted somewhat from the high level reached in February, when it stood at 59.4; it reached 57.8 in March and stood at 57.2 in January.

Graph 3 - 14: India's PMIs



Following **2022 GDP growth** of 6.7%, the growth dynamic is forecast to slow. However, growth is expected to remain healthy and will be supported by the services sector dynamic, fiscal support and a rebound in consumption.

Considering these indicators, India's **2023 GDP growth** is forecast to reach 5.6%, unchanged from last month. Considering the accelerating 1Q23 growth dynamic, the trend may accelerate further into 2Q23 and beyond, potentially lifting growth above the current GDP growth forecast.

Table 3 - 7: India's economic growth rate and revision, 2022–2023*, %

	India
2022	6.7
Change from previous month	0.0
2023	5.6
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

Latin America

Brazil

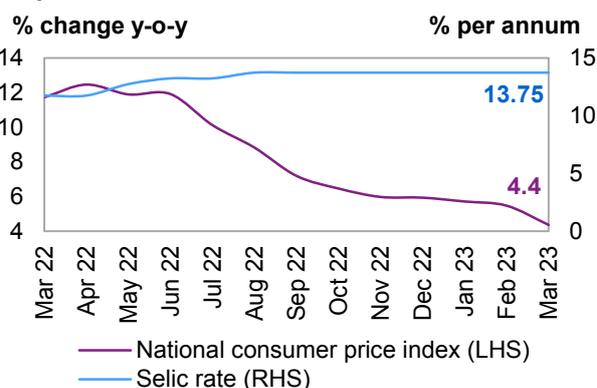
Update on latest developments

Brazil's economy continued slowing over the past months, after relatively strong, though weakening, **GDP growth was seen in 2H22**, very much driven by support measures ahead of last October's presidential elections, such as considerable fuel subsidies. While lifting growth in 2022, these measures, however, have limited the fiscal space for the Brazilian economy in 2023. GDP growth for 4Q22 was reported to have reached 1.9% y-o-y, the lowest quarterly growth level in 2022. This follows the growth of 3.6% in 3Q22, 3.7% in 2Q22 and 2.4% in 1Q22. 4Q22 GDP growth was even negative at -0.2% q-o-q on a seasonally adjusted (SA) quarterly level, based on data from Brazil's statistical office, the Instituto Brasileiro de Geografia e Estatística.

Inflation retracted meaningfully in 2H22 and continued this trend since the beginning of the year. **Inflation** stood at 4.4% y-o-y in March, after 5.5% y-o-y in February and compared with 5.7% in January. The central bank has kept the **key policy rate** unchanged after having lifted interest rates significantly since 2021. The key policy rate was kept at 13.75% at the last rate-setting meeting in March. The central bank's inflation target stands at 3.25%.

Unemployment has shown an upward trend since the beginning of the year. Based on the usual three-month moving average, Brazil's **unemployment rate** stood at 8.6% in February, compared with 8.4% in January and 7.9% in December.

Graph 3 - 15: Brazil's inflation vs. interest rate



Sources: Banco Central do Brasil, Instituto Brasileiro de Geografia e Estatística and Haver Analytics.

Meanwhile, **consumer confidence** picked up in March, standing at 88.2, compared with 86.5 in February and 89.2 in January, as measured by the Fundação Getúlio Vargas Institute.

Brazil's new government will soon announce a **new fiscal framework** that will need to be negotiated in Congress. The government already followed through with an announcement at the beginning of the year to phase out tax breaks on fuel. Plans to reform the tax code and the VAT framework are expected to follow. Also, new taxes will be introduced to counter-finance a gradual increase in social welfare-related spending. The main aim will be to reduce the budget deficit and balance the budget by next year. In addition, a new fiscal anchor will need to be negotiated in Congress.

Near-term expectations

Brazil's economy is forecast to **slow in 2023**, given ongoing high interest rates amid elevated inflation. Consequently, relatively lower domestic investment and consumption are expected within limited fiscal space in 2023. Last year's relatively strong growth of 2.9% was very much supported by governmental stimulus measures and subsidies, a fiscal space that will not be available in the current year. However, sound expectations in external trade, supported by the recovery in China and envisaged domestic reforms - including fiscal restructuring -, should provide a sustained base for investment and consumption for at least low growth in 2023.

Inflation is forecast to slow, but remain high at around 5% in 2023. This compares with the central bank's inflation target of 3.25%. With these expectations, monetary policies are expected to remain relatively tight, while a more accommodative stance towards 2H23 is possible – despite the persistence of inflation – given the strongly decelerating economy.

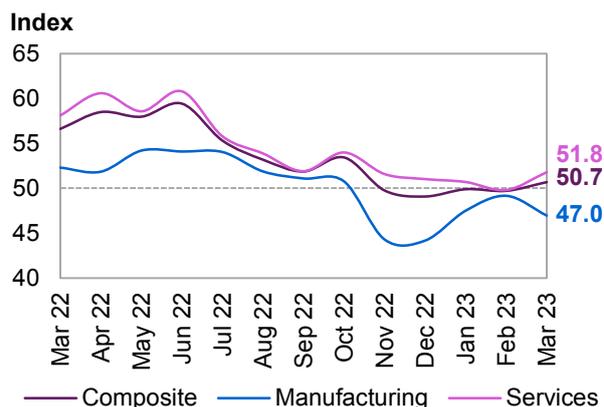
GDP growth is forecast to stand at 1.3% y-o-y in 1Q23, lower than growth of 1.9% y-o-y in 4Q22. GDP growth is then forecast to slow to 0.8% y-o-y in 2Q23, and recover slightly to rates of 0.9% in 3Q23 and 1% in 4Q23. An upside to the economy may come from sound output from the agricultural sector and a potential rise in export market share in light of the Eastern European conflict and a severe drought in Argentina, both improving Brazil's competitive situation in global trade this year. In general, improving export opportunities, along with the possibility of a more accommodative monetary policy by 2H23, may lift growth beyond current expectations.

March PMI indices indicate a continuation of the slowing trend in the manufacturing PMI, while the services sector seems to be recovering again.

The **manufacturing PMI** stood at 47 in March, compared with 49.2 in February and 47.5 in January. It remained below the growth-indicating level of 50 for the fifth consecutive month.

The **services PMI** recovered in March, after falling into contractionary territory in February. It stood at 51.8 in March, compared with 49.8 in February, and following a level of 50.7 in January.

Graph 3 - 16: Brazil's PMIs



Sources: HSBC, S&P Global and Haver Analytics.

The **GDP growth forecast for 2023** remains unchanged from last month at 1.0%, following reported growth of 2.9% in **2022**. The economic situation is still challenging, though there is upside potential. Lower inflation – and consequently a more accommodative monetary policy, primarily in 2H23 – could improve growth towards the end of the year. Envisaged fiscal reforms could also become a supportive factor, leading to improving asset market conditions and optimistic business confidence.

Table 3 - 8: Brazil's economic growth rate and revision, 2022–2023*, %

	Brazil
2022	2.9
Change from previous month	0.0
2023	1.0
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

Africa

South Africa

Update on the latest developments

The economic situation in South Africa remains challenging, as it is significantly impacted by **power supply constraints**. Moreover, high inflation and monetary tightening by the central bank and increasingly limited fiscal space are other factors that have dampened growth in the past months. The 4Q22 GDP declined by 1.3% q-o-q seasonally adjusted. The relatively strong contraction and ongoing issues point to the likelihood of a spill-over slowing momentum into 1H23. The power situation has not improved materially since the beginning of the year, posing risks to business operations, public services and domestic consumption. The need for the private sector to invest in power-related infrastructure is crowding out other investment and limiting private household consumption.

While power outages have led the President to declare a state of disaster and a new electricity minister was nominated to tackle the crisis, these **latest initiatives** to fix the broken power monopoly seem to be in disarray, as the government terminated the state of disaster framework at the beginning of April due to challenges by civil rights groups. Thus, the South African state remains heavily exposed to state power supplier, Eskom, as the government has put large support measures in place to fix ongoing power supply issues. Additionally, heavy rainfall and flooding make the prospect of 1Q23 GDP growth even more challenging.

In the meantime, the **central bank** raised interest rates and warned that continued blackouts in South Africa are complicating its aim to keep inflation under control. The South African Reserve Bank raised its key policy rate by 0.5 percentage points to 7.75% in April, marking the ninth consecutive increase.

Inflation remains high and persistent, mirroring the current global environment. The headline inflation of urban areas stood at 7% y-o-y in February, after reaching 6.9% in January and 7.2% in December. Corresponding core inflation stood at 5.2% y-o-y in February, compared with 4.9% in both January and December.

Near-term expectations

Given the ongoing economic challenges in South Africa's economy, growth is forecast to considerably slow in 2023. Prospects for 1Q23 GDP growth have deteriorated and a large contraction for the quarter, due to the dynamic in 4Q23, is increasingly likely.

Further challenges to South Africa's economy are a currently soft commodities market, along with ongoing domestic political issues and their ensuing effect on rising domestic uncertainty. In particular, the widely unresolved issue of power supply plays a vital – and dampening – factor. Moreover, the central bank has indicated it will continue its monetary tightening efforts in order to rein in inflation, leading to a short-term dampening effect on the economy.

In the obvious anticipation of a further deterioration in the economy towards 2Q23, the forward-looking seasonally adjusted composite **Purchasing Managers' Index** as provided by S&P Global retracted to stand at 49.7 in March, compared with 50.5 in February. It already stood below the growth-indicating level of 50 in January, when it recorded a level of 48.7.

The **2023 GDP growth forecast** was revised down from the last assessment of 1.1% to now stand at 1%. More downside risks in 2023 could surface, depending on domestic and global economic developments over the short term. In particular, the power sector will need monitoring. South Africa's **2022 GDP growth** stood at 2%.

Table 3 - 9: South Africa's economic growth rate and revision, 2022–2023*, %

	South Africa
2022	2.0
Change from previous month	0.0
2023	1.0
Change from previous month	-0.1

Note: * 2023 = Forecast.

Source: OPEC.

Russia and Central Asia

Russia

Update on the latest developments

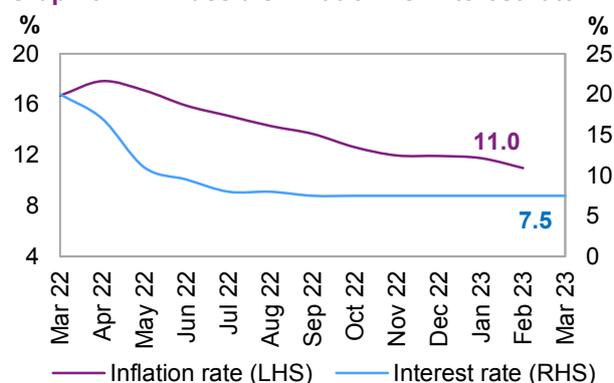
The latest release by the Russian Federal State Statistic Service confirms that the country's economy performed better than expected in 2022, with GDP contraction by 2.1% for the year. The 4Q22 GDP decline was reported at 2.7% y-o-y. Household spending fell by 2.7% y-o-y in 4Q22, well counterbalanced by government spending, which expanded by 4.7% y-o-y. Exports are reported to have declined by 15% y-o-y.

The **contraction in IP** continued in February, with the figure at minus 1.7% y-o-y, a slight improvement from the decline of 2.4% seen in January and -4.3% in December.

Consumer inflation retraced its steps considerably in March to stand at 3.5% y-o-y, compared with 11% y-o-y in February and 11.8% in January. Russia's central bank held its **policy rate** at 7.5% in March. The March inflation level is well below the central bank's inflation target of 4%. While Russia's central bank held its **policy rate** at 7.5% in March, this could suggest further easing of monetary policies in the near term, supporting economic growth.

Russia's **jobless rate** continued to decline and stood at 3.5% in both February and January, compared with 3.7% in December and November.

Graph 3 - 17: Russia's inflation vs. interest rate



Sources: Federal State Statistics Service, Central Bank of Russian Federation and Haver Analytics.

Near-term expectations

The range of uncertainties for near-term Russian economic growth remains wide. As the 2022 growth decline of 2.1% was much lower than expected, it is likely that the Russian economy will see a lower decline this year as well, with possible upside potential maybe lifting the growth dynamic into positive territory. It remains to be seen to what extent the EU embargo on imports of Russian petroleum products will have an effect, but there are indications that Russian suppliers may counterbalance the consequences relatively well. Federal revenues will likely be lower in 2023, as the government reported that oil- and gas-related income is expected to decline by 2.7 trillion roubles from 11.6 trillion roubles in 2022 to 8.9 trillion roubles in 2023. This will, however, be counterbalanced by government-led measures.

Downward momentum in the Russian economy in 2H22, in combination with rising external pressure, is forecast to keep growth in negative territory in 2023, albeit at a lesser level. After 4Q22 GDP growth was reported at -2.7%, the GDP growth dynamic is forecast to continue its decline. The 1H23 average quarterly decline is forecast to stand at around 2.5% y-o-y. This is forecast to be followed by a pick-up in 2H23, when an anticipated expansion of around 1.5% y-o-y average quarterly GDP growth should surface. Counterbalancing measures undertaken by the government are expected to compensate the negative impact of external pressure to a significant extent. However, near-term developments will be affected by uncertainties related to the impact of sanctions, which make forecasting economic growth challenging. In addition, any further development in the commodities sector in 2023 may have a significant impact on government revenues and consequently the country's GDP. For the time being, domestic investment – supported by the government – is forecast to rise by 3% in 2023, and direct government spending is expected to expand by slightly more

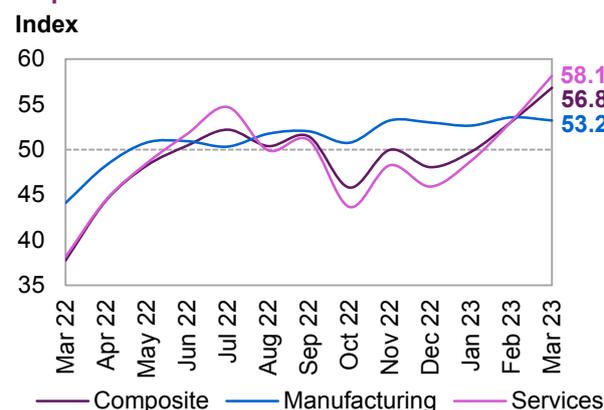
than 1.5%. Consumption, however, is forecast to decline by around 1% in the current year and exports are forecast to drop by around 7%, unchanged from last month.

PMI indices in March reflect an ongoing expansionary trend in both the manufacturing and services sectors.

March's S&P global **manufacturing PMI** was almost unchanged to stand at 53.2, compared with 53.6 in February and 52.6 in January.

The **services PMI** grew by a considerable 5 index points and stood at 58.1 in March, compared with 53.1 in February and 48.7 in January.

Graph 3 - 18: Russia's PMI



Sources: HSBC, S&P Global and Haver Analytics.

GDP growth in 2023 is forecast to decline by 0.5%, unchanged from the previous month. However, the forecast remains subject to high levels of uncertainty amid ongoing tension and the global economic environment. The small contraction forecast for 2023 follows a reported **2022** GDP decline of 2.1%.

Table 3 - 10: Russia's economic growth rate and revision, 2022–2023*, %

	Russia
2022	-2.1
Change from previous month	0.0
2023	-0.5
Change from previous month	0.0

Note: * 2023 = Forecast.

Source: OPEC.

OPEC Member Countries

Saudi Arabia

Following solid growth in 2022, recent indicators point to a slowdown amid a weaker global environment and flat hydrocarbon activity growth. Saudi Arabia's PMI was reported at 58.7 in March 2023, slightly below a near eight-year record of 59.8 in February. While domestic activity remained strong, recent consumer inflation data indicated that the CPI eased to 3% y-o-y in February, after reaching 3.4% the previous month. Additionally, after input prices peaked in January, due to ongoing high prices for raw materials and staff wages, producer prices eased to 2.7% y-o-y in February, following growth of 3.6% y-o-y the previous month. Recently, the key policy rate was lifted by the Saudi Central Bank by 25 bp in March to stand at 5.5%, mirroring the US dollar interest rate regime. It is likely to continue hiking interest rates, along with the US Fed, in May.

Nigeria

March annual inflation data indicates an acceleration for the second month in a row to a more than 17-year high of 21.9% y-o-y in February, from 21.8% the prior month. The jump has been driven by food and fuel prices, with food inflation climbing to 24.4% y-o-y in February, after jumping by 24.3% in January. In a recent move, the Central Bank of Nigeria lifted the monetary policy rate by 50 bp to 18% at its March meeting, following a 100 bp hike in January, citing price and exchange rate pressures and expectations of a petrol subsidy removal. March's Stanbic IBTC Bank Nigeria PMI slipped to 42.3 from 44.7 the previous month, highlighting the second consecutive contraction in private sector business conditions in over two years.

The United Arab Emirates (UAE)

The recent UAE PMI index signalled a sharp and quick improvement in the country's non-oil private sector activity, which rose to 55.9 in March from 54.3 the previous month. The latest figure represents the highest reading since October last year and the continuation of an expansion seen throughout 2022. Meanwhile, real estate continued to post positive growth, with Dubai property sales hitting decade highs in recent months. The tourism sector, which accounts for 16% of the country GDP, also continued on its upward trend. Recent policy measures might add additional support to the positive economic outlook, considering the government's plan to increase foreign direct investment (FDI) through 27 comprehensive economic and trade agreements. Recent visa reforms and an easing of business regulations should also increase the UAE's attractiveness to foreign investors.

The impact of the US dollar (USD) and inflation on oil prices

The **US dollar (USD) index** rose for the second consecutive month. The USD rallied earlier in the month, following banking turmoil that saw investors shift towards safe haven investments. The Fed's interest rate hike in its latest meeting further supported the rally, amid persistent inflationary pressure. Regulators quickly intervened to ease the banking turmoil, which led to a partial recovery of equity markets and slowdown in USD index growth. Nonetheless, the USD index managed to edge up, increasing marginally by 0.1% m-o-m.

In **developed market (DM)** currencies, the USD advanced against the euro and the yen by 0.1% and 1.0%, respectively, m-o-m. Meanwhile, the USD fell against the pound sterling by 0.3% m-o-m as the Bank of England continued its aggressive monetary tightening cycle to curb inflation.

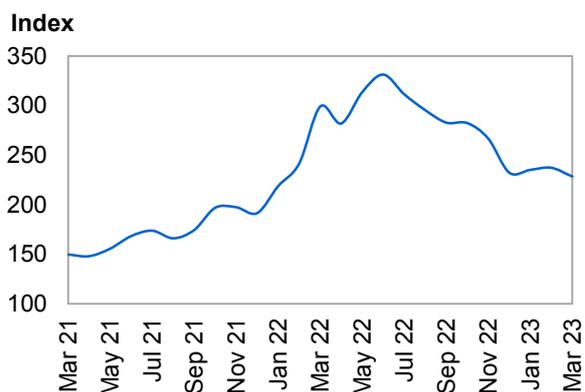
In terms of **emerging market (EM)** currencies, the USD fell by 0.4% m-o-m against the rupee. At the same time, it rose by 0.9% and 0.8% against the yuan and real, respectively, in the same period.

The differential between nominal and real **ORB** prices widened for the second consecutive month amid a stronger USD and lower crude oil prices. **Inflation** (nominal price minus real price) went from \$1.30/b in February to \$1.32/b in March, a 1.5% increase m-o-m.

In **nominal terms**, accounting for inflation, ORB price receded, going from \$81.88/b in February to \$78.45/b in March, a 4.2% decrease m-o-m.

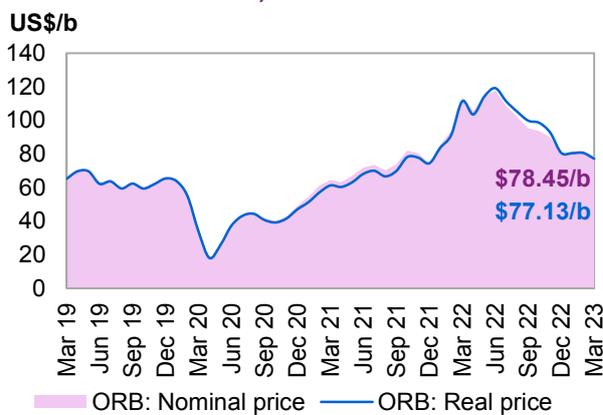
In **real terms** (excluding inflation), the ORB went from \$80.58/b in February to \$77.13/b in March, a 4.3% decrease m-o-m.

Graph 3 - 19: The Modified Geneva I + US\$ Basket (base June 2017 = 100)



Sources: IMF and OPEC.

Graph 3 - 20: Impact of inflation and currency fluctuations on the spot ORB price (base June 2017 = 100)



Source: OPEC.

World Oil Demand

World oil demand growth in 2022 is estimated at 2.5 mb/d y-o-y, broadly unchanged from the previous month's assessment. However, in order to reflect historical data, oil demand in 4Q22 was adjusted slightly down in all OECD countries. At the same time, oil demand in non-OECD countries was revised higher, reflecting improvements in Latin America, the Middle East and Russia. Total world oil demand is estimated to have averaged 99.6 mb/d in 2022.

The forecast for 2023 world oil demand growth remains at 2.3 mb/d, also broadly unchanged from last month's assessment. Within the OECD regions, oil demand growth was adjusted lower in all four quarters of 2023, to reflect the most recently received data for 1Q23 and account for an anticipated decline in economic activity in OECD Americas and OECD Europe. On the other hand, oil demand in the non-OECD countries was revised higher due to better-than-expected improvements in economic activity in China after its zero-COVID-19 policy was discontinued, as well as expected further improvements in the Middle East, Latin America and Other Europe. Accordingly, in the non-OECD region, oil demand is projected to grow by 2.2 mb/d, while the OECD is anticipated to increase only slightly to above 0.1 mb/d y-o-y. For 2023, world oil demand is forecast to average 101.9 mb/d. However, this is subject to many uncertainties, including the trend and pace of economic activity in both OECD and non-OECD countries.

Table 4 - 1: World oil demand in 2022, mb/d

World oil demand	2021	1Q22	2Q22	3Q22	4Q22	2022	Change 2022/21	
							Growth	%
Americas	24.32	24.77	24.98	25.33	24.97	25.02	0.70	2.88
<i>of which US</i>	20.03	20.38	20.41	20.62	20.32	20.43	0.40	1.98
Europe	13.13	13.19	13.43	14.07	13.34	13.51	0.38	2.90
Asia Pacific	7.38	7.85	6.99	7.22	7.68	7.43	0.05	0.70
Total OECD	44.82	45.81	45.39	46.62	45.99	45.96	1.13	2.53
China	15.00	14.77	14.45	14.67	15.51	14.85	-0.15	-0.98
India	4.77	5.18	5.16	4.95	5.26	5.14	0.37	7.66
Other Asia	8.67	9.13	9.31	8.77	8.89	9.02	0.36	4.11
Latin America	6.23	6.32	6.36	6.55	6.52	6.44	0.21	3.38
Middle East	7.79	8.06	8.15	8.53	8.44	8.29	0.50	6.45
Africa	4.22	4.51	4.15	4.25	4.69	4.40	0.18	4.21
Russia	3.61	3.67	3.42	3.45	3.71	3.56	-0.05	-1.48
Other Eurasia	1.21	1.22	1.16	1.00	1.21	1.15	-0.06	-5.07
Other Europe	0.75	0.79	0.75	0.73	0.80	0.77	0.01	1.75
Total Non-OECD	52.25	53.65	52.90	52.89	55.03	53.62	1.36	2.61
Total World	97.08	99.45	98.29	99.51	101.02	99.57	2.50	2.57
Previous Estimate	97.08	99.45	98.28	99.49	101.10	99.58	2.50	2.58
Revision	0.00	0.00	0.02	0.02	-0.08	-0.01	-0.01	-0.01

Note: Totals may not add up due to independent rounding. Source: OPEC.

Table 4 - 2: World oil demand in 2023*, mb/d

World oil demand	2022	1Q23	2Q23	3Q23	4Q23	2023	Change 2023/22	
							Growth	%
Americas	25.02	24.86	25.14	25.51	25.11	25.16	0.14	0.56
of which US	20.43	20.41	20.43	20.75	20.37	20.49	0.06	0.29
Europe	13.51	13.02	13.36	14.10	13.37	13.46	-0.04	-0.31
Asia Pacific	7.43	7.89	7.05	7.27	7.70	7.47	0.04	0.55
Total OECD	45.96	45.78	45.55	46.87	46.17	46.10	0.14	0.30
China	14.85	15.43	15.40	15.43	16.16	15.61	0.76	5.09
India	5.14	5.41	5.44	5.21	5.50	5.39	0.25	4.96
Other Asia	9.02	9.46	9.65	9.14	9.24	9.37	0.35	3.83
Latin America	6.44	6.50	6.49	6.71	6.68	6.60	0.16	2.52
Middle East	8.29	8.52	8.47	8.86	8.73	8.65	0.35	4.23
Africa	4.40	4.71	4.34	4.43	4.88	4.59	0.19	4.32
Russia	3.56	3.68	3.45	3.59	3.87	3.65	0.09	2.49
Other Eurasia	1.15	1.21	1.16	1.02	1.22	1.15	0.01	0.51
Other Europe	0.77	0.84	0.76	0.75	0.83	0.80	0.03	3.61
Total Non-OECD	53.62	55.77	55.16	55.16	57.10	55.80	2.18	4.07
Total World	99.57	101.55	100.70	102.03	103.27	101.89	2.32	2.33
Previous Estimate	99.58	101.28	100.77	102.14	103.39	101.90	2.32	2.33
Revision	-0.01	0.27	-0.06	-0.11	-0.12	-0.01	0.00	0.00

Note: * 2023 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.

OECD

OECD Americas

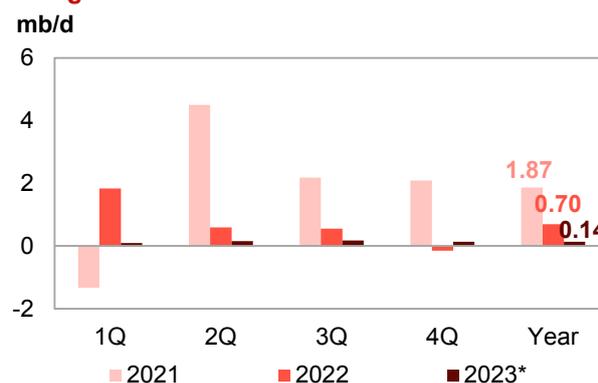
Update on the latest developments

Oil demand in **OECD Americas** increased by 0.2 mb/d y-o-y in January, an improvement from the 0.9 mb/d y-o-y decline seen in December. Oil demand in the region was supported by increased demand for gasoline and jet kerosene in all countries.

January data for the **US** indicates an overall y-o-y decline in oil demand by 0.2 mb/d, which nevertheless constitutes a significant improvement from the annual decline of 1.2 mb/d seen in December.

The services PMI, representing around 70% of the US economy, rose to 55.5 in January from 49.2 in December. Similarly, the US Federal Highway Administration reported that the seasonally adjusted vehicle miles traveled for January 2023 stood 4.5% above January 2022, and showed a 3.1% increase

Graph 4 - 1: OECD Americas oil demand, y-o-y change



Note: * 2023 = Forecast.
Source: OPEC.

over December 2022. The International Air Transport Association's (IATA) Air Passenger Market Analysis reported that US airline activity was strong, with the domestic market continuing its robust recovery in January. Domestic revenue passenger kilometres (RPKs) climbed by 26.8% y-o-y and stood 3.1% above January 2019.

However, the manufacturing PMI in the US was still in contraction territory in January. Demand for LPG weakened by 0.3 mb/d y-o-y, albeit showing an improvement from a 0.5 mb/d y-o-y decline seen in December. Similarly, naphtha remained in negative territory, due to low demand from the petrochemical sector, posting a decline of 23 tb/d y-o-y. Diesel demand in the US dropped y-o-y by 0.2 mb/d, but showed a slight improvement from the decline seen in December. Residual fuels also recorded a y-o-y decline of 55 tb/d, an improvement from the y-o-y decline of 170 tb/d seen in December.

On a positive note, gasoline posted strong y-o-y growth of 0.3 mb/d, up from an annual decline of 0.3 mb/d recorded in December due to improved mobility. Jet/kerosene also increased by just above 0.1 mb/d, y-o-y from growth of 90 tb/d in December.

Table 4 - 3: US oil demand, mb/d

By product	Jan 22	Jan 23	Change Jan 23/Jan 22	
			Growth	%
LPG	4.08	3.79	-0.29	-7.2
Naphtha	0.17	0.14	-0.02	-13.9
Gasoline	7.98	8.28	0.30	3.8
Jet/kerosene	1.44	1.55	0.11	7.5
Diesel	4.08	3.90	-0.18	-4.4
Fuel oil	0.33	0.28	-0.06	-16.5
Other products	1.94	1.89	-0.05	-2.6
Total	20.02	19.83	-0.19	-1.0

Note: Totals may not add up due to independent rounding. Sources: EIA and OPEC.

Near-term expectations

In 2Q23, the US GDP is set to improve marginally from the first quarter. However, high interest rates and elevated core inflation are likely to decelerate consumption and weigh on spending, particularly in the services sector. Furthermore, continued weakening manufacturing activity is likely to impact demand for industrial fuels. In this quarter, US oil demand is projected to grow marginally by 20 tb/d y-o-y. Jet fuel is expected to be the major driver of oil demand growth and gasoline demand is expected to accelerate towards the end of the quarter with the start of the driving season in May. At the same time, diesel is predicted to remain relatively weak due to anticipated softer manufacturing sector activity.

In 3Q23, the driving season in the US is expected to lend support to the consumption of transportation fuels. Similarly, airline activity is approaching pre-pandemic levels, providing further support. Consequently, oil demand in the US is projected to improve and grow by more than 0.1 mb/d y-o-y in 3Q23. Transportation fuels – jet/kerosene and gasoline – are expected to drive oil demand growth. However, risks are still skewed to the downside, with a focus on the macroeconomic performance of the US economy.

OECD Europe

Update on the latest developments

Oil demand in OECD Europe has seen y-o-y contractions for five consecutive months. In January, it declined y-o-y by 0.15 mb/d, albeit showing an improvement compared with the 0.5 mb/d y-o-y decline seen in December.

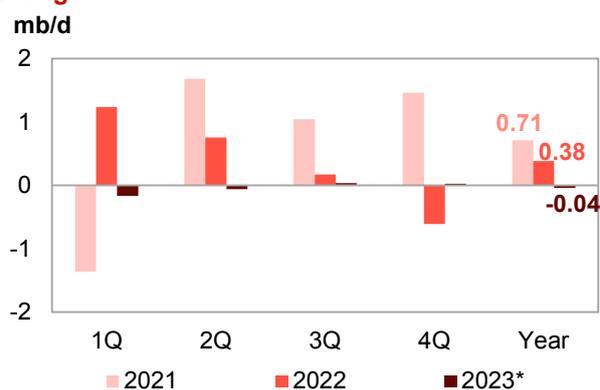
Weak macroeconomic performance and ongoing tensions continue to impact economic and manufacturing activity in the region. Inflation stood at 8.5% in January, from 9.2% in December, far above the 2% target set by the ECB.

The Euro-zone's January PMI pointed to some improvement, particularly in the services sector, while manufacturing remained in contraction. The PMI for services was at 50.8 points in January from 49.8 recorded in December and the manufacturing

PMI, although in contractionary territory with 48.8 in January, saw a slight improvement from 47.8 points in December. Industrial production in the Euro-zone in January increased by 0.7% m-o-m compared with a decline of 1.3% m-o-m the previous month. At the same time, the IATA reported that RPKs in Europe continued to rise above pre-pandemic levels. Compared with January 2019, domestic traffic transported by European airlines rose 15.4%, while growing 19.2% over January 2022 levels.

Naphtha recorded the highest contraction with 0.3 mb/d y-o-y, amid pressure on ethylene market due to weak demand, thin margins and volatile energy costs. However, LPG recorded improvement from a y-o-y decline of 63 tb/d in December to an increase of 10 tb/d y-o-y in January. Diesel showed a y-o-y decline of 175 tb/d in January, slightly up from a y-o-y drop of 241 tb/d y-o-y in December.

Graph 4 - 2: OECD Europe's oil demand, y-o-y change



Note: * 2023 = Forecast.
Source: OPEC.

World Oil Demand

On the positive side, an ongoing improvement in airline activity supported jet/ kerosene growth, which rose by 0.2 mb/d y-o-y, compared with y-o-y growth of 0.1 mb/d posted in December. Similarly, gasoline saw y-o-y growth of 0.1 mb/d, an improvement from the 50 tb/d y-o-y growth seen in December. Finally, residual fuels increased y-o-y by 30 tb/d.

Table 4 - 4: Europe's Big 4* oil demand, mb/d

By product	Jan 22	Jan 23	Change Jan 23/Jan 22	
			Growth	%
LPG	0.45	0.38	-0.07	-16.2
Naphtha	0.62	0.43	-0.18	-29.9
Gasoline	1.03	1.07	0.05	4.7
Jet/kerosene	0.53	0.68	0.15	28.6
Diesel	2.81	2.70	-0.11	-3.9
Fuel oil	0.17	0.20	0.02	14.0
Other products	0.37	0.36	-0.01	-3.2
Total	5.98	5.82	-0.15	-2.6

Note: * Germany, France, Italy and the UK. Totals may not add up due to independent rounding.

Sources: JODI, UK Department for Business, Energy & Industrial Strategy, Unione Petrolifera and OPEC.

Near-term expectations

The region's GDP is forecast to remain positive, though expanding at a low level in 2Q23. In addition, ongoing tensions have induced supply chain bottlenecks in the region, which will likely continue causing manufacturing activity to remain in contraction territory. In January, the manufacturing PMI stood at 48.8, decreasing further to 48.5 in February. Furthermore, the European Central Bank is expected to deliver additional interest rate increases in 2Q23 in an effort to rein in inflation, which could lead to weaker economic activity and, hence, lower oil demand. Nevertheless, the services PMIs has been in expansion territory since January. Oil demand growth in the quarter is anticipated to contract slightly by 60 tb/d y-o-y, albeit showing a marginal improvement from 1Q23 y-o-y growth. Transportation fuels, most notably jet fuel, are set to support oil demand improvements in 2Q23.

In 3Q23, oil demand in the region is expected to grow by 30 tb/d y-o-y, mainly supported by jet fuel and gasoline. Risks, however, are skewed to the downside, hinging on tensions and the lingering possibility of a recession in the region.

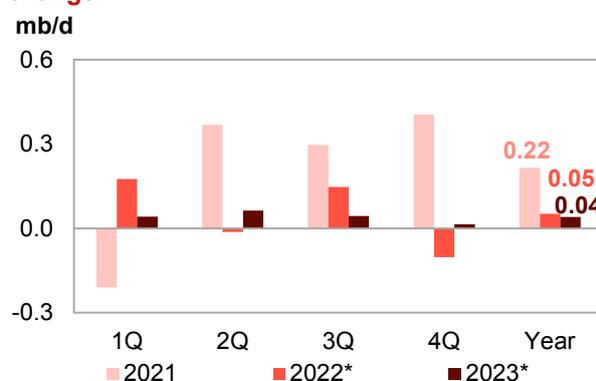
OECD Asia Pacific

Update on the latest developments

Oil demand in **OECD Asia Pacific** contracted in January by 0.1 mb/d y-o-y, following two months of y-o-y growth. The two largest oil-consuming countries in the region, Japan and Korea, have been under pressure, showing relatively slow macroeconomic activity. In Japan, inflation came in at 4.4% in January, up from 4.0% in December. Similarly, in South Korea, the consumer price index stood at 5.2% in January, up from the 5.0% seen in December. Furthermore, the manufacturing PMI in Japan stood at 48.9 points in January and at 48.5 in South Korea.

Nevertheless, the services sector PMI, which constitutes around two-thirds of the Japanese economy, is in expansion territory, and improved further to 52.33 in January.

Graph 4 - 3: OECD Asia Pacific oil demand, y-o-y change



Note: * 2023 = Forecast.
Source: OPEC.

Airline activity in the region remains healthy, according to a report from IATA. The Asia Pacific region continued to recover in January, approaching pre-pandemic domestic traffic levels. Overall, domestic RPKs grew by 47.8% y-o-y in January, and currently sit 11.0% under 2019 levels.

Looking at demand for oil products in OECD Asia Pacific, most saw a y-o-y consumption decline, except for the 'other products' category and jet kerosene. Naphtha recorded a y-o-y decline of 75 tb/d, albeit showing an improvement from a y-o-y decline of well over 0.2 mb/d in December. Demand for naphtha has been unstable since February 2022, as average run rates at major naphtha cracking centers have been declining due to a slowdown in the manufacturing and construction sectors, which typically drive demand for various petrochemical products. LPG demand also declined by 16 tb/d, down from a y-o-y increase of 94 tb/d in December. Diesel demand has been hit hard by tepid economic activity in the region, showing a contraction of 75 tb/d y-o-y due to weak manufacturing activity weighing on industrial diesel consumption. Gasoline demand also contracted by 37 tb/d y-o-y. Slow gasoline demand was partly due to cold temperatures weighing on domestic mobility in some countries of the region.

On the positive side, the other products category saw a y-o-y increase by 0.1 mb/d, up from a contraction of 25 tb/d y-o-y recorded in December. Furthermore, on the back of some improvement in air travel activity in the region, jet kerosene saw slight y-o-y growth of 17 tb/d in January.

Table 4 - 5: Japan's oil demand, mb/d

By product	Feb 22	Feb 23	Change Feb 23/Feb 22	
			Growth	%
LPG	0.52	0.36	-0.16	-31.1
Naphtha	0.64	0.62	-0.01	-2.1
Gasoline	0.66	0.69	0.03	4.3
Jet/kerosene	0.64	0.60	-0.04	-5.6
Diesel	0.84	0.82	-0.02	-2.0
Fuel oil	0.28	0.34	0.06	22.1
Other products	0.26	0.41	0.15	55.8
Total	3.83	3.84	0.01	0.2

Note: Totals may not add up due to independent rounding. Sources: JODI, METI and OPEC.

Near-term expectations

The region's GDP is projected to remain positive in 2023; services activity in the region is likely to get further support from a pick-up in Chinese tourist numbers in the Asia Pacific region following China's scrapping of its zero-COVID policy. Specifically, firmer demand is anticipated to be backed by ongoing growth in Japan's retail and services sectors, as well as a rebounding number of overseas tourists to Japan. Furthermore, the opening of the Chinese economy will boost the region's petrochemical industry.

The region's oil demand is projected to grow y-o-y by 60 tb/d in 2Q23. In 3Q23, it is projected to grow by 40 tb/d y-o-y, mainly driven by jet fuel, with some additional support from gasoline and petrochemical feedstock.

Non-OECD

China

Update on the latest developments

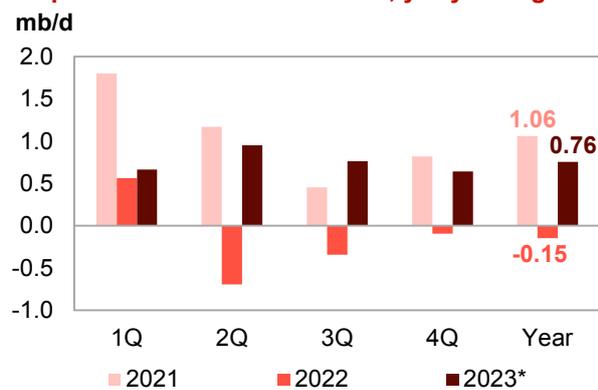
Oil product demand rebounded further in **China** by 0.9 mb/d y-o-y growth in February, up from growth of 0.8 mb/d in January. These improvements in oil demand came on the back of an ongoing recovery in economic and social activity combined with firm petrochemical sector requirements, with all oil product categories showing healthy demand in February.

The February PMI shows that the manufacturing sector is now stronger, as the index for the sector was at 51.56 points, compared with just 49 points in January. Similarly, the February services PMI shows a strong positive trend, reflecting the reopening of the country, moving up to 55 in February from 52.9 in January.

According to the Civil Aviation Administration of China, the airline industry’s total passenger volume for domestic routes increased by 36% y-o-y in February compared with a 33.7% y-o-y increase in January. Similarly, passenger volumes for international routes rose by over 760%, compared with about 380% in January. Similarly, the China Tourism Academy (CTA) reported that during the 40-day Spring Festival travel rush, which lasted from early January until the middle of February, a total of 4.73 billion passenger trips were made in China.

In terms of oil product demand, February oil demand was led by jet/kerosene which increased y-o-y by 0.3 mb/d due to a strong air activity recovery, compared with annual growth of 0.2 mb/d in January. With regard to petrochemical feedstock, naphtha saw y-o-y growth of 0.25 mb/d, up from 0.2 mb/d y-o-y growth seen in January. Gasoline saw y-o-y growth of 0.2 mb/d, compared with 30 tb/d y-o-y growth reported in January because of a strong recovery in mobility. LPG increased by 80 tb/d y-o-y, a slight decline compared with the 0.1 mb/d y-o-y reported in January. The ‘residual fuels’ and ‘other products’ categories grew by 60 tb/d and 50 tb/d y-o-y. Finally, diesel posted a marginal increase of 10 tb/d y-o-y, affected by a high baseline comparison. However, in terms of level, diesel consumption in February surpassed pre-pandemic levels by more than 0.3 mb/d.

Graph 4 - 4: China’s oil demand, y-o-y change



Note: * 2023 = Forecast.
Source: OPEC.

Table 4 - 6: China’s oil demand*, mb/d

By product	Feb 22	Feb 23	Change Feb 23/Feb 22	
			Growth	%
LPG	2.36	2.44	0.08	3.6
Naphtha	1.75	2.00	0.25	14.0
Gasoline	3.33	3.51	0.18	5.4
Jet/kerosene	0.60	0.90	0.30	50.3
Diesel	4.10	4.11	0.01	0.3
Fuel oil	0.73	0.79	0.06	8.6
Other products	2.39	2.44	0.05	2.1
Total	15.26	16.20	0.94	6.1

Note: * Apparent oil demand. Totals may not add up due to independent rounding.

Sources: Argus Global Markets, China OGP (Xinhua News Agency), Facts Global Energy, JODI, National Bureau of Statistics China and OPEC.

Near-term expectations

Looking ahead, oil demand for most products has been on a strong rebound since abandonment of the country’s restrictive zero-COVID-19 policy. Domestic mobility and air travel in China are at close to 80% of pre-pandemic levels. Meanwhile, February PMI readings show that the manufacturing sector continued responding positively to the opening, as the index increased into expansion territory in February. The services PMI also shows a strong positive trend, moving up to 57.81 in March from an already strong 55 points in February. China’s GDP is forecast to show healthy growth in 2023, supporting oil demand growth of 0.8 mb/d y-o-y.

Demand for transportation fuels is anticipated to increase further from March onwards amid increased mobility and air travel in early spring, as people travel freely following the easing of pandemic-led restrictions. Demand for gasoil for construction projects and agriculture will increase further in March, with operations resuming. This, combined with requirements from a vibrant petrochemical sector, will boost oil demand in China.

In 2Q23, oil demand is set to see y-o-y growth of 1.0 mb/d. Domestic and international airline activity is expected to rise as international business and tourism rebounds, combined with pent-up demand for travel. Consequently, jet fuel requirements are expected to lead oil demand growth. Gasoline demand will also improve significantly, driven by a strong rebound in mobility. Similarly, the petrochemical industry has continued to operate at around full capacity, with stable demand expected to boost feedstock demand for light

distillates. Finally, economic stimulus, along with a planned infrastructure expansion in 2023, will set the stage for a robust diesel consumption recovery.

In 3Q23, oil demand is expected to increase y-o-y by a solid 0.8 mb/d. Jet fuel will again drive oil demand growth in this quarter, with millions of air passengers expected to support air travel activity for local and business travelers to and from China. Light distillates are also expected to continue rising, with continued expansion of the petrochemical industry. Increased mobility and rising construction activity will boost demand for gasoline and diesel.

India

Update on the latest developments

India's oil demand improved further from y-o-y growth of 0.2 mb/d in January to 0.3 mb/d in February. The country's oil demand was supported by strong industrial activity, as the manufacturing PMI remained up at 55.3 points in February. Equally, the services PMI grew from 57.2 points in January to 59.4 points in February. Annual consumer price inflation in India slowed slightly to 6.4% in February from 6.5% in January.

In terms of products, diesel was the main driver of oil demand in February as there was a pick up in the agriculture sector, as well as requirements for power generation and industry. Use of the fuel in irrigation pumps and trucking supported diesel, which showed y-o-y growth of 0.1 mb/d.

In addition, vehicle sales in February remained strong, as data from the Federation of Automobile Dealers Associations showed that passenger vehicle sales increased by over 10% compared with February last year. Accordingly, gasoline grew by 70 tb/d y-o-y.

With the continued opening of the aviation sector, India's overall passenger traffic at airports inched closer to pre-COVID-19 levels. According to the IATA, India saw domestic RPKs at 1.3% below January 2019 levels, showing growth of 92% y-o-y. Demand for jet/kerosene in February stood at 30 tb/d y-o-y, the same as growth seen in January.

However, demand for petrochemical feedstock remained weak, as LPG demand was flat y-o-y, and naphtha again showed a decline in February. Naphtha has yet to recover from weak feedstock demand from naphtha-fed steam crackers in the wake of poor production margins. The 'other products' category and residual fuel oil demand showed increases, by 60 tb/d and 10 tb/d y-o-y, respectively.

Table 4 - 7: India's oil demand, mb/d

By product	Feb 22	Feb 23	Change Feb 23/Feb 22	
			Growth	%
LPG	1.02	1.02	0.00	-0.1
Naphtha	0.35	0.34	-0.01	-3.9
Gasoline	0.79	0.86	0.07	8.7
Jet/kerosene	0.18	0.21	0.03	16.2
Diesel	1.77	1.88	0.12	6.7
Fuel oil	0.17	0.18	0.01	5.4
Other products	1.00	1.06	0.06	5.6
Total	5.28	5.54	0.27	5.0

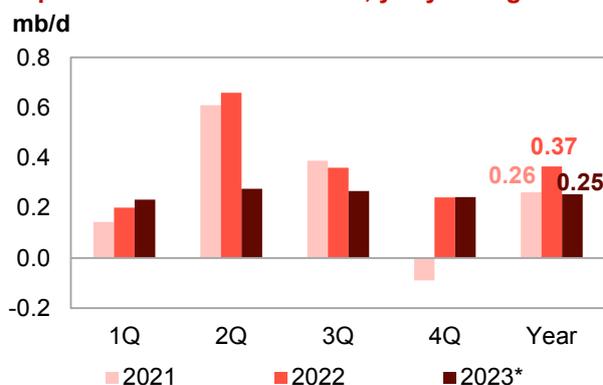
Note: Totals may not add up due to independent rounding.

Sources: JODI, Petroleum Planning and Analysis Cell of India and OPEC.

Near-term expectations

Looking forward, India's demand for refined oil products is expected to remain strong in 2023. Oil demand will be driven by the air travel recovery, supported by healthy mobility and steady industrial activity. Thereby, jet fuel is expected to lead demand growth, followed by gasoline and diesel/gas oil.

Graph 4 - 5: India's oil demand, y-o-y change



Note: * 2023 = Forecast.

Source: OPEC.

World Oil Demand

In 2Q23, the country's manufacturing and service sectors combined with healthy GDP growth are expected to continue to provide support for oil demand to rise by 0.3 mb/d y-o-y. The government's proposed increase in capital spending is expected to boost the momentum of economic activity, supporting construction and manufacturing activity. These factors, combined with a steady rise in airline activity, will support healthy oil demand growth in 2Q23.

In 3Q23, oil demand is expected to remain solid at 0.3 mb/d, with transportation fuels – gasoline, diesel and jet/kerosene – expected to drive growth. Agricultural and construction activity are projected to add further support.

Latin America

Update on the latest developments

Latin America's oil demand saw a y-o-y increase of 0.3 mb/d in January, supported by a recovery in mobility and low y-o-y baseline, and despite slow economic activity in the region due to high inflation. Accordingly, Brazil's manufacturing PMI indices in January were below the growth-indicating level of 50 for the third month in a row, standing at 47.5 points in January, albeit showing a slight improvement compared with the 44.2 points seen in December. Nevertheless, the services PMI in the country improved to stand at 50.7 points, compared with 49.85 in December.

Furthermore, airline activity in the region continued to improve. According to the IATA's Monthly Statistics, airlines from Latin America grew their January international RPKs by 46.8% y-o-y, with traffic levels sitting 19.3% below pre-pandemic levels.

Latin America's oil demand in January was mainly driven by gasoline, which increased by 0.1 mb/d y-o-y from growth of 61 tb/d y-o-y in December. On the back of steady growth in air travel activity, jet kerosene saw y-o-y growth of 45 tb/d, following a 35 tb/d y-o-y increase in December. Residual fuels and the 'other products' category recorded y-o-y growth of 45 tb/d and 56 tb/d, respectively. However, diesel demand saw a decline of 10 tb/d y-o-y. In terms of petrochemical feedstock, LPG saw a slight y-o-y increase of 30 tb/d, while weak petrochemical activity continued to weigh on naphtha, which showed no y-o-y growth, after 12 consecutive months of decline.

Near-term expectations

GDP for the region is anticipated to show growth in 2023. Oil demand is projected to grow y-o-y by 0.1 mb/d in 2Q23. Ongoing requirements for air travel, along with mobility and manufacturing activity improvements, should support demand for jet fuel, gasoline and distillates.

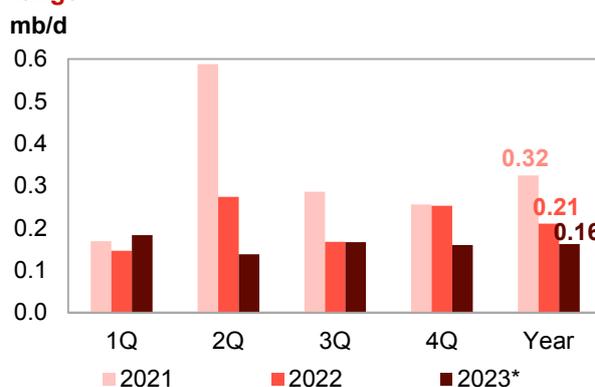
In 3Q23, oil demand is projected to continue to grow further by almost 0.2 mb/d y-o-y. The outlook for oil demand growth in this quarter sees transportation fuels expand the most, supported by an ongoing recovery in mobility and air travel.

Middle East

Update on the latest developments

Oil demand growth in the **Middle East** rose by 0.6 mb/d, or 8%, y-o-y in January, the same y-o-y growth as seen in December. Oil demand was supported by healthy economic and social activity in major oil-consuming countries of the region. Saudi Arabia's composite PMI stood at 58.2 points in January and the UAE posted a strong composite PMI of 54.1 in the same month. In terms of air travel, the IATA reported that Middle Eastern carriers recorded growth of 69.8% y-o-y in December, and domestic RPKs stood at 92.2% of their pre-pandemic levels.

Graph 4 - 6: Latin America's oil demand, y-o-y change

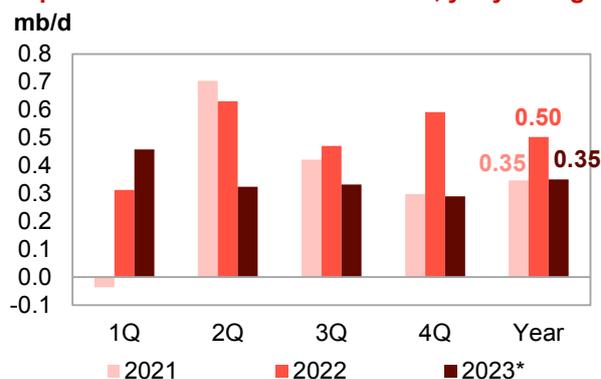


Note: * 2023 = Forecast.
Source: OPEC.

January oil demand was driven by diesel, which posted y-o-y growth of 0.2 mb/d, at broadly the same rate for the fourth consecutive month. On the back of demand for electricity generation and the manufacturing sector, the 'other products' category saw y-o-y growth of 0.14 mb/d.

Steady airline activity increases in the Middle East region boosted jet kerosene, which grew by 0.1 mb/d y-o-y in January, up from growth of 40 tb/d y-o-y in December. Gasoline grew by 60 tb/d, y-o-y, up from the 10 tb/d seen in December, due to improved mobility. Residual fuels also increased by 80 tb/d y-o-y, compared with a 50 tb/d y-o-y increase in December. Furthermore, petrochemical feedstock – LPG and naphtha – saw y-o-y growth of 40 tb/d and 10 tb/d, respectively.

Graph 4 - 7: Middle East's oil demand, y-o-y change



Note: * 2023 = Forecast.
Source: OPEC.

Table 4 - 8: Saudi Arabia's oil demand, mb/d

By product	Feb 22	Feb 23	Change Feb 23/Feb 22	
			Growth	%
LPG	0.05	0.06	0.01	17.0
Gasoline	0.48	0.50	0.02	4.6
Jet/kerosene	0.05	0.11	0.06	111.2
Diesel	0.50	0.60	0.10	20.6
Fuel oil	0.47	0.52	0.04	9.4
Other products	0.36	0.41	0.05	13.5
Total	1.91	2.20	0.29	15.0

Note: Totals may not add up due to independent rounding.

Sources: JODI and OPEC.

Near-term expectations

Oil demand in the Middle East is forecast to remain robust into 2Q23 and 3Q23, on the back of healthy economic activity in the region. Preliminary data for Saudi Arabia shows y-o-y oil demand growth of over 0.3 mb/d in February. Moreover, the composite PMI in both Saudi Arabia and the UAE indicate ongoing strong momentum in February. Furthermore, airline activity is expected to continue to strongly expand. Accordingly, oil demand is projected to increase by 0.3 mb/d y-o-y in both 2Q23 and 3Q23. This will be led by fuel oil for electricity generation in Iraq and Saudi Arabia. In addition, gasoline, transportation diesel and jet/kerosene are expected to further support growth.

World Oil Supply

Non-OPEC liquids supply in 2022 (including processing gains) is estimated to have grown by 1.9 mb/d y-o-y to average 65.8 mb/d, broadly unchanged from the previous month's assessment. Total US liquids production is estimated to have increased by 1.2 mb/d y-o-y to average 19.2 mb/d in 2022. The largest increases for the year were in the US followed by Russia, Canada, Guyana and China, which are estimated to each have grown by around 0.2 mb/d y-o-y. At the same time, production is estimated to see the largest declines in Norway and Thailand.

Non-OPEC liquids production in 2023 is forecast to grow by 1.4 mb/d y-o-y to average 67.2 mb/d, broadly unchanged from last month. Minor downward revisions to OECD Europe and the Other Eurasia were largely offset by upward revisions to liquids production in the Latin America and China.

US liquids production is expected to recover gradually after the considerable drop in December 2022. However, the supply growth forecast for 2023 is revised down slightly to an average of 1.0 mb/d, taking into account lower-than-expected drilling and completion activities in 1Q23. Output growth in the North Sea region is revised down due to continued underperformance, leading to expectations of lower production for Norway in 1Q23. On a positive note, liquids output in Latin America and China is revised up due to strong production in recent months. The main growth drivers for 2023 are anticipated to be the US, Brazil, Norway, Canada, Kazakhstan and Guyana, whereas oil production is forecast to decline primarily in Russia. Nevertheless, there are still substantial uncertainties related to the impact of US shale output assessments in 2023.

OPEC NGLs and non-conventional liquids production in 2022 is forecast to have grown by 0.1 mb/d to average 5.4 mb/d, and is expected to increase by 50 tb/d to average 5.4 mb/d in 2023. OPEC-13 crude oil production in March decreased by 86 tb/d m-o-m to average 28.80 mb/d, according to available secondary sources.

Non-OPEC liquids production in March, including OPEC NGLs, is estimated to have declined m-o-m by 0.1 mb/d to average 73.2 mb/d, but is up by 1.6 mb/d y-o-y. As a result, preliminary data indicates that March's global oil supply decreased by 0.2 mb/d m-o-m to average 101.9 mb/d, up by 1.9 mb/d y-o-y.

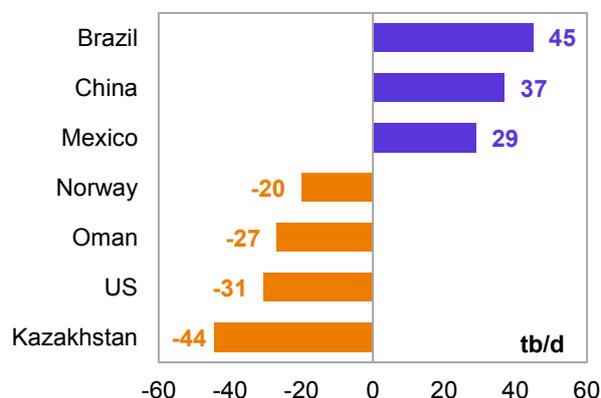
The **non-OPEC liquids supply estimation for 2022** remained broadly unchanged at an average of 65.8 mb/d, showing a y-o-y growth of 1.9 mb/d.

Non-OPEC liquids production in 2023 is forecast to grow by 1.4 mb/d, remained largely unchanged compared with the previous month's assessment, following some up and down revisions in some countries.

The overall OECD supply growth expectation for 2023 has fallen slightly. While OECD Europe saw minor downward revisions, OECD Americas and OECD Asia Pacific were broadly unchanged from the previous month's assessment.

On the other side, the non-OECD supply growth projection for 2023 is revised up marginally, mainly due to upward revision in Latin America, and is expected to grow y-o-y by 0.4 mb/d in 2023.

Graph 5 - 1: Major revisions to annual supply change forecast in 2023*, MOMR Apr 23/Mar 23

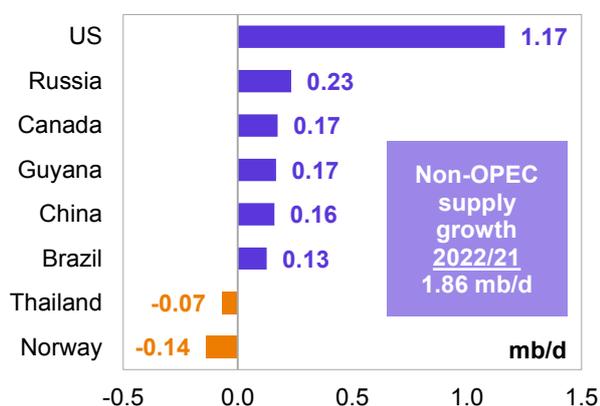


Note: * 2023 = Forecast. Source: OPEC.

Key drivers of growth and decline

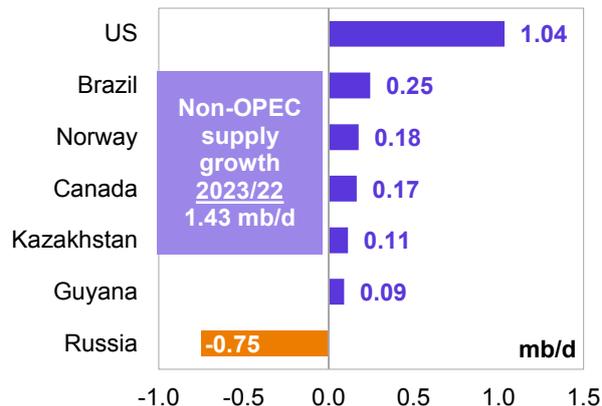
The key drivers of non-OPEC liquids supply growth in 2022 are estimated to be the US, Russia, Canada, Guyana, China and Brazil, while oil production is expected to see the largest declines in Norway and Thailand.

Graph 5 - 2: Annual liquids production changes y-o-y for selected countries in 2022



Source: OPEC.

Graph 5 - 3: Annual liquids production changes y-o-y for selected countries in 2023*



Note: * 2023 = Forecast. Source: OPEC.

For 2023, the key drivers of non-OPEC supply growth are forecast to be the US, Brazil, Norway, Canada, Kazakhstan and Guyana, while oil production is projected to see the largest decline in Russia.

Non-OPEC liquids production in 2022 and 2023

Table 5 - 1: Non-OPEC liquids production in 2022, mb/d

Non-OPEC liquids production	2021	1Q22	2Q22	3Q22	4Q22	2022	Change 2022/21	
							Growth	%
Americas	25.45	26.11	26.51	27.26	27.47	26.84	1.39	5.47
of which US	18.04	18.51	19.07	19.57	19.67	19.21	1.17	6.46
Europe	3.79	3.72	3.46	3.51	3.59	3.57	-0.22	-5.79
Asia Pacific	0.51	0.49	0.51	0.43	0.49	0.48	-0.03	-6.23
Total OECD	29.75	30.32	30.49	31.20	31.54	30.89	1.14	3.84
China	4.32	4.54	4.54	4.42	4.42	4.48	0.16	3.70
India	0.78	0.79	0.78	0.76	0.76	0.77	-0.01	-0.80
Other Asia	2.42	2.37	2.32	2.24	2.31	2.31	-0.11	-4.74
Latin America	5.96	6.11	6.18	6.46	6.59	6.34	0.38	6.35
Middle East	3.20	3.25	3.29	3.32	3.30	3.29	0.09	2.85
Africa	1.35	1.33	1.31	1.32	1.29	1.31	-0.03	-2.49
Russia	10.80	11.33	10.63	11.01	11.17	11.03	0.23	2.15
Other Eurasia	2.93	3.04	2.76	2.59	2.92	2.83	-0.10	-3.34
Other Europe	0.11	0.11	0.11	0.10	0.10	0.11	-0.01	-6.36
Total Non-OECD	31.87	32.85	31.92	32.23	32.87	32.47	0.60	1.89
Total Non-OPEC production	61.62	63.17	62.41	63.44	64.42	63.36	1.74	2.83
Processing gains	2.29	2.40	2.40	2.40	2.40	2.40	0.11	4.90
Total Non-OPEC liquids production	63.90	65.57	64.81	65.83	66.82	65.76	1.86	2.90
Previous estimate	63.90	65.57	64.81	65.82	66.84	65.76	1.86	2.91
Revision	0.00	0.00	0.00	0.02	-0.03	0.00	0.00	0.00

Note: Totals may not add up due to independent rounding. Source: OPEC.

Table 5 - 2: Non-OPEC liquids production in 2023*, mb/d

Non-OPEC liquids production	2022	1Q23	2Q23	3Q23	4Q23	2023	Change 2023/22	
							Growth	%
Americas	26.84	27.59	27.84	28.20	28.57	28.05	1.21	4.52
of which US	19.21	19.76	20.19	20.38	20.61	20.24	1.04	5.39
Europe	3.57	3.68	3.74	3.79	3.92	3.78	0.21	5.88
Asia Pacific	0.48	0.48	0.49	0.49	0.48	0.48	0.00	0.66
Total OECD	30.89	31.74	32.07	32.48	32.97	32.32	1.43	4.62
China	4.48	4.61	4.60	4.50	4.48	4.54	0.07	1.47
India	0.77	0.77	0.79	0.78	0.78	0.78	0.01	1.04
Other Asia	2.31	2.37	2.39	2.34	2.37	2.37	0.06	2.52
Latin America	6.34	6.71	6.67	6.70	6.79	6.72	0.38	5.97
Middle East	3.29	3.26	3.29	3.30	3.31	3.29	0.00	0.02
Africa	1.31	1.31	1.33	1.34	1.33	1.33	0.01	1.01
Russia	11.03	11.22	10.00	9.94	9.99	10.28	-0.75	-6.81
Other Eurasia	2.83	3.04	3.00	2.94	2.98	2.99	0.16	5.69
Other Europe	0.11	0.10	0.10	0.10	0.10	0.10	0.00	-2.83
Total Non-OECD	32.47	33.37	32.17	31.95	32.13	32.40	-0.07	-0.21
Total Non-OPEC production	63.36	65.11	64.24	64.43	65.10	64.72	1.36	2.14
Processing gains	2.40	2.47	2.47	2.47	2.47	2.47	0.07	2.96
Total Non-OPEC liquids production	65.76	67.58	66.71	66.90	67.57	67.19	1.43	2.17
Previous estimate	65.76	67.07	66.68	67.19	67.86	67.20	1.44	2.19
Revision	0.00	0.51	0.03	-0.29	-0.30	-0.01	-0.01	-0.02

Note: * 2023 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.

OECD

OECD liquids production in 2022 is estimated to have increased y-o-y by 1.1 mb/d to average 30.9 mb/d. This is primarily unchanged compared with a month earlier.

For **2023**, oil production in the OECD region is forecast to grow by 1.4 mb/d to average 32.3 mb/d. This was revised down by 20 tb/d mainly due to OECD Europe changes.

Growth is led by OECD Americas with 1.2 mb/d to average 28.1 mb/d. This was broadly stable compared with last month's assessment, while the lower growth forecast for the US offset higher expected growth in Mexico. Yearly liquids production in OECD Europe is anticipated to grow by 0.2 mb/d to average 3.8 mb/d, which is lower by 19 tb/d compared with the previous month. OECD Asia Pacific is expected to remain broadly unchanged to average 0.5 mb/d.

Graph 5 - 4: OECD quarterly liquids supply, y-o-y changes



Note: * 1Q23-4Q23 = Forecast. Source: OPEC.

OECD Americas

US

US liquids production in **January** jumped sharply m-o-m by 678 tb/d to average 19.7 mb/d, primarily due to the recovery from disruptions in December 2022. This was up by 1.5 tb/d compared with January 2022.

Crude oil and condensate production rose m-o-m by 347 tb/d in **January 2023** to average 12.5 mb/d, up by 1.1 mb/d y-o-y.

In terms of **crude and condensate production breakdown by region (PADDs)**, production increased mainly in the US Gulf Coast (USGC) regions, rising by 229 tb/d to average 9.1 mb/d. At the same time, production in the Midwest rose by 128 tb/d. While the Rocky Mountain and East Coast remained broadly unchanged m-o-m, output in the West Coast declined by 12 tb/d. Onshore production growth in the main regions were primarily driven by a partial recovery after weather-related issues in December 2022, mainly in the North Dakota and Texas oil and gas fields.

NGLs production was up by 336 tb/d m-o-m to average 5.9 mb/d in January. This was higher y-o-y by 0.4 mb/d. Production of **non-conventional liquids** (mainly ethanol) remained chiefly unchanged m-o-m at an average 1.4 mb/d, according to the US Department of Energy (DoE). Preliminary estimates see non-conventional liquids averaging around 1.4 mb/d in February, up by 32 tb/d compared with the previous month.

GoM production jumped m-o-m by 125 tb/d in January to average 1.9 mb/d, with higher-than-expected production in most of the Gulf Coast offshore platforms, specially by BP's Thunder Horse expansion. In the **onshore Lower 48**, crude and condensate production increased m-o-m by 221 tb/d to average 10.1 mb/d in January.

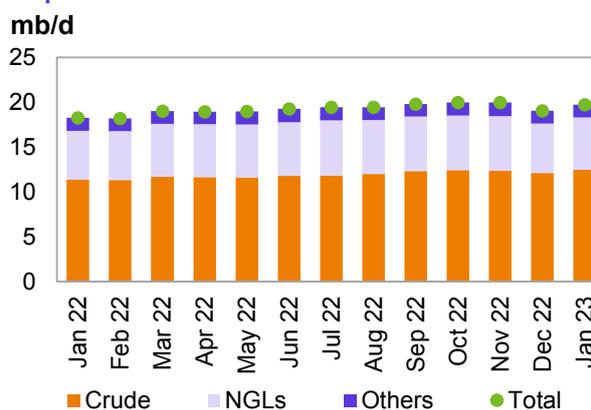
Table 5 - 3: US crude oil production by selected state and region, tb/d

State	Jan 22	Dec 22	Jan 23	Change	
				m-o-m	y-o-y
Texas	4,853	5,161	5,237	76	384
Gulf of Mexico (GOM)	1,708	1,789	1,914	125	206
New Mexico	1,343	1,773	1,792	19	449
North Dakota	1,094	949	1,046	97	-48
Alaska	450	447	448	1	-2
Oklahoma	400	414	432	18	32
Colorado	408	408	406	-2	-2
Total	11,369	12,115	12,462	347	1,093

Sources: EIA and OPEC.

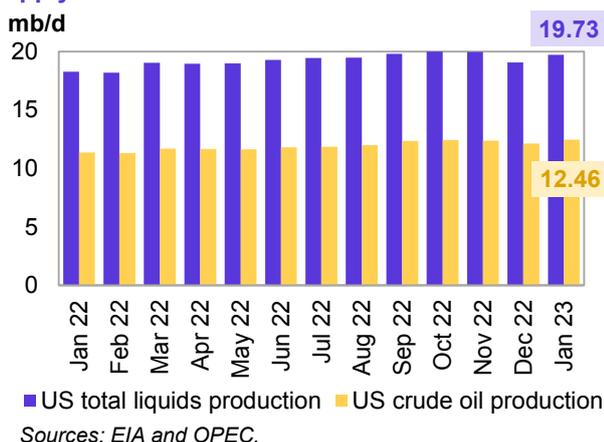
Looking at **individual states**, New Mexico's oil production rose by 19 tb/d to average 1.8 mb/d, which is 449 tb/d higher than a year ago. Texas production was up by 76 tb/d to average 5.2 mb/d, which is 384 tb/d higher than a year ago. In the Midwest, North Dakota's production jumped m-o-m by 97 tb/d to average 1.0 mb/d, down by 48 tb/d y-o-y, and Oklahoma's production was up m-o-m by 18 tb/d to average of 0.4 mb/d. Production in Alaska and Colorado remained broadly stable m-o-m.

Graph 5 - 5: US monthly liquids output by key component

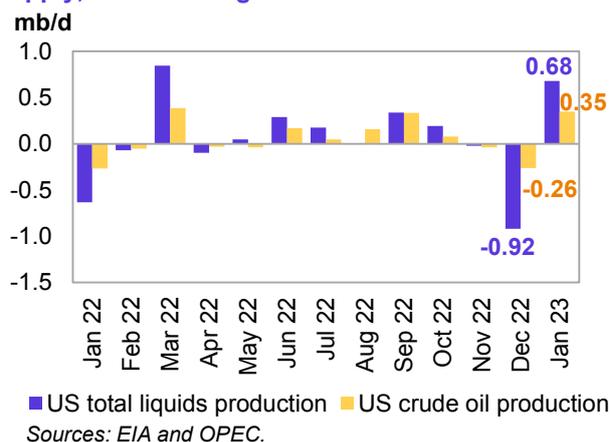


Sources: EIA and OPEC.

Graph 5 - 6: US monthly crude oil and total liquids supply



Graph 5 - 7: US monthly crude oil and total liquids supply, m-o-m changes

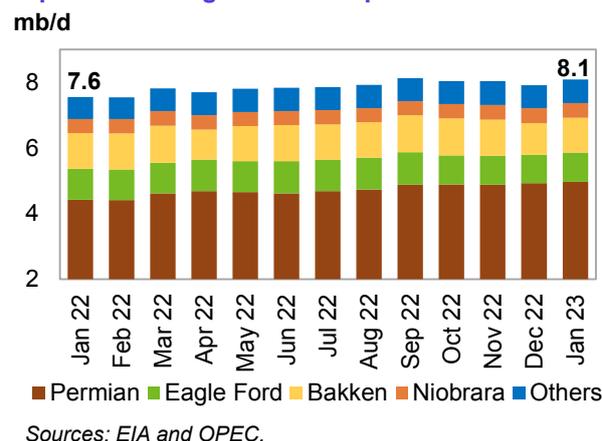


US tight crude output in January 2023 is estimated to have risen by 179 tb/d m-o-m to average 8.1 mb/d, according to the latest estimation by the US Energy Information Administration (EIA). This was 0.5 mb/d higher than in the same month of the previous year.

The m-o-m increase from shale and tight formations using horizontal wells came mainly from the Bakken, where output rebounded by 97 tb/d to average 1.1 mb/d. This was down by 30 tb/d y-o-y.

In Texas and New Mexico, Permian shale production rose by 46 tb/d, averaging 5.0 mb/d. This is up by 548 tb/d y-o-y. Tight crude output at Eagle Ford in Texas increased by 20 tb/d to an average 0.9 mb/d. This is down by 53 tb/d y-o-y. Production in Niobrara-Codell in Colorado and Wyoming was also unchanged at an average of 0.4 mb/d.

Graph 5 - 8: US tight crude output breakdown

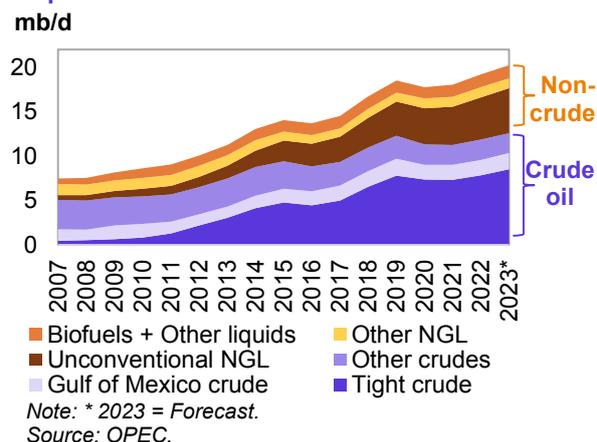


US liquids production in 2022, excluding processing gains, is estimated to have expanded y-o-y by 1.2 mb/d to average 19.2 mb/d. This is broadly unchanged compared with the previous assessment. Tight crude is assessed to have grown by 0.5 mb/d in 2022 to average 7.8 mb/d. In addition, NGLs (mainly from unconventional basins) are estimated to have grown by 0.5 mb/d to average 5.9 mb/d, and production in the GoM is estimated to have increased by a minor 36 tb/d. Non-conventional liquids and the crude from conventional reservoirs are assessed to have expanded by 76 tb/d to average 1.4 mb/d and by 0.1 mb/d to average 2.3 mb/d, respectively.

US crude oil and condensate production is estimated to grow by 0.6 mb/d y-o-y to average 11.9 mb/d in 2022.

US liquids production in 2023, excluding processing gains, is forecast to expand y-o-y by 1.0 mb/d to average 20.2 mb/d, revised down by 31 tb/d from the previous assessment. The lower output anticipation for the rest of the year is mainly due to lower-than-expected upstream activities in 1Q23. Better drilling activity and fewer supply chain/logistical issues in the prolific Permian, Eagle Ford and Bakken shale sites are still assumed for the rest of 2023. Given a sound level of oil field drilling and well completions, crude oil output is anticipated to increase by 0.7 mb/d y-o-y to average 12.6 mb/d. Average tight crude output in 2023 is forecast at 8.5 mb/d, up by 0.7 mb/d y-o-y.

Graph 5 - 9: US liquids supply developments by component



At the same time, NGLs production and non-conventional liquids, particularly ethanol, are forecast to increase y-o-y by 0.3 mb/d and 40 tb/d, to average 6.2 mb/d and 1.5 mb/d, respectively.

The 2023 forecast assumes continuing capital discipline, lower inflationary pressures, as well as moderate supply chain issues and oil field service constraints (labour and equipment). Tightness in the hydraulic fracking and professional labour market is expected to remain a challenge for US upstream producers in this year.

Table 5 - 4: US liquids production breakdown, mb/d

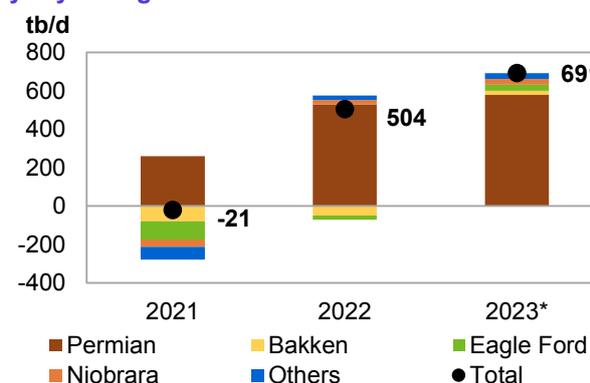
US liquids	Change		Change		2023*	Change
	2021	2021/20	2022	2022/21		
Tight crude	7.34	-0.02	7.84	0.50	8.53	0.69
Gulf of Mexico crude	1.71	0.04	1.74	0.04	1.83	0.09
Conventional crude oil	2.21	-0.08	2.30	0.09	2.21	-0.09
Total crude	11.25	-0.06	11.88	0.63	12.57	0.69
Unconventional NGLs	4.31	0.23	4.74	0.43	5.10	0.36
Conventional NGLs	1.12	0.02	1.14	0.02	1.09	-0.05
Total NGLs	5.42	0.25	5.88	0.46	6.19	0.30
Biofuels + Other liquids	1.36	0.10	1.44	0.08	1.48	0.04
US total supply	18.04	0.28	19.21	1.16	20.24	1.04

Note: * 2023 = Forecast. Sources: EIA, OPEC and Rystad Energy.

US tight crude production in the Permian in 2022 is estimated to have increased y-o-y by 0.5 mb/d to 4.7 mb/d. It is forecast to grow by 0.6 mb/d y-o-y to average 5.3 mb/d in 2023.

The **Bakken** shale production decline that occurred in 2020 and 2021 continued in 2022. Tight crude production in the Bakken is estimated to have dropped by 50 tb/d in 2022 to average 1.1 mb/d. This is much lower than the pre-pandemic average output of 1.4 mb/d. In addition to several weather-related outages, drilling activity in North Dakota and available DUC wells were lower than the levels required to substantially revive output. In 2023, growth is forecast to resume at 21 tb/d to average 1.1 mb/d.

Graph 5 - 10: US tight crude output by shale play, y-o-y changes



Note: * 2023 = Forecast.
Sources: EIA and OPEC.

The **Eagle Ford** in Texas saw output of 1.2 mb/d in 2019, followed by declines in 2020, 2021 and 2022, when it fell by an estimated 21 tb/d to average 0.94 mb/d. Growth of around 30 tb/d is forecast for 2023, to average just under 1.0 mb/d.

Niobrara production is estimated to have grown y-o-y by 24 tb/d in 2022 and is forecast to increase by 30 tb/d in 2023 to average 437 tb/d and 466 tb/d, respectively. Other shale plays are expected to show marginal increases of 22 tb/d and 30 tb/d in 2022 and 2023, respectively, given current drilling and completion activities.

Table 5 - 5: US tight oil production growth, mb/d

US tight oil	Change		Change		2023*	Change
	2021	2021/20	2022	2022/21		
Permian tight	4.17	0.26	4.70	0.53	5.28	0.58
Bakken shale	1.12	-0.08	1.07	-0.05	1.09	0.02
Eagle Ford shale	0.96	-0.09	0.94	-0.02	0.97	0.03
Niobrara shale	0.41	-0.04	0.44	0.02	0.47	0.03
Other tight plays	0.67	-0.07	0.70	0.02	0.73	0.03
Total	7.34	-0.02	7.84	0.50	8.53	0.69

Note: * 2023 = Forecast. Source: OPEC.

US rig count, spudded, completed, DUC wells and fracking activity

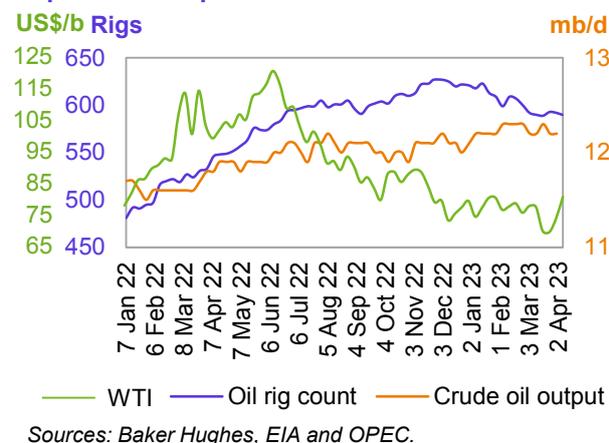
Total **active US drilling rigs** fell by three to 755 in the week ending 31 March 2023, according to Baker Hughes. This was up by 82 rigs compared with a year ago. The number of active offshore rigs remained steady w-o-w at 18. This is higher by four compared with the same month a year earlier. Onshore oil and gas rigs were lower by three w-o-w to stand at 736 rigs, up by 79 rigs y-o-y, with one rig in inland waters.

The **US horizontal rig count** fell by one w-o-w to 691, compared with 613 horizontal rigs a year ago. The number of drilling rigs for oil fell by one w-o-w to 592. At the same time, gas-drilling rig counts were down by two to 160.

The Permian's rig count fell by one w-o-w to 352 rigs. However, rig counts remained steady in Eagle Ford, Williston and DJ-Niobrara at 70, 42 and 18, respectively. The rig count fell by one w-o-w in Cana Woodford to 31.

One operating oil rig remained in the Barnett basin, unchanged w-o-w, but down from two in January 2023.

Graph 5 - 11: US weekly rig count vs. US crude oil output and WTI price

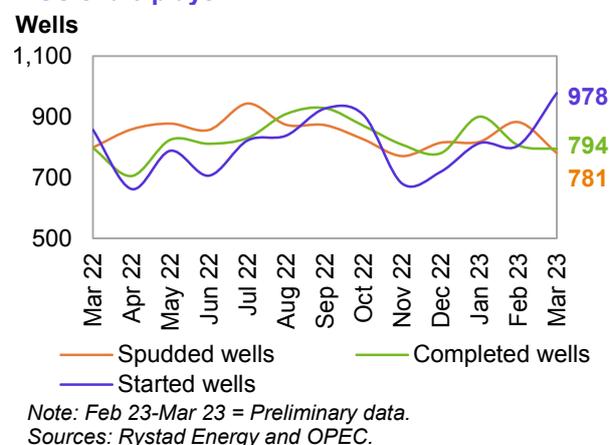


Drilling and completion (D&C) activities for spudded, completed and started oil-producing wells in all US shale plays, based on EIA-DPR regions, included 883 horizontal wells spudded in February (as per preliminary data). This is up by 65 m-o-m, and 19% higher than in February 2022.

February preliminary data indicates a lower number of completed wells at 806, which is up 30% y-o-y. Moreover, the number of started wells was estimated at 805, which is 30% higher than a year earlier.

Preliminary data for March 2023 estimates 781 spudded, 794 completed and 978 started wells, according to Rystad Energy.

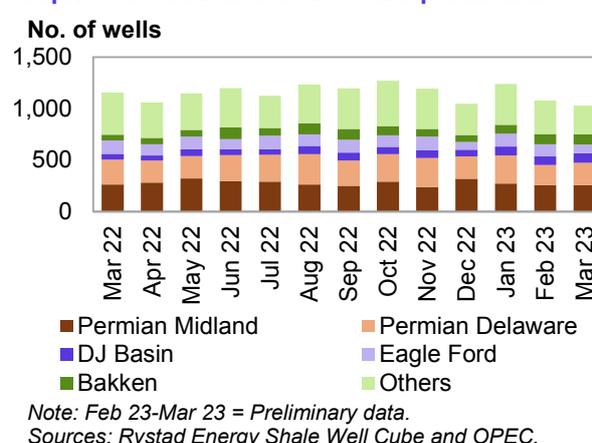
Graph 5 - 12: Spudded, completed and started wells in US shale plays



In terms of identified **US oil and gas fracking operations by region**, Rystad Energy reported that 1,238 wells were fracked in January 2023. In February and March, it stated that 1,079 and 1,029 wells began fracking, respectively. Preliminary numbers are based on analysis of high-frequency satellite data.

Preliminary February data showed that 257 and 196 wells were fracked in the Permian Midland and Permian Delaware, respectively. Compared with January, there was a decline of 15 in the Midland and a drop of 79 in the Delaware. Data also indicated that 84 wells were fracked in the DJ Basin, 116 in Eagle Ford and 100 in Bakken during February.

Graph 5 - 13: Fracked wells count per month

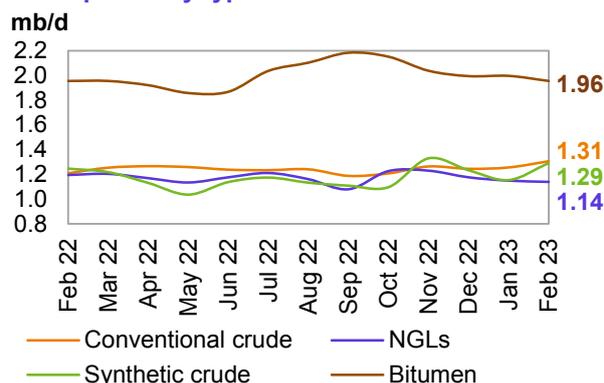


Canada

Canada's liquids production in February is estimated to have risen m-o-m by 136 tb/d to average 5.7 mb/d. It shows a recovery from the January numbers, as the mining activities improved.

Conventional crude production increased m-o-m by 50 tb/d to average 1.3 mb/d, while NGLs output decreased marginally by 10 tb/d and averaged 1.1 mb/d. Crude bitumen production output fell m-o-m by 41 tb/d in February, while synthetic crude jumped by 137 tb/d. Taken together, crude bitumen and synthetic crude production increased by 96 tb/d to 3.2 mb/d.

Graph 5 - 14: Canada's monthly liquids production development by type



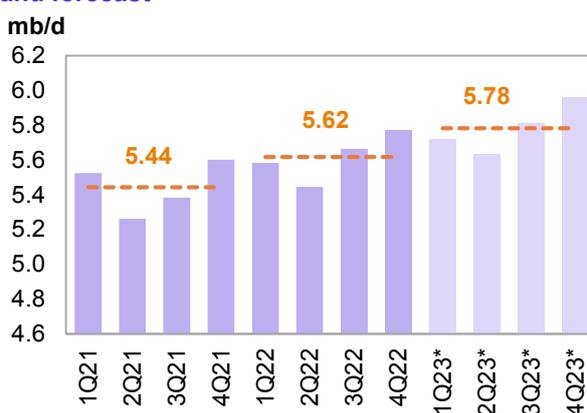
Sources: Statistics Canada, Alberta Energy Regulator and OPEC.

Canada's liquids supply in 2022 is estimated to have expanded by 0.2 mb/d to average 5.6 mb/d, broadly unchanged from the previous assessment. Oil sands output, mainly from Alberta, saw a growth of 60 tb/d y-o-y to an average of 3.2 mb/d in 2022.

Canada's production in 1Q23 was under pressure due to weather-related issues and lower synthetic crude oil production.

For 2023, Canada's liquids production is forecast to increase at a pace similar to 2022, rising by 0.2 mb/d to average 5.8 mb/d. This is broadly unchanged compared with the previous assessment. Incremental production will come through oil sand project ramp-ups and debottlenecks alongside conventional growth.

Graph 5 - 15: Canada's quarterly liquids production and forecast



Note: * 1Q23-4Q23 = Forecast. Source: OPEC.

Upgrader maintenance is expected to follow a seasonal pattern, with lower utilization rates during spring and fall. But unplanned outages combined with an expected heavy turnaround schedule could lead to lower production of upgraded synthetic crude oil.

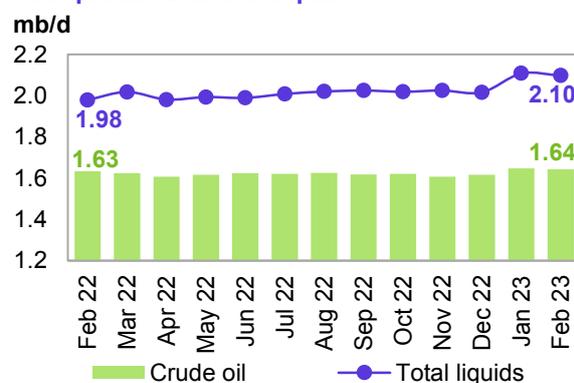
Mexico

Mexico's crude output decreased by a minor 5 tb/d m-o-m in February to average 1.6 mb/d and NGLs output remained broadly stable. Mexico's total February liquids m-o-m output fell by a slight 10 tb/d to average 2.1 mb/d, according to the Comisión Nacional de Hidrocarburos (CNH). This was higher than expected mainly due to the quick ramp-up of the Qesqui and Tupilco Profundo fields.

For 2022, Mexico's liquids production is estimated to have averaged 2.0 mb/d, broadly unchanged from the previous month's assessment. Growth of 50 tb/d is estimated for 2022.

For 2023, liquids production is now forecast to rise by 15 tb/d to average 2.0 mb/d, which is up by 29 tb/d from the previous assessment, due to higher output in recent months and better expectation for the rest of the year.

Graph 5 - 16: Mexico's monthly liquids and crude production development



Sources: Mexico Comisión Nacional de Hidrocarburos (CNH) and OPEC

The faster-than-expected ramp-up of Pemex’s priority fields has continued to offset declines at mature assets in recent months. In its latest investor presentation, Pemex highlighted the importance of its priority fields (mainly condensate and light crude) to achieving its production goal. However, it is expected that declines from mature fields could start offsetting monthly gains from new fields again from 2Q23.

OECD Europe

Norway

Norwegian liquids production in February increased by 13 tb/d m-o-m to average 2.0 mb/d, which was lower than expected after Johan Sverdrup phase-2 came online in December 2022.

Norway’s crude production rose by a minor 7 tb/d m-o-m in February to average 1.8 mb/d, and remained steady y-o-y. Monthly oil production was 2.8% lower than the Norwegian Petroleum Directorate’s (NPD) forecast.

At the same time, production of NGLs and condensates rose by 6 tb/d m-o-m, averaging 0.2 mb/d, according to NPD data.

For **2022**, production in the Norwegian Continental Shelf is estimated to have declined by around 140 tb/d y-o-y, to average 1.9 mb/d, reflecting poor performance in Norwegian fields.

For **2023**, Norwegian liquids production is forecast to expand by 0.2 mb/d, revised down by 20 tb/d compared with the previous month, to average 2.1 mb/d. This was mainly due to lower-than-expected output in 1Q23.

A number of small-to-large projects are scheduled to ramp up in 2023. The Johan Sverdrup ramp-up is projected to be the main source of growth following the Phase 2 start-up in December 2022. However, it seems that field underperformance remains an issue throughout this year. Besides, Aker BP has started production from the Frosk field, which has an estimated recoverable reserve of around 10 million barrels of oil equivalent. The field is tied back to the Alvheim FPSO located about 24km away. Frosk is to be the first of three tie-backs to the Alvheim field, including Kobra East & Gekko and Tyrving.

UK

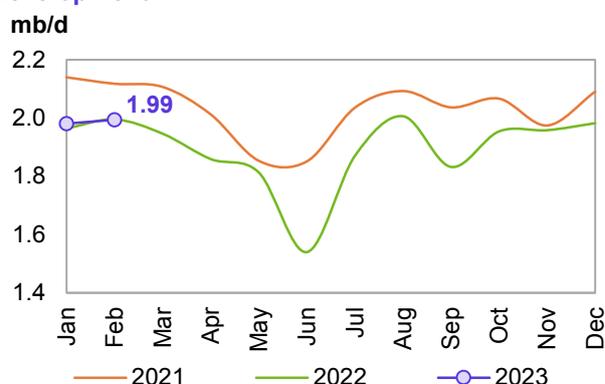
UK liquids production rose m-o-m in February by 141 tb/d to average 0.9 mb/d. Crude oil output increased by 138 tb/d m-o-m to average 0.8 mb/d, which was lower by 40 tb/d y-o-y, according to official data. NGLs output remained broadly unchanged at an average of 87 tb/d. UK liquids output in February was down by 4.6% from the same month a year earlier, mainly due to natural declines and other outages.

For **2022**, UK liquids production is estimated to have dropped by 51 tb/d to average 0.9 mb/d. This is chiefly unchanged from the previous assessment.

For **2023**, UK liquids production is forecast to increase by 28 tb/d to average 0.9 mb/d. This is broadly unchanged from the previous assessment.

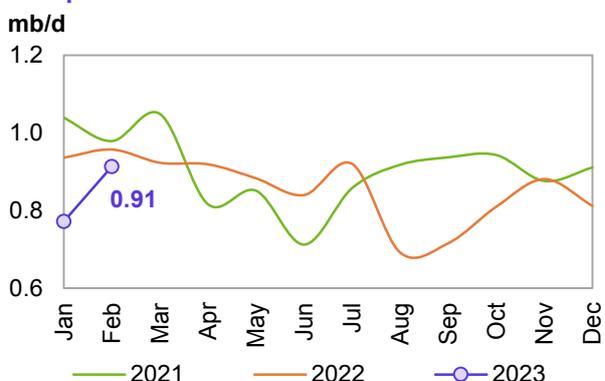
A number of new fields, including Seagull, the Penguins Redevelopment, Captain EOR and Saturn Banks phase 1 will help offset base declines in 2023. However, project sanctioning will be essential to maintain future oil and gas output, as UK production has been in long-term decline. In addition, UK offshore workers demanding better pay and conditions have voted in favour of a series of short strikes over the coming months that might bring parts of the UK’s oil and gas platforms to a standstill – if the labour issues are not resolved.

Graph 5 - 17: Norway’s monthly liquids production development



Sources: The Norwegian Petroleum Directorate (NPD) and OPEC.

Graph 5 - 18: UK monthly liquids production development



Sources: UK Department for Business, Energy and Industrial Strategy and OPEC.

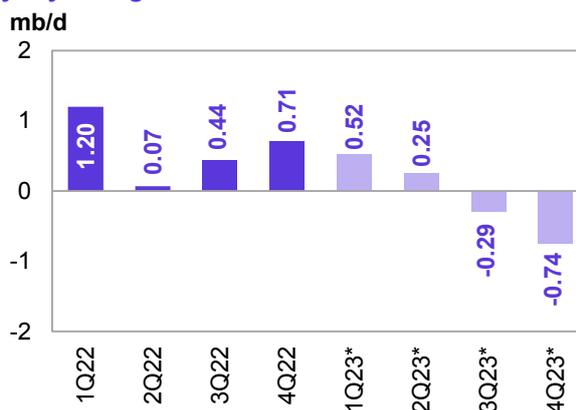
Non-OECD

Graph 5 - 19: Non-OECD quarterly liquids production and forecast



Note: * 1Q23-4Q23 = Forecast. Source: OPEC.

Graph 5 - 20: Non-OECD quarterly liquids supply, y-o-y changes

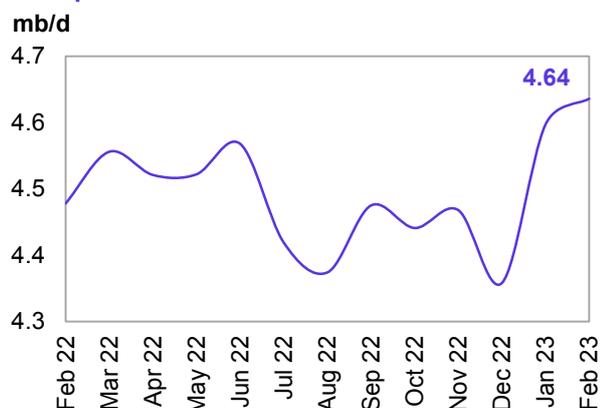


Note: * 1Q23-4Q23 = Forecast. Source: OPEC.

China

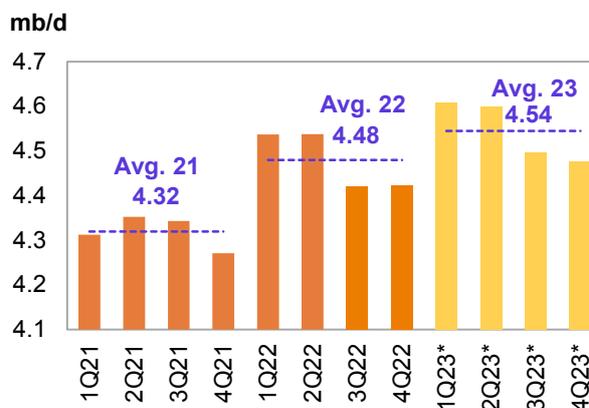
China's liquids production rose m-o-m in February by 39 tb/d to average 4.6 mb/d, which is a jump of 158 tb/d y-o-y, according to official data. Crude oil output in February averaged 4.2 mb/d, up by 40 tb/d compared with the previous month but higher y-o-y by 156 tb/d. NGLs and condensate production was largely stable m-o-m, averaging 48 tb/d.

Graph 5 - 21: China's monthly liquids production development



Sources: CNPC and OPEC.

Graph 5 - 22: China's quarterly liquids production and forecast



Note: * 1Q23-4Q23 = Forecast. Sources: CNPC and OPEC.

For 2022, growth of 156 tb/d is estimated for an average of 4.5 mb/d. This remained unchanged from the previous assessment and higher by 3.6% y-o-y.

For 2023, y-o-y growth of about 66 tb/d is forecast for an average of 4.5 m/d, revised up by 37 tb/d from last month's assessment due to higher-than-expected output in 1Q23. Natural decline rates are expected to be offset by additional growth through more infill wells and enhanced oil recovery (EOR) projects amid efforts by state-owned oil companies to safeguard its energy supply.

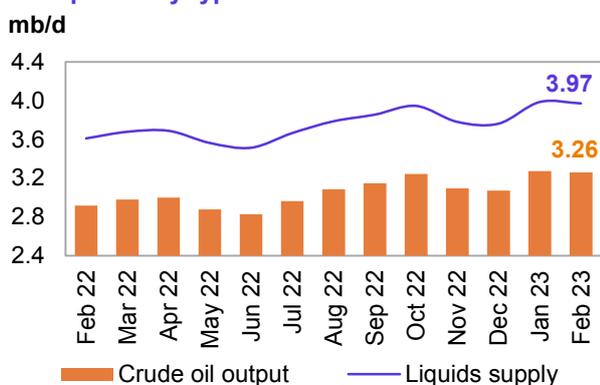
New offshore discoveries, the development of remote onshore basins and more investment in advanced EOR projects are expected to offset the declining output of mature fields. China National Offshore Oil Corporation (CNOOC) exceeded its planned capex last year by spending 102.5 billion yuan, higher than its initial allocated budget. CNOOC officials noted that the company plans to spend up to 110 billion yuan in 2023, with more than three-quarters of its budget dedicated to domestic upstream developments. In addition, PetroChina overspent its 2022 budget by a hefty 32 billion yuan for a total 274 billion yuan, with all the extra funds allocated to its upstream segment. However, PetroChina has indicated plans to cut its 2023 spending to 243.5 billion yuan to align it with its initial 2022 budget.

Latin America

Brazil

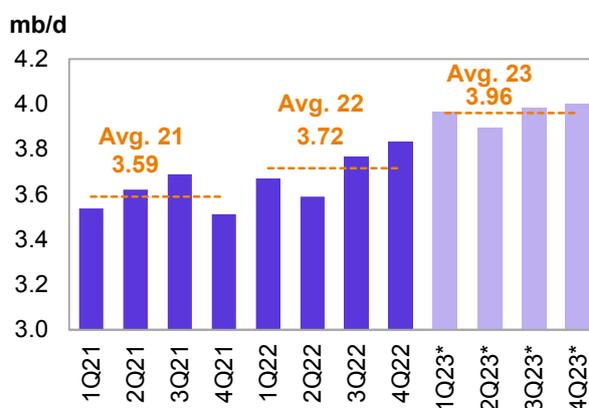
Brazil's crude output in February dropped m-o-m by 13 tb/d to average 3.3 mb/d. NGLs production was mostly stable at an average 88 tb/d and is expected to remain flat in February. Biofuels output (mainly ethanol) remained broadly unchanged in February at an average of 622 tb/d, with preliminary data showing a stable trend in March. The country's total liquids production decreased by 14 tb/d in February to average 4.0 mb/d, slightly lower than the highest production rate on record in January 2023.

Graph 5 - 23: Brazil's monthly liquids production development by type



Sources: Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP) and OPEC.

Graph 5 - 24: Brazil's quarterly liquids production



Note: * 1Q23-4Q23 = Forecast. Sources: ANP and OPEC.

For **2022**, Brazil's liquids supply, including biofuels, is estimated to have increased by 0.1 mb/d y-o-y to average 3.7 mb/d, primarily unchanged from the previous assessment.

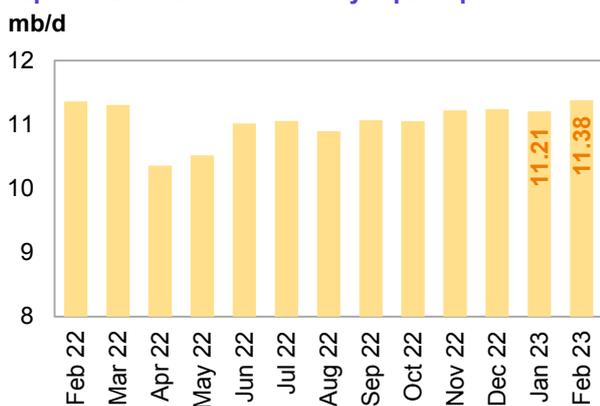
For **2023**, Brazil's liquids supply, including biofuels, is forecast to increase by 0.2 mb/d y-o-y to average 4.0 mb/d, revised up by 45 tb/d from the previous forecast due to higher production rates in 1Q23 and better expectation for the rest of the year.

Crude oil output is set to increase through production ramp-ups in the Buzios (Franco), Mero (Libra NW), Tupi (Lula), Peregrino, Sepia, Marlim and Itapu (Florim) fields. However, offshore maintenance is expected to cause some interruptions in major fields. Petrobras expects the Itapu field in the Santos basin presalt area, which produced 51 tb/d in January, to reach the project's nominal capacity of 150 tb/d in 2H23, offsetting parts of declines in mature fields. Petrobras's Buzios V development, with medium sweet crude oil, is expected to be online in 2Q23 and could be a growth driver for 2023.

Russia

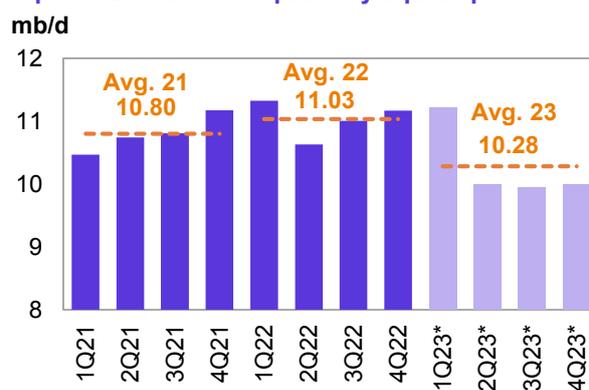
Russia's liquids production in February increased m-o-m by 175 tb/d to average 11.4 mb/d. This includes 10.0 mb/d of crude oil and 1.4 mb/d of NGLs and condensate.

Graph 5 - 25: Russia's monthly liquids production



Sources: Nefte Compass and OPEC.

Graph 5 - 26: Russia's quarterly liquids production



Note: * 1Q23-4Q23 = Forecast. Sources: Nefte Compass and OPEC.

Russian liquids output in **2022** is estimated to have increased y-o-y by 0.2 mb/d to average 11.0 mb/d. This is broadly unchanged from the previous month's assessment.

For **2023**, Russian liquids production is forecast to drop by 0.75 mb/d to average 10.3 mb/d. It is worth noting that this expected contraction accounts for the recently announced additional voluntary production adjustments to the end of 2023. Annual growth is remained unchanged from the previous monthly assessment. In addition to a number of planned start-ups this year by Lukoil, Gazprom, Novatek, Sigma Energy and others.

Caspian

Kazakhstan & Azerbaijan

Liquids output in Kazakhstan decreased by 33 tb/d m-o-m to average 2.0 mb/d in **February**. Crude production was down by a minor 26 tb/d m-o-m to average 1.6 mb/d, while NGLs and condensate fell by a minor 7 tb/d m-o-m to average 0.4 mb/d.

Kazakhstan's liquids supply for **2022** is forecast to have declined by 44 tb/d y-o-y to average 1.8 mb/d. This is broadly unchanged compared with the previous month's assessment.

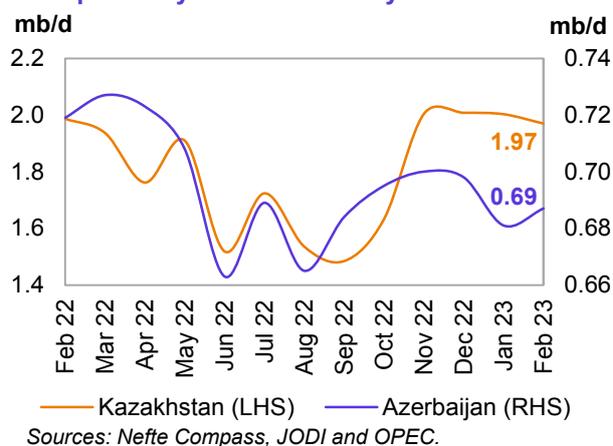
For **2023**, liquids supply is forecast to increase by 0.1 mb/d, down by 44 tb/d compared with the previous forecast. Similar to Russia, this adjustment already accounts for the recently announced additional voluntary production adjustment to the end of 2023.

Azerbaijan's liquids production in February increased slightly by 6 tb/d m-o-m, averaging 0.7 mb/d, which is a drop of 32 tb/d y-o-y. Crude production averaged 537 tb/d, with NGLs output at 150 tb/d, according to official sources.

For **2022**, liquids supply in Azerbaijan is estimated to have declined y-o-y by 40 tb/d to average 0.7 mb/d.

Azerbaijan's liquids supply for **2023** is forecast to rise by 48 tb/d to average 0.7 mb/d. This is a downward revision of a minor 7 tb/d, due to lower-than-expected production in major oil fields in February. The main declines in legacy fields are expected to be offset by ramp-ups in other fields. Growth is forecast to mainly come from the Shah Deniz and Absheron gas condensate projects. Azeri-Chirag-Guneshli (ACG) oil fields output has declined steadily from a peak of 820 tb/d in 2010. However, production is expected to rise after the start-up of the Azeri Central East flank project in 4Q23.

Graph 5 - 27: Caspian monthly liquids production development by selected country



OPEC NGLs and non-conventional oils

OPEC NGLs and non-conventional liquids in 2022 are estimated to have grown by 0.1 mb/d to average 5.4 mb/d, unchanged from the previous assessment.

NGLs output in 1Q23 is expected to have averaged 5.34 mb/d, while OPEC non-conventional output remained steady at 0.1 mb/d. Taken together, 5.46 mb/d is expected for February 2023, according to preliminary data.

OPEC NGLs and non-conventional liquids are forecast to expand by around 50 tb/d in **2023** to average 5.4 mb/d. NGLs production is projected to grow by 50 tb/d to average 5.3 mb/d, while non-conventional liquids are projected to remain unchanged at 0.1 mb/d.

Graph 5 - 28: OPEC NGLs and non-conventional liquids quarterly production and forecast

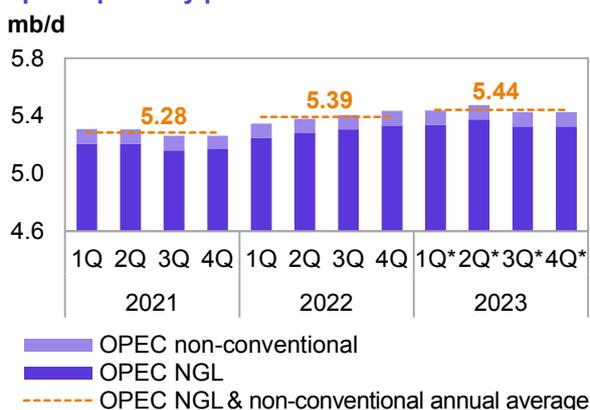


Table 5 - 6: OPEC NGL + non-conventional oils, mb/d

OPEC NGL and non-conventional oils	Change		Change		1Q23	2Q23	3Q23	4Q23	2023	Change 23/22
	2021	21/20	2022	22/21						
OPEC NGL	5.18	0.12	5.29	0.11	5.34	5.37	5.33	5.33	5.34	0.05
OPEC non-conventional	0.10	0.00	0.10	0.00	0.10	0.10	0.10	0.10	0.10	0.00
Total	5.28	0.12	5.39	0.11	5.44	5.47	5.43	5.43	5.44	0.05

Note: 2023 = Forecast. Source: OPEC.

OPEC crude oil production

According to secondary sources, total **OPEC-13 crude oil production** averaged 28.80 mb/d in March 2023, lower by 86 tb/d m-o-m. Crude oil output increased mainly in Saudi Arabia, while production in Angola, Iraq and Nigeria declined.

Table 5 - 7: OPEC crude oil production based on secondary sources, tb/d

Secondary sources	2021	2022	3Q22	4Q22	1Q23	Jan 23	Feb 23	Mar 23	Change Mar/Feb
Algeria	913	1,017	1,040	1,030	1,015	1,016	1,017	1,013	-4
Angola	1,122	1,140	1,155	1,084	1,072	1,136	1,072	1,007	-64
Congo	263	261	265	252	268	257	278	270	-8
Equatorial Guinea	98	84	90	63	54	55	61	48	-12
Gabon	182	197	201	199	196	190	196	203	7
IR Iran	2,392	2,554	2,565	2,567	2,565	2,554	2,574	2,567	-8
Iraq	4,046	4,439	4,522	4,505	4,381	4,410	4,375	4,358	-18
Kuwait	2,419	2,704	2,801	2,712	2,682	2,692	2,676	2,678	2
Libya	1,143	981	976	1,153	1,157	1,148	1,163	1,161	-2
Nigeria	1,373	1,204	1,063	1,171	1,344	1,308	1,371	1,354	-17
Saudi Arabia	9,114	10,529	10,891	10,603	10,354	10,295	10,361	10,405	44
UAE	2,727	3,066	3,168	3,094	3,043	3,046	3,046	3,038	-8
Venezuela	553	678	662	667	693	691	692	695	2
Total OPEC	26,345	28,856	29,400	29,100	28,824	28,798	28,883	28,797	-86

Notes: Totals may not add up due to independent rounding, given available secondary sources to date. Source: OPEC.

Table 5 - 8: OPEC crude oil production based on direct communication, tb/d

Direct communication	2021	2022	3Q22	4Q22	1Q23	Jan 23	Feb 23	Mar 23	Change Mar/Feb
Algeria	911	1,020	1,050	1,030	1,011	1,012	1,014	1,008	-6
Angola	1,124	1,140	1,151	1,076	1,046	1,105	1,064	972	-92
Congo	267	262	261	261	278	275	273	285	12
Equatorial Guinea	93	81	83	56	51	55	50	48	-2
Gabon	181	191	198	183	201	206	207	190	-16
IR Iran	..	..	..	..	..	..	..	..	..
Iraq	3,971	4,450	4,632	4,505	4,288	4,331	4,339	4,200	-139
Kuwait	2,415	2,707	2,799	2,721	2,676	2,676	2,676	2,676	0
Libya	1,207	..	..	..	..	..	..	..	..
Nigeria	1,323	1,143	999	1,145	1,277	1,258	1,306	1,268	-38
Saudi Arabia	9,125	10,591	10,968	10,622	10,456	10,453	10,450	10,464	14
UAE	2,718	3,064	3,170	3,093	3,041	3,038	3,041	3,045	4
Venezuela	636	716	673	693	731	732	704	754	50
Total OPEC	..	..	..	..	..	..	..	..	..

Notes: .. Not available. Totals may not add up due to independent rounding. Source: OPEC.

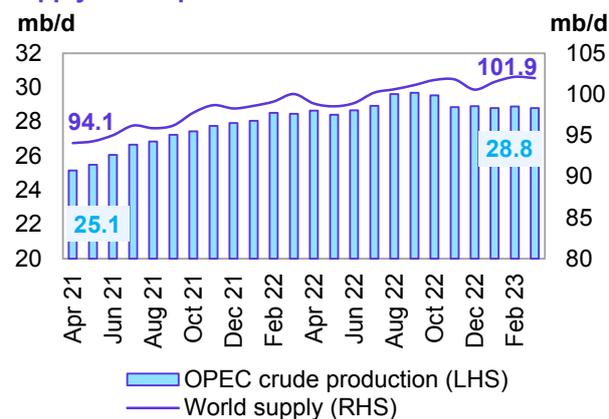
World oil supply

Preliminary data indicates that **global liquids production in March** decreased by 0.2 mb/d to average 101.9 mb/d compared with the previous month.

Non-OPEC liquids production (including OPEC NGLs) is estimated to have decreased m-o-m in March 2023 by 0.1 mb/d to average 73.2 mb/d. This was higher by 1.6 mb/d y-o-y. Preliminary estimated production decreases in March were mainly driven by Russia which offset rises in Other Eurasia and OECD Americas.

The **share of OPEC crude oil in total global production** marginally unchanged to stand at 28.8% in March, compared with the previous month. Estimates are based on preliminary data for non-OPEC supply, OPEC NGLs and non-conventional oil, while assessments for OPEC crude production are based on secondary sources.

Graph 5 - 29: OPEC crude production and world oil supply development



Product Markets and Refinery Operations

In March, refinery margins changed course again to regain limited ground following the sharp loss seen in the previous month. A contraction in product balances in the Atlantic Basin due to the onset of heavy refinery maintenance, as well as product output declines in France due to the nationwide energy workers' strike action led to pressure on product inventories over the month and provided support to product crack spreads. In addition, the decline in feedstock prices brought on by risk management challenges of some western banking institutions further contributed to stronger refinery margins across all the main regions.

Global refinery processing rates fell further in March and lost nearly 260 tb/d, according to preliminary estimates. In the coming month, refinery intakes are expected to remain under pressure on strong offline capacities, which are projected to peak in the coming month. Consequently, product balances are set to contract further, which should provide added support to product performance and refinery economics in the coming month.

Refinery margins

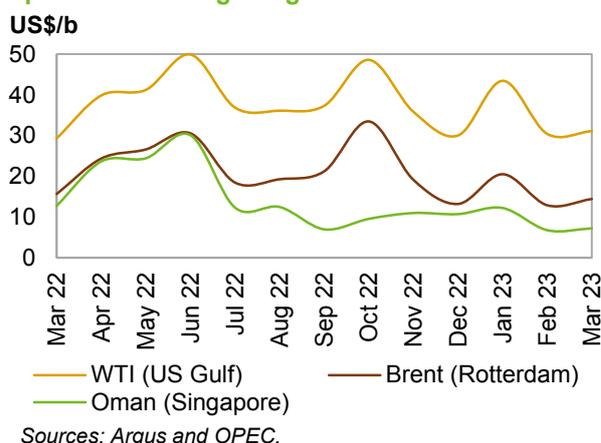
USGC refining margins against WTI benefitted from a mild improvement as a result of lower product availability due to the heavy maintenance season, although run rates rose in March as refiners returned online. Most of the gains in USGC product markets derived from the top and the bottom of the barrel with gasoline representing the main driver. In addition to the recent supportive supply-side dynamics, improvements in gasoline consumption levels led to a continual decline in US total gasoline inventories throughout all four weeks of March. This contributed to the products' performances and helped gasoline crack spreads continue their gradual revival from the typical winter-related lows to outperform gasoil in March. The positive outlook for gasoline markets over the upcoming summer season should boost the fuel's performance in the coming months.

Moreover, the federally mandated May 1 switch to summer grade gasoline for US refiners will most likely continue to boost naphtha-derived blending components for gasoline production and incentivize stronger fuel oil to gasoline conversion going forward, allowing the gasoline strength to filter through to the naphtha and fuel oil markets as well going forward. According to preliminary estimates, refinery intake in the US increased by 540 tb/d m-o-m to average 15.53 mb/d in March. USGC margins against WTI averaged \$31.08/b in March, up by 68¢ m-o-m and by \$1.79 y-o-y.

Refinery margins in Rotterdam against Brent showed the largest upturn relative to those seen in other main trading hubs. Reductions in product output levels amid the heavy maintenance season led to a contraction in product balances in the region. In addition, the energy workers' strikes in France and the resulting product output disruptions with the loss of more than 700 tb/d of refining capacity in March further weighed on regional inventory levels. Consequently, total product commercial stocks in France declined significantly. Meanwhile, on a regional level, gasoil inventories at the Amsterdam-Rotterdam-Antwerp storage hub were the most affected compared to the other products and showed significant declines in March, ending the strong upward trend witnessed since December. Refinery throughput in Europe extended its downward trend and decreased by 640 tb/d to average 9.32 mb/d according to preliminary data. Refinery margins against Brent in Europe averaged \$14.41/b in March, \$1.55 higher compared with a month earlier, but \$1.22 lower y-o-y.

Singapore refining margins against Oman increased, albeit by the least magnitude compared to their western counterparts, with high sulphur fuel oil and gasoline representing the drivers behind the upturn. The product strength manifested in the West opened up arbitrage opportunities for product flows from Asia, which provided solid support to the regional high sulphur fuel oil and gasoline markets. Moreover, the crude price weakness registered over the month with some western banking institutions facing risk management challenges provided relief for refiners' variable costs, further contributing to stronger refining economics in the region. Going forward, fuel oil markets will most likely strengthen further in the coming months as requirements

Graph 6 - 1: Refining margins



for power generation pick up in the summer months in line with seasonal trends. In March, refinery intakes reversed course and dropped 90 tb/d relative to the previous month, reflecting the pick-up in refinery maintenance activities within the region, and averaged of 27.13 mb/d, according to preliminary data. Refinery margins against Oman in Asia gained 45¢ m-o-m to average \$7.20/b, which was \$5.55 lower y-o-y.

Refinery operations

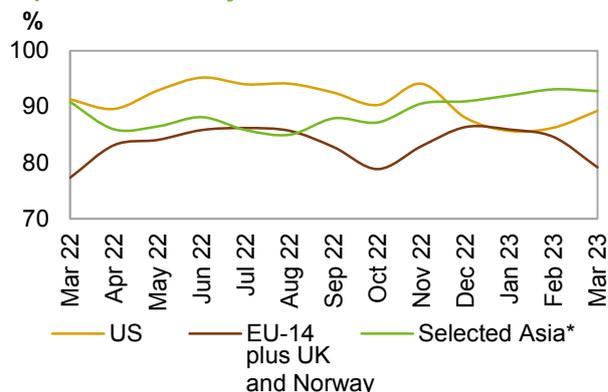
US refinery utilization rates increased in March to average 89.26%, which corresponds to a throughput of 16.07 mb/d. This represented a rise of 3.0 pp and 540 tb/d compared with February. Y-o-y, the March refinery utilization rate was down by 2.0 pp, with throughput showing a drop of 306 tb/d.

European refinery utilization averaged 79.17% in March, corresponding to a throughput of 9.32 mb/d. This is a m-o-m drop of 5.4 pp or 640 tb/d. On a y-o-y basis, utilization rates were up by 1.8 pp, while throughput was higher by 217 tb/d.

In **Selected Asia** – comprising Japan, China, India, Singapore and South Korea – refinery utilization rates increased to average 92.77% in March, corresponding to a throughput of 27.13 mb/d.

Compared with the previous month, utilization rates were down by 0.3 pp, and throughput was lower by 90 tb/d. However, y-o-y utilization rates were higher by 1.9 pp, and throughput was up by 932 tb/d.

Graph 6 - 2: Refinery utilization rates



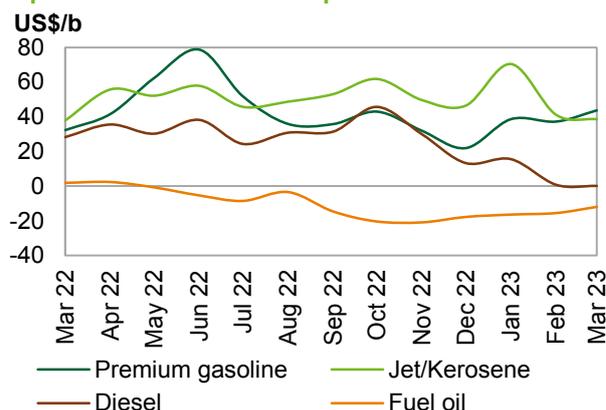
Note: * China, India, Japan, Singapore and South Korea.
Sources: Argus, EIA, Euroilstock, PAJ and OPEC.

Product markets

US market

The **USGC gasoline crack spread** recovered the previous month's losses and outperformed jet/kero to become the main margin contributor across the barrel in March. A contraction in the country's gasoline balance amid a continual decline in total US gasoline inventories throughout all four weeks of the month strengthened the market. In addition, an improvement in gasoline demand as well as preparations for the switch to summer grade gasoline and an optimistic outlook for gasoline consumption over the summer months provided further support, which is expected to continue going forward. The return of US refiners from maintenance are likely to partially and temporarily offset the strength in gasoline markets, however, once refinery intakes are recovered and stabilized, gasoline crack spreads will most likely remain strong. In March, USGC wholesale gasoline 93 prices reversed trend again and increased by \$3.03 m-o-m, despite the decline in crude prices, to average \$117.03/b. Compared to the same month a year earlier, gasoline prices in March were \$23.75/b lower, reflecting an improved balance relative to the strong tightness witnessed in the previous year. The USGC gasoline crack spread gained \$6.47 m-o-m to average \$43.66/b in March, but was \$11.40 higher y-o-y.

Graph 6 - 3: US Gulf crack spread vs. WTI



Sources: Argus and OPEC.

The **USGC jet/kerosene crack spread** lost solid ground to become the strongest negative performer across the barrel, and lost its position as the main margin contributor in the USGC product market to gasoline. This weakness was mainly a result of ample availability amid weaker demand, as jet fuel inventories ended the month higher compared to what was registered at the end of the previous month. Wholesale prices dropped by \$6.04/b over the month to average \$111.87/b, and the fuel remained the highest-priced product in the USGC market during March as inventories remained below the five-year average. The US jet/kerosene crack spread against WTI averaged \$38.50/b, down by \$2.60 m-o-m but higher by 72¢ y-o-y.

Product Markets and Refinery Operations

The **USGC gasoil crack spread** declined further to settle at just a few cents above the zero mark, indicating negligible profits for refiners to produce gasoil. With this development, US refiners will most likely shift their focus to gasoline production. US gasoil inventories, however, ended the month at a significantly lower level relative to what was recorded in the last week of the previous month, although they remain below the five-year average. Gasoil prices averaged \$73.45/b in March, down \$4.10 relative to February. The US gasoil crack spread against WTI averaged 8¢/b, down by 66¢ m-o-m and by \$28.13 y-o-y.

The **USGC fuel oil crack spread against WTI** maintained its positive momentum for the fourth consecutive month although remaining in negative territory. This improvement was mostly attributed to a contraction in the product's domestic balance over the month. In addition, the decline in crude prices contributed to a narrowing of the fuel oil discount to crude, providing a better economic incentive for fuel oil production. In March, the US fuel oil crack spread against WTI averaged minus \$11.95/b, higher by \$3.55/b m-o-m but lower by \$13.76 y-o-y.

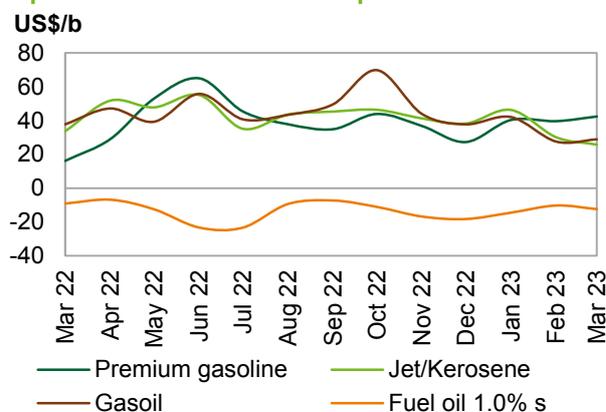
European market

Gasoline crack spreads strengthened reflecting market tightness derived from lower refinery output, as the heavy maintenance season and the refinery strikes in France suppressed gasoline production. Going forward, gasoline crack spreads are set to benefit from better export opportunities and expectations of stronger mobility activity amid the approaching summer season. The gasoline crack spread against Brent averaged \$42.40/b in March, which was \$2.75/b higher m-o-m and \$26.20 y-o-y.

In March, **jet/kerosene crack spreads** continued to trend downward affected by subdued demand-side dynamics. The Rotterdam jet/kerosene crack spread against Brent averaged \$25.65/b, down by \$4.40 m-o-m and by \$7.93 y-o-y.

Gasoil 10 ppm crack spreads reversed trend and gained some ground, ending the sharp downward trend seen since January, as diesel stock builds carried out ahead of the February 5 embargo on Russian products depleted further. Additionally, overall gasoil imports into the region declined, while refinery output levels fell due to heavy maintenance and the refinery strikes in France. This contributed to considerable pressure on regional gasoil availability as Amsterdam-Rotterdam-Antwerp storage hub inventories showed a decline in March, reversing the strong upward trend recorded since December. The gasoil crack spread against Brent averaged \$28.83/b, up by \$1.30 m-o-m but \$8.90 lower y-o-y.

Graph 6 - 4: Rotterdam crack spreads vs. Brent



Sources: Argus and OPEC.

At the bottom of the barrel, **fuel oil 1.0% crack spreads** lost some of the previous months' gains pressured by ample availability attributed to strong volume arrivals from the Middle East. On the other hand, high sulphur fuel oil markets within the region strengthened as refinery output levels declined while Russian barrels were diverted to Asia, given the product flow adjustments in light of the EU sanctions on Russian products. In terms of prices, fuel oil 1.0% increased in value m-o-m and averaged \$65.94/b, which was \$6.34 lower relative to the previous month. In Europe, fuel oil cracks averaged minus \$12.35/b in March, having lost \$2.13 m-o-m and lost \$3.30 y-o-y.

Asian market

The **Asian gasoline 92 crack spread** increased reflecting the products' strength witnessed in the West, with the open East to West arbitrage. The strong refinery runs registered in the previous months kept the region well supplied, however, the start of the heavy maintenance works over the month, regional gasoline balances started to experience contraction exerting upward pressure on gasoline prices. The Singapore gasoline crack spread against Dubai in March averaged \$15.83/b, and was up \$2.02 m-o-m but down \$1.15 y-o-y.

Asian **naphtha crack spreads** weakened slightly in March, placing an end to their multi-month upward trend seen since August 2022. This was a result of several factors, including weaker naphtha-derived component demand from China's housing and automotive sectors.

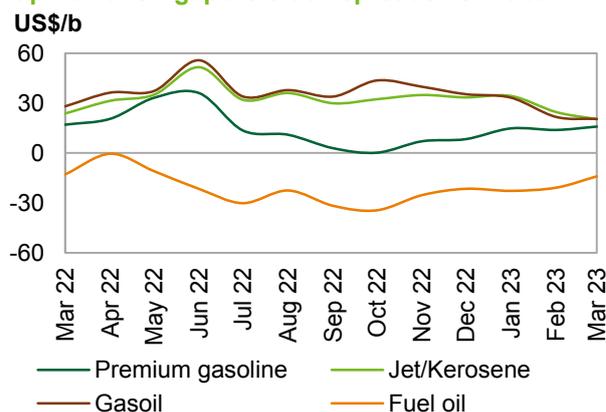
In addition, widening propane-naphtha discounts due to lower LPG prices, which have been declining since their peak around end of January, have placed LPG in a more competitive position and made naphtha margins unattractive. This has prompted some Asian refiners to turn their focus to LPG as a preferred feedstock choice because Asian steam crackers can replace 8%-18% of naphtha as feedstock with LPG depending on their units. Furthermore, bearish naphtha market sentiment due to steam cracker turnaround season planned to take place from April to June in North Asia further contributed to the softer demand, and is likely to keep naphtha crack spreads suppressed in the coming months. The Singapore naphtha crack spread against Oman averaged minus \$5.23/b, decreasing by 16¢ m-o-m and by \$6.16 y-o-y.

In the middle of the barrel, **jet/kerosene crack spreads** weakened and showed the strongest negative performance across the barrel, affected by ample supplies and suppressed demand from the regional aviation sector with the recent reopening of the Chinese economy thus far failing to provide significant support to the regional market. The Singapore jet/kerosene crack spread against Oman averaged \$24.72/b, down by \$9.60 m-o-m but higher by \$10.66 y-o-y.

The Singapore **gasoil crack spread** lost some ground, pressured by strong volume arrivals from the Middle East. This was a reflection of weaker export requirements from Europe with inventories remaining high over the month as buyers there built up their stocks prior to the 5 February sanctions on Russian products. In addition, the regional gasoil market was affected by ample supplies from the wider East of Suez region. The Singapore gasoil crack spread against Oman averaged \$20.43/b, down \$1.23 m-o-m and \$7.59 y-o-y.

The Singapore **fuel oil 3.5% crack spread** showed the strongest positive performance across the barrel amid improvement in export requirements from Asia as supplies declined in the West. In addition, firm demand from the bunker sector and supportive maritime shipping activity, product trade flows amid heavy refinery maintenance season lent further backing to the residual fuels' performance. Going forward improvement in fuel oil requirement for power generation should support the fuels' crack spreads. Singapore fuel oil cracks against Oman averaged minus \$14.03/b, up by \$6.84 m-o-m but down by \$1.15 y-o-y.

Graph 6 - 5: Singapore crack spreads vs. Dubai



Sources: Argus and OPEC.

Table 6 - 1: Short-term prospects for product markets and refinery operations

Event	Time frame	Asia	Europe	US	Observations
Peak refinery maintenance season	Apr 23	↑ Support for product crack spreads	↑ Support for product crack spreads	↑ Support for product crack spreads	Global refinery intakes are expected to drop further with the rising global offline capacities. Consequently, product balances are set to experience contraction in the West, which should provide some improvement to product performance and refinery economics.
US gasoline markets	Apr 23– Oct 23	↑ Support for gasoline crack spreads	↑ Support for gasoline crack spreads	↑ Support for gasoline crack spreads	Based on past trends, and lower fuel prices y-o-y, the recent uptick in US gasoline demand is expected to continue and is set to support crack spreads for the same product in the near term.
Fuel oil markets	May 23 – Sep 23	↑ Support for fuel oil crack spreads	↑ Support for fuel oil crack spreads	↑ Support for fuel oil spreads	Higher fuel oil demand is expected during the summer months to fuel cooling systems in the East. This, in addition to rerouting of Russian fuel oil flows will likely lead to a boost in fuel oil crack spreads.
Switch to summer grade gasoline in the US	1 May 23, 15 Sep 23	↑ Support for gasoline crack spreads	↑ Support for gasoline crack spreads	↑ Support for gasoline crack spreads	Expectations of a strong pick-up in gasoline consumption, amid the rise in allowable naphtha components for blending, and a stronger incentive for fuel oil to gasoline conversion should provide support to naphtha and fuel oil crack spreads during summer.

Source: OPEC.

Table 6 - 2: Refinery operations in selected OECD countries

	Refinery throughput, mb/d				Refinery utilization, %			
	Jan 23	Feb 23	Mar 23	Change Mar/Feb	Jan 23	Feb 23	Mar 23	Change Mar/Feb
US	15.44	15.53	16.07	0.54	85.67	86.25	89.26	3.0 pp
Euro-14, plus UK and Norway	10.12	9.96	9.32	-0.64	85.92	84.60	79.17	-5.4 pp
France	0.99	1.01	0.69	-0.32	85.58	87.67	59.95	-27.7 pp
Germany	1.67	1.74	1.70	-0.04	81.26	85.01	82.86	-2.1 pp
Italy	1.40	1.34	1.30	-0.04	73.74	70.57	68.51	-2.1 pp
UK	1.05	0.96	0.95	-0.01	89.09	82.02	81.27	-0.7 pp
Selected Asia*	26.91	27.22	27.13	-0.09	91.99	93.08	92.77	-0.3 pp

Note: * Includes Japan, China, India, Singapore and South Korea.

Sources: Argus Media, EIA, Euroilstock, NBS, PAJ and OPEC.

Table 6 - 3: Refinery crude throughput, mb/d

Refinery crude throughput	2020	2021	2022	1Q22	2Q22	3Q22	4Q22	1Q23
OECD Americas	16.59	17.79	18.66	18.35	18.74	19.00	18.53	17.88
of which US	14.72	15.66	16.46	16.06	16.61	16.82	16.35	15.68
OECD Europe	10.65	10.92	11.43	10.99	11.57	11.79	11.36	11.25
of which:								
France	0.67	0.69	0.84	0.79	0.84	0.96	0.78	0.89
Germany	1.72	1.72	1.83	1.75	1.87	1.83	1.87	1.70
Italy	1.11	1.23	1.32	1.16	1.42	1.41	1.29	1.35
UK	0.92	0.92	1.04	1.04	1.06	1.02	1.03	0.99
OECD Asia Pacific	5.87	5.76	6.04	6.21	5.83	6.17	5.97	6.03
of which Japan	2.48	2.49	2.71	2.80	2.60	2.73	2.73	2.90
Total OECD	33.12	34.47	36.13	35.55	36.14	36.96	35.86	35.16
Latin America	3.20	3.50	3.42	3.28	3.54	3.45	3.40	3.36
Middle East	6.10	6.80	7.29	7.12	7.27	7.35	7.40	7.55
Africa	1.79	1.77	1.85	1.83	1.84	1.89	1.85	2.03
India	4.42	4.73	5.00	5.18	5.22	4.69	4.89	5.34
China	13.48	14.07	13.49	13.92	12.89	13.00	14.14	14.44
Other Asia	4.72	4.72	5.07	4.90	5.19	5.15	5.05	5.32
Russia	5.39	5.61	5.46	5.71	5.04	5.50	5.59	5.62
Other Eurasia	1.10	1.23	1.24	1.26	1.21	1.22	1.25	1.27
Other Europe	0.43	0.41	0.50	0.42	0.51	0.55	0.50	0.36
Total Non-OECD	40.63	42.85	43.31	43.61	42.73	42.81	44.07	45.28
Total world	73.75	77.32	79.44	79.16	78.87	79.77	79.94	80.44

Note: Totals may not add up due to independent rounding.

Sources: AFREC, APEC, EIA, IEA, Euroilstock, PAJ, Ministry data, including Ministry of Energy of the Russian Federation, Ministry of Petroleum and Natural Gas of India, OPEC and JODI.

Product Markets and Refinery Operations

Table 6 - 4: Refined product prices, US\$/b

	Feb 23	Mar 23	Change Mar/Feb	Annual avg. 2022	Year-to-date 2023
US Gulf (Cargoes FOB)					
Naphtha*	78.44	76.52	-1.92	89.24	79.50
Premium gasoline (unleaded 93)	114.00	117.03	3.03	134.59	115.93
Regular gasoline (unleaded 87)	104.12	107.38	3.26	123.34	106.05
Jet/Kerosene	117.91	111.87	-6.04	140.17	126.11
Gasoil (0.2% S)	77.55	73.45	-4.10	122.10	81.57
Fuel oil (3.0% S)	57.60	58.34	0.74	76.84	57.08
Rotterdam (Barges FoB)					
Naphtha	79.41	74.61	-4.80	85.08	76.74
Premium gasoline (unleaded 98)	122.15	120.69	-1.46	136.26	122.01
Jet/Kerosene	112.55	103.94	-8.61	139.86	115.18
Gasoil/Diesel (10 ppm)	110.03	107.12	-2.91	142.32	114.02
Fuel oil (1.0% S)	72.28	65.94	-6.34	88.77	68.87
Fuel oil (3.5% S)	62.25	62.35	0.10	78.86	61.70
Mediterranean (Cargoes FOB)					
Naphtha	76.70	70.23	-6.47	82.26	73.63
Premium gasoline**	100.07	101.09	1.02	120.04	100.57
Jet/Kerosene	108.05	97.84	-10.21	135.36	110.20
Diesel	108.43	104.41	-4.02	135.91	112.27
Fuel oil (1.0% S)	76.71	70.91	-5.80	94.51	74.04
Fuel oil (3.5% S)	55.16	58.18	3.02	72.30	56.00
Singapore (Cargoes FOB)					
Naphtha	76.98	73.19	-3.79	83.91	74.23
Premium gasoline (unleaded 95)	99.36	98.59	-0.77	115.05	98.93
Regular gasoline (unleaded 92)	95.86	94.25	-1.61	111.02	95.20
Jet/Kerosene	106.77	98.86	-7.91	126.76	106.90
Gasoil/Diesel (50 ppm)	107.19	102.35	-4.84	134.94	108.40
Fuel oil (180 cst)	101.05	95.33	-5.72	129.75	102.77
Fuel oil (380 cst 3.5% S)	61.18	64.39	3.21	76.63	61.18

Note: * Barges. ** Cost, insurance and freight (CIF).

Sources: Argus and OPEC.

Tanker Market

Dirty freight rates continued to improve in March with m-o-m gains seen across most monitored routes. VLCCs saw the sharpest increase, rising 45% on the Middle East to East route as renewed buying from China strengthened rates.

Suezmax spot freight rates remained at high levels with rates gaining a further 20% m-o-m on the US Gulf Coast (USGC) to Europe route. Aframax rates rebounded from the previous month's decline, with spot freight rates on the intra-Med route up 23% m-o-m.

In the clean tanker market, West of Suez rates rose 29%, supported by a strong performance in the Mediterranean. East of Suez rates fell 10% on average m-o-m amid a winding down of winter product demand in the Far East.

Spot fixtures

The latest estimates show **global spot fixtures** continued to recover in March, averaging 16.49 mb/d. Fixtures increased by about 0.9 mb/d or around 5% m-o-m, driven by gains outside the Middle East. Compared with the previous year, spot fixtures rose 1.2 mb/d or around 8%.

Table 7 - 1: Spot fixtures, mb/d

Spot fixtures	Jan 23	Feb 23	Mar 23	Change Mar 23/Feb 23
All areas	13.37	15.64	16.49	0.85
OPEC	8.91	11.15	11.19	0.04
Middle East/East	4.88	6.71	6.52	-0.19
Middle East/West	1.33	1.31	1.25	-0.06
Outside Middle East	2.70	3.13	3.42	0.29

Sources: Oil Movements and OPEC.

OPEC spot fixtures were broadly unchanged in March, averaging 11.19 mb/d. This represents a marginal m-o-m increase of about 40 tb/d or well below 1%. In comparison with the same month in 2022, fixtures were 1.1 mb/d, or about 11%, higher.

Middle East-to-East fixtures declined by 0.2 mb/d, or about 3%, to average 6.5 mb/d. Compared with the same month of the previous year, eastward flows from the Middle East gained 0.8 mb/d, or over 14%.

Spot fixtures on the **Middle East-to-West** route also declined in March, dropping 60 tb/d, or about 5% m-o-m, to average around 1.3 mb/d. Y-o-y, rates increased 0.2 mb/d, or almost 14%.

Outside the Middle East, fixtures rose 9% m-o-m to average 3.4 mb/d. Compared to the same month last year, fixtures on the route were 0.2 mb/d or around 5% higher.

Sailings and arrivals

OPEC sailings increased in March, averaging 24.1 mb/d. This represents a m-o-m increase of about 0.5 mb/d or just over 2%. Y-o-y, OPEC sailings increase by about 1 mb/d or over 4%.

Table 7 - 2: Tanker sailings and arrivals, mb/d

Sailings	Jan 23	Feb 23	Mar 23	Change Mar 23/Feb 23
OPEC	23.76	23.54	24.07	0.53
Middle East	16.04	17.78	17.81	0.03
Arrivals				
North America	9.44	8.94	8.98	0.04
Europe	12.17	11.67	13.01	1.34
Far East	15.43	15.57	17.60	2.03
West Asia	8.61	9.18	9.27	0.09

Sources: Oil Movements and OPEC.

Tanker Market

Middle East sailings averaged 17.8 mb/d in March, representing a negligible increase. Y-o-y, sailings from the region rose 0.3 mb/d, or by about 2%.

Crude arrivals saw strong gains in the Far East and Europe, and lesser increases in North America and West Asia. Arrivals in the Far East saw the largest gains, increasing 2.0 mb/d, or 13%, to average 17.6 mb/d. Y-o-y, Far East arrivals were 2.3 mb/d, or 15%, higher. Arrivals in West Asia rose by about 0.1 mb/d, or 1%, to average 9.3 mb/d. Y-o-y, arrivals in the region increased 0.9 mb/d, or about 11%.

Arrivals in Europe increased 1.3 mb/d, or by almost 12% m-o-m, to average 13.0 mb/d. Compared to the same month last year, European arrivals were 0.1 mb/d or less than 1% higher. Arrivals in North America averaged just under 9 mb/d, marginally higher compared with the previous month and 0.2 mb/d, or about 3%, higher y-o-y.

Dirty tanker freight rates

Very large crude carriers (VLCCs)

VLCC spot rates experienced an accelerated recovery in March, gaining 43% on average m-o-m. Compared with the same month of the previous year, VLCC rates were up 108% on average. VLCC markets benefited from a return of Chinese buying of longer-haul grades.

On the **Middle East-to-East** route, rates increase 45% m-o-m to average WS87 points. This was 98% higher y-o-y. Rates on the **Middle East-to-West** route increased 38% m-o-m to average WS58 points. Y-o-y, rates on the route rose 152%.

West Africa-to-East spot rates rose 41% m-o-m to average WS86 points in March. Compared with the same month of the previous year, rates were 95% higher.

Table 7 - 3: Dirty VLCC spot tanker freight rates, Worldscale (WS)

VLCC	Size	Jan 23	Feb 23	Mar 23	Change
	1,000 DWT				Mar 23/Feb 23
Middle East/East	230-280	49	60	87	27
Middle East/West	270-285	39	42	58	16
West Africa/East	260	51	61	86	25

Sources: Argus and OPEC.

Suezmax

Suezmax rates saw a further recovery in March, gaining 17% m-o-m, supported by ongoing trade dislocations. Compared with the same month of the previous year, rates were 57% higher, as Suezmax rates have benefited from ongoing trade flow adjustments which have boosted tonnage mile demand.

Spot freight rates on the **West Africa-to-USGC** route rebounded from the previous month's decline, gaining 14% to average WS128 points. Y-o-y, rates were 56% higher.

Rates on the **USGC-to-Europe** route continued moving higher, increasing 20% to average WS120 points. Compared with the same month of the previous year, they were 56% higher.

Table 7 - 4: Dirty Suezmax spot tanker freight rates, WS

Suezmax	Size	Jan 23	Feb 23	Mar 23	Change
	1,000 DWT				Mar 23/Feb 23
West Africa/US Gulf Coast	130-135	117	112	128	16
US Gulf Coast/ Europe	150	85	100	120	20

Sources: Argus and OPEC.

Aframax

Aframax spot freight rates recovered from the previous month's decline, with an average gain of 32% in March. Compared with the same month of the previous year, rates were 57% higher.

Gains were seen across all monitored routes, except the **Indonesia-to-East** route, which appeared to bottom out after strong declines in the previous two months. Rates averaged WS187 in March, unchanged from the previous month. Compared with the same month last year, rates were 40% higher.

Table 7 - 5: Dirty Aframax spot tanker freight rates, WS

Aframax	Size	Jan 23	Feb 23	Mar 23	Change
	1,000 DWT				Mar 23/Feb 23
Indonesia/East	80-85	249	187	187	0
Caribbean/US East Coast	80-85	152	191	346	155
Mediterranean/Mediterranean	80-85	220	180	222	42
Mediterranean/Northwest Europe	80-85	211	162	200	38

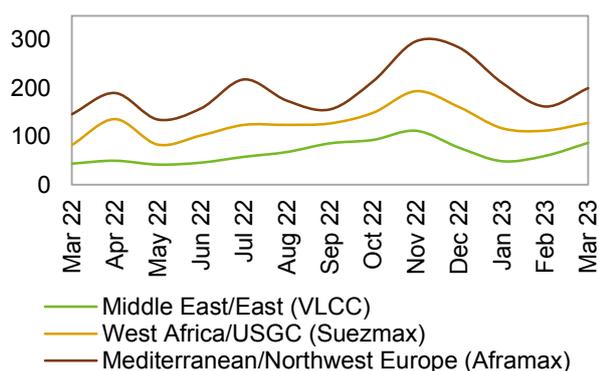
Sources: Argus and OPEC.

In contrast, spot rates on the **Caribbean-to-US East Coast (USEC)** route were sharply higher, gaining 81% m-o-m to average WS346 points. Y-o-y, rates were 107% higher.

Cross-Med spot freight rates saw a more moderate gain of 23% m-o-m to average WS222 points. They were 38% higher higher y-o-y. On the **Mediterranean-to-Northwest Europe (NWE)** route, rates saw a similar gain of 23% m-o-m to average WS200 points. Compared with the same month of the previous year, they were around 37% higher.

Graph 7 - 1: Crude oil spot tanker freight rates, monthly average

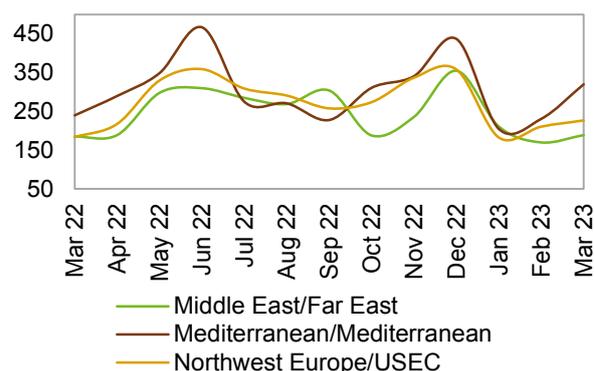
Worldscale



Sources: Argus and OPEC.

Graph 7 - 2: Products spot tanker freight rates, monthly average

Worldscale



Sources: Argus and OPEC.

Clean tanker freight rates

Clean spot freight rates improved on average, as strong gains in the West of Suez outpaced losses to the East. On average, rates increased 14% m-o-m and stood 17% higher compared with March 2022 levels.

Table 7 - 6: Clean spot tanker freight rates, WS

East of Suez	Size	Jan 23	Feb 23	Mar 23	Change
	1,000 DWT				Mar 23/Feb 23
Middle East/East	30-35	211	170	189	19
Singapore/East	30-35	219	245	186	-59
West of Suez					
Northwest Europe/US East Coast	33-37	183	211	227	16
Mediterranean/Mediterranean	30-35	205	231	320	89
Mediterranean/Northwest Europe	30-35	212	241	330	89

Sources: Argus and OPEC.

Rates on the **Middle East-to-East** route increased 11% in March to average WS189. Y-o-y, rates were up just 2%. In contrast, clean spot freight rates on the **Singapore-to-East** route declined 24% m-o-m to average WS186 and were down 11% compared with the same month of the previous year.

Spot freight rates on the **NWE-to-USEC** route increased 8% m-o-m to average WS227 points in March. They were 23% higher y-o-y. Rates for the **Cross-Med** route rose 39% to average WS320 points, while rates on the **Med-to-NWE** route increased 37% to average WS330 points. Compared with the same month of the previous year, rates on the Med routes were both 33% higher.

Clean spot rates continue to be supported by trade flow shifts, with Europe bringing in higher volumes from the Middle East, Asia and the US, while Russian product flows are increasingly headed towards Asia and the Middle East.

Crude and Refined Products Trade

Preliminary data shows US crude exports set a fresh record high of 4.8 mb/d in March, amid a return of Asian buying. US product exports rebounded to average 6.3 mb/d. Gains were led by distillates and residual fuel, with the only decline seen in jet fuel.

China's crude imports in February partially rebounded from the decline at the start of the year to average around 10.7 mb/d. China's product exports also picked up, averaging at a robust level of 1.7 mb/d, almost 87% higher than the same month last year.

India's crude imports were the strongest in over 10 months, averaging just shy of 5.0 mb/d in February. India's product exports also returned to robust levels, averaging 1.4 mb/d. Gains were led by diesel and gasoline.

Japan's crude imports were relatively unchanged m-o-m at 2.7 mb/d in February. Japan's product exports, including LPG, averaged 639 tb/d in February, the second highest level seen in the last three years. Gasoline, jet fuel and fuel oil saw gains, while gasoil outflows declined.

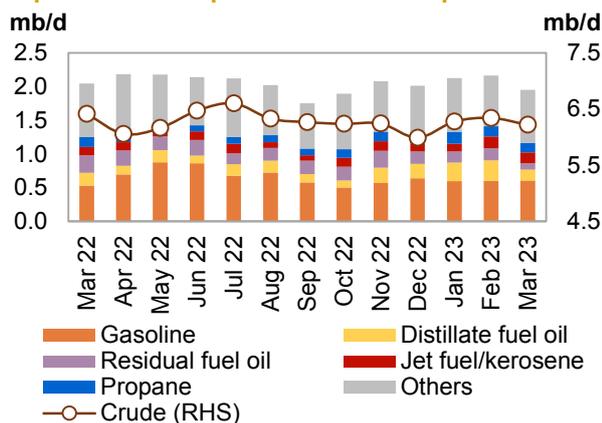
Preliminary estimates for March show OECD Europe crude imports falling as a workers' strike in France disrupted port activities and refinery operations, curtailing trade flows.

US

Preliminary data shows **US crude imports** averaged 6.2 mb/d in March, representing a decline of 0.1 mb/d or 2% m-o-m. Compared with the same month last year, crude imports were 0.2 mb/d, or around 3%, lower.

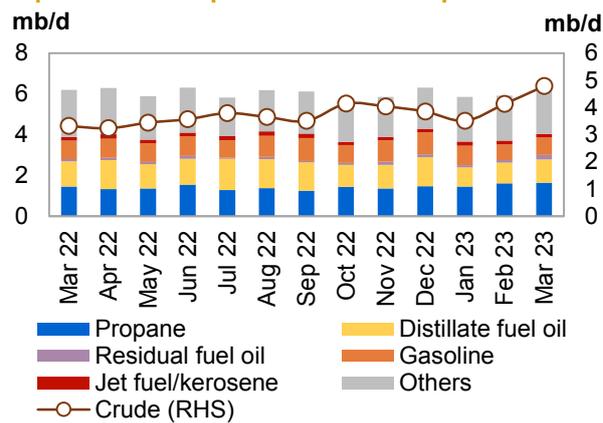
Canada remained the **top supplier of crude** in March, with a share of 56%, according to preliminary weekly data from the US Energy Information Administration (EIA). Mexico was second with 9% and Saudi Arabia was third with a share of 7%.

Graph 8 - 1: US imports of crude and products



Sources: EIA and OPEC.

Graph 8 - 2: US exports of crude and products



Sources: EIA and OPEC.

US crude exports set a fresh record high of nearly 4.8 mb/d in March, according to preliminary weekly data. Crude outflows rose sharply, up by almost 0.7 mb/d, or close to 16% m-o-m. Compared to the same month last year, outflows were 1.5 mb/d, or almost 45% higher.

In terms of **destination**, the latest EIA monthly data shows Europe taking in a 45% share of US crude exports in **January**. This compares with 38% in the same month of the previous year. South Korea and Canada both had shares of 10%.

Based on preliminary weekly data, **US net crude imports** averaged 1.4 mb/d in March, compared with 2.2 mb/d the month before and 3.1 mb/d in the same month last year.

On the **products** side, **imports** declined m-o-m in March to average just under 2.0 mb/d. Losses were seen across all major products. Compared with the same month last year, product inflows fell 95 tb/d, or almost 5%.

Product exports rebounded to average 6.3 mb/d. Gains were led by distillates and residual fuel, with the only decline seen in jet fuel. Compared with the previous month, product exports rose 351 tb/d, or almost 6%. Y-o-y, product outflows were 73 tb/d or about 1% higher.

As a result, preliminary data showed **US net product exports** averaging 4.3 mb/d in March, compared to about 3.8 mb/d in the previous month and 4.2 mb/d in the same month last year.

Preliminary data indicates that **US net crude and product exports** averaged 2.9 mb/d in March, compared with 1.5 mb/d the month before and 1.1 mb/d in the same month last year.

Table 8 - 1: US crude and product net imports, mb/d

US	Jan 23	Feb 23	Mar 23	Change Mar 23/Feb 23
Crude oil	2.76	2.21	1.43	-0.78
Total products	-3.73	-3.75	-4.32	-0.56
Total crude and products	-0.97	-1.54	-2.89	-1.35

Note: Totals may not add up due to independent rounding.

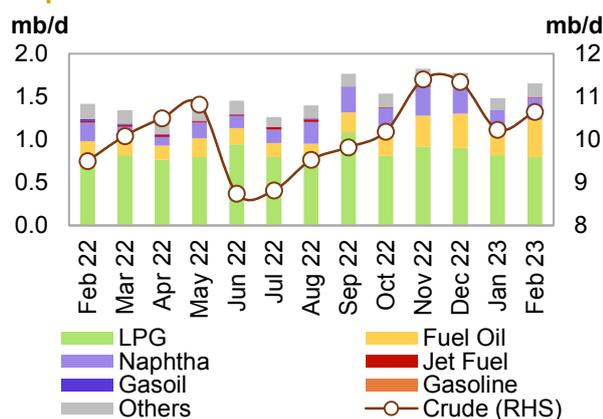
Sources: EIA and OPEC.

Looking ahead, US crude exports are expected to remain strong amid increased Asian buying, although somewhat mitigated as domestic refiners return from maintenance. US product exports are likely to perform close to record levels in 2023 supported by trade dislocations in 2023.

China

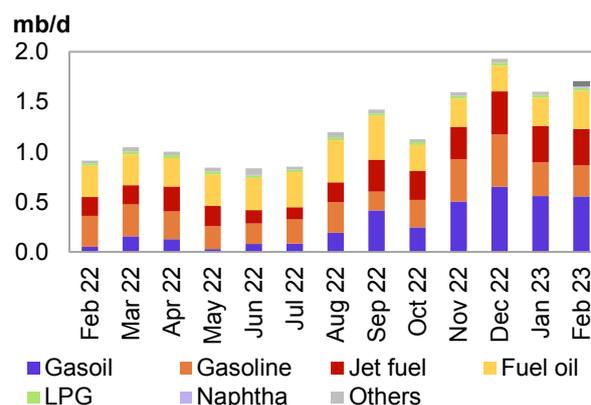
China's crude imports recovered some of the previous month's losses, averaging 10.7 mb/d in February. Compared with the previous month, crude inflows rose 0.4 mb/d, or about 4%. Y-o-y, China's crude imports were considerably higher, up by almost 1.2 mb/d or 12%.

Graph 8 - 3: China's import of crude and total products



Sources: China OGP and OPEC.

Graph 8 - 4: China's export of total products



Sources: China OGP and OPEC.

In terms of **crude imports by source**, Russia remained at the top spot in February with almost 19%. Saudi Arabia was second with a share of 14% and Iraq was third with 12%.

Product imports rebounded in February, up by about 12% or 0.2 mb/d to average 1.7 mb/d, primarily due to an increase in fuel oil inflows. Compared to the same period last year, imports were about 0.2 mb/d, or around 17%, higher y-o-y.

Product exports also recovered in February, averaging 1.7 mb/d, mainly due to higher outflows of fuel oil. M-o-m, refined product outflows rose 0.1 mb/d or about 6% m-o-m. Compared to the same period last year, product exports were 0.8 mb/d or almost 87% higher.

As a result, China was a **net product exporter** in February at 52 tb/d. This compares to net exports of 122 tb/d the month before and net product imports of 296 tb/d in the same month of 2022.

Crude and Refined Products Trade

Table 8 - 2: China's crude and product net imports, mb/d

China	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	11.34	10.23	10.63	0.40
Total products	-0.15	-0.12	-0.05	0.07
Total crude and products	11.19	10.11	10.58	0.47

Note: Totals may not add up due to independent rounding.

Sources: China OGP and OPEC.

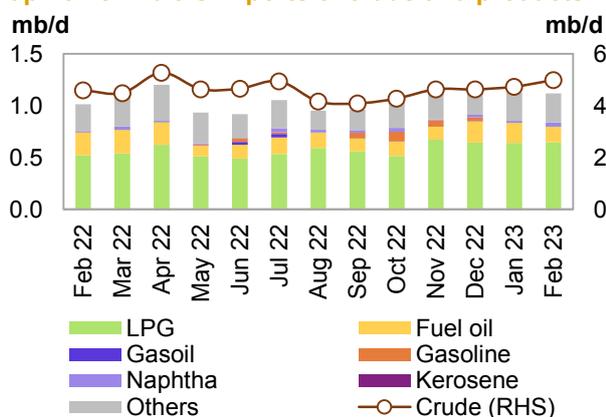
Looking ahead, China crude imports are expected to pick up further in April as refiners have increased buying of long haul crude. Product exports could come down from the relatively high levels seen in recent months as domestic demand picks up.

India

India's crude imports crude imports reached a nine-month high, averaging just shy of 5.0 mb/d in February. This represents a m-o-m gain of 0.3 tb/d or over 5%. Y-o-y, crude inflows rose by close to 0.4 mb/d or over 8%, amid healthy demand for products refined in India domestically and on the international market.

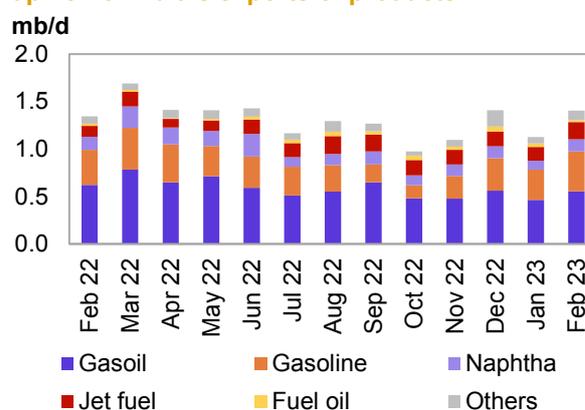
In terms of **crude imports by source**, Kpler data shows Russia was the top supplier of crude to India in February for the eight-consecutive month with a share of almost 38%. Iraq was second with 20%, followed by Saudi Arabia with 8% and the US with just under 5%.

Graph 8 - 5: India's imports of crude and products



Sources: PPAC and OPEC.

Graph 8 - 6: India's exports of products



Sources: PPAC and OPEC.

In terms of **products, imports** were largely unchanged m-o-m, averaging 1.1 mb/d. A decline in fuel oil was offset by lesser increases in naphtha and LPG. Compared with the same month last year, inflows increased by about 10%, or 0.1 tb/d.

Product exports returned to robust levels, averaging 1.4 mb/d in February. M-o-m, product outflows increased 0.3 mb/d or 25%, with gains led by diesel and gasoline. Y-o-y, product exports slipped 62 tb/d, or about 5%.

As a result, India was a **net product exporter** in February at 285 tb/d compared to net imports of just 2 tb/d the month before. In February 2022, India's net exports averaged 328 tb/d.

Table 8 - 3: India's crude and product net imports, mb/d

India	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	4.63	4.74	4.99	0.25
Total products	-0.25	0.00	-0.29	-0.29
Total crude and products	4.39	4.74	4.70	-0.03

Note: Totals may not add up due to independent rounding.

India data table does not include information for crude import and product export by Reliance Industries.

Sources: PPAC and OPEC.

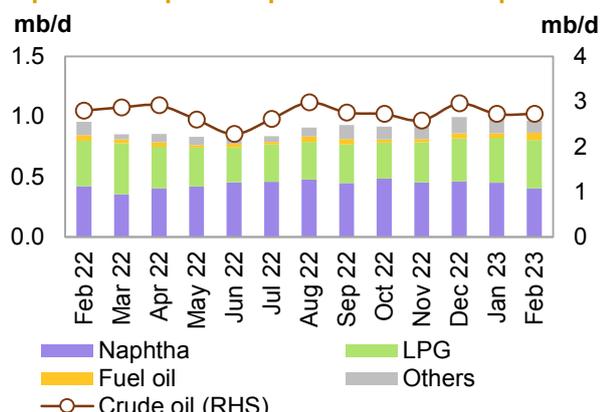
Looking ahead, crude imports are expected to remain at healthy levels, amid increasing demand for India produced refined products, both domestically and internationally. Product exports are expected to be supported in the coming months as flows to Europe have picked up.

Japan

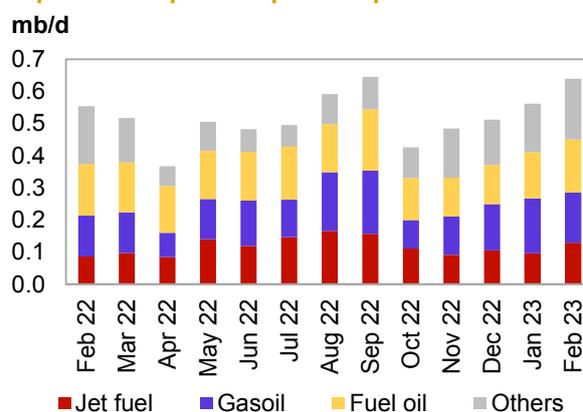
Japan's crude imports were broadly unchanged m-o-m at 2.7 mb/d in February. Compared with the same month of the previous year, imports were 72 tb/d or 3% higher.

In terms of crude imports by source, Saudi Arabia remained at the top spot in January with a share of 43%. The United Arab Emirates (UAE) was second with 34%, followed by Kuwait with almost 11%.

Graph 8 - 7: Japan's imports of crude and products **Graph 8 - 8: Japan's exports of products**



Sources: METI and OPEC.



Sources: METI and OPEC.

Product imports, including LPG, were slightly lower, averaging 968 tb/d, representing a decline of 24 tb/d or over 2%. Declines in naphtha and kerosene offset gains in fuel oil and LPG. Compared to the same month of the previous year, imports rose 11 tb/d or about 1%.

Product exports continued to recover in February, averaging 639 tb/d, the second highest in the last three years. Compared with the previous month, outflows were 77 tb/d or 14% higher, as gasoline, jet fuel and fuel oil saw gains, while gasoil outflows declined. Y-o-y, product exports were up 86 tb/d, or about 16%.

As a consequence, Japan's **net product imports**, including LPG, averaged 328 tb/d in February. This compares with 430 tb/d the month before and 403 tb/d in February 2022.

Table 8 - 4: Japan's crude and product net imports, mb/d

Japan	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	2.96	2.72	2.73	0.00
Total products	0.48	0.43	0.33	-0.10
Total crude and products	3.44	3.15	3.06	-0.10

Note: Totals may not add up due to independent rounding.

Sources: METI and OPEC.

Looking ahead, Japan's crude imports are expected to taper off a bit in March as the country comes out of the high demand winter season. Japan's product exports are expected to remain at relatively healthy levels due to regional demand.

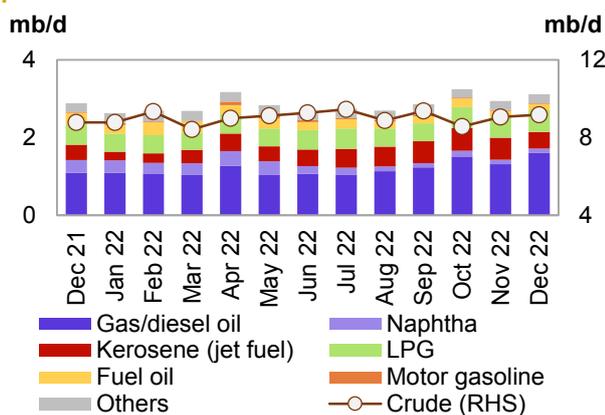
OECD Europe

The latest regional data shows **OECD Europe** crude imports edged higher in December, averaging 9.2 mb/d. Crude flows into the region were up 0.1 mb/d or slight more than 1% m-o-m. Y-o-y, crude imports were over 4%, or 0.4 mb/d, higher. Estimates show crude flows into the region trending lower in the first three months of the year.

In terms of **import sources** from outside the region, the United States was the top supplier in December with 1.4 mb/d. Saudi Arabia came in second with 1.0 mb/d, followed by Russia with less than 1 mb/d.

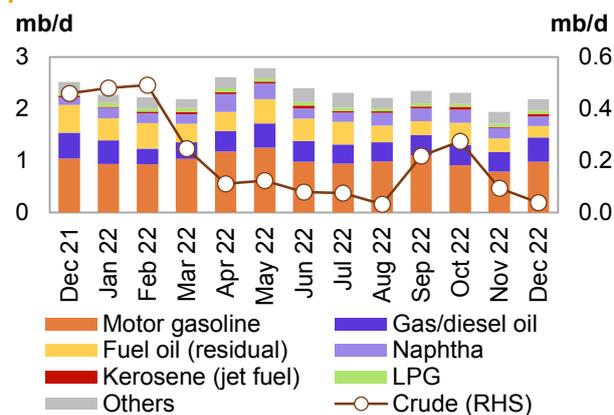
Crude and Refined Products Trade

Graph 8 - 9: OECD Europe imports of crude and products



Sources: IEA and OPEC.

Graph 8 - 10: OECD Europe exports of crude and products



Sources: IEA and OPEC.

Crude exports outside the region averaged 39 tb/d in December, representing a decline of 55 tb/d from the previous month. The minor volumes shipped out of the region were destined for ports in North America. Y-o-y, crude exports out of the region were 0.4 mb/d or about 92% lower.

Net crude imports averaged 9.1 mb/d in December, compared with just under 9.0 mb/d in November and 8.3 mb/d in December 2021.

In terms of **products, imports** in November increased by almost 6% or 0.2 mb/d m-o-m to average 3.1 mb/d. Gains were driven by a jump in diesel inflows ahead of the implementation of the EU ban on Russian products in February 2023. Compared with December of the previous year, product inflows were almost 8%, or 0.2 mb/d, higher.

Product exports increased 13% or about 0.3 mb/d m-o-m to average 2.2 mb/d. Gains were driven by gasoline and diesel. Y-o-y, exports were 13%, or 0.3 mb/d, lower.

Net product imports averaged 923 tb/d in December, compared with net imports of 1.0 mb/d the month before and 336 tb/d in December 2021.

Combined, **net crude and product imports** averaged just over 10.0 mb/d in December 2022. This compares with slightly below 10 mb/d the month before and 8.7 mb/d in December 2021.

Table 8 - 5: OECD Europe's crude and product net imports, mb/d

OECD Europe	Oct 22	Nov 22	Dec 22	Change Dec 22/Nov 22
Crude oil	8.29	8.96	9.13	0.17
Total products	0.93	1.00	0.92	-0.08
Total crude and products	9.23	9.96	10.05	0.09

Note: Totals may not add up due to independent rounding.

Sources: IEA and OPEC.

Eurasia

Total crude oil exports from Russia and Central Asia averaged 6.1 mb/d in February, representing a decline of 289 tb/d or almost 5% compared to the previous month. Flows were similarly lower compared with the same month last year, down 297 tb/d or 5%.

Crude exports through the **Transneft system** decreased in February, with declines in all outlets except the Ust-Luga port. Outflows averaged 3.6 mb/d, representing a decline of 335 tb/d, or over 9%, m-o-m. Compared with the same month last year, exports were just 137 tb/d or 4% lower. Exports from the **Baltic Sea** edged down marginally to average 1.6 mb/d. Flows from Primorsk remained at relatively high levels, despite a 44 tb/d or almost 5% decrease, averaging 903 tb/d. Exports from Ust-Luga gained 40 tb/d, or over 6%, to average 675 tb/d. Shipments from the **Black Sea** port of Novorossiysk fell 157 tb/d, or about 30%, to average 370 tb/d, as bad weather impacted loadings.

Shipments via the **Druzhba** pipeline continued to fall, down by 141 tb/d or almost 37% m-o-m to average 244 tb/d in February. Compared to the same month last year, exports on the pipeline were 0.6 mb/d or 71% lower. Exports to China via the **ESPO pipeline** were unchanged averaging 598 tb/d in February. Flows to the Pacific port of **Kozmino** declined 33 tb/d, or about 4% m-o-m, to average 825 tb/d.

In the **Lukoil system**, exports via the Varandey offshore platform in the Barents Sea slipped by about 5% m-o-m to average 103 tb/d in February. There were no exports from the Kaliningrad terminal for the fourth month in a row.

On other routes, **Russia's Far East** exports increased 22%, or 52 tb/d, to average 287 tb/d in February. This was a slight gain of 2%, compared to the volumes shipped in the same month last year.

Central Asian exports averaged 210 tb/d in February, unchanged from the month before and a loss of 4% y-o-y.

Black Sea total exports from the **CPC terminal** increased by 3% or 35 tb/d, to average 1.3 mb/d in February. This was still a loss of 14% compared with the same month last year. Flows on the Supsa pipeline averaged 40 tb/d in February, compared with zero the month before. Exports via the **Baku-Tbilisi-Ceyhan (BTC) pipeline** declined in February, falling by about 13%, or 79 tb/d, to average 519 tb/d.

Total product exports from Russia and Central Asia declined by 13%, or 411 tb/d m-o-m, to average 2.7 mb/d in February. M-o-m losses were seen across the board. Naphtha exports were 181 tb/d, or 37%, lower, and gasoil outflows fell 81 tb/d, or 7%. Y-o-y, total product exports slipped 16%, or 496 tb/d, in February, led by declines in naphtha and fuel oil more than offsetting gains in gasoline and gasoil.

Commercial Stock Movements

Preliminary February 2023 data sees total OECD commercial oil stocks up m-o-m by 14.1 mb. At 2,865 mb, they were 237 mb higher than the same time one year ago and 18 mb higher than the latest five-year average, but 54 mb below the 2015–2019 average. Within the components, crude stocks rose m-o-m by 20.9 mb, while product stocks fell m-o-m by 6.8 mb.

At 1,434 mb, OECD crude stocks were 172 mb higher than the same time a year ago and 49 mb above the latest five-year average, but 14 mb lower than the 2015–2019 average.

OECD product stocks stood at 1,432 mb, representing a rise of 65 mb from the same time a year ago, but they were 30 mb lower than the latest five-year average and 40 mb below the 2015–2019 average.

In terms of days of forward cover, OECD commercial stocks rose m-o-m by 1 day in February 2023 to stand at 62.9 days. This is 4.9 days above the February 2022 level, but 1.8 days lower than the latest five-year average and 0.3 days higher than the 2015–2019 average.

Preliminary data for March 2023 showed that total US commercial oil stocks fell by 32.2 mb m-o-m to stand at 1,226.3 mb, which is 72.6 mb higher than the same month in 2022 but 20.2 mb below the latest five-year average. Crude and product stocks fell by 10.3 mb and 22.0 mb, respectively.

OECD

Preliminary **February 2023** data sees **total OECD commercial oil stocks** up m-o-m by 14.1 mb. At 2,865 mb, they were 237 mb higher than the same time one year ago and 18 mb higher than the latest five-year average, but 54 mb below the 2015–2019 average.

Within the components, crude stocks rose m-o-m by 20.9 mb, while product stocks fell m-o-m by 6.8 mb. Within the OECD regions, total commercial oil stocks in February 2023 rose in OECD Americas, while they fell in OECD Europe and OECD Asia Pacific.

OECD commercial **crude stocks** stood at 1,434 mb in February. This is 172 mb higher than the same time a year ago and 49 mb above the latest five-year average, but 14 mb lower than the 2015–2019 average.

Compared with the previous month, OECD Americas and OECD Europe saw crude stock builds of 20.4 mb and 2.0 mb, respectively, while stocks in OECD Asia Pacific dropped by 1.5 mb.

Total product inventories stood at 1,432 mb in February 2023. This is 65 mb above the same time a year ago, but 30 mb lower than the latest five-year average and 40 mb below the 2015–2019 average. Compared with the previous month, OECD Americas witnessed a product stock build of 1.8 mb, while product stocks in OECD Asia Pacific and OECD Europe fell by 5.8 mb and 2.8 mb, respectively.

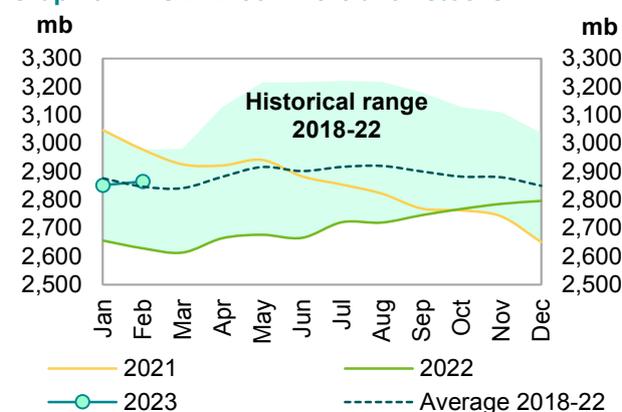
Table 9 - 1: OECD commercial stocks, mb

OECD stocks	Feb 22	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	1,262	1,382	1,413	1,434	20.9
Products	1,366	1,414	1,439	1,432	-6.8
Total	2,628	2,796	2,851	2,865	14.1
Days of forward cover	58.0	61.0	61.9	62.9	1.0

Note: Totals may not add up due to independent rounding.

Sources: Argus, EIA, Euroilstock, IEA, METI and OPEC.

Graph 9 - 1: OECD commercial oil stocks



Sources: Argus, EIA, Euroilstock, IEA, METI and OPEC.

In terms of **days of forward cover**, OECD commercial stocks rose m-o-m by 1 day in February 2023 to stand at 62.9 days. This is 4.9 days above the February 2022 level, but 1.8 days lower than the latest five-year average and 0.3 days higher than the 2015–2019 average.

All three OECD regions were below the latest five-year average: the Americas by 1.1 days at 62.3 days; Asia Pacific by 3.0 days at 47.3 days; and Europe by 2.9 days at 72.4 days.

OECD Americas

OECD Americas' total commercial stocks rose by 22.2 mb m-o-m in February to settle at 1,556 mb, which is 131 mb higher than the same month in 2022 and 55 mb above the latest five-year average.

Commercial **crude oil stocks** in OECD Americas rose m-o-m by 20.4 mb in February to stand at 823 mb, which is 103 mb higher than in February 2022 and 61 mb above the latest five-year average. The monthly build in crude oil stocks came despite slightly higher US crude runs over January.

Total product stocks in OECD Americas also rose m-o-m, increasing by 1.8 mb in February to stand at 733 mb, which is 28 mb higher than the same month in 2022, but 6 mb below the latest five-year average. Lower consumption in the region was behind the product stock build.

OECD Europe

OECD Europe's total commercial stocks fell m-o-m by 0.8 mb in February to settle at 966 mb, which is 80 mb higher than the same month in 2022 but 9 mb below the latest five-year average.

OECD Europe's **commercial crude stocks** rose by 2.0 mb m-o-m to end the month of February at 428 mb, which is 37 mb higher than one year ago and 7 mb above the latest five-year average. The build in crude oil inventories came on the back of lower refinery throughput in the EU-14, plus the UK and Norway dropping by around 160 tb/d m-o-m to stand at 9.96 mb/d.

By contrast, Europe's **product stocks** fell m-o-m by 2.8 mb to end February at 538 mb, which is 42 mb higher than a year ago at the same time, but 16 mb below the latest five-year average.

OECD Asia Pacific

OECD Asia Pacific's total commercial oil stocks fell m-o-m by 7.3 mb in February to stand at 343 mb, which is 26 mb higher than a year ago at the same time but 28 mb below the latest five-year average.

OECD Asia Pacific's **crude inventories** fell by 1.5 mb m-o-m to end February at 183 mb, which is 31 mb higher than one year ago, but 19 mb below the latest five-year average.

OECD Asia Pacific's **product inventories** fell by 5.8 mb m-o-m to end February at 161 mb, which is 5 mb lower than one year ago and 9 mb below the latest five-year average.

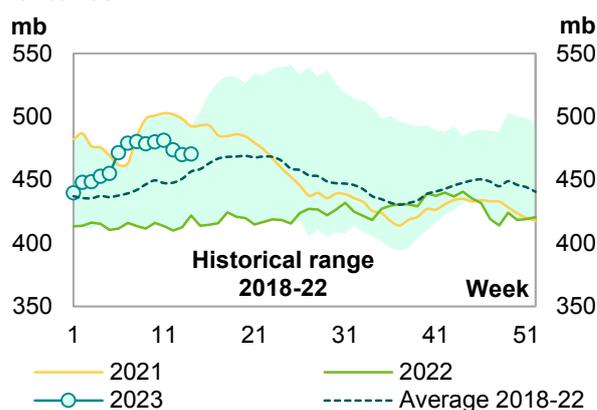
US

Preliminary data for **March 2023** showed that **total US commercial oil stocks** fell by 32.2 mb m-o-m to stand at 1,226.3 mb. This is 72.6 mb, or 6.3%, higher than the same month in 2022; but 20.2 mb, or 1.6%, below the latest five-year average. Crude and product stocks fell by 10.3 mb and 22.0 mb, respectively.

US commercial **crude stocks** in March 2023 stood at 470.0 mb. This is 55.6 mb, or 13.4%, higher than the same month of the previous year, and 13.1 mb, or 2.9%, above the latest five-year average. The monthly drop in crude oil stocks can be attributed to higher crude runs, which increased by around 540 tb/d to 16.07 mb/d.

Total product stocks also fell in March 2023 to stand at 756.3 mb. This is 17.1 mb, or 2.3%, higher than March 2022 levels; but 33.4 mb, or 4.2%, lower than

Graph 9 - 2: US weekly commercial crude oil inventories



Sources: EIA and OPEC.

Commercial Stock Movements

the latest five-year average. The stock drop could be attributed to higher product consumption.

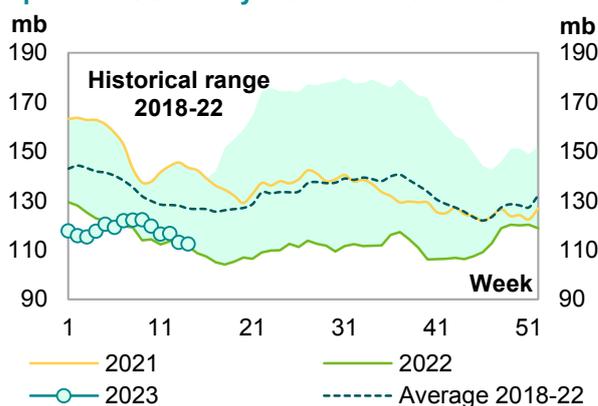
Gasoline stocks fell m-o-m by 16.6 mb in March 2023 to settle at 222.6 mb. This is 15.9 mb, or 6.7% lower than in the same month of 2022; and 20.3 mb, or 8.4%, lower than the latest five-year average.

Distillate stocks also fell m-o-m, dropping by 9.1 mb in March 2023 to stand at 113.1 mb. This is 1.6 mb, or 1.4%, lower than the same month of the previous year; and 17.0 mb, or 13.1%, below the latest five-year average.

Residual fuel oil stocks dropped by 1.2 mb m-o-m in March 2023. At 29.4 mb, this was 1.5 mb, or 5.4%, higher than a year earlier, but 2.1 mb, or 6.8%, below the latest five-year average

By contrast, **jet fuel stocks** rose m-o-m by 0.5 mb, ending March 2023 at 38.0 mb. This is 2.4 mb, or 6.9%, higher than the same month in 2022 but 1.3 mb, or 3.3%, below the latest five-year average.

Graph 9 - 3: US weekly distillate inventories



Sources: EIA and OPEC.

Table 9 - 2: US commercial petroleum stocks, mb

US stocks	Mar 22	Jan 23	Feb 23	Mar 23	Change Mar 23/Feb 23
Crude oil	414.4	459.8	480.2	470.0	-10.3
Gasoline	238.5	239.7	239.2	222.6	-16.6
Distillate fuel	114.6	123.0	122.1	113.1	-9.1
Residual fuel oil	27.9	32.1	30.7	29.4	-1.2
Jet fuel	35.6	35.9	37.6	38.0	0.5
Total products	739.2	794.8	778.3	756.3	-22.0
Total	1,153.6	1,254.6	1,258.5	1,226.3	-32.2
SPR	566.1	371.6	371.6	371.2	-0.4

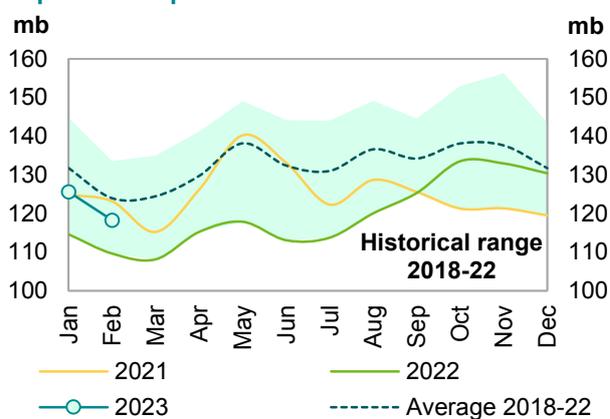
Sources: EIA and OPEC.

Japan

In **Japan**, **total commercial oil stocks** in **February** fell m-o-m by 7.3 mb to settle at 118.3 mb. This is 8.7 mb, or 7.9%, higher than the same month in 2022; but 5.7 mb, or 4.6%, below the latest five-year average. Crude and product stocks fell m-o-m by 1.5 mb and 5.8 mb, respectively.

Japanese **commercial crude oil stocks** fell m-o-m by 1.5 mb in February to stand at 65.7 mb. This is 9.7 mb, or 17.3%, higher than the same month of the previous year; but 3.0 mb, or 4.4%, lower than the latest five-year average. This crude stock draw came on the back of lower crude runs, which declined m-o-m by 21 tb/d, or 0.7%, to stand at 2.82 mb/d.

Graph 9 - 4: Japan's commercial oil stocks



Sources: METI and OPEC.

Japan's **total product inventories** also fell m-o-m by 5.8 mb to end February at 52.6 mb. This is 1.0 mb, or 1.9%, less than the same month in 2022; and 2.7 mb, or 4.8%, below the latest five-year average.

Gasoline stocks fell m-o-m by 0.7 mb to stand at 10.5 mb in February. This was 0.5 mb, or 4.6%, below a year earlier at the same time; and 0.7 mb, or 6.0%, lower than the latest five-year average. The drop came on the back of higher exports, which increased by 17.1% m-o-m. Lower gasoline imports, which fell by 15.2%, also supported the drop in gasoline stocks.

Distillate stocks also fell m-o-m by 5.1 mb to end February at 21.3 mb. This is 1.1 mb, or 4.8%, below the same month in 2022 and 1.9 mb, or 8.2%, below the latest five-year average. Within distillate components, jet fuel, kerosene and gasoil stocks went down by 1.7%, 36.5% and 3.5%, respectively.

By contrast, **total residual fuel oil stocks** rose m-o-m by 0.5 mb to end February at 11.5 mb. This is 0.3 mb, or 2.6%, higher than in the same month of the previous year; but 0.6 mb, or 4.6%, below the latest five-year average. Within the components, fuel oil A stocks fell by 1.6%, while fuel oil B.C stocks rose by 7.3%, m-o-m.

Table 9 - 3: Japan's commercial oil stocks*, mb

Japan's stocks	Feb 22	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	56.0	71.3	67.2	65.7	-1.5
Gasoline	11.1	10.2	11.2	10.5	-0.7
Naphtha	9.0	10.0	9.7	9.2	-0.5
Middle distillates	22.4	27.1	26.4	21.3	-5.1
Residual fuel oil	11.2	11.8	11.1	11.5	0.5
Total products	53.6	59.1	58.4	52.6	-5.8
Total**	109.6	130.4	125.6	118.3	-7.3

Note: * At the end of the month. ** Includes crude oil and main products only.

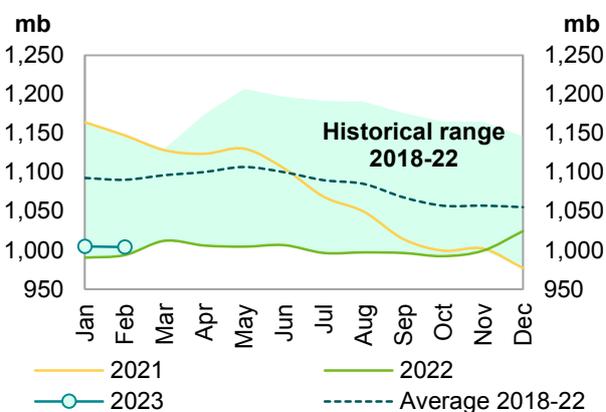
Sources: METI and OPEC.

EU-14 plus UK and Norway

Preliminary data for **February** showed that **total European commercial oil stocks** fell m-o-m by 0.8 mb to stand at 1,004.2 mb. At this level, they were 10.3 mb, or 1.0%, above the same month a year earlier, but 86.3 mb, or 7.9%, lower than the latest five-year average. Crude stocks rose by 2.0 mb, while product stocks fell by 2.8 mb, m-o-m.

European **crude inventories** rose in February to stand at 430.7 mb. This is 10.0 mb, or 2.4%, higher than the same month in 2022, but 30.0 mb, or 6.5%, below the latest five-year average. The build in crude oil inventories came on the back of lower refinery throughput in the EU-14, plus the UK and Norway dropping by around 160 tb/d m-o-m to stand at 9.96 mb/d.

Graph 9 - 5: EU-14 plus UK and Norway total oil stocks



Sources: Argus, Euroilstock and OPEC.

By contrast, **total European product stocks** fell m-o-m by 2.8 mb to end February at 573.5 mb. This is 0.3 mb, or 0.1%, higher than the same month of the previous year; but 56.3 mb, or 8.9%, below the latest five-year average.

Gasoline stocks rose m-o-m by 0.3 mb in February to stand at 108.3 mb. At this level, they were 4.2 mb, or 3.8%, lower than the same time a year earlier; and 13.4 mb, or 11.0%, below the latest five-year average.

By contrast, **middle distillate stocks** fell m-o-m by 1.9 mb in February to stand at 374.6 mb. This is 1.5 mb, or 0.4%, below the same month in 2022; and 39.3 mb, or 9.5%, lower than the latest five-year average.

Residual fuel stocks also fell m-o-m by 0.8 mb in February to stand at 60.2 mb. This is 0.9 mb, or 1.5%, higher than the same month in 2022; but 4.3 mb, or 6.7%, below the latest five-year average.

Meanwhile, **naphtha stocks** dropped m-o-m by 0.4 mb in February, ending the month at 30.4 mb. This is 5.2 mb, or 20.6%, higher than the February 2022 level; and 0.8 mb, or 2.6%, higher than the latest five-year average.

Table 9 - 4: EU-14 plus UK and Norway's total oil stocks, mb

EU stocks	Feb 22	Dec 22	Jan 23	Feb 23	Change Feb 23/Jan 23
Crude oil	420.7	435.7	428.7	430.7	2.0
Gasoline	112.5	108.3	108.0	108.3	0.3
Naphtha	25.2	30.9	30.7	30.4	-0.4
Middle distillates	376.1	384.8	376.5	374.6	-1.9
Fuel oils	59.3	64.9	61.0	60.2	-0.8
Total products	573.1	588.9	576.2	573.5	-2.8
Total	993.9	1,024.6	1,005.0	1,004.2	-0.8

Sources: Argus, Euroilstock and OPEC.

Singapore, Amsterdam-Rotterdam-Antwerp (ARA) and Fujairah

Singapore

In **February**, **total product stocks in Singapore** fell m-o-m by 4.3 mb to reach 42.2 mb. This is 1.1 mb, or 2.6%, lower than the same month in 2022 and 5.9 mb, or 12.3%, below the latest five-year average.

Light distillate stocks fell m-o-m by 2.9 mb in February to stand at 14.0 mb. This is in line with the same month of the previous year and 0.6 mb, or 4.0 %, less than the latest five-year average.

Middle distillate stocks also fell m-o-m by 1.8 mb in February to stand at 7.3 mb. This is 0.4 mb, or 5.6%, lower than a year earlier at the same time, and 3.8 mb, or 34.2%, lower than the latest five-year average.

By contrast, **residual fuel oil stocks** rose m-o-m by 0.3 mb, ending February at 20.9 mb. This is 0.7 mb, or 3.3%, lower than February 2022, and 1.6 mb, or 7.0%, below the latest five-year average.

ARA

Total product stocks in ARA rose m-o-m in **February** by 1.1 mb. At 45.9 mb, they were 8.2 mb, or 21.8%, higher than the same month in 2022; and 3.2 mb, or 7.5%, higher than the latest five-year average.

Gasoline stocks in February rose by 0.2 mb m-o-m to stand at 12.2 mb, which is 2.0 mb, or 19.3%, higher than the same month of the previous year; and 1.8 mb, or 17.5%, above the latest five-year average.

Gasoil stocks also rose by 1.9 mb m-o-m, ending February at 18.9 mb. This is 6.8 mb, or 55.7%, higher than February 2022; and 1.5 mb, or 8.9%, above the latest five-year average.

Meanwhile, **fuel oil stocks** rose by 0.2 mb m-o-m in February to stand at 7.4 mb, which is 0.8 mb, or 11.8%, higher than in February 2022; and 0.3 mb, or 4.0%, higher than the latest five-year average.

By contrast, **jet oil stocks** fell by 0.9 mb m-o-m to stand at 5.4 mb. This is 1.3 mb, or 18.9%, lower than levels seen in February 2022; but they remained in line with the latest five-year average.

Fujairah

During the week ending 27 March 2023, **total oil product stocks in Fujairah** rose w-o-w by 0.58 mb to stand at 21.92 mb, according to data from Fed Com and S&P Global Commodity Insights. At this level, total oil stocks were 4.03 mb higher than at the same time a year ago.

Light distillate stocks rose w-o-w by 0.41 mb to stand at 7.72 mb, which is 1.80 mb higher than a year ago.

Heavy distillate stocks also rose by 0.20 mb w-o-w to stand at 11.60 mb in the week to 27 March 2023, which is 1.42 mb higher than the same period a year ago. By contrast, **Middle distillate stocks** fell w-o-w by 0.02 mb to stand at 2.60 mb, which is 0.81 mb higher than the same time last year.

Balance of Supply and Demand

Demand for OPEC crude in 2022 remained unchanged from the previous MOMR to stand at 28.4 mb/d. This is around 0.5 mb/d higher than in 2021.

According to secondary sources, OPEC crude production averaged 28.3 mb/d in 1Q22, which is 0.2 mb/d lower than demand for OPEC crude. In 2Q22, OPEC crude production averaged 28.6 mb/d, which is 0.5 mb/d higher than demand for OPEC crude. In 3Q22, OPEC crude oil production averaged 29.4 mb/d, which is 1.1 mb/d higher than demand for OPEC crude. In 4Q22, OPEC crude oil production averaged 29.1 mb/d, which is 0.3 mb/d higher than demand for OPEC crude. For the whole year 2022, OPEC crude oil production averaged 28.9 mb/d, which is 0.4 mb/d higher than demand for OPEC crude.

Demand for OPEC crude in 2023 remained unchanged from the previous assessment to stand at 29.3 mb/d. This is around 0.8 mb/d higher than in 2022.

According to secondary sources, OPEC crude production averaged 28.8 mb/d in 1Q23, which is 0.3 mb/d higher than demand for OPEC crude

Balance of supply and demand in 2022

Demand for OPEC crude in 2022 remained unchanged from the previous MOMR to stand at 28.4 mb/d. This is around 0.5 mb/d higher than in 2021.

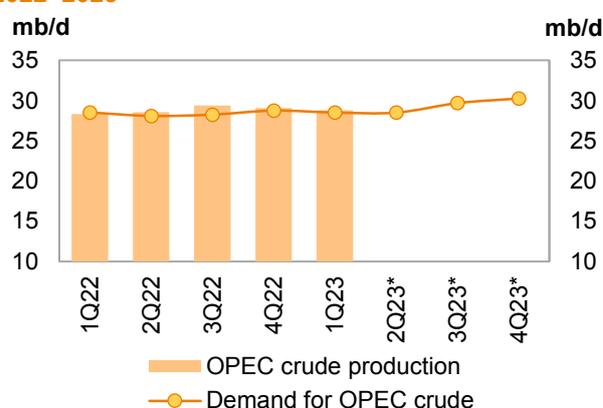
Compared with the previous assessment, 1Q22, 2Q22 and 3Q22 remained unchanged from the previous month, while 4Q22 was revised down by 0.1 mb/d.

Compared with the same quarters in 2021, demand for OPEC crude in 1Q22 and 2Q22 are estimated to be higher by 2.4 mb/d and 1.3 mb/d, respectively, while 3Q22 and 4Q22 are estimated to be lower by 0.3 mb/d and 1.2 mb/d, respectively.

According to secondary sources, OPEC crude production averaged 28.3 mb/d in 1Q22, which is 0.2 mb/d lower than demand for OPEC crude.

In 2Q22, OPEC crude production averaged 28.6 mb/d, which is 0.5 mb/d higher than demand for OPEC crude. In 3Q22, OPEC crude oil production averaged 29.4 mb/d, which is 1.1 mb/d higher than demand for OPEC crude. In 4Q22, OPEC crude oil production averaged 29.1 mb/d, which is 0.3 mb/d higher than demand for OPEC crude. For the whole year 2022, OPEC crude oil production averaged 28.9 mb/d, which is 0.4 mb/d higher than demand for OPEC crude.

Graph 10 - 1: Balance of supply and demand, 2022–2023*



Note: * 2Q23-4Q23 = Forecast. Source: OPEC.

Table 10 - 1: Supply/demand balance for 2022, mb/d

	2021	1Q22	2Q22	3Q22	4Q22	2022	Change 2022/21
(a) World oil demand	97.08	99.45	98.29	99.51	101.02	99.57	2.50
Non-OPEC liquids production	63.90	65.57	64.81	65.83	66.82	65.76	1.86
OPEC NGL and non-conventionals	5.28	5.35	5.38	5.41	5.43	5.39	0.11
(b) Total non-OPEC liquids production and OPEC NGLs	69.19	70.92	70.19	71.24	72.25	71.15	1.96
Difference (a-b)	27.89	28.54	28.10	28.27	28.77	28.42	0.53
OPEC crude oil production	26.34	28.33	28.58	29.40	29.10	28.86	2.51
Balance	-1.54	-0.20	0.47	1.13	0.33	0.44	1.98

Note: Totals may not add up due to independent rounding. Source: OPEC.

Balance of supply and demand in 2023

Demand for OPEC crude in 2023 remained unchanged from the previous assessment to stand at 29.3 mb/d. This is around 0.8 mb/d higher than in 2022.

Compared with the previous assessment, 1Q23 and 2Q23 were revised down by 0.2 mb/d and 0.1 mb/d respectively, while both 3Q23 and 4Q23 were revised up by 0.2 mb/d each.

According to secondary sources, OPEC crude production averaged 28.8 mb/d in 1Q23, which is 0.3 mb/d higher than demand for OPEC crude.

Compared with the same quarters in 2022, demand for OPEC crude in 1Q23 is forecast to remain unchanged, while 2Q22, 3Q23 and 4Q23 are expected to be higher by 0.4 mb/d, 1.4 mb/d and 1.5 mb/d.

Table 10 - 2: Supply/demand balance for 2023*, mb/d

	2022	1Q23	2Q23	3Q23	4Q23	2023	Change 2023/22
(a) World oil demand	99.57	101.55	100.70	102.03	103.27	101.89	2.32
Non-OPEC liquids production	65.76	67.58	66.71	66.90	67.57	67.19	1.43
OPEC NGL and non-conventionals	5.39	5.44	5.47	5.43	5.43	5.44	0.05
(b) Total non-OPEC liquids production and OPEC NGLs	71.15	73.02	72.19	72.33	72.99	72.63	1.48
Difference (a-b)	28.42	28.53	28.52	29.70	30.28	29.26	0.84
OPEC crude oil production	28.86	28.82					
Balance	0.44	0.30					

Note: * 2023 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.

Appendix

Table 11 - 1: World oil demand and supply balance, mb/d

World oil demand and supply balance	2019	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
World demand													
Americas	25.40	22.45	24.32	24.77	24.98	25.33	24.97	25.02	24.86	25.14	25.51	25.11	25.16
of which US	20.58	18.35	20.03	20.38	20.41	20.62	20.32	20.43	20.41	20.43	20.75	20.37	20.49
Europe	14.31	12.41	13.13	13.19	13.43	14.07	13.34	13.51	13.02	13.36	14.10	13.37	13.46
Asia Pacific	7.95	7.17	7.38	7.85	6.99	7.22	7.68	7.43	7.89	7.05	7.27	7.70	7.47
Total OECD	47.66	42.03	44.82	45.81	45.39	46.62	45.99	45.96	45.78	45.55	46.87	46.17	46.10
China	13.81	13.94	15.00	14.77	14.45	14.67	15.51	14.85	15.43	15.40	15.43	16.16	15.61
India	4.99	4.51	4.77	5.18	5.16	4.95	5.26	5.14	5.41	5.44	5.21	5.50	5.39
Other Asia	9.06	8.13	8.67	9.13	9.31	8.77	8.89	9.02	9.46	9.65	9.14	9.24	9.37
Latin America	6.59	5.90	6.23	6.32	6.36	6.55	6.52	6.44	6.50	6.49	6.71	6.68	6.60
Middle East	8.20	7.45	7.79	8.06	8.15	8.53	8.44	8.29	8.52	8.47	8.86	8.73	8.65
Africa	4.44	4.08	4.22	4.51	4.15	4.25	4.69	4.40	4.71	4.34	4.43	4.88	4.59
Russia	3.57	3.39	3.61	3.67	3.42	3.45	3.71	3.56	3.68	3.45	3.59	3.87	3.65
Other Eurasia	1.19	1.07	1.21	1.22	1.16	1.00	1.21	1.15	1.21	1.16	1.02	1.22	1.15
Other Europe	0.76	0.70	0.75	0.79	0.75	0.73	0.80	0.77	0.84	0.76	0.75	0.83	0.80
Total Non-OECD	52.62	49.16	52.25	53.65	52.90	52.89	55.03	53.62	55.77	55.16	55.16	57.10	55.80
(a) Total world demand	100.27	91.19	97.08	99.45	98.29	99.51	101.02	99.57	101.55	100.70	102.03	103.27	101.89
Y-o-y change	1.08	-9.09	5.89	5.17	2.58	1.78	0.52	2.50	2.10	2.41	2.52	2.25	2.32
Non-OPEC liquids production													
Americas	25.88	24.87	25.45	26.11	26.51	27.26	27.47	26.84	27.59	27.84	28.20	28.57	28.05
of which US	18.53	17.76	18.04	18.51	19.07	19.57	19.67	19.21	19.76	20.19	20.38	20.61	20.24
Europe	3.74	3.92	3.79	3.72	3.46	3.51	3.59	3.57	3.68	3.74	3.79	3.92	3.78
Asia Pacific	0.52	0.52	0.51	0.49	0.51	0.43	0.49	0.48	0.48	0.49	0.49	0.48	0.48
Total OECD	30.15	29.31	29.75	30.32	30.49	31.20	31.54	30.89	31.74	32.07	32.48	32.97	32.32
China	4.05	4.16	4.32	4.54	4.54	4.42	4.42	4.48	4.61	4.60	4.50	4.48	4.54
India	0.83	0.78	0.78	0.79	0.78	0.76	0.76	0.77	0.77	0.79	0.78	0.78	0.78
Other Asia	2.75	2.53	2.42	2.37	2.32	2.24	2.31	2.31	2.37	2.39	2.34	2.37	2.37
Latin America	6.09	6.02	5.96	6.11	6.18	6.46	6.59	6.34	6.71	6.67	6.70	6.79	6.72
Middle East	3.16	3.15	3.20	3.25	3.29	3.32	3.30	3.29	3.26	3.29	3.30	3.31	3.29
Africa	1.51	1.41	1.35	1.33	1.31	1.32	1.29	1.31	1.31	1.33	1.34	1.33	1.33
Russia	11.51	10.54	10.80	11.33	10.63	11.01	11.17	11.03	11.22	10.00	9.94	9.99	10.28
Other Eurasia	3.07	2.91	2.93	3.04	2.76	2.59	2.92	2.83	3.04	3.00	2.94	2.98	2.99
Other Europe	0.12	0.12	0.11	0.11	0.11	0.10	0.10	0.11	0.10	0.10	0.10	0.10	0.10
Total Non-OECD	33.08	31.64	31.87	32.85	31.92	32.23	32.87	32.47	33.37	32.17	31.95	32.13	32.40
Total Non-OPEC production	63.23	60.95	61.62	63.17	62.41	63.44	64.42	63.36	65.11	64.24	64.43	65.10	64.72
Processing gains	2.37	2.16	2.29	2.40	2.40	2.40	2.40	2.40	2.47	2.47	2.47	2.47	2.47
Total Non-OPEC liquids production	65.60	63.11	63.90	65.57	64.81	65.83	66.82	65.76	67.58	66.71	66.90	67.57	67.19
OPEC NGL + non-conventional oils	5.21	5.17	5.28	5.35	5.38	5.41	5.43	5.39	5.44	5.47	5.43	5.43	5.44
(b) Total non-OPEC liquids production and OPEC NGLs	70.82	68.28	69.19	70.92	70.19	71.24	72.25	71.15	73.02	72.19	72.33	72.99	72.63
Y-o-y change	2.14	-2.54	0.91	2.76	1.30	2.07	1.73	1.96	2.11	2.00	1.09	0.74	1.48
OPEC crude oil production (secondary sources)	29.36	25.72	26.34	28.33	28.58	29.40	29.10	28.86	28.82				
Total liquids production	100.18	94.00	95.53	99.25	98.76	100.64	101.35	100.01	101.84				
Balance (stock change and miscellaneous)	-0.09	2.81	-1.54	-0.20	0.47	1.13	0.33	0.44	0.30				
OECD closing stock levels, mb													
Commercial	2,894	3,037	2,651	2,613	2,665	2,746	2,796	2,796					
SPR	1,535	1,541	1,484	1,442	1,343	1,245	1,217	1,217					
Total	4,429	4,578	4,134	4,055	4,009	3,991	4,013	4,013					
Oil-on-water	1,033	1,148	1,202	1,231	1,304	1,407	1,399	1,399					
Days of forward consumption in OECD, days													
Commercial onland stocks	69	68	58	58	57	60	61	61					
SPR	37	34	32	32	29	27	27	26					
Total	105	102	90	89	86	87	88	87					
Memo items													
(a) - (b)	29.46	22.91	27.89	28.54	28.10	28.27	28.77	28.42	28.53	28.52	29.70	30.28	29.26

Note: Totals may not add up due to independent rounding.

Source: OPEC.

Table 11 - 2: World oil demand and supply balance: changes from last month's table*, mb/d

World oil demand and supply balance	2019	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
World demand													
Americas	-	-	-	-	-	-	-0.05	-0.01	-	-0.03	-0.12	-0.07	-0.05
of which US	-	-	-	-	-	-	-0.11	-0.03	-	-0.03	-0.10	-0.12	-0.06
Europe	-	-	-	-	-	-0.01	-0.03	-0.01	-0.10	-0.05	-0.02	-0.05	-0.05
Asia Pacific	-	-	-	-	-	-	-0.09	-0.02	-	-	-	-0.09	-0.02
Total OECD	-	-	-	-	-	-	-0.17	-0.04	-0.10	-0.08	-0.14	-0.21	-0.13
China	-	-	-	-	-	-	-	-	0.20	-	-	-	0.05
India	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Asia	-	-	-	-	-	-	-	-	-	-	-	-	-
Latin America	-	-	-	-	-	-	0.03	0.01	0.06	-	-	0.03	0.02
Middle East	-	-	-	-	0.02	0.02	0.02	0.02	0.07	0.02	0.02	0.02	0.03
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-
Russia	-	-	-	-	-	-	0.05	0.01	-	-	-	0.05	0.01
Other Eurasia	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Europe	-	-	-	-	-	-	-	-	0.04	-	-	-	0.01
Total Non-OECD	-	-	-	-	0.02	0.02	0.10	0.03	0.37	0.02	0.02	0.09	0.13
(a) Total world demand	-	-	-	-	0.02	0.02	-0.08	-0.01	0.27	-0.06	-0.11	-0.12	-0.01
Y-o-y change	-	-	-	-	0.03	0.02	-0.07	-0.01	0.27	-0.08	-0.13	-0.04	-
Non-OPEC liquids production													
Americas	-	-	-	-	-	-	-	-	0.15	-0.05	-0.05	-0.05	-
of which US	-	-	-	-	-	-	-	-	0.09	-0.07	-0.07	-0.07	-0.03
Europe	-	-	-	-	-	-	-0.02	-	-0.07	-	-0.01	-0.01	-0.02
Asia Pacific	-	-	-	-	-	-	-	-	-0.01	0.01	-	-	-
Total OECD	-	-	-	-	-	-	-0.02	-	0.07	-0.04	-0.06	-0.06	-0.02
China	-	-	-	-	-	0.01	-	-	0.08	0.08	0.01	-0.01	0.04
India	-	-	-	-	-	-	-	-	-0.01	-	0.01	-	-
Other Asia	-	-	-	-	-	-	-	-	-0.01	0.02	-	0.01	-
Latin America	-	-	-	-	-	-	-	-	0.09	0.05	0.03	0.06	0.05
Middle East	-	-	-	-	-	-	-	-	-0.01	-0.03	-0.04	-0.03	-0.03
Africa	-	-	-	-	-	-	-0.01	-	-0.02	-	-0.01	-0.01	-0.01
Russia	-	-	-	-	-	-	-	-	0.32	-	-0.16	-0.16	-
Other Eurasia	-	-	-	-	-	-	-	-	-	-0.04	-0.07	-0.08	-0.05
Other Europe	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OECD	-	-	-	-	-	0.02	-0.01	-	0.44	0.07	-0.23	-0.23	0.01
Total Non-OPEC production	-	-	-	-	-	0.02	-0.03	-	0.51	0.03	-0.29	-0.30	-0.01
Processing gains	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OPEC liquids production	-	-	-	-	-	0.02	-0.03	-	0.51	0.03	-0.29	-0.30	-0.01
OPEC NGL + non-conventional oils	-	-	-	-	-	-	-	-	-	-	-	-	-
(b) Total non-OPEC liquids production and OPEC NGLs	-	-	-	-	-	0.02	-0.03	-	0.51	0.03	-0.29	-0.30	-0.01
Y-o-y change	-	-	-	-	-	0.02	-0.03	-	0.51	0.03	-0.31	-0.27	-0.01
OPEC crude oil production (secondary sources)													
Total liquids production	-	-	-	-	-	0.01	-0.03	-	-	-	-	-	-
Balance (stock change and miscellaneous)	-	-	-	-	-0.02	-	0.05	0.01	-	-	-	-	-
mb													
Commercial	-	-	-	-	-	-	29	29	-	-	-	-	-
SPR	-	-	-	-	-	-	7	7	-	-	-	-	-
Total	-	-	-	-	-	-	36	36	-	-	-	-	-
Oil-on-water													
Days of forward consumption in OECD, days													
Commercial onland stocks	-	-	-	-	-	-	1	1	-	-	-	-	-
SPR	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	1	1	-	-	-	-	-
Memo items													
(a) - (b)	-	-	-	-	0.02	-	-0.05	-0.01	-0.24	-0.10	0.18	0.18	0.01

Note: * This compares Table 11 - 1 in this issue of the MOMR with Table 11 - 1 in the March 2023 issue.

This table shows only where changes have occurred.

Source: OPEC.

Table 11 - 3: OECD oil stocks and oil on water at the end of period

OECD oil stocks and oil on water	2020	2021	2022	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22
Closing stock levels, mb											
OECD onland commercial	3,037	2,651	2,796	2,926	2,884	2,770	2,651	2,613	2,665	2,746	2,796
Americas	1,613	1,470	1,507	1,578	1,553	1,523	1,470	1,407	1,436	1,469	1,507
Europe	1,043	857	936	1,002	973	891	857	890	911	919	936
Asia Pacific	380	324	353	346	357	355	324	316	318	358	353
OECD SPR	1,541	1,484	1,217	1,546	1,524	1,513	1,484	1,442	1,343	1,245	1,217
Americas	640	596	374	640	623	620	596	568	495	418	374
Europe	487	479	464	493	487	485	479	468	452	447	464
Asia Pacific	414	409	378	413	413	408	409	406	395	380	378
OECD total	4,578	4,134	4,013	4,472	4,407	4,282	4,134	4,055	4,009	3,991	4,013
Oil-on-water	1,148	1,202	1,399	1,138	1,131	1,169	1,202	1,231	1,304	1,407	1,399
Days of forward consumption in OECD, days											
OECD onland commercial	68	58	61	66	63	59	58	58	57	60	61
Americas	66	59	60	65	63	61	59	56	57	59	61
Europe	79	63	69	79	70	64	65	66	65	69	71
Asia Pacific	51	44	47	49	51	46	41	45	44	47	45
OECD SPR	35	34	34	35	33	32	32	32	29	27	27
Americas	26	24	23	26	25	25	24	23	20	17	15
Europe	37	35	35	39	35	35	36	35	32	34	35
Asia Pacific	56	55	55	59	58	52	52	58	55	49	48
OECD total	103	92	95	102	96	91	90	89	86	87	87

Sources: Argus, EIA, Euroilstock, IEA, JODI, METI and OPEC.

Table 11 - 4: Non-OPEC liquids production and OPEC natural gas liquids, mb/d*

Non-OPEC liquids production and OPEC NGLs	Change												
	2019	2020	2021	3Q22	4Q22	2022	22/21	1Q23	2Q23	3Q23	4Q23	2023	23/22
US	18.5	17.8	18.0	19.6	19.7	19.2	1.2	19.8	20.2	20.4	20.6	20.2	1.0
Canada	5.4	5.2	5.4	5.7	5.8	5.6	0.2	5.7	5.6	5.8	6.0	5.8	0.2
Mexico	1.9	1.9	2.0	2.0	2.0	2.0	0.1	2.1	2.0	2.0	2.0	2.0	0.0
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OECD Americas	25.9	24.9	25.4	27.3	27.5	26.8	1.4	27.6	27.8	28.2	28.6	28.1	1.2
Norway	1.7	2.0	2.0	1.9	2.0	1.9	-0.1	2.0	2.0	2.1	2.2	2.1	0.2
UK	1.1	1.1	0.9	0.8	0.8	0.9	-0.1	0.8	0.9	0.8	0.9	0.9	0.0
Denmark	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Other OECD	0.8	0.8	0.8	0.8	0.7	0.8	0.0	0.8	0.8	0.8	0.8	0.8	0.0
OECD Europe	3.7	3.9	3.8	3.5	3.6	3.6	-0.2	3.7	3.7	3.8	3.9	3.8	0.2
Australia	0.5	0.5	0.4	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.0
Other Asia Pacific	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
OECD Asia Pacific	0.5	0.5	0.5	0.4	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.0
Total OECD	30.1	29.3	29.7	31.2	31.5	30.9	1.1	31.7	32.1	32.5	33.0	32.3	1.4
China	4.1	4.2	4.3	4.4	4.4	4.5	0.2	4.6	4.6	4.5	4.5	4.5	0.1
India	0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.8	0.8	0.8	0.8	0.8	0.0
Brunei	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Indonesia	0.9	0.9	0.8	0.8	0.8	0.8	0.0	0.9	0.8	0.8	0.8	0.8	0.0
Malaysia	0.7	0.6	0.6	0.6	0.6	0.6	0.0	0.6	0.7	0.6	0.6	0.6	0.1
Thailand	0.5	0.5	0.4	0.4	0.4	0.4	-0.1	0.4	0.4	0.4	0.4	0.4	0.0
Vietnam	0.3	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.0
Asia others	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.0
Other Asia	2.7	2.5	2.4	2.2	2.3	2.3	-0.1	2.4	2.4	2.3	2.4	2.4	0.1
Argentina	0.7	0.6	0.7	0.8	0.8	0.8	0.1	0.8	0.8	0.8	0.8	0.8	0.1
Brazil	3.6	3.7	3.6	3.8	3.8	3.7	0.1	4.0	3.9	4.0	4.0	4.0	0.2
Colombia	0.9	0.8	0.8	0.8	0.8	0.8	0.0	0.8	0.8	0.7	0.8	0.8	0.0
Ecuador	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.0
Guyana	0.0	0.1	0.1	0.4	0.4	0.3	0.2	0.4	0.4	0.4	0.4	0.4	0.1
Latin America	0.4	0.3	0.3	0.3	0.3	0.3	0.0	0.3	0.3	0.3	0.3	0.3	0.0
Latin America	6.1	6.0	6.0	6.5	6.6	6.3	0.4	6.7	6.7	6.7	6.8	6.7	0.4
Bahrain	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.0
Oman	1.0	1.0	1.0	1.1	1.1	1.1	0.1	1.1	1.0	1.0	1.0	1.0	0.0
Qatar	1.9	1.9	1.9	1.9	1.9	1.9	0.0	1.9	1.9	1.9	1.9	1.9	0.0
Syria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Yemen	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Middle East	3.2	3.2	3.2	3.3	3.3	3.3	0.1	3.3	3.3	3.3	3.3	3.3	0.0
Cameroon	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Chad	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Egypt	0.7	0.6	0.6	0.6	0.6	0.6	0.0	0.6	0.6	0.6	0.6	0.6	0.0
Ghana	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.0
South Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Sudans	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.0
Africa other	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Africa	1.5	1.4	1.3	1.3	1.3	1.3	0.0	1.3	1.3	1.3	1.3	1.3	0.0
Russia	11.5	10.5	10.8	11.0	11.2	11.0	0.2	11.2	10.0	9.9	10.0	10.3	-0.8
Kazakhstan	1.9	1.8	1.8	1.6	1.9	1.8	0.0	2.0	1.9	1.8	1.9	1.9	0.1
Azerbaijan	0.8	0.7	0.7	0.7	0.7	0.7	0.0	0.7	0.8	0.8	0.8	0.7	0.0
Eurasia others	0.4	0.4	0.4	0.3	0.3	0.3	0.0	0.3	0.3	0.3	0.3	0.3	0.0
Other Eurasia	3.1	2.9	2.9	2.6	2.9	2.8	-0.1	3.0	3.0	2.9	3.0	3.0	0.2
Other Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
Total Non-OECD	33.1	31.6	31.9	32.2	32.9	32.5	0.6	33.4	32.2	31.9	32.1	32.4	-0.1
Non-OPEC	63.2	61.0	61.6	63.4	64.4	63.4	1.7	65.1	64.2	64.4	65.1	64.7	1.4
Processing gains	2.4	2.2	2.3	2.4	2.4	2.4	0.1	2.5	2.5	2.5	2.5	2.5	0.1
Non-OPEC liquids production	65.6	63.1	63.9	65.8	66.8	65.8	1.9	67.6	66.7	66.9	67.6	67.2	1.4
OPEC NGL	5.1	5.1	5.2	5.3	5.3	5.3	0.1	5.3	5.4	5.3	5.3	5.3	0.0
OPEC Non- conventional	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
OPEC (NGL+NCF)	5.2	5.2	5.3	5.4	5.4	5.4	0.1	5.4	5.5	5.4	5.4	5.4	0.0
Non-OPEC & OPEC (NGL+NCF)	70.8	68.3	69.2	71.2	72.2	71.2	2.0	73.0	72.2	72.3	73.0	72.6	1.5

Note: Totals may not add up due to independent rounding. Source: OPEC.

Appendix

Table 11 - 5: World rig count, units

World rig count	2020	2021	Change		3Q22	4Q22	1Q23	Feb 23	Mar 23	Change
			2022	2022/21						Mar/Feb
US	436	475	722	247	761	775	761	758	753	-5
Canada	90	133	174	41	202	186	221	248	190	-58
Mexico	41	45	47	2	48	50	48	46	50	4
OECD Americas	567	654	945	291	1,013	1,014	1,033	1,054	994	-60
Norway	16	17	17	0	18	17	16	17	15	-2
UK	6	8	10	2	13	10	11	11	13	2
OECD Europe	59	58	65	7	70	67	67	63	70	7
OECD Asia Pacific	22	23	24	1	26	25	23	22	23	1
Total OECD	648	735	1,034	299	1,109	1,106	1,123	1,139	1,087	-52
Other Asia*	187	174	186	12	185	188	193	190	196	6
Latin America	58	91	119	28	122	130	127	133	130	-3
Middle East	57	57	62	5	61	65	62	64	60	-4
Africa	43	42	57	15	58	60	60	60	61	1
Other Europe	12	9	10	1	10	13	11	11	11	0
Total Non-OECD	357	373	434	61	436	456	453	458	458	0
Non-OPEC rig count	1,005	1,108	1,468	360	1,545	1,562	1,576	1,597	1,545	-52
Algeria	31	26	32	6	33	33	32	31	33	2
Angola	3	4	7	3	6	9	9	9	9	0
Congo	1	0	1	1	1	1	1	1	2	1
Equatorial Guinea**	0	0	0	0	0	0	0	0	0	0
Gabon	3	2	3	1	2	3	3	3	4	1
Iran**	117	117	117	0	117	117	117	117	117	0
Iraq	47	39	51	12	54	55	60	62	62	0
Kuwait	45	25	27	2	27	28	24	25	25	0
Libya	12	13	7	-6	3	8	11	12	8	-4
Nigeria	11	7	10	3	9	10	14	13	15	2
Saudi Arabia	93	62	73	11	71	80	78	77	78	1
UAE	54	42	47	5	49	52	53	54	53	-1
Venezuela	15	6	3	-3	3	3	3	3	3	0
OPEC rig count	432	343	377	34	376	398	405	407	409	2
World rig count***	1,437	1,451	1,845	394	1,921	1,959	1,980	2,004	1,954	-50
<i>of which:</i>										
Oil	1,116	1,143	1,462	319	1,522	1,552	1,567	1,587	1,542	-45
Gas	275	275	352	77	365	374	376	380	374	-6
Others	46	33	31	-2	33	33	37	37	39	2

Note: * Other Asia includes India and offshore rigs for China.

** Estimated data when Baker Hughes Incorporated did not reported the data.

*** Data excludes onshore China as well as Russia and other Eurasia.

Totals may not add up due to independent rounding.

Sources: Baker Hughes and OPEC.

Glossary of Terms

Abbreviations

b	barrels
b/d	barrels per day
bp	basis points
bb	billion barrels
bcf	billion cubic feet
cu m	cubic metres
mb	million barrels
mb/d	million barrels per day
mmbtu	million British thermal units
mn	million
m-o-m	month-on-month
mt	metric tonnes
q-o-q	quarter-on-quarter
pp	percentage points
tb/d	thousand barrels per day
tcf	trillion cubic feet
y-o-y	year-on-year
y-t-d	year-to-date

Acronyms

ARA	Amsterdam-Rotterdam-Antwerp
BoE	Bank of England
BoJ	Bank of Japan
BOP	Balance of payments
BRIC	Brazil, Russia, India and China
CAPEX	capital expenditures
CCI	Consumer Confidence Index
CFTC	Commodity Futures Trading Commission
CIF	cost, insurance and freight
CPI	consumer price index
DoC	Declaration of Cooperation
DCs	developing countries
DUC	drilled, but uncompleted (oil well)
ECB	European Central Bank
EIA	US Energy Information Administration
Emirates NBD	Emirates National Bank of Dubai
EMs	emerging markets
EV	electric vehicle

Glossary of Terms

FAI	fixed asset investment
FCC	fluid catalytic cracking
FDI	foreign direct investment
Fed	US Federal Reserve
FID	final investment decision
FOB	free on board
FPSO	floating production storage and offloading
FSU	Former Soviet Union
FX	Foreign Exchange
FY	fiscal year
GDP	gross domestic product
GFCF	gross fixed capital formation
GoM	Gulf of Mexico
GTLs	gas-to-liquids
HH	Henry Hub
HSFO	high-sulphur fuel oil
ICE	Intercontinental Exchange
IEA	International Energy Agency
IMF	International Monetary Fund
IOCs	international oil companies
IP	industrial production
ISM	Institute of Supply Management
JODI	Joint Organisations Data Initiative
LIBOR	London inter-bank offered rate
LLS	Light Louisiana Sweet
LNG	liquefied natural gas
LPG	liquefied petroleum gas
LR	long-range (vessel)
LSFO	low-sulphur fuel oil
MCs	(OPEC) Member Countries
MED	Mediterranean
MENA	Middle East/North Africa
MOMR	(OPEC) Monthly Oil Market Report
MPV	multi-purpose vehicle
MR	medium-range or mid-range (vessel)
NBS	National Bureau of Statistics
NGLs	natural gas liquids
NPC	National People's Congress (China)
NWE	Northwest Europe
NYMEX	New York Mercantile Exchange
OECD	Organisation for Economic Co-operation and Development
OPEX	operational expenditures
OIV	total open interest volume
ORB	OPEC Reference Basket
OSP	Official Selling Price
PADD	Petroleum Administration for Defense Districts
PBoC	People's Bank of China
PMI	purchasing managers' index
PPI	producer price index

RBI	Reserve Bank of India
REER	real effective exchange rate
ROI	return on investment
SAAR	seasonally-adjusted annualized rate
SIAM	Society of Indian Automobile Manufacturers
SRFO	straight-run fuel oil
SUV	sports utility vehicle
ULCC	ultra-large crude carrier
ULSD	ultra-low sulphur diesel
USEC	US East Coast
USGC	US Gulf Coast
USWC	US West Coast
VGO	vacuum gasoil
VLCC	very large crude carriers
WPI	wholesale price index
WS	Worldscale
WTI	West Texas Intermediate
WTS	West Texas Sour

OPEC Basket average price

US\$/b



down 3.43 in March

March 2023	78.45
February 2023	81.88
Year-to-date	80.56

March OPEC crude production

mb/d, according to secondary sources



down 0.09 in March

March 2023	28.80
February 2023	28.88

Economic growth rate

per cent

	World	OECD	US	Euro-zone	Japan	China	India
2022	3.3	2.9	2.1	3.5	1.0	3.0	6.7
2023	2.6	1.1	1.2	0.8	1.0	5.2	5.6

Supply and demand

mb/d

2022		22/21	2023		23/22
World demand	99.6	2.5	World demand	101.9	2.3
Non-OPEC liquids production	65.8	1.9	Non-OPEC liquids production	67.2	1.4
OPEC NGLs	5.4	0.1	OPEC NGLs	5.4	0.0
Difference	28.4	0.5	Difference	29.3	0.8

OECD commercial stocks

mb

	Dec 22	Jan 23	Feb 23	Feb 23/Jan 23
Crude oil	1,382	1,413	1,434	20.9
Products	1,414	1,439	1,432	-6.8
Total	2,796	2,851	2,865	14.1
Days of forward cover	61.0	61.9	62.9	1.0

Next report to be issued on 11 May 2023.