International Energy Agency

Oil Market Report

14 December 2023

- World oil demand is on track to rise 2.3 mb/d to 101.7 mb/d in 2023, but this masks the impact of a further weakening of the macroeconomic climate. Global 4Q23 demand growth has been revised down by almost 400 kb/d, with Europe making up more than half the decline. The slowdown is set to continue in 2024, with global gains halving to 1.1 mb/d, as GDP growth stays below trend in major economies. Efficiency improvements and a booming electric vehicle fleet also drag on demand.

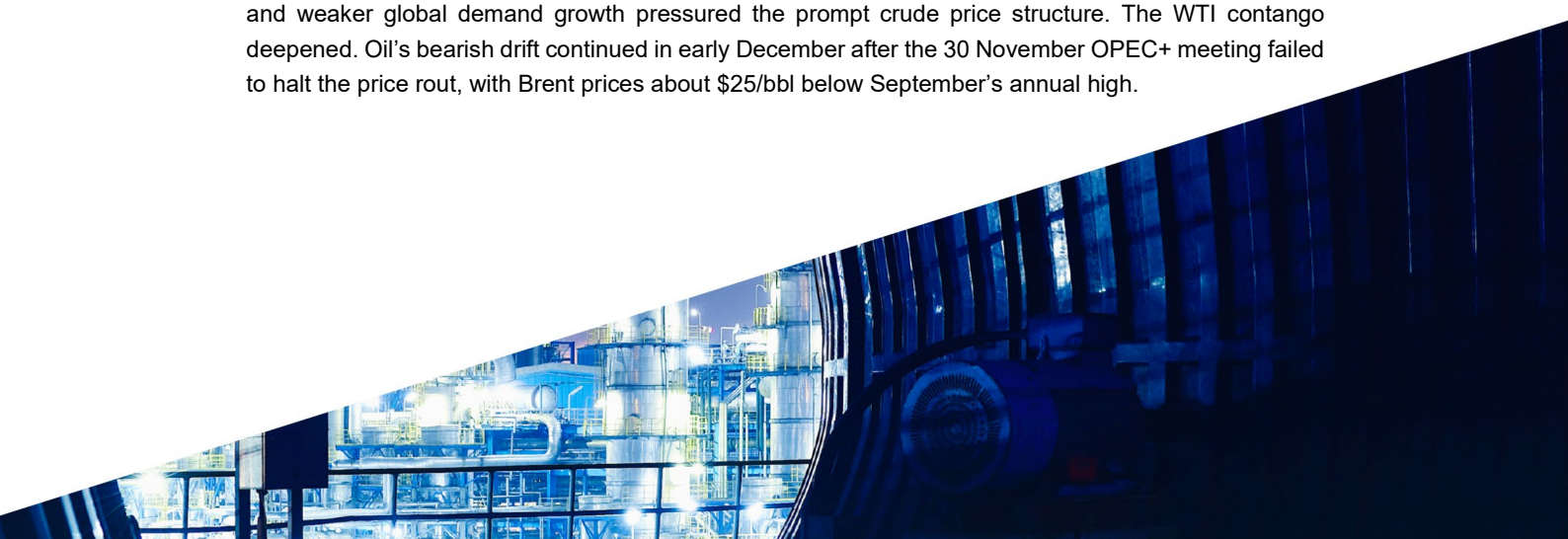
- US oil supply growth continues to defy expectations, with output shattering the 20 mb/d mark. This, combined with record Brazilian and Guyanese production along with surging Iranian flows will lift world output by 1.8 mb/d to 101.9 mb/d in 2023. Non-OPEC+ will again drive global gains in 2024, projected at 1.2 mb/d after OPEC+ deepens its voluntary oil cuts.

- Russian crude export prices declined sharply in November, with Urals falling below the $60/bbl price cap on 6 December. The lower prices and a 200 kb/d drop in oil shipments pushed November export revenues for crude and products down 17% m-o-m to $15.2 billion, a level not seen since July 2023. Revenues fell more for crude (-$2.4 billion m-o-m) than products (-$800 million).

- Refinery margins in Europe and Singapore rebounded marginally in November, but the US Gulf Coast underperformed again, slipping for the third month running. Weaker diesel and gasoline cracks drove much of the US hub's decline. Global crude runs in 4Q23 are expected to be materially weaker than previously estimated on deeper and longer refinery turnarounds, falling 3.6 mb/d m-o-m in October and only slowly recovering to a seasonal peak of 84.2 mb/d by December 2023.

- Global observed oil inventories declined by 19.6 mb in October. While crude oil inventories were largely unchanged, oil product stocks fell for the first time in four months, reversing the trend in 3Q23 when oil product stocks rose 1.3 mb/d, while crude drew 1.6 mb/d on average. OECD and non-OECD on-land stocks fell by 18.9 mb and 24.2 mb, respectively, while oil on water built by 23.5 mb.

- ICE Brent futures continued to fall in November, declining by $5/bbl to $83/bbl. Surging US crude exports and weaker global demand growth pressured the prompt crude price structure. The WTI contango deepened. Oil's bearish drift continued in early December after the 30 November OPEC+ meeting failed to halt the price rout, with Brent prices about $25/bbl below September's annual high.



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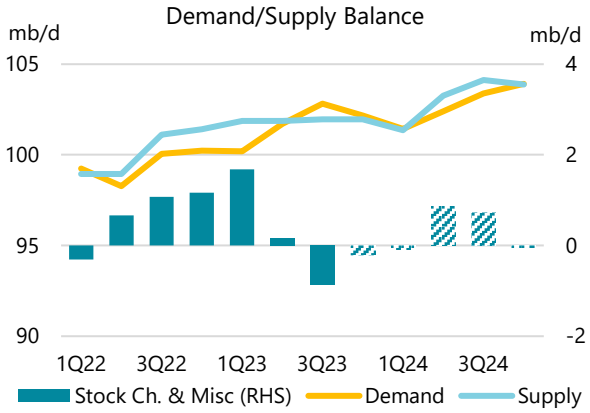
Over a barrel

Oil market sentiment turned decidedly bearish in November and early December as non-OPEC+ supply strength coincided with slowing global oil demand growth. The extension of OPEC+ output cuts through 1Q24 did little to prop up oil prices. By early December, they had tumbled by about $25/bbl from September's highs, to their lowest levels in six months. At the time of writing, Brent futures were trading around $74/bbl and WTI close to $69/bbl.



Note: Assumes announced OPEC+ 1Q24 voluntary cuts of 2.2 mb/d phased out gradually in 2Q24.

Record-breaking supply from the United States, Brazil and Guyana, and sharply higher Iranian oil production, along with easing demand, prompted some OPEC+ members to announce more extensive 1Q24 cuts to fend off a potential inventory build. Improved drilling efficiencies and well productivity in the shale patch saw US oil supply exceed 20 mb/d in September, defying industry warnings of an imminent slowdown in growth due to cost inflation and oil field service capacity constraints. As a result, upward revisions to US 2H23 supply are set to total close to 600 kb/d since our June *Report*. The United States is now on track to deliver a supply increase of 1.4 mb/d in 2023, accounting for two-thirds of the 2.2 mb/d non-OPEC+ expansion. At the same time, OPEC+ will post a 400 kb/d decline, cutting its market share to 51% in 2023 – the lowest since the bloc's creation in 2016. Hefty supply cuts, largely shouldered by Saudi Arabia, have been tempered by Iranian production at five-year highs. While non-OPEC+ supply growth is set to lose momentum in 2024, forecast gains of 1.2 mb/d may yet exceed the increase in global oil demand.

Evidence of a slowdown in oil demand is mounting, with the pace of expansion set to ease from 2.8 mb/d y-o-y in 3Q23 to 1.9 mb/d in 4Q23. A deterioration in the macroeconomic outlook led to a downward revision in our global oil consumption growth forecast of nearly 400 kb/d in the final three months of the year. Europe, Russia and the Middle East account for most of the adjustment. The impact of higher interest rates is feeding through to the real economy while petrochemical activity shifts increasingly to China, undermining growth elsewhere. Europe is particularly soft amid the continent's broad manufacturing and industrial slump. In addition, tighter efficiency standards and an expanding electric vehicle fleet continue to curb oil use. As a result, world oil demand growth in 2023 has been adjusted lower by 90 kb/d from last month's *Report* to 2.3 mb/d. China accounts for 78% of this year's increase. Oil consumption growth is expected to ease significantly in 2024, to 1.1 mb/d, with demand baselines normalising as Covid-related distortions fade.

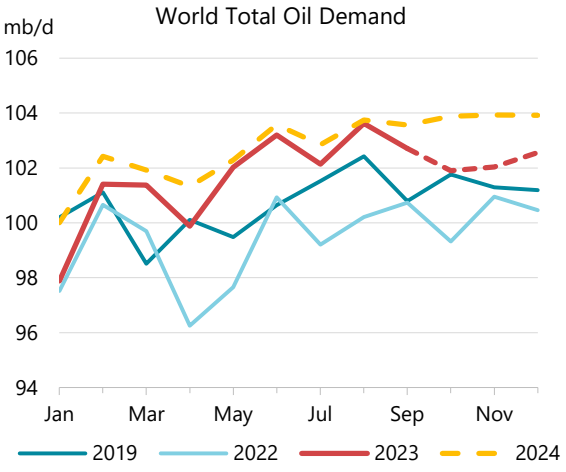
The shift in global oil supply from key producers in the Middle East to the United States and other Atlantic Basin countries, and the dominant impact of China and its booming petrochemical sector on oil demand, are profoundly impacting global oil trade. East of Suez markets have already absorbed the majority of Russian flows following the invasion of Ukraine as well as rising Iranian exports, but now must adjust to increasing volumes of Atlantic Basin crude and NGLs. The continued rise in output and slowing demand growth will complicate efforts by key producers to defend their market share and maintain elevated oil prices.

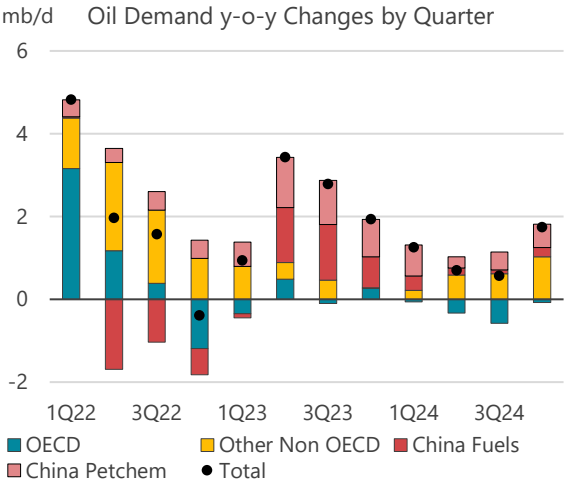
Demand

Overview

Global oil demand growth will slow drastically from 2.8 mb/d y-o-y in 3Q23 to 1.9 mb/d in 4Q23. The increasingly apparent loss of oil demand growth momentum reflects the deterioration in the macroeconomic climate – in the wake of higher interest rates as well as the fading rebound from Covid-induced lows. This has resulted in a downward revision to expansion of 390 kb/d for the final three months of the year. Europe, Russia and the Middle East are now all forecast to post weaker- than-anticipated demand growth in 4Q23. As a result, world oil demand growth in 2023 has been reduced by 90 kb/d, to 2.3 mb/d, in this month's *Report*, taking demand to an annual 101.7 mb/d. China accounts for 80% of this year's global rise.

Oil consumption growth is projected to halve in 2024, to 1.1 mb/d, reverting toward the historical trend as baselines normalise. Besides structural headwinds such as tighter efficiency standards and an expanding electric vehicle fleet, world GDP growth is set to decline further, from an already below-trend level of 3% in 2023 to 2.6% in 2024, with China posting a sharp fall from 5% to 4.2%.





The relative weakness of 4Q23 demand was especially apparent in OECD Europe, where unprecedented rate hikes in 2022-23 are working their way through an already stagnant manufacturing sector. This is depressing industrial demand for gasoil and naphtha, with usage of the latter having sunk to levels last seen in the 1970s. The United States, with its economy having proved itself exceptionally resilient so far in the face of monetary tightening, is also starting to see the impact of the more adverse economic climate on oil demand. Here too, gasoil stands out, as preliminary delivery data for October and November came in weaker than expected.

Growth in non-OECD deliveries also slackened, albeit for more varied reasons than the OECD's general economic woes, including the abolishment of fuel subsidies in Nigeria, petrochemical retrenchment (particularly in the Middle East) amid heightened Chinese competition and a persistent emerging market credit crunch – notably in Pakistan.

Despite the near-term global economy slowdown, we have increased our outlook for oil demand growth in 2024 by 130 kb/d y-o-y, on account of a somewhat improved GDP outlook compared with last month's *Report*. This applies especially to the US, where a soft landing is coming into view, as

easing consumer inflation increases the scope for central bank rate cuts. Falling oil prices act as an additional boost to oil consumption.

Global Demand by Product
(thousand barrels per day)

	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	2022	2023	2024	2023	2024	2023	2024
LPG & Ethane	13 274	14 127	14 594	14 878	467	284	3.3	1.9
Naphtha	6 573	6 801	7 125	7 596	324	471	4.8	6.6
Motor Gasoline	26 812	26 214	26 911	27 010	696	99	2.7	0.4
Jet Fuel & Kerosene	7 914	6 130	7 197	7 186	1 067	- 10	17.4	-0.1
Gas/Diesel Oil	28 195	28 134	28 286	28 505	152	219	0.5	0.8
Residual Fuel Oil	6 179	6 525	6 452	6 544	- 73	92	-1.1	1.4
Other Products	11 803	11 522	11 163	11 066	- 359	- 97	-3.1	-0.9
Total Products	**100 750**	**99 454**	**101 728**	**102 785**	**2 274**	**1 057**	**2.3**	**1.0**

The global petrochemical industry is in the midst of a period of sweeping realignment, underway since 2022. Expansions in Chinese processing capacity and the NGL supply boom in the United States lead to a pronounced interregional transfer of demand through 4Q23, with producers in Europe, East Asia and the Middle East losing market share (see *Rampant US NGL supply and China petchem demand surge drive a global realignment*).

In this *Report*, we have implemented two baseline revisions which reduce the absolute level of demand from 2022 onwards, but with a limited impact on headline 2023 growth. The first of these relates to Mexico, where following some updates to government figures we have returned to using these official statistics rather than sales statistics reported by Pemex in our balances. This reduces Mexican demand by about 70 kb/d from 2022 onwards. We have also reassessed Iranian LPG/ethane demand, for which limited information is available, based on polymer and LPG exports data. These suggest a marked slowdown in domestic petrochemical activity, equivalent to 110 kb/d of feedstock demand in 2023.

Global Demand by Region
(thousand barrels per day)

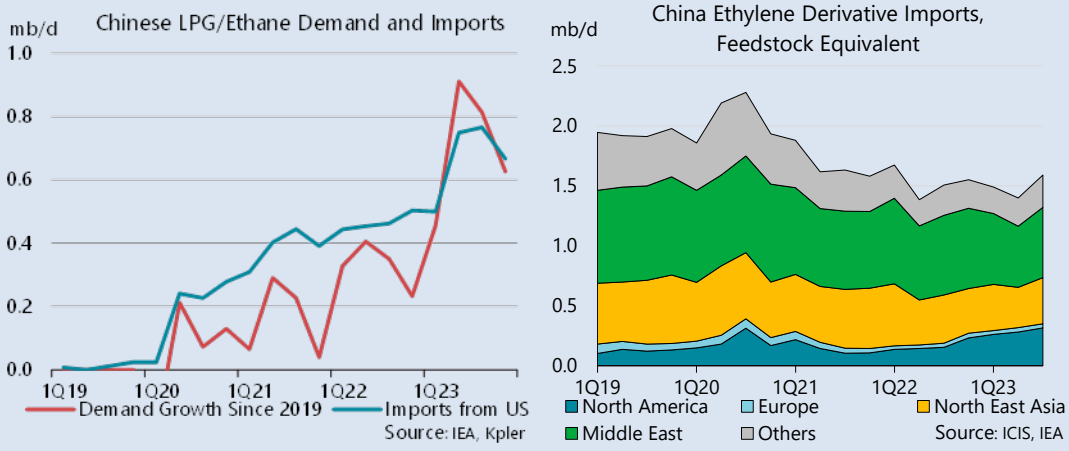
	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	2022	2023	2024	2023	2024	2023	2024
Africa	4 163	4 276	4 218	4 342	- 58	124	-1.4	2.9
Americas	31 762	31 001	31 345	31 256	344	- 89	1.1	-0.3
Asia/Pacific	36 242	36 098	38 224	39 251	2 126	1 026	5.9	2.7
Europe	15 092	14 296	14 159	14 085	- 137	- 74	-1.0	-0.5
FSU	4 728	4 945	4 919	4 888	- 26	- 31	-0.5	-0.6
Middle East	8 763	8 838	8 862	8 964	24	102	0.3	1.1
World	**100 750**	**99 454**	**101 728**	**102 785**	**2 274**	**1 057**	**2.3**	**1.0**
OECD	47 701	45 682	45 760	45 495	78	- 265	0.2	-0.6
Non-OECD	53 049	53 772	55 967	57 290	2 195	1 322	4.1	2.4

Rampant US NGL supply and China petchem demand surge drive a global realignment

The unprecedented transition in the global petrochemical industry that started in earnest in 2Q23 gathered pace in the second half of the year, with profound implications for oil markets. Rocketing Chinese petrochemical activity is reshaping oil demand patterns, markedly displacing use in other regions. Together with an enormous US NGL supply wave, they form a mutually reinforcing symbiosis. US NGLs, the preeminent source of supply growth since 2019, are ideally positioned to facilitate Chinese petrochemical expansion, the biggest structural driver of incremental demand. Indeed, excluding growth in LPG/ethane use, average global demand this year remains 340 kb/d below 2019 levels.

Although refinery-integrated naphtha crackers play a central role in China's chemical expansions, the country has also built substantial LPG and ethane-cracking capacity and enough propane dehydrogenation (PDH) units to double the entire 2019 global capacity for the technology. This has considerably increased China's ability to consume ethane and propane and, given the limited scope for domestic supply, the level of imports required if these plants are to run at sustainable operating rates.

While US capacity to consume ethane and propane has increased almost as dramatically over the last decade, during the country's own cracker building spree, this has been outpaced by the unrelenting expansion in the supply of these products. Domestic prices have largely remained favourable for local petrochemical production, supporting margins and operating rates, while export volumes have risen ever higher.

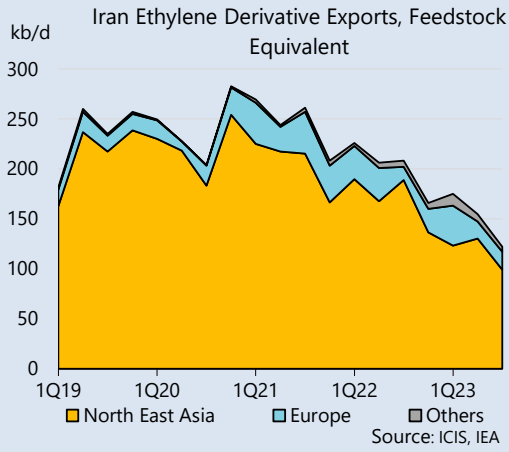


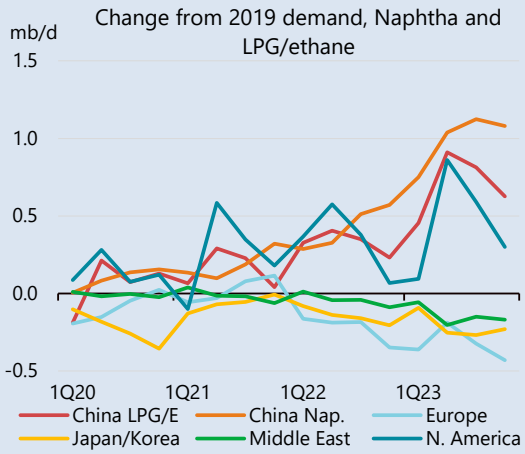
Since 2019, US exports of ethane and LPG have increased by 920 kb/d, according to *Kpler* data. A large majority, 72%, of this increase has been directed to China with these shipments rising from nearly zero to 670 kb/d. Over the same period, total Chinese imports of these products have risen by 590 kb/d. US exporters have squeezed out supply from other regions, with combined volumes from Kuwait, the UAE, Qatar and Saudi Arabia dropping by 120 kb/d. At the same time, US exports of ethylene derivatives to China have gone up by 130% (according to *ICIS* data), equivalent to 160 kb/d of ethane consumption.

This means that, by a combination of feedstock and polymer imports, China has been able to accommodate the equivalent of 820 kb/d of incremental US NGL supply since 2019. This outlet has allowed US producers to expand their market share dramatically, capturing volumes equivalent to 84% of global demand growth since the pandemic, in China alone. The latter being the world's largest polymer importer, this has heaped pressure on other producers worldwide (see *Saudi crude exports squeezed by Americas supply wave, Iranian and Russian barrels).* China's substitution of imports of

plastics with shipments of US NGLs has accelerated the shift in location of feedstock consumption as well as the added value associated with their processing.

The most obvious examples of demand destruction in other regions can be found in European, Japanese and Korean naphtha cracking. Average European naphtha demand is on track to fall by almost 30%, or 340 kb/d, between 2021 and 2023, to a 48-year low. Korean and Japanese usage will fall by a comparatively modest, but nonetheless heavy, 9% (180 kb/d). PDH plants (which produce only propylene) like those built on a vast scale in China, undermine naphtha cracker economics by hitting the value of propylene, which is the major co-product of that process. In another example of US/China symbiosis, this makes naphtha crackers much more vulnerable to competition from ethane crackers (which produce almost no propylene), such as those recently constructed in the United States.





Strikingly, there are signs that polymer producers in the Middle East are also losing market share due to the developments in China and the United States. Given the low cost of production enjoyed by most Middle Eastern plants, this highlights the extent of import-substitution that has taken place in China and the heightened competitiveness of producers in the United States. Middle Eastern shipments of ethylene derivatives to China, which remains the major export market for the region's plants, have fallen by 29% since 2019, with limited compensation from increased flows to other regions. The loss of exports to China is equivalent to around 250 kb/d of cracker feedstock, comparable to the volumes of naphtha demand eliminated in Europe or Asia.

The wider regional fall is especially apparent in Iran, from where more than 80% of polymer exports went to China in 2021. Iran alone has lost China-bound exports equivalent to 100 kb/d of propane use since 2019. In combination with rising domestic output of NGLs, this has seen exports of LPG increase by 170 kb/d over the same period, overwhelmingly to China. As such, Iran represents a microcosm of the global story: China has been able to cut relatively expensive imports of polymers in place of cheaper LPG volumes, because of its strategic investments, squeezing higher value export revenue streams.

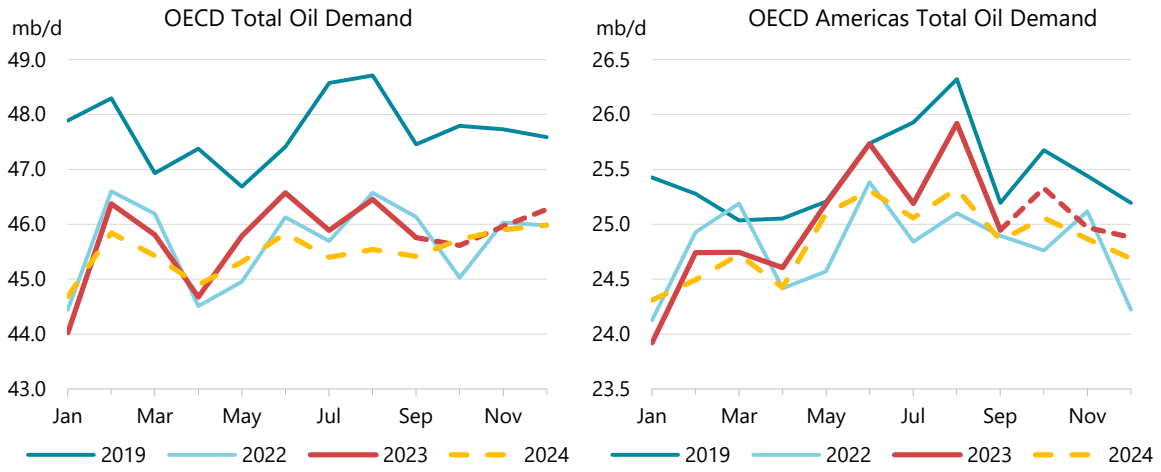
This increases the pressure on producer economy revenues from exports of higher value-added derivatives. Furthermore, the damage wrought on a vital component of the European industrial base, which was built up over many decades of post-1945 growth, emphasises the market power that can be generated when producer and consumer strategic priorities align. The enormous growth of ethane and propane supply and demand in the world's two largest economies highlights the mounting importance of NGLs in oil markets and the way that this can distort outdated analyses of the industry, which focus more narrowly on crude supply and refinery operations.

OECD

Total OECD oil demand is forecast to increase by 270 kb/d y-o-y in 4Q23. This is 110 kb/d lower than last month's *Report,* as the dampening impact of monetary tightening progressively works its way through the bloc's economies. This weighs particularly heavily on European industrial activity, diminishing demand for manufacturing inputs such as gasoil and naphtha. Average 2023 demand growth looks on track to climb by 80 kb/d y-o-y to 45.8 mb/d, with gains in the Americas (+220 kb/d y-o-y) partially offset by declines in Europe (-140 kb/d) and Asia Oceania (-10 kb/d).

OECD consumption will descend into decline in 2024 (-270 kb/d y-o-y). While the dominant narrative remains one of economic stagnation, a faster than expected easing in consumer inflation across developed economies has led to soft landing scenarios gaining prominence, resulting in a somewhat improved GDP outlook. This, combined with lower oil prices, has prompted an upward revision to our 2024 OECD growth outlook of 70 kb/d that takes account of transport fuel efficiency gains and the rise of EVs.

Deliveries in the **OECD Americas** are expected to rise by 360 kb/d y-o-y in 4Q23, in line with the previous two quarters. This is almost entirely due to gains in the United States (+350 kb/d), with minor changes in Canada (+30 kb/d) and Mexico (-10 kb/d). Annual 2023 growth will average 220 kb/d y-o-y, before flipping to a -160 kb/d contraction in 2024.



US deliveries are set to increase by 350 kb/d y-o-y in 4Q23, with average 2023 gains at 150 kb/d. This is roughly in line with pre-pandemic trend growth – reflecting the remarkable firmness of economic activity and oil consumption in the face of unprecedented rate hike campaigns. However, this resilience has begun to show cracks, as a cooling job market leads a wider easing of economic expansion. The US added 199 000 jobs m-o-m in November – about 40 000 below the annual average. As labour cost pressures ease, inflation continues to undershoot analyst expectations, falling to 3.1% y-o-y in November. Its mission to quell inflation now effectively accomplished, the Federal Reserve is seen lowering rates by 1H24, with a full point of rate cuts priced for 2024. While this puts the economy on course for a soft landing, GDP growth is decelerating from 2.5% in 2023 to 1.2% in 2024. This is taking its toll on sectors such as manufacturing and industrial transport, depressing gasoil use.

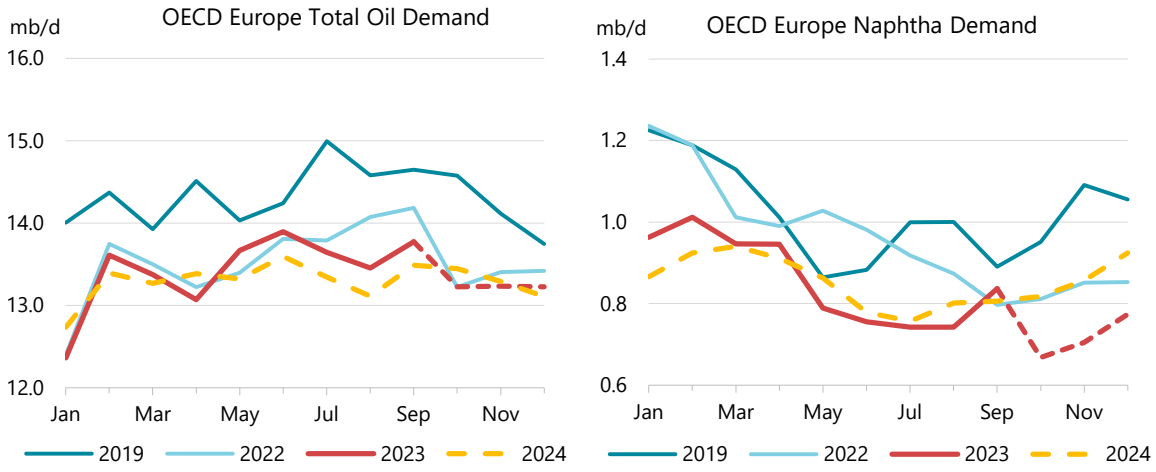
Gasoil deliveries, having dipped into quarterly contraction in 3Q23, are on track to continue falling in 4Q23, by 30 kb/d, amid a drop-off in industrial activity readings. Factory orders had their biggest monthly decline in more than three years in October, with durable goods orders recording a similar

slide. In the same vein, trucking indices show lacklustre freight demand. The *American Trucking Association's* seasonally adjusted *For-Hire Truck Tonnage Index* was down 2.1% y-o-y in October, its eighth consecutive month of y-o-y decline. Worse still, The *Cass Freight Shipments Index* was 9.5% lower y-o-y in October. The downturn puts gasoil on course for an annual y-o-y decrease of 80 kb/d, the largest decline among the main refined products.

Jet/kerosene use is expected to climb by 100 kb/d y-o-y in 4Q23, having regained 2019 pre-pandemic levels for the first time in September. According to the Transportation Security Administration, 26 November (the Sunday after the Thanksgiving holiday) was the busiest day ever for air travel in the United States, with 2.9 million people screened at security checkpoints. However, flight counts fail to reflect this bounce, according to tracking data, showing a more stable picture compared to 2019. We see annual 2023 gains of 100 kb/d y-o-y, slowing to flat in 2024, with the rebound complete and little potential for further increases in air traffic.

Gasoline consumption will rise by 150 kb/d y-o-y in 4Q23, building on unexpectedly firm September deliveries. These came in at 8.8 mb/d, -0.2% lower y-o-y but much firmer than the -4.5% drop implied by preliminary EIA data. As greater car efficiencies and the expanding electric vehicle fleet trim demand, gasoline use continues to lag increases in mileage. September's -0.2% drop in fuel consumption compares to vehicle miles travelled (VMT) that rose by 0.9% y-o-y, according to the Federal Highways Administration. VMTs in turn lag GDP growth, which increased by 3% y-o-y during 3Q23, as elevated working from home and teleconferencing widens the disconnect between work-related mobility and macroeconomic drivers. We see average gasoline demand growth in 2023 at 120 kb/d y-o-y, as lower pump prices and resilient economic activity partially counterbalance the fuel's structural challenges. In 2024, as these headwinds reassert themselves demand is forecast to contract by 120 kb/d.

Gasoline is set to be the main driver of 2023 total US oil consumption growth (+150 kb/d y-o-y), as well as its 2024 decline (-140 kb/d). We have revised the latter upwards by 80 kb/d compared to last month's *Report,* as a soft economic landing becomes increasingly likely. In this regard, the US economy, while losing momentum, continues to compare favourably to other OECD countries – at 1.2%, it is the only G7 country that will see 2024 GDP growth exceed 1%, according to consensus analyst estimates.



Oil demand in **OECD Europe** is expected to decline by 120 kb/d y-o-y in 4Q23, and by -140 kb/d on average for 2023. These are 200 kb/d and 30 kb/d below last month's *Report*, respectively, as preliminary delivery data for October came in uniformly weak. Gasoil and naphtha accounted for the bulk of the decrease as the continent remains in the grips of a deep economic downturn that reflects

substantially weaker industrial activity, as well as Germany's overall stagnation. The country's GDP, alone in the G7, will contract this year and oil demand will fall by more than any other country worldwide (-150 kb/d).

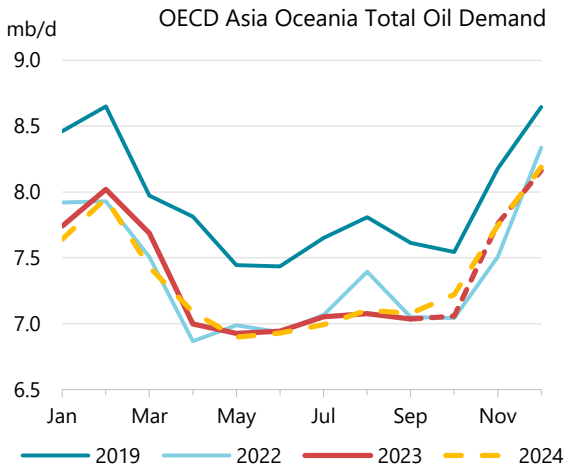
The eurozone's GDP decreased by -0.1% q-o-q in 3Q23, taking the continent to the brink of recession. The bloc may yet dodge a 4Q23 contraction, as PMIs hint that the slump may be bottoming out. The *S&P HCOB Eurozone Manufacturing PMI* rose by +1.1 m-o-m to 44.2 in November, a six-month high but still pointing to deep contraction. Also, 2023's constant decline in eurozone bank lending stabilised in October, according to a survey by the European Central Bank (ECB), indicating a deceleration of the region's credit crunch. As with the US, financial markets are pricing in a full point of rate cuts in 2024, with the ECB's 2% inflation target now in view (five out of the 20 eurozone countries have inflation below 2%). Still, with monetary tightening yet to fully manifest itself in the real economy, next year's outlook is lacklustre at best. Consensus estimates see listless GDP growth of around 0.5% in 2024, similar to 2023.

Gasoil deliveries are set to fall by 180 kb/d y-o-y in 4Q23 (a sixth straight quarterly contraction) and by 210 kb/d for 2023 as a whole. In addition to the unfavourable economic climate weighing on industrial gasoil use, road diesel accounts for around half of the fuel's 2023 decline, as it loses market share to gasoline in Europe's vehicle fleet. In a further testament to gasoil's comprehensive slump, the 2023 decline is spread broadly across countries: Germany (-50 kb/d), France, (-30 kb/d), Spain (-30 kb/d) and Italy (-20 kb/d). Portugal, at 3 kb/d, is the only eurozone member avoiding contraction.

The troublesome outlook for the continent's petrochemical sector came into sharp focus in October, with German naphtha deliveries plunging by 43% m-o-m, according to preliminary data, to 120 kb/d (-50% y-o-y). European use of 670 kb/d was down 20% m-o-m and by -18% y-o-y. Average 2023 naphtha demand of 240 kb/d (Germany) and 820 kb/d (Europe) are at their lowest levels since 1979 and 1975, respectively, amid negative steam cracker margins, a subdued manufacturing climate and heightened competition in an oversupplied international market (see *Rampant US NGL supply and China petchem demand surge driving global realignment*).

This year's gasoil and naphtha slump is only partly offset by gains in gasoline (80 kb/d y-o-y) and jet/kerosene (140 kb/d) demand, resulting in an overall decline in oil use of 140 kb/d. Total 2024 demand is expected to see a slight improvement to -90 kb/d as Germany returns to modest GDP growth. However, the country's economic outlook has been clouded by a recent constitutional court ruling that effectively freezes new fiscal spending commitments.

Deliveries for **OECD Asia Oceania** are on track to increase by 30 kb/d y-o-y in 4Q23. Australia (+20 kb/d) accounts for the bulk of the gain, while jet/kerosene (+110 kb/d) is the mainstay on a product level. Growth will be marginally negative in 2023 and 2024, at -10 kb/d in both years.



Japan's deliveries are expected to be flat y-o-y in 4Q23. As in Europe, the largest negative contribution comes from naphtha (-60 kb/d). This is offset by strength in jet/kerosene (+70 kb/d) due to a colder winter weather outlook, as well as the ongoing rebound in international flight traffic. However, as Asia's tourism recovery enters its final stage, demand growth for the fuel will dissipate in 2024. The country's total product demand growth

looks set to remain lacklustre in general amid a harsh macro climate. Japan's GDP contracted by 0.5% quarter-on-quarter (q-o-q) during 3Q23, as elevated consumer prices (headline inflation has been above the Bank of Japan's (BOJ) 2% target for 18 consecutive months) dented household spending. At the same time, external demand remained weak, with trade dragged down by China's slowdown. Traders raised expectations of an imminent tweak to the BOJ's ultra-dovish monetary stance in early December, after bank officials hinted at an end to its long-standing negative interest rate policy – sending the yen and bond yields soaring. We see flat y-o-y oil demand this year and next.

Korea's oil deliveries were unchanged y-o-y in 4Q23 but will contract by 70 kb/d for 2023 on average, dragged down by the global slump in naphtha use (Korea is the OECD's largest consumer of naphtha). Economic activity remains listless, with the *S&P Global South Korea Manufacturing PMI* at a neutral 50 in November (+0.2 m-o-m). Our forecast assumes GDP growth of 1.2% in 2023, improving slightly to 1.4% in 2024, which will slow the pace of the decline in demand to -10 kb/d y-o-y.

OECD Demand based on Adjusted Preliminary Submissions - October 2023
(million barrels per day)

	Gasoline		Jet/Kerosene		Diesel		Other Gasoil		LPG/Ethane		RFO		Other		Total Products	
	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa
OECD Americas	**10.62**	**2.4**	**1.85**	**0.5**	**3.38**	**-1.9**	**1.88**	**-0.1**	**4.15**	**8.8**	**0.58**	**6.5**	**2.86**	**0.2**	**25.33**	**2.3**
US*	9.12	3.1	1.62	2.2	2.61	-1.7	1.55	-0.4	3.18	6.7	0.38	16.4	2.20	-2.2	20.65	2.3
Canada	0.78	-3.0	0.12	-23.2	0.35	1.9	0.26	2.0	0.52	32.1	0.01	-76.5	0.44	18.5	2.47	4.5
Mexico	0.64	-1.1	0.09	6.9	0.26	-9.7	0.07	-1.9	0.41	2.6	0.18	7.4	0.20	-2.8	1.84	-0.7
OECD Europe	**2.00**	**0.8**	**1.47**	**3.6**	**4.84**	**0.3**	**1.32**	**-2.8**	**0.95**	**5.7**	**0.77**	**2.7**	**1.88**	**-5.4**	**13.23**	**0.0**
Germany	0.41	-7.0	0.20	-15.3	0.68	-1.0	0.27	-11.8	0.07	-12.4	0.05	10.3	0.18	-44.5	1.85	-12.3
United Kingdom	0.27	1.9	0.31	6.2	0.43	0.0	0.12	-20.0	0.06	-25.4	0.02	-3.1	0.12	0.9	1.33	-2.1
France	0.23	2.9	0.13	8.7	0.72	-3.7	0.10	12.3	0.08	9.4	0.03	4.9	0.18	12.8	1.46	2.0
Italy	0.18	3.8	0.12	25.6	0.50	1.4	0.06	9.7	0.09	-3.3	0.06	-14.7	0.23	6.7	1.24	3.7
Spain	0.14	9.4	0.15	10.9	0.44	3.0	0.18	-0.2	0.07	7.6	0.13	7.0	0.15	-4.0	1.28	3.8
OECD Asia & Oceania	**1.44**	**-0.5**	**0.72**	**10.2**	**1.42**	**-0.9**	**0.39**	**-7.6**	**0.72**	**6.1**	**0.45**	**-2.0**	**1.91**	**-1.7**	**7.06**	**0.2**
Japan	0.78	-3.5	0.34	7.1	0.43	3.4	0.27	-5.4	0.34	6.5	0.24	-7.4	0.71	-15.9	3.10	-4.3
Korea	0.26	5.0	0.19	8.7	0.38	-11.9	0.05	-27.5	0.31	4.5	0.18	0.1	1.06	10.1	2.43	2.8
Australia	0.27	2.6	0.15	26.2	0.54	5.9	-	-	0.05	3.3	0.02	14.3	0.10	0.6	1.12	6.8
OECD Total	**14.06**	**1.8**	**4.04**	**3.2**	**9.64**	**-0.7**	**3.59**	**-2.0**	**5.82**	**8.0**	**1.81**	**2.7**	**6.65**	**-2.0**	**45.61**	**1.3**

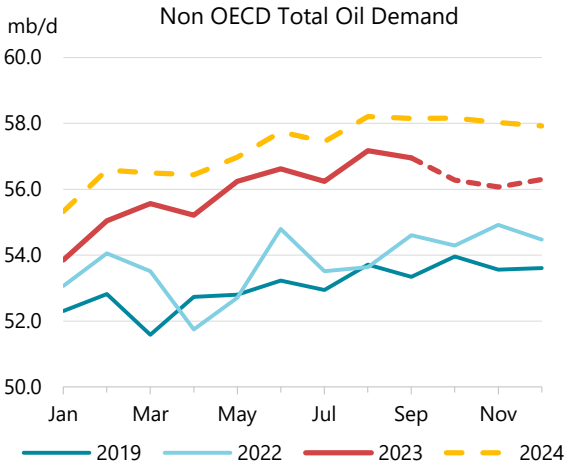
* Including US territories.

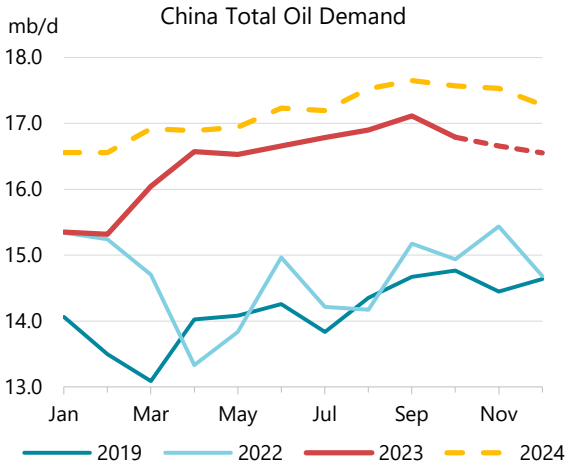
Non-OECD

Non-OECD countries continue to dominate global growth, with oil product demand forecast to rise by 1.7 mb/d in 4Q23, and by 2.2 mb/d on average during 2023. This is equivalent to 97% of the worldwide increase. Next year's projected rise of 1.3 mb/d will exceed global gains of 1.1 mb/d as the OECD moves into contraction.

Demand for the petrochemical feedstocks, naphtha, LPG and ethane, will increase by 850 kb/d this year and 730 kb/d in 2024. This is largely due to Chinese operations gaining market share. Demand for major fuels – gasoil (+470 kb/d), gasoline (+480 kb/d) and jet/kerosene (+690 kb/d) – will expand by a combined 1.6 mb/d this year, but growth will slow to 650 kb/d in 2024 as the impact of China's post-lockdown rebound ebbs.

China remains the chief global source of oil demand growth and will record a 1.7 mb/d y-o-y increase in 4Q23. This is equivalent to more than 80% of global gains during the quarter, underlining the scale of an uneven but transformative period of growth. Projected annual 2023 demand of 16.4 mb/d, 1.8 mb/d higher y-o-y, will be 2.3 mb/d above the 2019 mark. Global demand outside of China will fall by 1.3 mb/d over the same period. Next year, China will post robust growth of 710 kb/d, or two-thirds of total world gains.





Although the annual growth appears extremely strong in comparison to the lockdown-hit 2022 baseline, the absolute level of apparent demand has been fairly steady since 2Q23. Following an initial surge in road fuel use as restrictions were relaxed, the unrelenting expansion of China's petrochemical fleet and the reemergence of international air travel provided incremental gains through 2Q23 and 3Q23. However, in keeping with the trend in much of the rest of the world, the first signs of cooling oil product demand are now becoming visible and October was the first month since May to show a m-o-m decline (-320 kb/d).

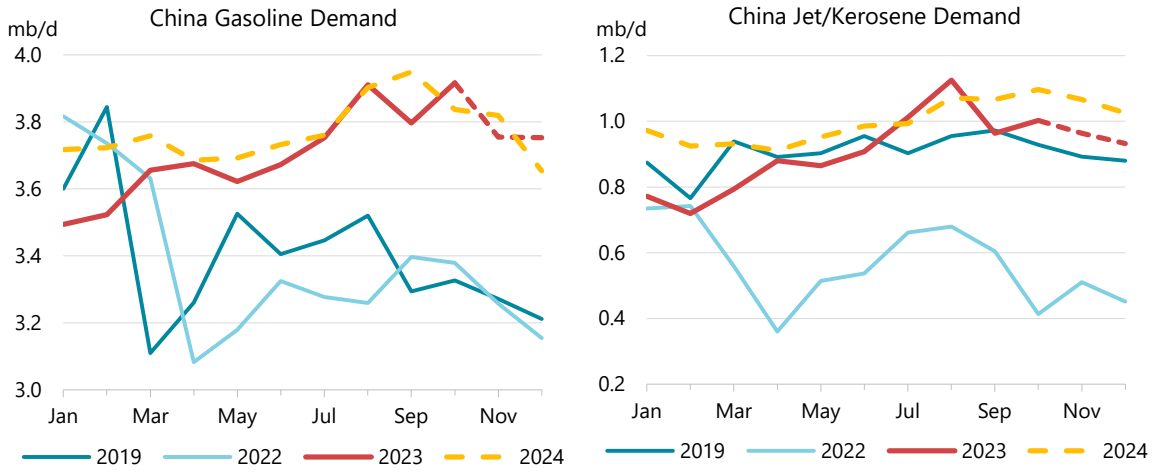
China: Demand by Product
(thousand barrels per day)

	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	**2022**	**2023**	**2024**	**2023**	**2024**	**2023**	**2024**
LPG & Ethane	1 787	2 116	2 489	2 672	373	183	17.6	7.3
Naphtha	1 392	1 817	2 391	2 710	574	319	31.6	13.3
Motor Gasoline	3 398	3 373	3 712	3 769	339	57	10.1	1.5
Jet Fuel & Kerosene	906	563	913	1 000	350	87	62.1	9.6
Gas/Diesel Oil	3 205	3 337	3 761	3 926	424	165	12.7	4.4
Residual Fuel Oil	450	592	601	623	10	22	1.6	3.6
Other Products	3 008	2 867	2 577	2 456	- 290	- 121	-10.1	-4.7
Total Products	**14 146**	**14 664**	**16 444**	**17 156**	**1 780**	**712**	**12.1**	**4.3**

This decline was largely concentrated in LPG/ethane (-360 kb/d), where falling imports may suggest retrenchment in operating levels at coastal PDH plants and steam crackers. PDH run rates reportedly slumped during October and import volumes may have fallen further in November, according to *Kpler* ship tracking. Nevertheless, October demand of 2.4 mb/d represents an enormous expansion compared to earlier gas liquids feedstock use (+320 kb/d y-o-y, +580 kb/d vs. 2019). The apparent end of the summer boom in LPG/ethane intake likely reflects a sharp seasonal rise in relative propane pricing. It may also be the first indication that the China-generated global petrochemical oversupply that has wreaked havoc on producers around the world may be starting to bite at home (see *Rampant US NGL supply and China petchem demand surge drive a global realignment*). We expect combined naphtha, LPG and ethane demand growth of 950 kb/d in 2023 to slow by almost half, to 500 kb/d, in 2024. Nevertheless, this would account for 47% of all annual global consumption growth as the transfer of feedstock demand from other regions to China is consolidated.

Apparent demand for the major fuels in China remained at very strong levels in October and we expect this to continue through the end of the year. Despite negative headlines, China's economic growth remains solid (our balances assume GDP growth of 5.1% y-o-y in 4Q23, before slowing to

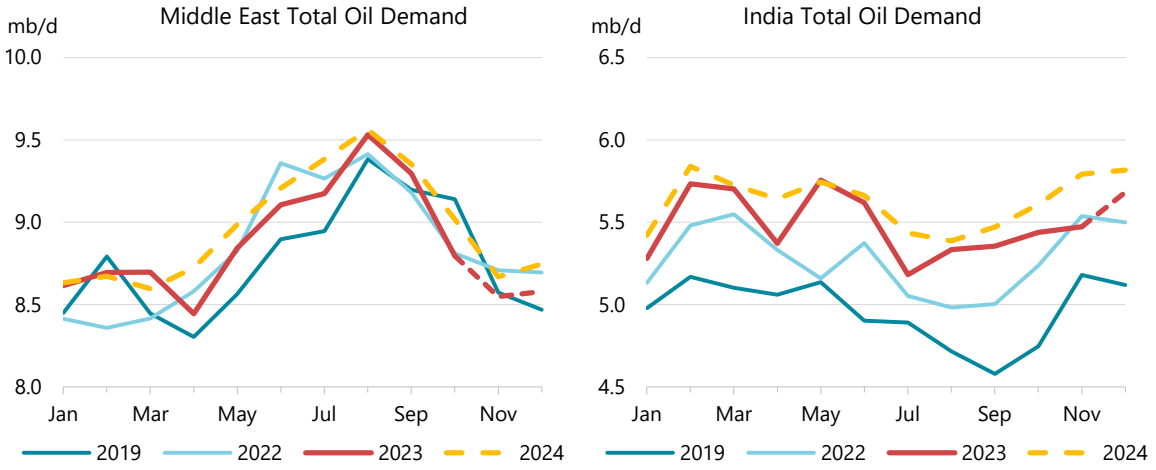
4.5% in 1Q24). Combined with the upsurge in mobility following the end of lockdown restrictions, 4Q23 gasoline demand is forecast to increase by 540 kb/d y-o-y while gasoil rises by 140 kb/d. Smaller gains in gasoil, a key industrial input, partly reflect the relatively becalmed state of manufacturing. The *Caixin China General Manufacturing PMI* unexpectedly jumped into expansion, at 50.7 in November (from 49.5 in October), well ahead of China's official PMI gauge that remained in contraction territory at 49.4. However, the manufacturing index has remained close to 50, which suggests neither expansion nor contraction, since March. Compared with 4Q19 pre-Covid levels, both gasoil and gasoline will rise by more than 500 kb/d in 4Q23.



Jet/kerosene demand edged 40 kb/d higher m-o-m in October. Flight counts were elevated in the first week of the month, corresponding to the National Day Golden Week, continuing this year's trend of significant upticks in travel during holiday periods. However, traffic flows gradually eased during the rest of the month and into November. This apparent increase in seasonality may reflect a higher share of travel for tourism, in line with rising disposable incomes, or could simply be the result of a one-time release of pent-up demand during summer 2023. Annual jet/kerosene usage will climb by 350 kb/d, but, in contrast to gasoline, is only marginally higher compared to 2019. This partly reflects the growing role of high-speed rail in limiting demand for internal flights. According to government statistics, the rise in passenger kilometres by rail during the first 10 months of 2023 was greater than the combined increase in travel by highway and air.

Middle Eastern regional demand is forecast to lose ground (-100 kb/d y-o-y) in 4Q23, to complete a year of uneven development. LPG/ethane (-80 kb/d) and gasoil (-40 kb/d) demand will fall y-o-y while total crude and fuel oil used in power generation are projected to be roughly flat y-o-y. Due to competition from Chinese producers, petrochemical production in the region is estimated to have fallen sharply, resulting in an 80 kb/d y-o-y contraction in regional LPG/ethane use in 4Q23. Overall annual demand will increase by 20 kb/d in 2023 and accelerate to 100 kb/d in 2024, with petrochemical demand forecast to experience a modest rebound.

Regional demand has fluctuated during the year based on electricity grid loads and weather conditions – cooling demand in the wake of extremely hot 3Q23 weather contributed to gains of 50 kb/d. Fuel oil (+20 kb/d) and direct crude burn (+30 kb/d) rose compared to a very strong 2022 baseline. LPG/ethane use contracted by 110 kb/d in line with lower estimated petrochemical activity. By contrast, the continued rebound in air travel demand, which has seen flight numbers comfortably exceed 2019 levels in the region's major aviation hubs, resulted in jet/kerosene demand y-o-y growth of 100 kb/d for the third quarter.



Indian oil product deliveries edged higher (+40 kb/d) in November but underwhelmed compared to the typical seasonal upswing (+170 kb/d). This follows particularly strong October figures, which were boosted by additional holiday demand. However, a y-o-y decline of 60 kb/d, the first since November 2021, suggests that the explosive growth seen in Indian oil product consumption may be coming to an end. Annual 2023 gains will average 220 kb/d, but with growth in 4Q23 slowing to 110 kb/d. The rate of increase will slow further in 2024, to a comparatively meagre 140 kb/d – still the second fastest of any country in the world, but far behind China's 710 kb/d.

Despite the relative softness of November data, demand growth in 2024 was revised up by about 30 kb/d. This reflects the continued robustness of the Indian economy as a whole and strong vehicle sales. GDP will grow at 6.8% in 2023 and 5.7% next year. In each case this is more than one percentage point faster than assumed for any other major economy. While lower average prices are expected to support consumption next year, the impact will be muted because of government price controls. Indian passenger vehicle sales have been strong in recent months, with combined purchases of cars and two-wheelers jumping by 18% y-o-y to an all-time high in November, according to data from the *Federation of Automobile Dealers Association*.

Gasoil use, which reflects industrial and commercial activity, declined by 60 kb/d y-o-y in November. This appears somewhat at odds with a slight expansion in the rate of increase shown by the *S&P Global India Manufacturing PMI*, which quickened to 56 in November from 55.5 in October. The *Services PMI* also shows continued strong growth despite slowing slightly, to 56.9. Although this is the weakest reading for a year, it remains the highest of any economy surveyed, underscoring India's outstanding economic performance. We expect Indian gasoil (+110 kb/d) and overall oil demand (+180 kb/d) to return to y-o-y growth in December.

India: Demand by Product
(thousand barrels per day)

	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	**2022**	**2023**	**2024**	**2023**	**2024**	**2023**	**2024**
LPG & Ethane	837	924	938	985	14	47	1.5	5.0
Naphtha	308	283	297	311	14	14	4.9	4.6
Motor Gasoline	730	871	926	937	56	10	6.4	1.1
Jet Fuel & Kerosene	225	164	185	179	20	- 6	12.3	-3.3
Gas/Diesel Oil	1 642	1 695	1 794	1 848	99	54	5.9	3.0
Residual Fuel Oil	145	194	191	200	- 2	8	-1.2	4.4
Other Products	1 077	1 146	1 161	1 170	16	8	1.4	0.7
Total Products	**4 963**	**5 276**	**5 492**	**5 627**	**216**	**135**	**4.1**	**2.5**

Oil use in **Brazil** continues to show robust y-o-y expansion and is forecast to rise by 60 kb/d in 4Q23. However, this rate represents a slowdown from the 120 kb/d average growth during the first three quarters of the year. We expect a similar pace to be maintained in 2024 (+60 kb/d). As in 2023, the major drivers of growth next year are likely to be gasoil (+40 kb/d) and gasoline (+30 kb/d). Economic indicators present a mixed picture. The November *S&P Global Brazil Manufacturing PMI* shows a slight contraction (49.4) and the *Services PMI* a modest increase (51.2). GDP grew by 2% y-o-y in 3Q23, narrowly beating consensus projections. However, the nation's Finance Ministry warned that high borrowing costs and declining prices for commodity exports were hitting economic performance in 4Q23. In particular, gasoil demand will be shaped by agricultural activity that was at very strong levels in 2022 and 2023. Brazil is the world's largest soybean exporter and a bumper crop in 2023 helped boost gasoil demand mid-year. However, prices have softened over the last year and any significant decline from 2023's record harvest volumes could undermine gasoil consumption in 2024.

Non-OECD: Demand by Region

(thousand barrels per day)

	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	**2022**	**2023**	**2024**	**2023**	**2024**	**2023**	**2024**
Africa	4 163	4 276	4 218	4 342	- 58	124	-1.4	2.9
Asia	28 311	28 720	30 856	31 896	2 135	1 041	7.4	3.4
FSU	4 728	4 945	4 919	4 888	- 26	- 31	-0.5	-0.6
Latin America	6 302	6 207	6 329	6 404	122	75	2.0	1.2
Middle East	8 763	8 838	8 862	8 964	24	102	0.3	1.1
Non-OECD Europe	782	785	784	796	- 1	12	-0.2	1.6
Total Products	**53 049**	**53 772**	**55 967**	**57 290**	**2 195**	**1 322**	**4.1**	**2.4**

Nigerian gasoline demand remains at severely reduced levels following the end of fuel subsidies in May. According to *Kpler* ship tracking data, the country's imports were about 220 kb/d in November, close to the level seen since August. This is in line with reported September demand, which came in at 220 kb/d, down by 140 kb/d (-38%) y-o-y. Imports and demand have collapsed since the government ended costly fuel subsidies after the inauguration of President Tinubu in May. The Netherlands, previously the largest source of gasoline for Nigeria at an average of 100 kb/d during 2022, now supplies very little. This fall comes after the Dutch government introduced new rules to improve the quality of exported fuels at around the same time, eliminating the flows of lower-quality material that had previously gone to Nigeria. The eventual start-up of Nigeria's Dangote refinery in 2024 (one of the largest in the world) should cut the need for imports. However, for now, there appears little immediate prospect of a major rebound in gasoline demand. Average gasoline consumption will fall by 70 kb/d in 2023 and we project a limited rebound of less than 20 kb/d in 2024. Overall Nigeria's oil demand will be 450 kb/d in 2023 and is expected to rise by 40 kb/d next year.

Non-OECD: Demand by Product

(thousand barrels per day)

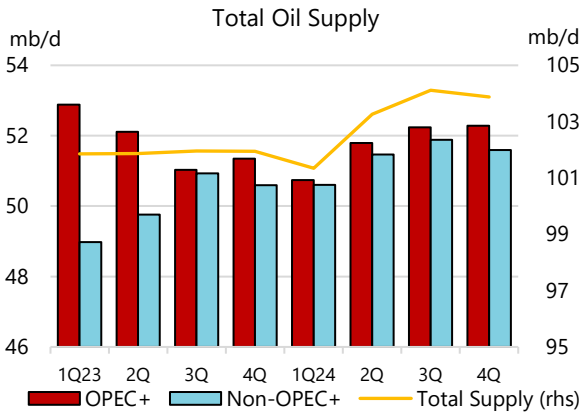
	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2019	**2022**	**2023**	**2024**	**2023**	**2024**	**2023**	**2024**
LPG & Ethane	7 766	8 392	8 717	9 019	325	302	3.9%	3.5%
Naphtha	3 285	3 763	4 283	4 708	521	425	13.8%	9.9%
Motor Gasoline	12 237	12 360	12 838	13 076	478	239	3.9%	1.9%
Jet Fuel & Kerosene	3 412	2 321	3 007	3 036	687	29	29.6%	1.0%
Gas/Diesel Oil	14 547	14 838	15 304	15 686	467	382	3.1%	2.5%
Residual Fuel Oil	4 379	4 683	4 732	4 800	49	68	1.0%	1.4%
Other Products	7 424	7 417	7 085	6 964	- 331	- 121	-4.5%	-1.7%
Total Products	**53 049**	**53 772**	**55 967**	**57 290**	**2 195**	**1 322**	**4.1%**	**2.4%**

Supply

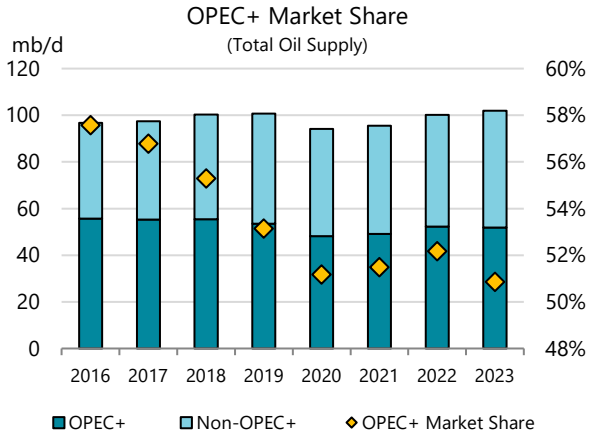
Overview

The pace of US production growth continues to defy expectations, with record output shattering the 20 mb/d mark. Since our June *Report*, upward revisions to US 2H23 supply are set to total close to 700 kb/d, largely on better-than-expected operating efficiencies and well productivity rates. Higher-than-forecast US supplies, along with a stronger performance from Brazil and surging Iranian production – combined with slower demand – have prevented a tighter oil market from materialising in 4Q23 as previously expected.

Overall growth of 1.8 mb/d will push global supply in 2023 to 101.9 mb/d, its highest ever. US oil output is expected to account for two-thirds of the 2.2 mb/d non-OPEC+ growth this year. By contrast, OPEC+ will post a 400 kb/d decline in 2023 due to supply cuts shouldered by Saudi Arabia – shrinking its market share to 51% this year, the lowest since the bloc's creation in 2016.

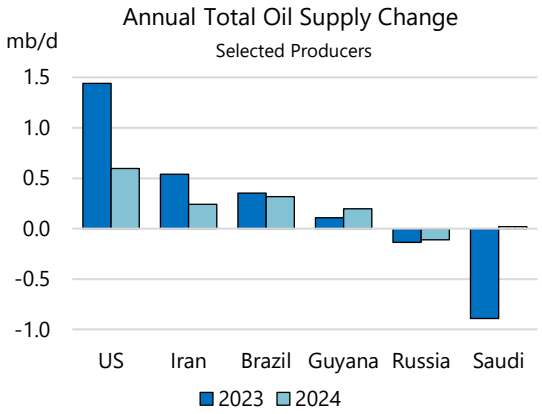


Note: Assumes announced OPEC+ 1Q24 voluntary cuts of 2.2 mb/d phased out gradually in in 2Q24.



US supply momentum is set to slow to just 600 kb/d next year, but it still ranks as the leading source of global growth and makes up 45% of the 1.3 mb/d increase from non-OPEC+ in 2024. Brazil and Guyana are also poised to set new records.

In a bid to halt price weakness and fend off a potential build in inventories early next year, OPEC+ announced an extension and deepening of cuts to 2.2 mb/d in 1Q24. Saudi Arabia has extended its extra 1 mb/d cut through the first quarter, Russia has prolonged and deepened its export curbs and other key OPEC+ producers pledged a further combined reduction of 700 kb/d.



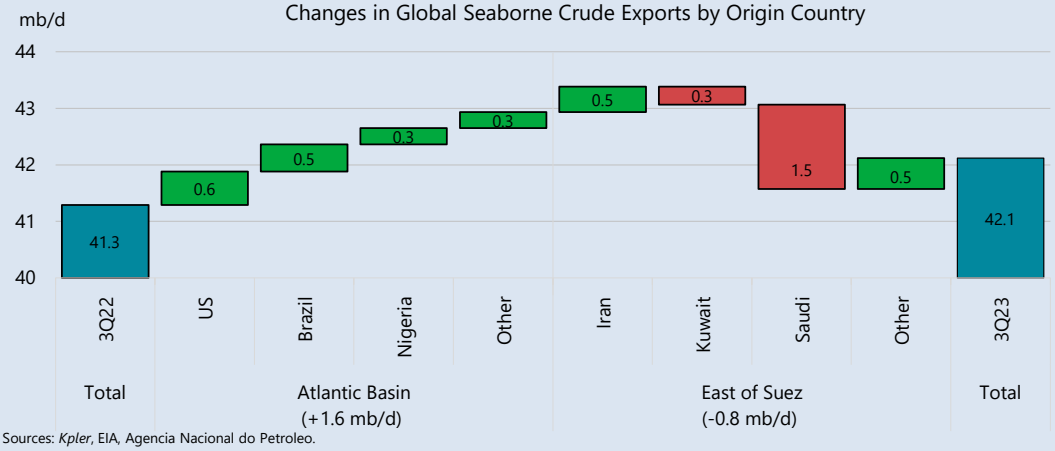
Note: Assumes announced OPEC+ 1Q24 voluntary cuts of 2.2 mb/d phased out gradually in 2Q24.

The actual OPEC+ cut versus 4Q23 is likely to be closer to 500 kb/d (see *OPEC+ members deepen voluntary oil cuts to offset non-OPEC+ gains*) – but that may remove enough barrels to keep the world oil market slightly in deficit. If the Saudi cut, along with the other

extra 1Q24 reductions, is unwound gradually in 2Q24, output from the producer alliance is projected to fall 70 kb/d in 2024 – the second year of declines. Taken altogether, global output is projected to grow by 1.2 mb/d next year, lifting supply to a fresh record of 103.2 mb/d.

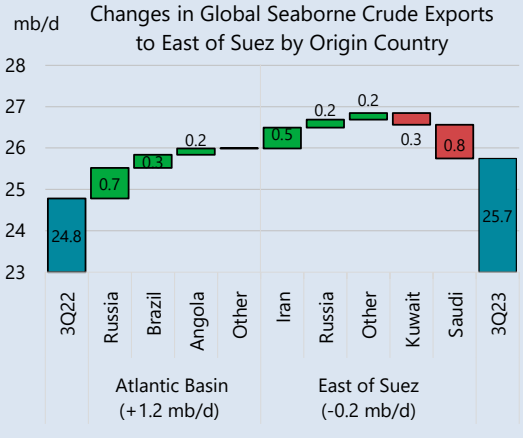
Saudi crude exports squeezed by Americas supply wave, Iranian and Russian barrels

Record-smashing supply from the Americas, surging Iranian shipments and sanctions on Russian oil exports have upended global oil trade flows, squeezing Saudi Arabia and other core Middle Eastern producers out of prime export markets. Atlantic Basin refiners have replaced Russian crude almost entirely with intra-basin supplies, while Russian crude sales into the East of Suez market have risen by around 50% to 3 mb/d since March 2022. The Atlantic Basin surplus has led core OPEC+ producers to cut supplies to the market and Saudi Arabia has carried the bulk of the market management effort.

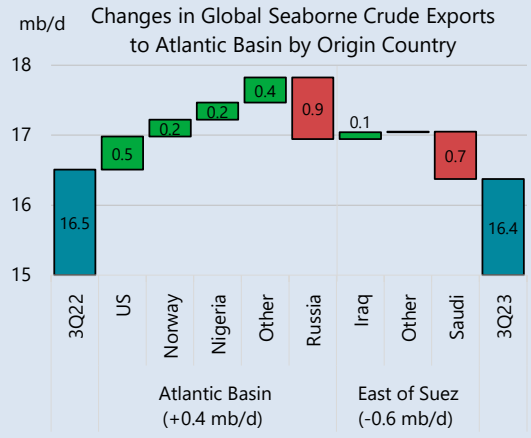


Sources: *Kpler*, EIA, Agencia Nacional do Petroleo.

Exports from Atlantic Basin producers surged by 1.6 mb/d between 3Q22 and 3Q23, while those from East of Suez fell by 800 kb/d over the same period. East of Suez deliveries tumbled as a 1.5 mb/d fall in Saudi exports was only partially offset by incremental deliveries of 450 kb/d from Iran. Atlantic Basin trade volumes were bolstered by an increase of 590 kb/d from the United States, 470 kb/d from Brazil and 290 kb/d from Nigeria. These four countries are exporting a combined 1.8 mb/d more than in 3Q22.



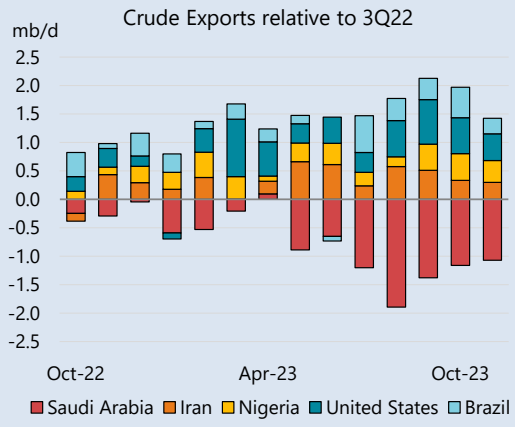
Sources: *Kpler*, EIA, Agencia Nacional do Petroleo.



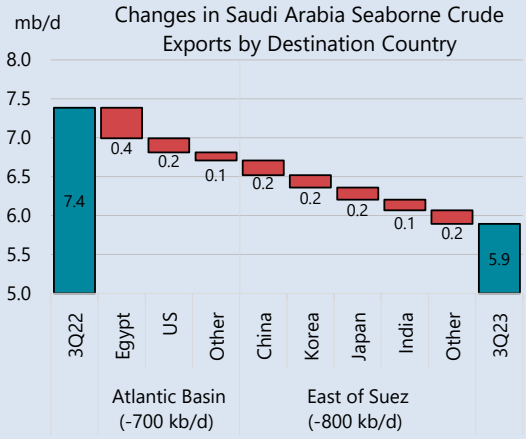
Sources: *Kpler*, EIA, Agencia Nacional do Petroleo.

In East of Suez trade, swelling Atlantic Basin arrivals and new Iranian barrels required large cuts by Saudi Arabia (-800 kb/d) and to a lesser extent the UAE (-240 kb/d), while Kuwait (-320 kb/d) and Oman (-70 kb/d) cut exports due to refinery start-ups. In the Atlantic Basin, the vacuum left by Russian

rerouting and export cuts from the Kingdom has been filled by increased output and exports from numerous regional producers, but particularly from the United States, Norway and Nigeria.



Sources: *Kpler*, EIA, Agencia Nacional do Petroleo.



Source: *Kpler*.

Saudi Arabia reduced crude exports almost evenly between customers East of Suez (-800 kb/d) and in the Atlantic basin (-700 kb/d), including via the Sumed pipeline in Egypt. Higher Saudi official sales prices (OSPs) drove buyers in the US and Europe to seek more competitive – albeit less optimal – local barrels, resulting in a substantial shift in crude quality towards lighter grades.

Trade flows will continue to shift in 2024 as OECD Atlantic Basin refinery throughputs stagnate or decline while non-OPEC+ Americas crude production rises by nearly 1.2 mb/d. The continued spill-over into the Asian market may further challenge supply management by Saudi Arabia and other core Middle Eastern producers.

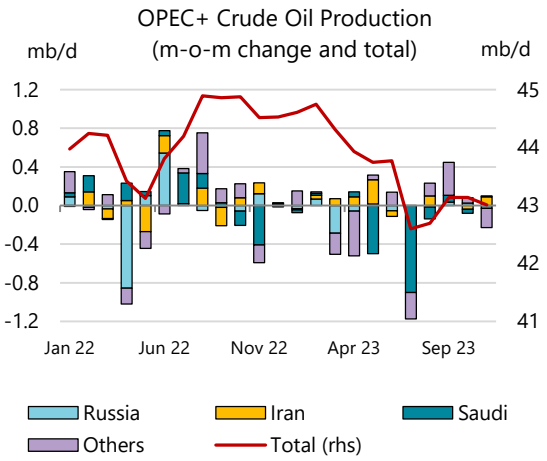
World Oil Production by Region (OPEC+ based on current agreement)
(million barrels per day)

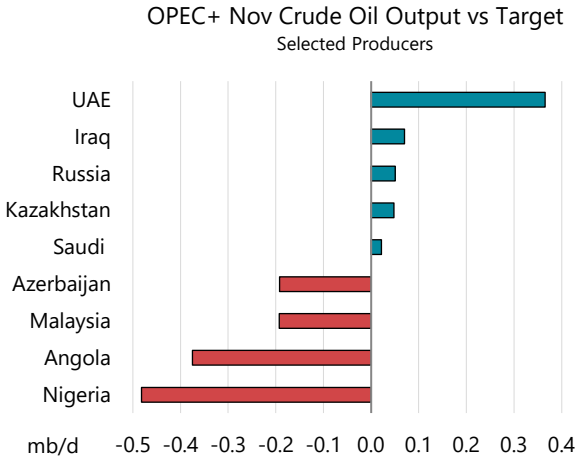
	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024
Africa	7.1	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.2
Latin America	6.4	6.8	6.9	7.2	7.3	7.0	7.5	7.6	7.7	7.7	7.6
North America	25.7	26.7	26.8	27.7	27.7	27.2	27.6	27.8	28.1	28.0	27.9
China	4.2	4.3	4.3	4.2	4.2	4.3	4.3	4.4	4.3	4.3	4.3
Other Asia	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0
Europe	3.3	3.4	3.3	3.1	3.2	3.3	3.3	3.2	3.1	3.2	3.2
FSU	13.9	14.2	13.8	13.6	13.7	13.8	13.7	13.7	13.7	13.8	13.7
Middle East	31.1	31.2	30.8	29.8	29.9	30.4	29.6	30.5	31.0	31.0	30.5
Total Oil Production	**94.9**	**96.9**	**96.2**	**96.0**	**96.4**	**96.4**	**96.1**	**97.4**	**98.0**	**98.2**	**97.4**
Processing Gains	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Global Biofuels	2.9	2.7	3.3	3.6	3.2	3.2	2.8	3.4	3.7	3.3	3.3
Total Supply	**100.1**	**101.9**	**101.9**	**102.0**	**101.9**	**101.9**	**101.3**	**103.3**	**104.1**	**103.9**	**103.2**
OPEC Crude	*29.1*	*29.3*	*28.9*	*28.0*	*28.1*	*28.6*	*27.6*	*28.6*	*29.0*	*29.0*	*28.6*
*OPEC NGLs**	*5.4*	*5.5*	*5.5*	*5.6*	*5.6*	*5.5*	*5.6*	*5.6*	*5.7*	*5.7*	*5.6*
Non-OPEC OPEC+	*17.7*	*18.0*	*17.7*	*17.5*	*17.7*	*17.7*	*17.5*	*17.6*	*17.6*	*17.6*	*17.6*
Total OPEC+	*52.2*	*52.9*	*52.1*	*51.0*	*51.3*	*51.8*	*50.7*	*51.8*	*52.2*	*52.3*	*51.8*
Memo: Call on OPEC	*28.4*	*27.7*	*28.7*	*28.9*	*28.3*	*28.4*	*27.7*	*27.7*	*28.3*	*29.0*	*28.2*

* Includes condensates reported by OPEC countries, oil from non-conventional sources, e.g. GTL in Nigeria and non-oil inputs to Saudi Arabian MTBE.

OPEC+ crude supply

OPEC+ crude oil output from all 23 member countries declined by 130 kb/d to 43.01 mb/d in November in the run-up to the bloc's rescheduled end-month ministerial meeting. The combined loss (-230 kb/d) from Nigeria, Angola and Iraq was tempered by higher Iranian production. Supply from the OPEC-13 countries fell by 100 kb/d to 28.10 mb/d, while flows from the 10 non-OPEC nations nudged 30 kb/d lower to 14.91 mb/d. Production next month is expected to drop again as the bloc starts new cutbacks agreed at the 30 November meeting.





In November, overall output from the 19 producers subject to quotas was 690 kb/d below an implied target of 36.92 mb/d. That left the group's effective spare capacity, excluding sanctions-hit Iran and Russia, at 5.3 mb/d, with Saudi Arabia accounting for around 60% of the cushion.

OPEC+ Crude Oil Production (excluding condensates)
(million barrels per day)

	Oct 2023 Supply	Nov 2023 Supply	Nov Prod vs Target	Nov 2023 Implied Target[1]	Sustainable Capacity[2]	Cap vs Nov[3]
Algeria	0.96	0.96	0.00	0.96	1.0	0.0
Angola	1.15	1.08	-0.38	1.46	1.1	0.0
Congo	0.27	0.26	-0.05	0.31	0.3	0.0
Equatorial Guinea	0.05	0.05	-0.07	0.12	0.1	0.0
Gabon	0.23	0.23	0.06	0.17	0.2	0.0
Iraq	4.36	4.29	0.07	4.22	4.7	0.5
Kuwait	2.57	2.60	0.05	2.55	2.8	0.2
Nigeria	1.35	1.26	-0.48	1.74	1.3	0.1
Saudi Arabia	8.99	9.00	0.02	8.98	12.2	3.2
UAE	3.25	3.24	0.37	2.88	4.2	1.0
Total OPEC-10	**23.18**	**22.97**	**-0.41**	**23.38**	**27.9**	**5.0**
Iran[4]	3.10	3.19			3.8	
Libya[4]	1.14	1.14			1.2	0.1
Venezuela[4]	0.78	0.80			0.8	0.0
Total OPEC	**28.20**	**28.10**			**33.8**	**5.1**
Azerbaijan	0.49	0.49	-0.19	0.68	0.5	0.0
Kazakhstan	1.62	1.60	0.05	1.55	1.7	0.1
Mexico[5]	1.63	1.66			1.7	0.0
Oman	0.80	0.80	0.00	0.80	0.9	0.0
Russia	9.53	9.50	0.05	9.45	10.0	
Others[6]	0.87	0.86	-0.20	1.06	0.9	0.0
Total Non-OPEC	**14.94**	**14.91**	**-0.29**	**13.54**	**15.6**	**0.2**
OPEC+ 19 in Nov 2022 deal[4]	**36.49**	**36.22**	**-0.69**	**36.92**	**41.8**	**5.2**
Total OPEC+	**43.14**	**43.01**			**49.3**	**5.3**

1 Includes extra voluntary curbs where announced.
2 Capacity levels can be reached within 90 days and sustained for extended period.
3 Excludes shut in Iranian, Russian crude.
4 Iran, Libya, Venezuela exempt from cuts.
5 Mexico excluded from OPEC+ compliance.
6 Bahrain, Brunei, Malaysia, Sudan and South Sudan.

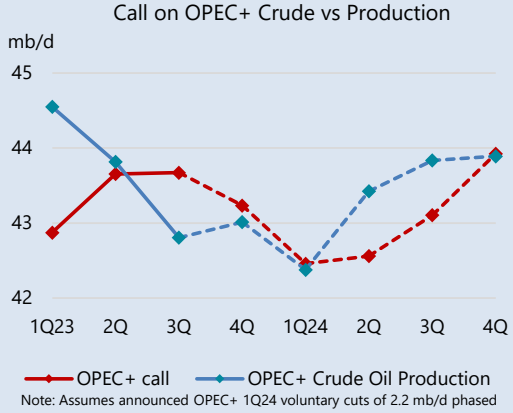
OPEC+ members deepen voluntary oil cuts to offset non-OPEC+ gains

OPEC+ members have announced 1Q24 oil supply curbs totalling 2.2 mb/d – led by Saudi Arabia extending its massive existing cut – to prevent a sizeable build in inventories from higher non-OPEC+ output. But the voluntary reductions are likely to result in an actual cut of about 500 kb/d compared to 4Q23 – albeit potentially deep enough to keep world oil markets slightly in deficit at the start of the year. Agreement on the cuts was reached after tough deliberations and, in a rare move, participants announced volumes via individual statements at the conclusion of the meeting.

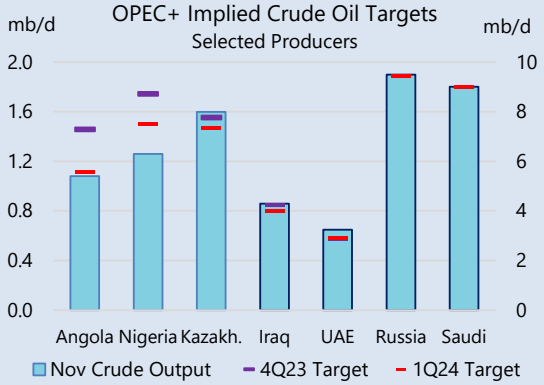
The 2.2 mb/d 1Q24 voluntary curbs are on top of a 2 mb/d cut to the OPEC+ output ceiling in place since November 2022 and additional cuts of 1.7 mb/d from some members that started in May. Of those announced for 1Q24, Riyadh is rolling over its current 1 mb/d cut that has been in place since July. Russia is extending export curbs of 300 kb/d and deepening them by 200 kb/d starting in January. But by our estimates, Moscow's initial promised export reduction has yet to be adequately reflected in production, possibly due to internal supply and stock issues.

Riyadh managed to secure additional production cuts of a combined 700 kb/d from Iraq, the UAE, Kuwait, Kazakhstan, Algeria and Oman. But a previously agreed 200 kb/d quota boost for the UAE means it will have a slightly higher 1Q24 target versus its 4Q23 target. That knocks the overall new curbs down to 500 kb/d. Persistent overproduction by the UAE, Iraq, Kazakhstan and Russia may further limit the actual decline.

The 1Q24 voluntary cuts are to be phased out gradually, but a post-meeting price slide already prompted Saudi Energy Minister Prince Abdulaziz bin Salman to tell Bloomberg that the cuts "absolutely" can continue past the first quarter if needed. Russian Deputy Prime Minister Alexander Novak went a step further, saying the group stood ready to strengthen 1Q24 cuts to rid the market of "speculation and volatility". The group plans to hold its next full ministerial conference on 1 June 2024 in Vienna.



Note: Assumes announced OPEC+ 1Q24 voluntary cuts of 2.2 mb/d phased out gradually in 2Q24.



Note: Iraq, UAE, Russia, Saudi targets, output (rhs). Angola, Nigeria, Kazakhstan (lhs). Implied targets include extra voluntary cuts.

In an apparent effort to support oil prices, Saudi Arabia continues to shoulder the bulk of the OPEC+ supply cuts. Since the start of 4Q22, before the first round of OPEC+ cuts kicked in, it has shut in roughly 1.8 mb/d of crude oil and has from July held supply at ~9 mb/d, the lowest level since 2011 barring the 2020-21 Covid period. Over the same period, the US has ramped up crude oil and condensates by 960 kb/d while Iran has boosted crude oil output by about 600 kb/d.

Meanwhile, Brazil, on track to raise output by 350 kb/d this year to a record 3.5 mb/d, may join OPEC+ in 2024, swelling the bloc to 24 countries by signing onto the Declaration of Cooperation, adopted seven years ago. It plans to participate along the lines of Mexico, which does not take part in the group's supply cuts.

OPEC+ Supply Targets (mb/d)

	Nov Output	2023 Quota	4Q23 Vol. Cut	4Q23 Implied Target	2024 Quota	New 1Q24 Vol. Cut	Total 1Q24 Vol. Cut	1Q24 Implied Target
Algeria	0.96	1.01	-0.05	0.96	1.01	-0.05	-0.10	0.91
Angola	1.08	1.46	-	1.46	1.28		-	1.11
Congo	0.26	0.31	-	0.31	0.28		-	0.28
Eq. Guinea	0.05	0.12	-	0.12	0.07		-	0.07
Gabon	0.23	0.18	-0.01	0.17	0.18		-0.01	0.17
Iraq	4.29	4.43	-0.21	4.22	4.43	-0.22	-0.43	4.00
Kuwait	2.60	2.68	-0.13	2.55	2.68	-0.14	-0.26	2.41
Nigeria	1.26	1.74	-	1.74	1.38		-	1.50
Saudi Arabia	9.00	10.48	-1.50	8.98	10.48		-1.50	8.98
UAE	3.24	3.02	-0.14	2.88	3.22	-0.16	-0.31	2.91
Total OPEC 10	**22.97**	**25.42**	**-2.04**	**23.38**	**24.99**	**-0.57**	**-2.61**	**22.33**
Azerbaijan	0.49	0.68	-	0.68	0.55		-	0.55
Kazakhstan	1.60	1.63	-0.08	1.55	1.63	-0.08	-0.16	1.47
Oman	0.80	0.84	-0.04	0.80	0.84	-0.04	-0.08	0.76
Russia	9.50	9.95	-0.50	9.45	9.95		-0.50	9.45
Bahrain	0.20	0.20	-	0.20	0.20		-	0.20
Brunei	0.08	0.10	-	0.10	0.08		-	0.08
Malaysia	0.37	0.57	-	0.57	0.40		-	0.40
Sudan	0.05	0.07	-	0.07	0.06		-	0.06
South Sudan	0.16	0.12	-	0.12	0.12		-	0.12
Total Non-OPEC	**13.25**	**14.16**	**-0.62**	**13.54**	**13.84**	**-0.12**	**-0.74**	**13.10**
OPEC+ 19 in 30 Nov Deal	**36.22**	**39.57**	**-2.66**	**36.92**	**38.83**	**-0.70**	**-3.35**	**35.43**

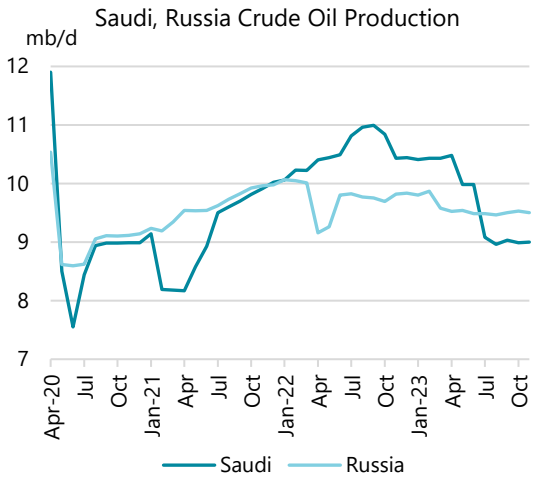
Note: 2024 quotas initially set in June: Angola, Nigeria and Congo revised on 30 Nov. Russia to cut 500 kb/d from oil *exports*.
Extra voluntary cuts returned gradually subject to market conditions. Iran, Libya, Venezuela exempt from cuts.

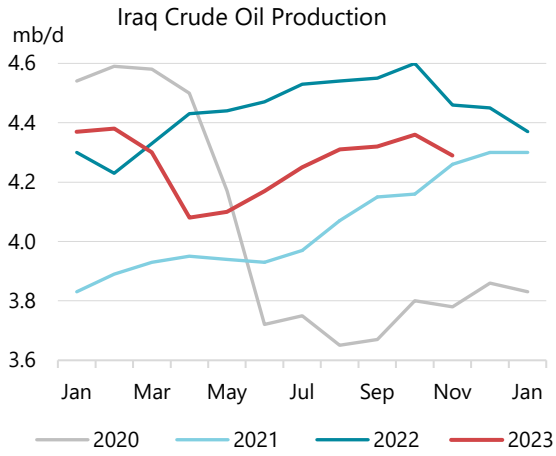
The online OPEC+ ministerial gathering was originally scheduled to be in person for 26 November in Vienna but was postponed to 30 November due in part to a dispute over lower 2024 supply quotas for Nigeria and Angola. In the end, Nigeria's target was revised up by 120 kb/d to 1.5 mb/d while Angola's quota was adjusted down to 1.11 mb/d from 1.28 mb/d.

Chronic underinvestment, operational issues – and in the case of Nigeria, sabotage – have kept their supply far below quotas. Nigeria's output has recovered over the past few months, but in November eased from recent peaks to stand at 1.26 mb/d, 480 kb/d below its 2023 quota. Angola's production was running at 1.08 mb/d in November, 380 kb/d below its 2023 target. Angola reportedly has rejected its new quota.

Crude oil supply from **Saudi Arabia** in November inched up to 9 mb/d, a level the Kingdom has vowed to hold through the first quarter. Riyadh has meanwhile approved its 2024 budget, which projects a fiscal deficit of 79 bn riyals ($21 bn) as it seeks to diversify its economy by reinforcing the non-oil sector. The Kingdom expects only a slight decrease in revenues despite extended oil output curbs. For 2023, Saudi Arabia had expected to post a budget surplus for the second year running. But both lower oil production and prices have dented revenues, tipping the budget into the red.

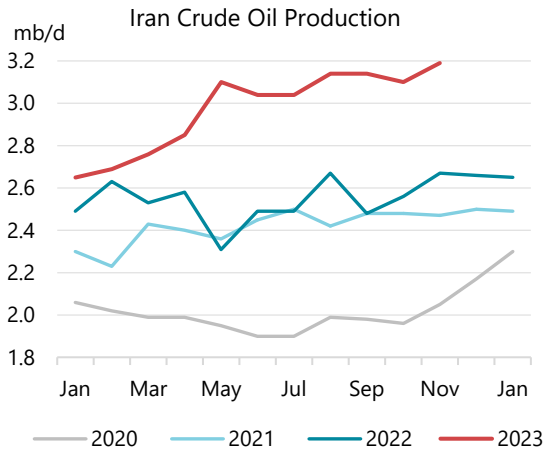
Kuwaiti crude oil output bumped up to 2.6 mb/d and flows from the **UAE** crept down to 3.24 mb/d, 370 kb/d above its implied quota. Supply from **Oman** was unchanged m-o-m at 800 kb/d.





Iraqi production fell 70 kb/d in November as stormy weather in the Gulf disrupted crude oil loadings from southern terminals. At 4.29 mb/d, output was still 70 kb/d above its implied target. Shipments of around 450 kb/d from northern oil fields via the Iraq-Türkiye pipeline remained suspended for the eighth month running due to a lingering dispute between Baghdad and companies operating in the Kurdistan region. Türkiye shut the pipeline in March following an international arbitration ruling but has since said it is technically ready to operate and resume deliveries.

In **Iran**, crude oil supply rose 90 kb/d in November to 3.19 mb/d, the highest level since October 2018. At the time of writing, *Kpler* tanker tracking data showed the country's oil shipments at roughly to 1.5 mb/d, a level that has been largely sustained since May. Before the former US administration withdrew from the Joint Comprehensive Plan of Action (JCPOA) in 2018, exports of Iranian oil, including condensates, had been running above 2 mb/d. Official talks to revive the 2015 Iran nuclear deal, which would ease sanctions, have been on ice for more than a year. Tehran has said it is targeting crude production of 3.6 mb/d in March 2024. We estimate Iran's crude oil capacity at 3.8 mb/d.



Russian crude output dipped 30 kb/d to 9.5 mb/d in November. Moscow promised to curb oil exports by 300 kb/d from September through the end of 2023, but preliminary estimates show total crude and product exports of 7.2 mb/d in November compared with the May-June average of 7.4 mb/d. Total supply of crude, condensates and NGLs in November was 10.9 mb/d. For 2023, total oil production is projected to average 10.95 mb/d, down 140 kb/d y-o-y. Deputy Prime Minister Alexander Novak was reported as saying Russia is on course to pump around 10.6 mb/d of crude and condensates this year, in line with our estimate.

Russian oil export revenues drop sharply as Urals prices slump below its $60/bbl cap

Russian crude export prices fell sharply in November, and the steady decline finally pushed Urals prices below the $60/bbl price cap on 6 December ($56.15/bbl FOB Primorsk and $56.55/bbl FOB Novorossysk, according to *Argus*). While the Urals discount to North Sea Dated widened by $2/bbl over the month, the collapse in the latter drove most of the outright price decline. This, combined with a 200 kb/d drop in oil exports, pushed export revenues for crude and products in November 17% lower m-o-m to a level not seen since July this year. Crude export revenues fell by $2.4 bn to just over $10.3 billion on while product export revenues dropped by $800 million to $4.9 billion.

The US Treasury continued to expand its investigation, that began in mid-October, into ships and their owners that have transported Russian oil purchased above the G7 price cap. At least a half dozen were added to the list since end-October, taking the number to eight at the time of writing. According to *Argus*, European firms have hauled more than 30% of Urals shipments since prices exceeded $60/bbl, but the Treasury's recent actions have instead targeted entities and ships with Russian links. The added risk, and the consequent reduction in the number of ships available, bolstered shipping costs by around 65% between the US Treasury's initial announcement and the last week of November. This, in turn, widened the FOB loading price discount versus North Sea Dated to -$16.80/bbl for Urals FOB Primorsk at end-November versus -$13.00/bbl in mid-October.

Total Russian oil export volumes fell by 200 kb/d in November to 7.2 mb/d, with crude exports losing 290 kb/d while products gained 80 kb/d. Declines in crude exports to China (-70 kb/d m-o-m) and India (-590 kb/d) were offset by higher exports to Türkiye (+110 kb/d) and other countries while volumes with as yet unknown destinations (150 kb/d) remain too low to offset India's and China's losses. Pipeline exports were stable over the month.

Russian Oil Exports (mb/d)

	EU	UK+US	Türkiye	China	India	OECD Asia	Middle East	Africa	L.America	Other	Unknown	Total	Crude	Products	Export Revenue $bn
2021 avg	3.3	0.6	0.2	1.6	0.1	0.5	0.1	0.1	0.1	0.8	0.0	**7.2**	4.6	2.6	**15.7**
2022 avg	3.0	0.1	0.4	1.9	0.9	0.2	0.2	0.1	0.1	0.6	0.0	**7.5**	5.0	2.5	**19.5**
Oct 2022	2.5	0.0	0.6	2.0	1.1	0.1	0.2	0.2	0.1	0.8	0.0	**7.5**	5.0	2.5	**18.3**
Nov 2022	2.2	0.0	0.5	2.0	1.5	0.1	0.3	0.1	0.1	0.8	0.0	**7.6**	4.9	2.7	**17.0**
Dec 2022	1.9	0.0	0.4	2.0	1.6	0.1	0.1	0.3	0.0	0.7	0.0	**7.3**	4.6	2.6	**13.8**
Jan 2023	1.3	0.0	0.5	2.5	1.8	0.0	0.3	0.3	0.1	0.8	0.0	**7.7**	5.1	2.7	**14.8**
Feb 2023	0.5	0.0	0.5	2.4	1.9	0.0	0.4	0.5	0.1	0.9	0.0	**7.3**	4.9	2.4	**12.2**
Mar 2023	0.6	0.0	0.6	2.2	2.2	0.1	0.5	0.5	0.2	1.0	0.0	**7.9**	4.9	3.0	**14.1**
Apr 2023	0.5	0.0	0.6	2.5	2.2	0.1	0.5	0.3	0.2	0.8	0.0	**7.7**	5.0	2.7	**15.0**
May 2023	0.5	0.0	0.7	2.4	2.3	0.0	0.4	0.3	0.2	0.9	0.0	**7.7**	5.2	2.5	**13.9**
Jun 2023	0.5	0.0	0.7	2.3	1.8	0.0	0.4	0.3	0.2	0.8	0.0	**7.1**	4.8	2.3	**12.9**
Jul 2023	0.5	0.0	0.6	2.2	1.7	0.0	0.4	0.4	0.2	0.8	0.1	**7.0**	4.6	2.4	**15.5**
Aug 2023	0.6	0.0	0.7	2.1	1.8	0.1	0.2	0.4	0.2	0.8	0.0	**6.8**	4.6	2.2	**16.8**
Sep 2023	0.6	0.0	0.7	2.4	2.0	0.0	0.4	0.3	0.2	0.9	0.1	**7.4**	4.8	2.6	**18.7**
Oct 2023	0.5	0.0	0.6	2.5	1.8	0.0	0.2	0.3	0.2	1.0	0.3	**7.4**	5.0	2.4	**18.4**
Nov 2023	0.5	0.0	0.9	2.2	1.4	0.1	0.1	0.3	0.3	1.0	0.5	**7.2**	4.7	2.5	**15.2**
M-o-M chg	0.0	0.0	0.2	-0.3	-0.4	0.1	-0.1	0.0	0.1	0.0	0.2	**-0.2**	-0.3	0.1	-3.2
Y-o-Y chg	-1.7	0.0	0.4	0.2	-0.1	0.0	-0.2	0.1	0.3	0.2	0.5	**-0.4**	-0.2	-0.2	-1.8

Sources: IEA, *Argus Media Group, Kpler*.

Note: Data in this table were derived by granular analysis and estimates of country of origin data in cases where shipments transit via third countries. They may differ from customs information due to calculation methodology and estimates updates.

Increased residual fuel oil exports drove product exports higher. Declines in product exports to China (-210 kb/d) and the Middle East (-110 kb/d) were offset by higher exports to Türkiye (+130 kb/d), India (+150 kb/d) and to Latin America (+140 kb/d), with another 350 kb/d still having no known destination at the time of writing. A post-maintenance rebound in Russian refinery activity likely contributed to lower crude exports and higher product flows, but the impact of severe late-November storms in the eastern

Black Sea also halted exports of Russian crude for several days, cutting monthly Urals flows from Novorossiysk by 35%, or 200 kb/d. On the other hand, combined Far East loadings from Kozmino, Sakhalin 1 and Sakhalin 2 rose 9.4% m-o-m, or 100 kb/d.

Russian crude export prices in November fell by $9.30/bbl versus their October average that was above $80/bbl. Russian crude price discounts versus North Sea Dated widened sharply in November, continuing the trend initiated in mid-October. Differentials widened despite the marked decline in export volumes. *Argus* assessed those for Baltic Urals deeper by $2.26/bbl m-o-m and Black Sea Urals by $1.90/bbl. On the other hand, ESPO FOB Kozmino discounts versus North Sea Dated narrowed by $1.84/bbl m-o-m despite higher export volumes. The change in the discount reflects the flip in North Sea Dated prices to discounts versus Dubai as ESPO discounts to Dubai widened by $0.45/bbl over the month. Taken on a trade weighted average basis across all crude export streams, the Russian crude price discount to North Sea Dated widened by $1.24/bbl m-o-m to -$11.70/bbl.

Russian Crude FOB Export Prices ($/bbl)						Discounts to N.Sea Dated		
	Sep-23	Oct-23	Nov-23	Sep - Oct	Oct - Nov	Sep-23	Oct-23	Nov-23
North Sea Dated	**93.96**	**91.12**	**83.05**	**-2.84**	**-8.07**			
Price Cap	60.00	60.00	60.00					
Russia Wtd Avg	**81.81**	**80.66**	**71.36**	**-1.14**	**-9.31**	**-12.16**	**-10.46**	**-11.70**
Urals FOB Primorsk	80.25	77.39	67.07	-2.86	-10.33	-13.71	-13.73	-15.99
Urals FOB Novorossiysk	80.96	78.77	68.80	-2.19	-9.97	-13.00	-12.35	-14.25
ESPO FOB Kozmino	86.75	84.29	78.06	-2.46	-6.23	-7.21	-6.83	-4.99

Sources: *Argus Media Group, Kpler* . Russia Weighted Average for Urals from Baltic and Blacks Sea, Siberian Light and Espo.

The Russian product cracks strengthened by around $2/bbl more than those for the international market due to the drop in Urals crude prices versus North Sea Dated. Closely tracking the trends in international cracks by product, outright Russian product prices continued to decline over the month reflecting the underlying crude price weakness. In November, only naphtha prices exceeded their G7 price cap, boosted by the recovery in international LPG prices. Russian fuel oil prices fell proportionally more than the market, in-line with higher export volumes.

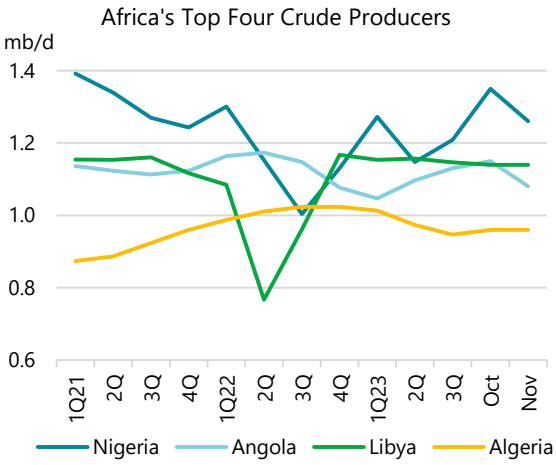
Russian FOB Export Prices ($/bbl)										
	Sep-23	Oct-23	Nov-23	Sep - Oct	Oct - Nov		Sep-23	Oct-23	Nov-23	Sep - Oct	Oct - Nov
Premium Products						**Discounted Products**					
Ref. Price	118.89	111.53	104.51	-7.37	-7.02	Ref. Price	83.91	74.75	69.26	-9.15	-5.49
Price Cap	100.00	100.00	100.00			**Price Cap**	45.00	45.00	45.00		
Avg Price	98.15	91.07	83.86	-7.07	-7.21	**Avg Price**	59.33	51.21	44.82	-8.12	-6.39
Gasoline	92.26	74.92	72.57	-17.34	-2.35	**Naphtha**	52.67	51.75	49.35	-0.92	-2.39
Diesel	112.45	106.48	96.34	-5.97	-10.14	**Fuel Oil**	62.79	51.20	43.42	-11.59	-7.79
Gasoil	107.34	99.12	87.78	-8.21	-11.35	Sources: *Argus Media Group, Kpler.*					
VGO	72.32	68.34	58.64	-3.98	-9.70	Note: Weighted avg prices from Baltic and Black Sea ports.					

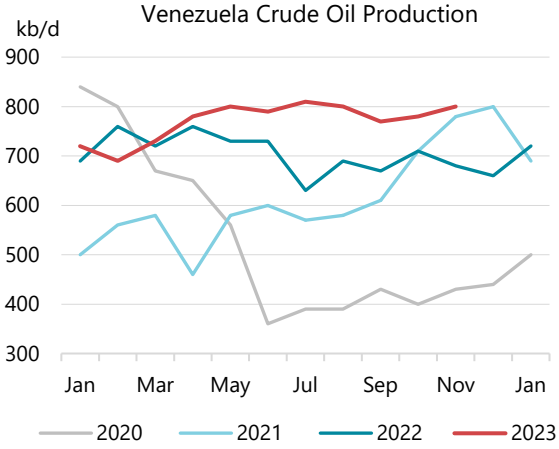
While estimated export revenues fell by over 17% m-o-m in November, the Russian government's fiscal revenues from oil rose by 12% m-o-m, to $12.2 bn, up 20% versus November 2022, according to Russia's Finance Ministry. The apparent disconnect reflects price and volume trends for Russian crude and products with a one- to two-month lag. The lower prices in November 2023 will appear in the revenues for December. Export duty payments (representing around 5% of total fiscal receipts) fell 4% on lower FOB export prices. The Mineral Extraction Taxes (MET) rose 12.7% m-o-m to $11.6 billion.

Kazakh crude oil supply eased 20 kb/d to 1.6 mb/d in November after storms disrupted loadings and forced the country's largest oil fields – Tengiz, Kashagan and Karachaganak – to briefly cut back. **Azeri** crude oil flows were unchanged at 490 kb/d. BP has started drilling at the new Azeri Central

East (ACE) platform in the offshore Azeri-Chirag-Guneshli (ACG) contract area and expects first oil early in 2024. The $6 bn ACE project is due to pump 100 kb/d, helping to compensate for declines elsewhere in the ACG area. In the January-November period, ACG pumped an average 360 kb/d, down 60 kb/d on a year ago.

Combined output from African members of OPEC+ dropped 180 kb/d in November, led by decreases in Nigeria and Angola. Output in **Nigeria** declined 90 kb/d to 1.26 mb/d, with losses spread between the Bonny Light, Forcados, Erha and Egina streams. In a boost to the upstream, TotalEnergies has drilled the first of three wells at its offshore Akpo West prospect. Operational issues knocked down supply in **Angola** by 70 kb/d to 1.08 mb/d. Output in **Algeria** held at 960 kb/d. **Libyan** crude oil production was unchanged m-o-m at 1.14 mb/d. Libya's National Oil Corp has made its first shipment of crude oil from the 16 kb/d Erawan field that started up in March.



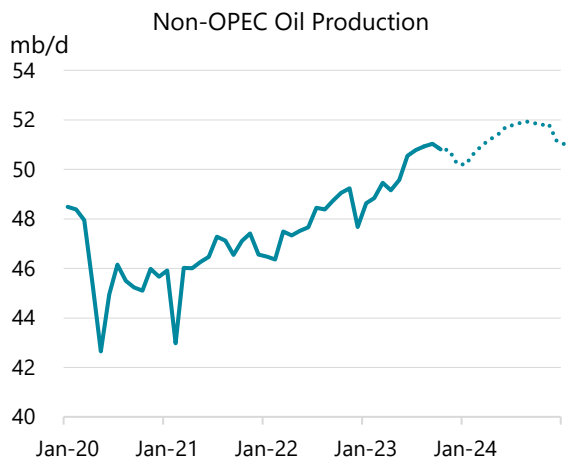


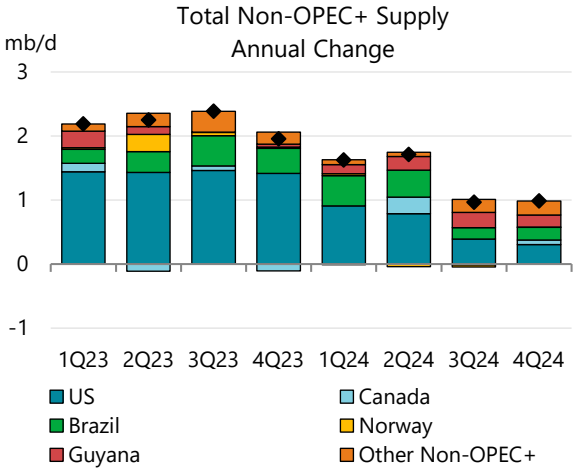
Supply in **Venezuela** edged up to 800 kb/d. Caracas held a referendum in early December to reassert its claim on western Guyana's Essequibo province. President Nicolas Maduro was due to meet with Guyana's President Mohamed Irfaan Ali on 14 December.

Non-OPEC+

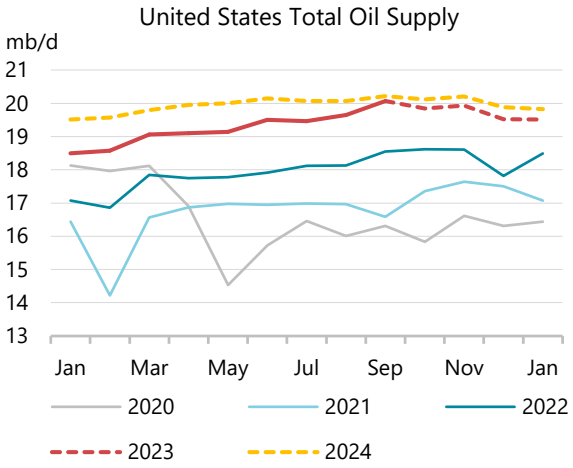
Record-breaking US supply is boosting non-OPEC+ output, which is forecast to rise by 2 mb/d y-o-y to 50.6 mb/d in 4Q23. Substantial gains from Brazil and Guyana, which both also hit all-time highs, have helped. Combined volumes from these three countries are expected to account for 86% of the 2.2 mb/d of non-OPEC+ supply growth in 2023. Next year the same trio is set to break new records, contributing 84% of the 1.3 mb/d of the non-OPEC+ production increase that lifts volumes to 51.4 mb/d.

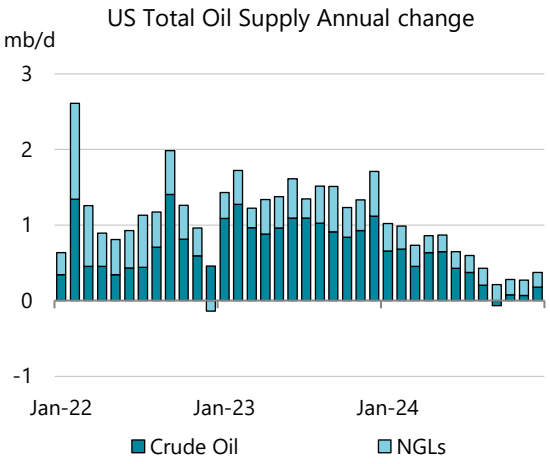
In November, non-OPEC+ production rose marginally as Canadian output rebounded after completion of maintenance, US supply continued to increase and as higher volumes from Guyana, where the Prosperity floating storage production and offloading (FPSO) vessel came online, more than offset seasonally lower biofuels and losses in Brazil. Yet, uncertainty is never far away as the recently passed Venezuelan referendum adds tension to Guyana's growth story and the Argentinean president has proposed large-scale structural changes to the economy while stating that energy is a priority.





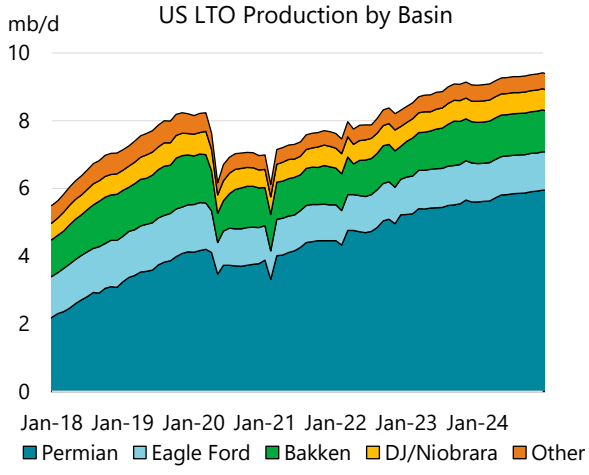
In September, the last month for which official data from the Energy Information Administration (EIA) is available, total **US** oil supply rocketed higher by 430 kb/d m-o-m, to a record 20 mb/d, with both crude oil and NGLs reaching all-time highs of 13.2 mb/d and 6.8 mb/d, respectively. Crude production increased by 220 kb/d, with the Bakken rising 80 kb/d and Gulf of Mexico gaining 110 kb/d. NGL volumes rose by 210 kb/d, with just over 70% of the expansion coming from the PADD 3 producing region, which includes the prolific Permian Basin that straddles New Mexico and Texas.

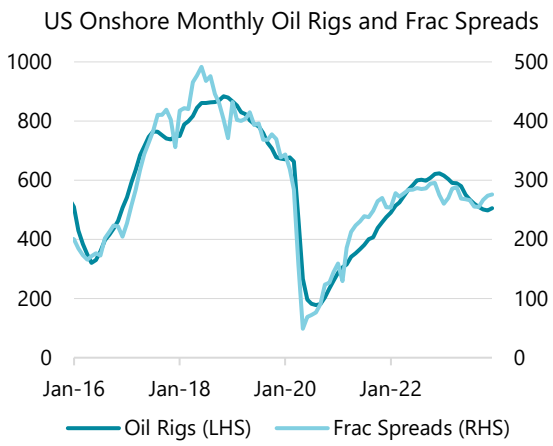




October saw crude output down by 20 kb/d and NGLs drop 190 kb/d from their recent high. US supply is estimated to have recouped some of October's losses in November, with 90 kb/d of growth driven primarily by light tight oil (LTO). Production is forecast to increase by 1.4 mb/d to 19.4 mb/d in 2023. Next year sees an additional 600 kb/d of growth to 20 mb/d, with crude comprising 360 kb/d and the remainder from NGLs.

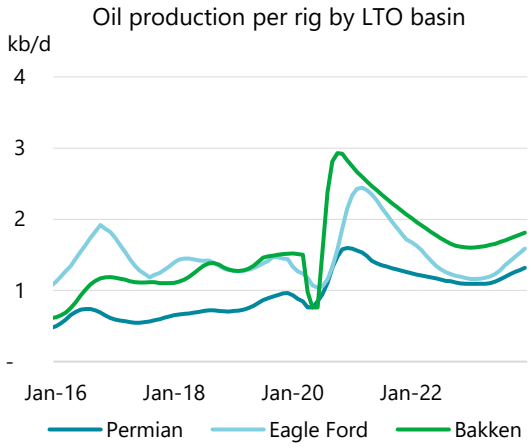
Between December 2022 and December 2023, the shale patch added 750 kb/d of production. This is 140 kb/d more than what was seen in the year prior, yet approximately half of the calendar year increases seen from 2017 through 2019. Next year's December to December exit growth rate is forecast at 360 kb/d.



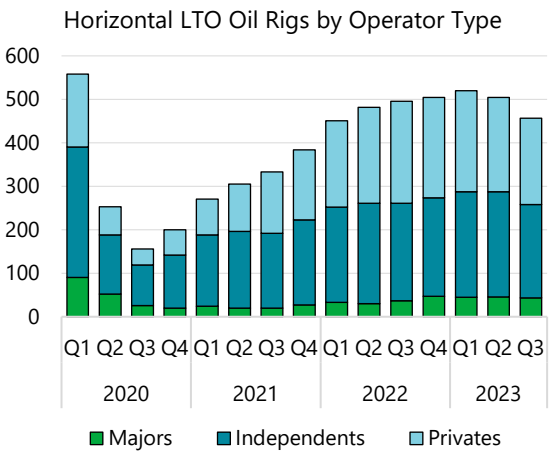


Sources: Primary Vision, Baker Hughes.

Activity appears to have stabilised in the US shale patch for now, with 503 oil rigs running and 278 frack spreads, according to the *Baker Hughes Rig Count and Primary Vision*. These levels are off 20% and 7%, respectively, from 4Q22 highs. Output continues to increase at these lower levels, defying most expectations, as longer laterals (the horizontal section of the wellbore) and more intensive completions (frack zones and proppant intensity) have led to improved production per rig metrics.



Source: EIA DPR.

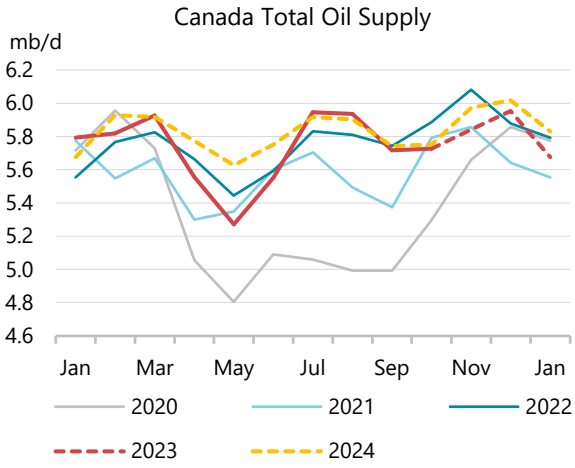


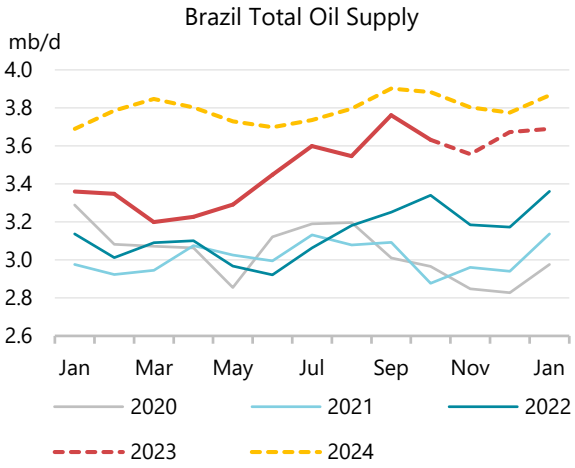
Source: Rystad Energy

Balancing higher well output is the notion that publicly traded companies are becoming less sensitive to higher prices, based on recent 2024 guidance, while price sensitive private producers are still hesitant to add further rigs. Data from *Rystad Energy* shows a 20% reduction from recent highs in private producer horizontal oil rigs while publicly traded company rig activity has only dropped 8% over the same time frame. US LTO is expected to add 880 kb/d of gains this year, slowing to 400 kb/d next year.

In October, **Canadian** supply inched up by 10 kb/d to 5.7 mb/d, according to data from the Alberta Energy Regulator (AER), following large upward revisions to 3Q23 data. November production rose by 140 kb/d as output from upgraders ticked up, with December volumes expected to increase seasonally by 110 kb/d to 5.9 mb/d. In late November, Suncor announced that the 30 kb/d Terra Nova FPSO returned to production after a major refurbishment that began in late 2019. We expect the installation to reach capacity by 2Q24. Overall, Canadian production in 2023 is forecast to hold steady compared to the previous year at 5.8 mb/d, while increasing by 80 kb/d in 2024. Takeaway capacity constraints for Albertan producers will disappear when the Trans Mountain Expansion

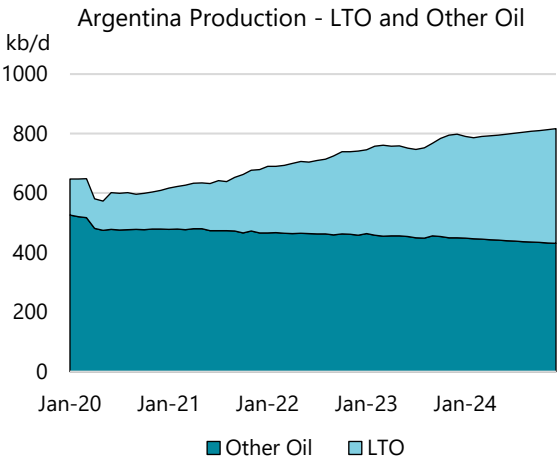
Project (TMX) begins commercial operations with a new 590 kb/d pipeline to Canada's west coast in 2Q24. The new capacity can accommodate several years of steady production growth, implying substantially narrower price discounts for western Canadian crudes in the coming years.





Brazilian output fell by 80 kb/d m-o-m to 3.6 mb/d in November based on provisional daily data from the Agencia Nacional do Petroleo (ANP) and export data from *Kpler*. Official October ANP data show supply dropped by 130 kb/d from September's record high of 3.8 mb/d. The six new FPSO vessels brought online since the start of 2022 continue to ramp up and operate with high production efficiency. Additionally, Mero 2 (FPSO Sepetiba) is expected to be commissioned this month, while Mero 3 (FPSO Marechal Duque de Caxias) is forecast to come online in 4Q24. Both facilities have a capacity of 180 kb/d. Annual supply is forecast to increase by 350 kb/d this year to 3.5 mb/d and by 320 kb/d in 2024 to reach 3.8 mb/d.

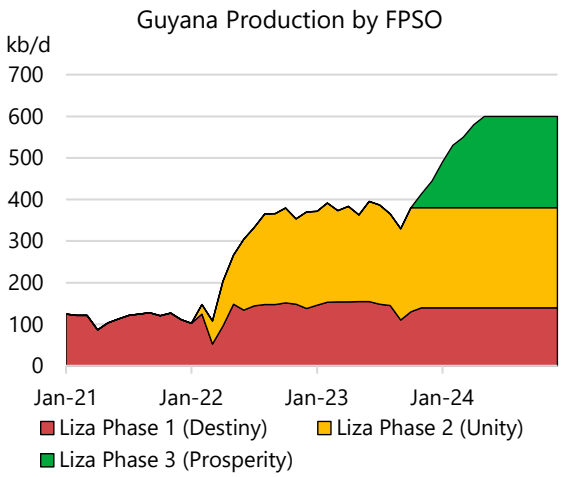
Supply in **Argentina** rose by 10 kb/d in November after having risen by 15 kb/d in October. Over the second half of the year, volumes increased by 6% or 50 kb/d – driven by Neuquén basin LTO. Liquid takeaway capacity constraints in the basin have been resolved, while gas takeaway capacity continues to be a bottleneck, leading drillers to target more liquid rich wells and providing further upside. Additionally, fracking activity is up 12% from a year ago. This provides a positive backdrop for President Javier Milei's plans to enhance YPF's value prior to selling the state's 51% interest in the company in 2025 or later. Production is expected to average 760 kb/d this year and rise by a further 40 kb/d next year.



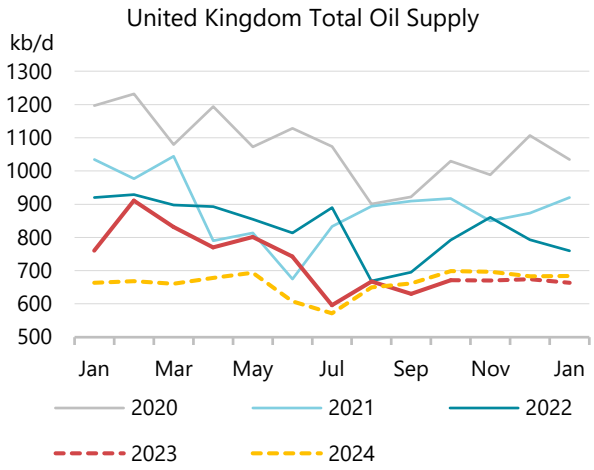
Guyana captured international attention this month when Venezuela held a referendum in early December to expropriate a vast swathe of western Guyana (similar in size to Greece) into the country. The Essequibo region, which includes the majority of the Stabroek block, currently Guyana's sole producing concession, has been claimed by Caracas for over a century but was awarded to present day Guyana after an 1899 mediation over the territory with the decision reaffirmed in 1965. The current dispute gained traction in 2015, after oil was discovered in the exclusive economic zone waters of the Essequibo region and is before the International Court of Justice (ICJ). The Venezuelan Minister of Foreign Affairs has stated the dispute must be resolved through "diplomatic dialogue",

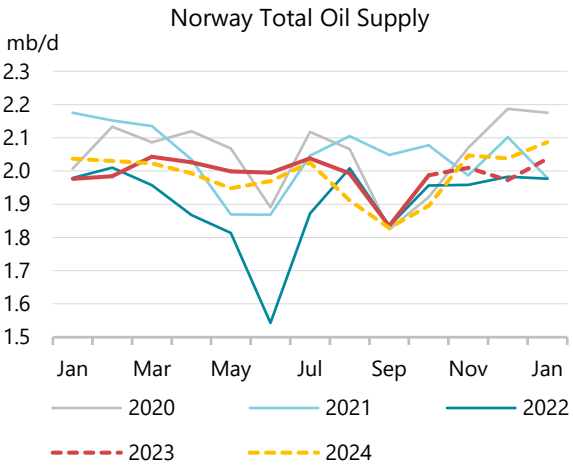
while the CEO of ExxonMobil recently opined that the border dispute will likely continue at the ICJ for a few years.

Guyana's production rose by 30 kb/d month-on-month in November following the start-up of the Prosperity FPSO (Payara Gold) on 14 November. Two cargoes were originally reported as set to load in November, but *Kpler* data shows only one LR3 carrying 1 mb departed the project in early December, enroute to the Netherlands. Based on the ExxonMobil-led consortium's past experiences in commissioning the two previous FPSO's, we expect the Prosperity FPSO to reach its 220 kb/d capacity in early 2Q24. Supply is forecast to grow by 110 kb/d this year and another 200 kb/d next year.



UK production held flat on the month in November at 670 kb/d, where it is expected to exit the year – down 150 kb/d from a year ago. The UK North Sea Transition Authority (NSTA) noted in November that seven new oil and gas projects targeting 370 mb of oil equivalent and worth a combined $5 billion were approved in 2023. Equinor's Rosebank project accounted for two-thirds of the total reserves. Oil supply is forecast to fall by 110 kb/d this year and by 70 kb/d in 2024.





Data from the **Norwegian** Petroleum Directorate show that production rose by 150 kb/d to 2 mb/d in October as volumes rebounded after maintenance. November supply is estimated to have increased by a further 20 kb/d as output from the Johan Sverdrup field returned to 750 kb/d. Annual output is forecast to rise 90 kb/d to 2 mb/d this year before tapering off by 10 kb/d in 2024.

Refining

Overview

Global refinery runs have proved to be materially weaker in 4Q23 than previously expected. Extended maintenance in North America and operational outages at European and Middle Eastern plants have depressed activity levels. Consequently, while runs still peak seasonally at the end of 4Q23 at 84.2 mb/d, this quarter's throughput rates are now estimated at 81.9 mb/d, some 725 kb/d below last month's *Report*. Runs increase by 1.6 mb/d y-o-y in 2023 to 82.4 mb/d, and 880 kb/d in 2024 to 83.3 mb/d.

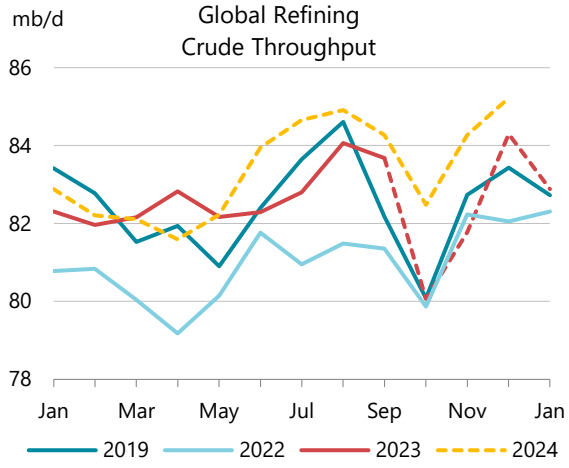
Global Refinery Crude Throughput[1]

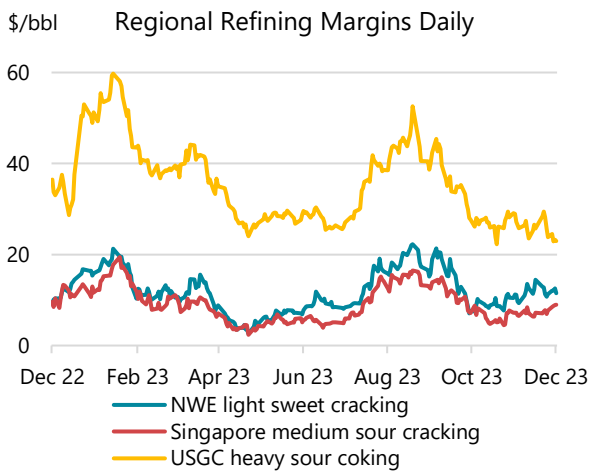
(million barrels per day)

	2019	2020	2021	2022	3Q23	Oct-23	Nov-23	Dec-23	4Q23	Jan-24	Feb-24	1Q24	2023	2024
Americas	**19.1**	**16.6**	**17.7**	**18.7**	19.3	17.6	18.6	19.3	18.5	18.4	17.8	18.2	**18.7**	**18.5**
Europe	**12.2**	**10.7**	**11.0**	**11.5**	11.7	11.1	11.4	11.6	11.4	11.5	11.0	11.0	**11.4**	**11.3**
Asia Oceania	**6.8**	**5.9**	**5.8**	**6.1**	5.7	5.8	5.9	6.1	5.9	6.1	6.1	6.0	**5.9**	**5.8**
Total OECD	**38.1**	**33.1**	**34.5**	**36.3**	36.8	34.5	35.9	37.0	35.8	36.0	34.9	35.2	**36.0**	**35.6**
FSU	**6.9**	**6.5**	**6.8**	**6.5**	6.6	6.3	6.7	6.8	6.6	6.6	6.8	6.6	**6.6**	**6.7**
Non-OECD Europe	**0.5**	**0.4**	**0.4**	**0.5**	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	**0.5**	**0.4**
China	**13.4**	**13.7**	**14.4**	**13.7**	15.4	15.2	15.0	15.1	15.1	15.2	15.4	15.4	**15.1**	**15.4**
Other Asia	**10.4**	**9.4**	**9.7**	**10.2**	10.2	10.0	10.1	10.7	10.3	10.8	10.8	10.7	**10.5**	**10.7**
Latin America	**3.2**	**3.0**	**3.3**	**3.5**	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5	**3.6**	**3.5**
Middle East	**7.9**	**7.1**	**7.8**	**8.3**	8.7	8.3	8.2	8.9	8.5	8.6	8.6	8.8	**8.6**	**9.2**
Africa	**2.0**	**1.9**	**1.8**	**1.8**	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	**1.6**	**1.9**
Total Non-OECD	**44.3**	**41.9**	**44.1**	**44.5**	46.6	45.5	45.6	47.2	46.1	46.8	47.2	47.1	**46.4**	**47.7**
Total	**82.4**	**75.1**	**78.6**	**80.8**	83.4	80.0	81.5	84.2	81.9	82.8	82.1	82.3	**82.4**	**83.3**
Year-on-year change	***-0.1***	***-7.3***	***3.5***	***2.2***	*2.3*	*0.2*	*-0.6*	*2.2*	*0.6*	*0.6*	*0.3*	*0.3*	*1.6*	***0.9***

[1] Preliminary and estimated runs based on capacity, known outages, economic runcuts and global demand forecast.

The collapse in margins during late September and early October, from the near-record levels achieved in the third quarter, likely contributed to refineries running less hard. Nevertheless, margins remain healthy, particularly compared with historical norms, even as the US Gulf Coast (USGC) has surrendered the last of its exceptional 3Q23 profitability in recent weeks.





The difference between global demand growth this quarter (+1.9 mb/d y-o-y) and the increase in refining runs (+620 kb/d y-o-y) stands in stark contrast to the more balanced refinery supply relative to product demand seen over the 1Q23-3Q23 period, up by 2 mb/d and 2.4 mb/d y-o-y, respectively. The rise of US NGL supply and exports explains only part of the discrepancy, with the mismatch also driven by a difference in the timing of the rebound in Chinese demand growth and refining runs in 2022. Chinese refineries lifted runs rapidly over the course of 3Q22, while demand truly recovered once lockdown restrictions eased in early 2023.

In 2024, increased product supply from new and recently started refining capacity in Africa, the Middle East and Asia will present challenges for existing operators. The slowdown in demand growth for light and middle distillates, from 2.2 mb/d in 2023 to 780 kb/d next year, will also limit the increase in refinery activity. Consequently, as and when new capacity comes fully online in Nigeria and Oman, as well as the planned expansions in China and India, more closures may follow. The recent announcement that Petroineos will close the 150 kb/d Grangemouth refinery in the UK during 2025 is unlikely to be Europe's last. Latest reports suggest Nigeria's new 650 kb/d Dangote refinery is preparing to receive its first crude cargoes this month while Oman's 230 kb/d Duqm plant is currently undertaking commissioning and will reportedly start its suite of upgrading units early next year.

Product cracks and refinery margins

Refining margins improved across all complexities in Europe and Asia during November, in part helped by weaker crude pricing. US Gulf Coast (USGC) refining margins proved the exception, as diesel cracks declined by $6/bbl m-o-m, to levels last seen in June, normalising USGC cracks vis-à-vis Europe's after commanding a hefty premium as recently as September. Furthermore, while light distillate cracks in Europe and Asia improved, USGC gasoline cracks stagnated. Very low sulphur fuel oil (VLSFO) cracks performed well in Asia and, to a lesser extent, in Europe, as markets adapted to the extended outage at Kuwait's Al Zour refinery, (a key Middle Eastern source of supplies in the summer months). The prospect of continued tightness in VLSFO markets supported cracks for much of November but tepid demand and reports of a mid-December restart undermined November's gains in early December.

IEA Global Indicator Refining Margins

	Monthly Average				Change	Average for week starting:				
$/bbl	Aug 23	Sep 23	Oct 23	Nov 23	Oct - Nov	06 Nov	13 Nov	20 Nov	27 Nov	04 Dec
NW Europe										
Light sweet hydroskimming	14.96	12.36	4.76	7.43	2.68	6.22	7.68	8.77	7.59	7.64
Light sweet cracking	18.58	16.57	8.95	11.65	2.71	10.36	11.77	13.05	11.79	11.88
Light sweet cracking + Petchem	17.99	16.02	9.11	12.15	3.04	11.01	12.14	13.43	12.15	12.24
Medium sour cracking*	25.35	23.38	14.23	18.81	4.58	17.71	18.88	20.23	19.02	19.28
US Gulf Coast										
Light sweet cracking	30.40	23.53	12.40	11.73	-0.66	12.02	11.85	11.23	10.86	8.82
Medium sour cracking	35.19	30.55	20.14	17.96	-2.18	18.60	18.03	16.40	16.46	14.85
Heavy sour coking	43.60	38.46	27.26	27.18	-0.08	27.51	26.14	25.83	27.13	23.23
Singapore										
Light sweet cracking	11.93	8.89	4.49	7.72	3.23	7.32	8.10	8.30	7.53	7.77
Light sweet cracking + Petchem	12.34	9.24	5.23	8.58	3.35	8.32	8.94	9.09	8.20	8.36
Medium sour cracking	14.77	12.31	6.67	7.18	0.52	6.94	7.56	6.94	7.38	8.77
Medium sour cracking + Petchem	15.17	12.65	7.40	8.03	0.63	7.93	8.38	7.72	8.04	9.36

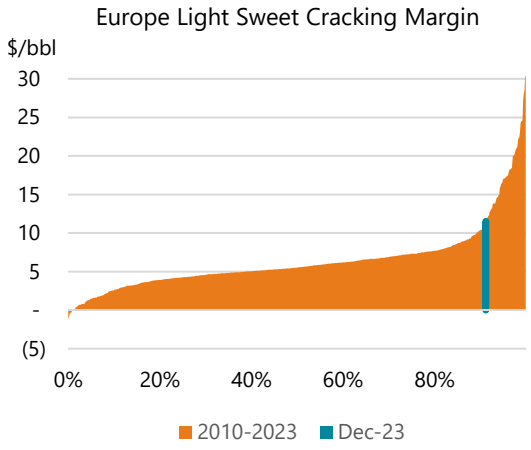
Note: Mediterranean and US Midcontinent margins are available in Table 15 of this *Report*.

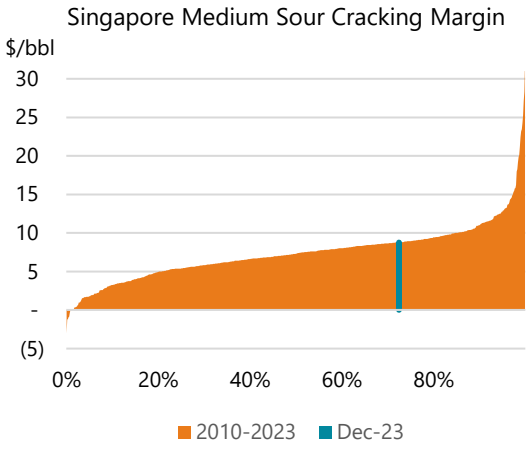
Source: IEA/Argus Media Group prices.

Methodology notes are avaialble at https://www.iea.org/topics/oil-market-report#methodology

*From 1/12/2022, the basis has changed from Urals NWE to Argus Brent Sour

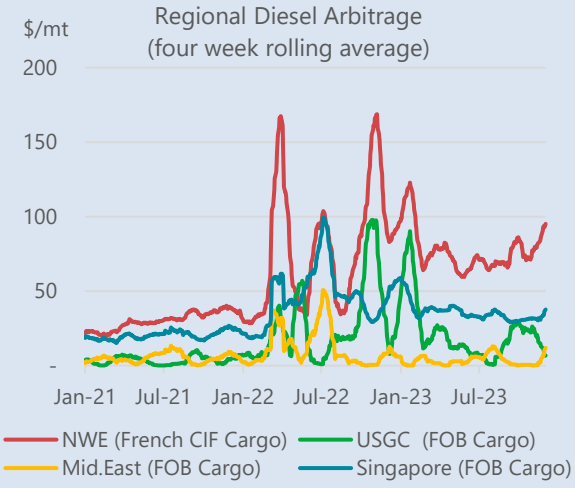
When measured against the 2010–2023 timeframe, current margins remain very healthy in the Atlantic Basin, and have bounced back in Asia. Light sweet cracking margins currently sit at their 92nd percentile in Northwest Europe, (NWE) while USGC margins have slipped to the 65th percentile. Conversely, Singapore sour cracking margins have recovered to the 73rd percentile. On the crude side, supply is relatively cheap in the Atlantic Basin, thanks to surging US exports, and comparatively expensive sour markets in Asia underpin much of the difference in performance. However, Atlantic Basin middle distillate deficits set regional prices at a premium to Asia to attract imports.

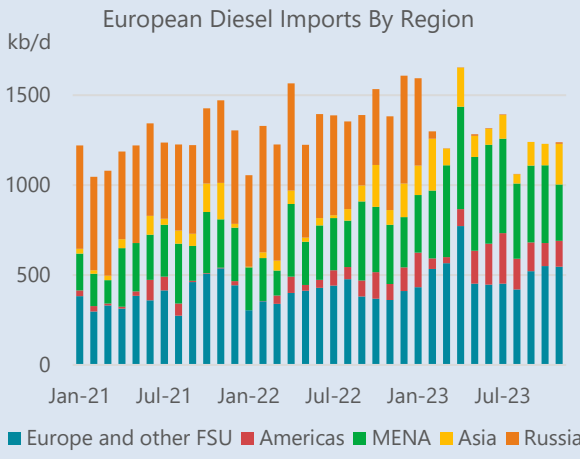




Changing product market dynamics lift European middle distillate premiums

Changes in product market price arbitrage, in addition to the differentiated crude market dynamics caused by surging US exports and cutbacks in medium-sour crude supplies, are driving a divergence between Atlantic Basin margins and those in Asia. After the imposition of G7 sanctions on Russian crude and product exports, and the exclusion of Russian diesel from European markets, price incentives to arbitrage middle distillates between regions have increased. European diesel prices have moved substantially higher relative to other regional benchmarks such that Europe pays a premium for diesel compared with the lowest cost source of supply globally.

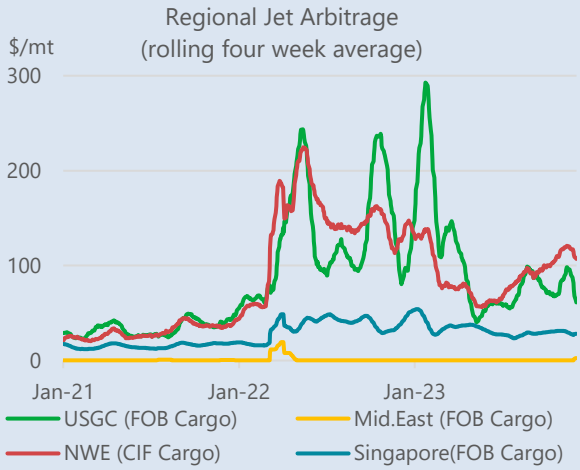


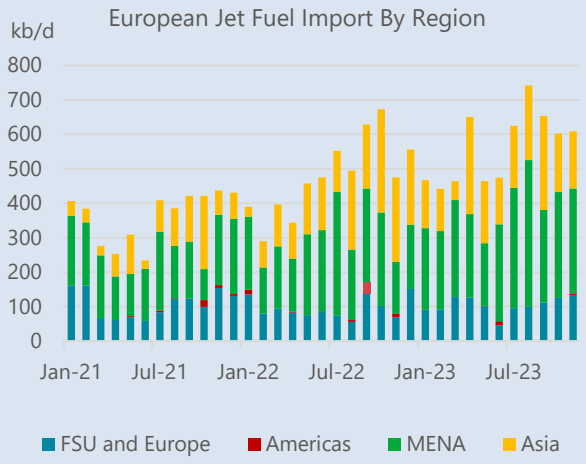


Note: Regional arbitrage is the price spread between spot regional cash markets.

Since the start of 2021, the Middle East Gulf and USGC have alternated in setting the cheapest price for diesel globally, split approximately 60-40%. However, pre-G7 Russian sanctions, the most competitive price globally was more often set by the USGC than not. Conversely, post March 2022, the Middle East has been the cheapest two-thirds of the time. Europe's increasing reliance on supplies from East of Suez exporters partially explains the region's increased premium, as at times heavy futures market backwardation and extended journey times boost arbitrage costs to move product to Europe. So too, the cost of producing diesel locally via hydrocracking units spiked in 2022, as gas prices breached $80/MMBtu, and contributed to a higher European premium versus global markets.

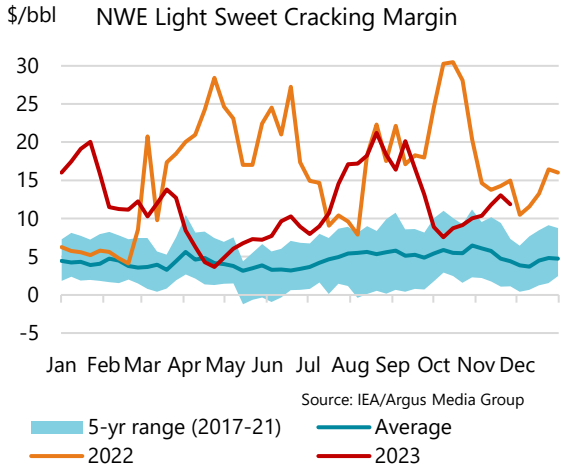
A noticeably different picture has emerged in jet fuel pricing. First, the Middle East Gulf almost always sets the lowest price globally, reflecting its role as a large net-exporter to both Asian and Atlantic Basin markets. Second, Singapore premia are comparatively narrow, reflecting Asia's net exporter status and the pull of Asian supplies into Europe and North America. Lastly, USGC pricing indicate that it competes with Europe, as netback values from the US Atlantic Coast and Midwest disincentivise exports. At times USGC prices indicate significant tightness driven by weather-related supply disruptions, e.g. December 2022 and January 2023.

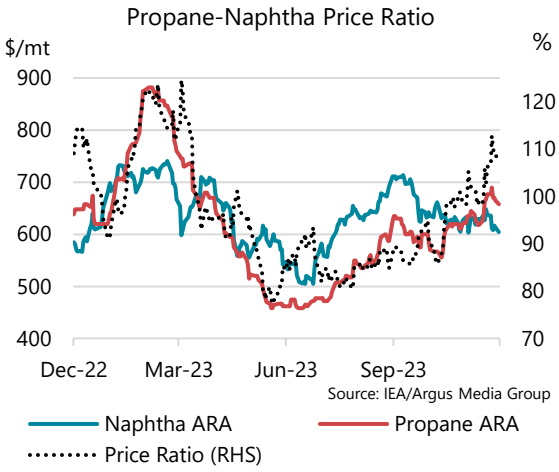




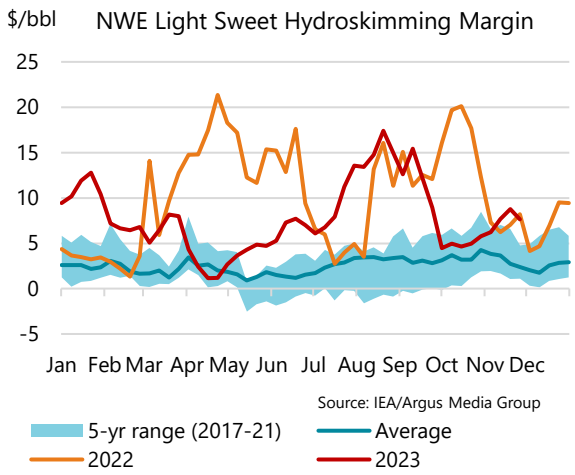
European product markets have lost a key source of diesel supply from Russia since February 2022. Weaker regional runs and the prospect of additional refinery closures in the coming quarters will increase the continent's reliance on imports to meet demand. As a result, European product premia may have to rise further to attract additional cargoes from long-haul markets.

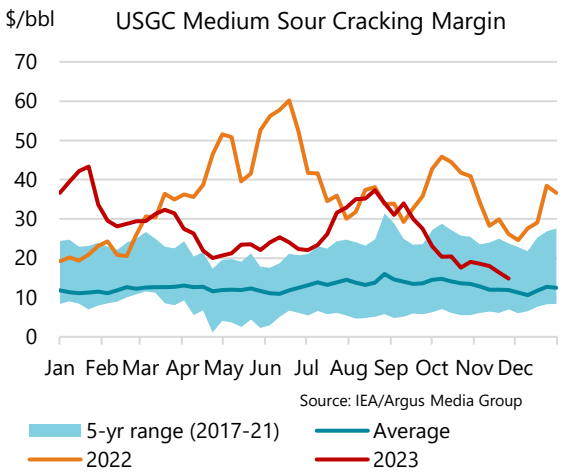
European refining margins improved in November by an average of $3.08/bbl m-o-m, with gains in sour crude processing outpacing those for sweet grades. Similarly, Northwest European profitability rose more than in the Mediterranean market. In large part, the improvement in margins is attributable to stronger gasoline and naphtha cracks, which account for a combined 30% of OECD European refinery output. Naphtha cracks have been held back by competition between petrochemical feedstock grades, particularly the seasonally wide discount for propane prices versus crude. Propane's recent price rally ahead of winter (from $462/Mt at the start of 3Q23 to $658/Mt currently) has alleviated some of the pressure on naphtha cracks, narrowing the discount from -$19/bbl in early October to -$6/bbl by early December. Similarly, European gasoline cracks, which had traded as low as $1.50/bbl in mid-October, are now close to $9/bbl.





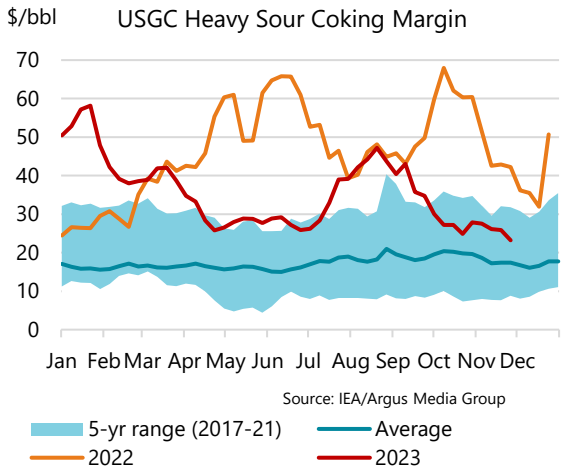
Stronger cracks lifted European hydroskimming margins in November, by an average of $2.50/bbl, with simple refining margins now close to their 90th percentile since 2010. Consequently, despite relatively low regional utilisation rates, refiners have the potential to earn healthy returns in the current market environment.

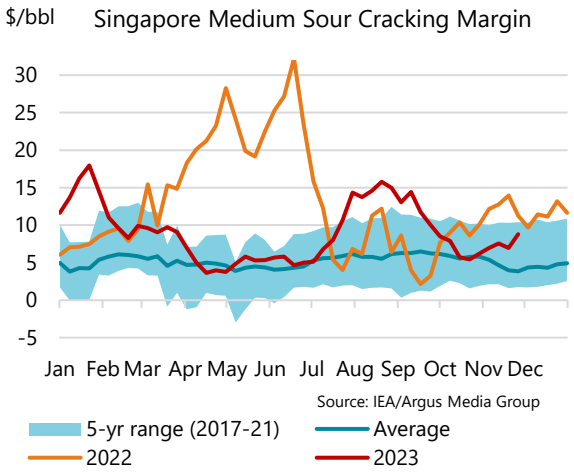




USGC refining margins continue to languish in their respective five-year ranges, albeit at above average levels, for now. Across the three configurations we track, margins are back to their lowest levels in two years, as the last remnants of the third quarter's exceptional profitability are swept away. Weakening diesel cracks continued to deflate margins during November, ceding $6/bbl on average and by early December they were more than $13/bbl versus the average of October. In contrast to cracking margins, coking profitability held up well in recent weeks, as heavy sour crude differentials widened over the course of November.

Singapore margins rebounded in November, following the European trend, as stronger gasoline, naphtha and fuel oil cracks outpaced the $5/bbl decline in those for diesel. Singapore margins maintained their apparent structural discount on sour grades vis-à-vis the USGC. WTI cracking margins are now closer to sour crude levels, in part as arbitrage costs to Europe and Asia have depressed WTI prices versus Brent and Dubai/Oman.



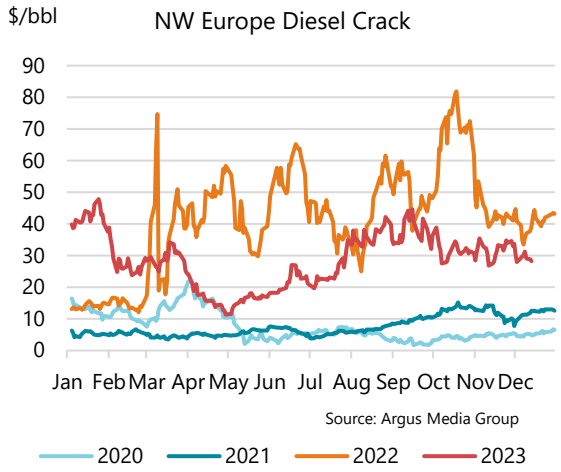


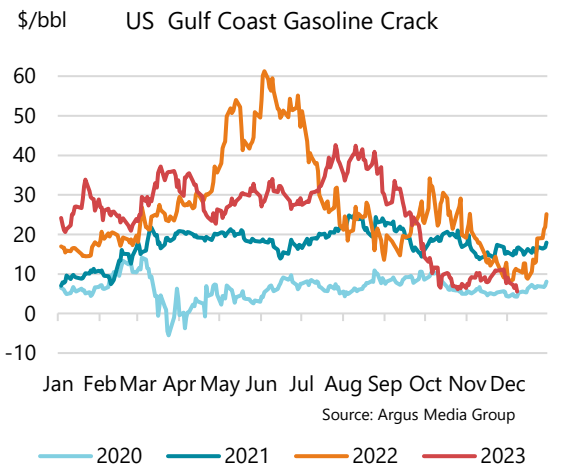
Product prices fell m-o-m across the board in November, in line with weaker crude pricing. Naphtha was comparatively the strongest performer in all three pricing hubs, declining by just $2.09/bbl on average m-o-m. Gasoline prices also showed some signs of resilience, particularly in Singapore, but like HSFO and VLSFO prices, they could not outpace losses on crude that resulted in average monthly declines of around $4-4.50/bbl. Diesel prices declined by a more substantial $10.74/bbl on average, and dragged jet fuel pricing lower by $6.29/bbl. For a second month running, the USGC saw the largest monthly drop in average prices, as the region surrendered the last of its exceptional 3Q23 price and margin strength.

Product Prices and Differentials ($/bbl)

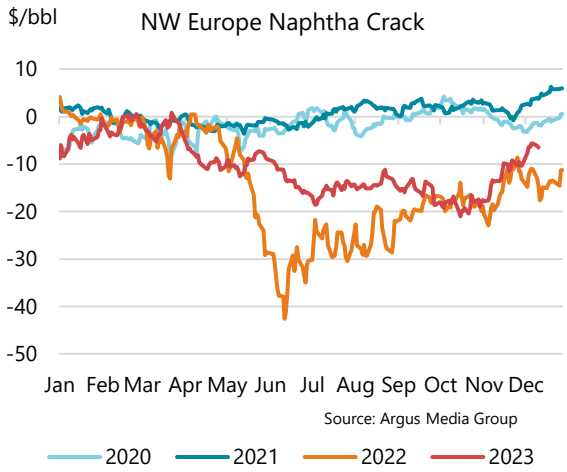
	Prices			Differentials				Week Starting				
	Sep	Oct	Nov	Sep	Oct	Nov	Oct-Nov chg	06-Nov	13-Nov	20-Nov	27-Nov	04-Dec
Northwest Europe				to North Sea Dated								
Gasoline	114.93	97.21	93.53	20.96	6.09	10.48	4.39	11.23	10.94	10.49	9.78	9.49
Diesel	131.73	122.28	114.84	37.77	31.15	31.78	0.63	29.90	31.16	33.52	30.81	29.80
Jet/Kero	131.44	123.52	117.16	37.47	32.40	34.11	1.71	33.03	34.88	35.67	31.84	29.02
Naphtha	78.59	72.52	70.58	-15.38	-18.61	-12.48	6.13	-14.33	-11.70	-10.28	-9.51	-6.06
HSFO	88.93	76.14	70.01	-5.03	-14.98	-13.04	1.94	-15.64	-12.11	-11.30	-10.88	-9.87
0.5% Fuel Oil	92.59	90.09	86.22	-1.38	-1.04	3.16	4.20	1.22	3.89	5.84	4.25	3.12
US Gulf Coast				to WTI Houston								
Gasoline	117.59	96.33	87.71	26.58	9.87	9.10	-0.77	9.38	8.76	9.19	10.03	7.59
Diesel	135.95	124.95	111.15	44.95	38.48	32.53	-5.95	33.65	31.89	30.53	28.09	24.41
Jet/Kero	129.27	119.20	113.64	38.26	32.74	35.03	2.30	37.40	37.18	30.31	27.50	24.90
Naphtha	77.91	74.40	71.31	-13.10	-12.06	-7.30	4.76	-7.07	-5.69	-7.09	-8.51	-6.24
HSFO	82.98	74.51	70.92	-8.03	-11.96	-7.69	4.27	-8.38	-5.79	-7.03	-6.90	0.26
0.5% Fuel Oil	99.55	93.96	87.05	8.54	7.49	8.44	0.95	7.69	7.63	9.66	9.65	11.23
Singapore				to Dubai								
Gasoline	104.47	93.71	92.36	10.26	2.62	7.25	4.62	8.12	7.69	6.63	7.55	7.65
Diesel	125.32	117.46	106.48	31.11	26.37	21.37	-5.00	21.13	21.04	20.68	20.05	20.49
Jet/Kero	122.77	113.58	106.63	28.56	22.50	21.52	-0.98	20.83	21.08	21.37	22.34	23.64
Naphtha	74.73	70.80	69.57	-19.48	-20.29	-15.54	4.75	-17.16	-14.19	-14.42	-12.60	-8.19
HSFO	82.46	72.99	69.51	-11.75	-18.10	-15.60	2.49	-16.35	-14.93	-15.24	-13.87	-11.78
0.5% Fuel Oil	99.72	100.04	99.03	5.51	8.96	13.92	4.96	15.32	16.04	14.64	8.96	10.25

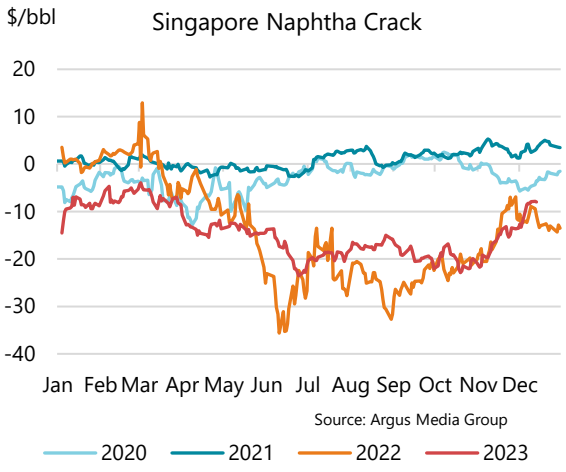
Gasoline prices fell globally in November, by between -$1.35/bbl and -$8.62/bbl m-o-m, with losses in the USGC outpacing those elsewhere for the second month running. Consequently, gasoline cracks were marginally weaker on the USGC, but rallied by around $4.50/bbl in Europe and Singapore. Falling stocks in Singapore and reports of run cuts in China boosted market sentiment. European gasoline cracks rebounded to double digit levels in early December, sustaining their November recovery and staying ahead of seasonal norms. The strengthening of naphtha cracks and LPG prices in recent weeks has also likely helped. Early December saw renewed weakness in USGC cracks, slipping back to sub-$7/bbl, which is equal to the 16th percentile versus the 5-year range.





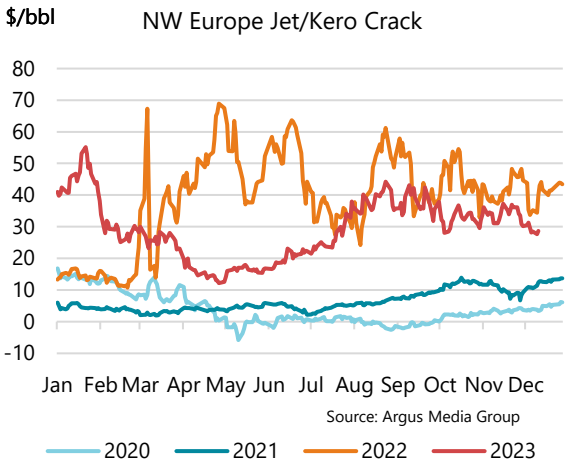
Naphtha prices declined only slightly over the course of November, as a rally in propane prices alleviated much of the downward pricing pressure from petrochemical feedstock markets. In turn, naphtha prices in Asia and Europe outperformed the USGC, with the latter region's price dynamics more closely tied to gasoline. Propane prices have weighed on naphtha realisations all year but have increased by $100/Mt since mid-October to reach an eight-month high of $677/Mt by early December. This has boosted naphtha cracks by more than $6/bbl in Europe and $4.75/bbl in Singapore and the USGC. Colder Northern Hemisphere weather has supported propane demand.

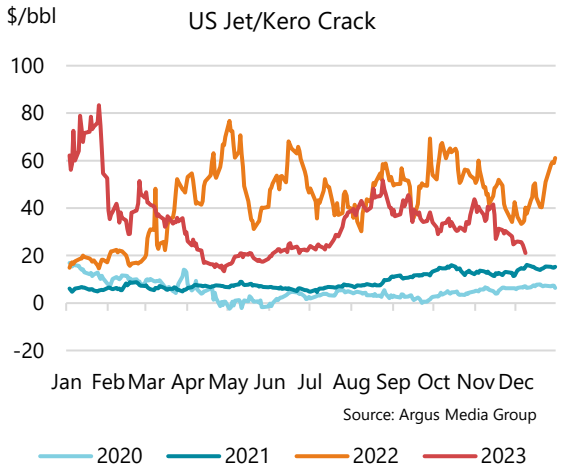




Jet fuel prices fell by around $6-7/bbl m-o-m in November, partly reversing October's underperformance versus crude, and nudging jet fuel back above diesel as the strongest individual crack on average in all three regions. Jet fuel cracks rebounded by $2/bbl in the Atlantic Basin to $34-35/bbl, but slipped by $1/bbl in Singapore to $21.50/bbl. Despite this decline in Asia, jet cracks are now above diesel on both a per barrel and per tonne basis in all three pricing hubs. Colder weather and sustained European quality premia for winter/arctic diesel lend support to jet/kerosene values. Furthermore, the strong rebound in aviation demand seen this year continues to highlight the need for refineries to maximise the yield of jet fuel relative to diesel.

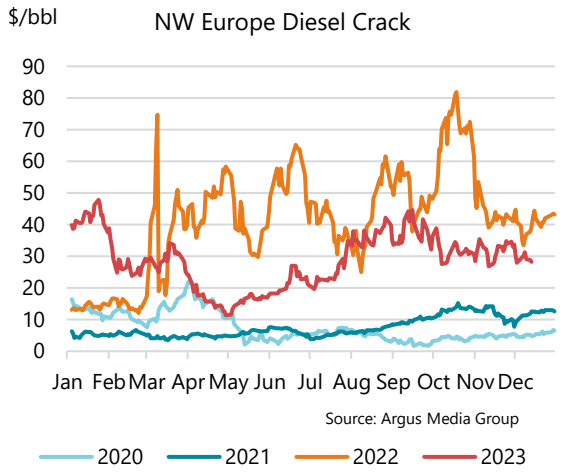
Early December saw renewed weakness in jet fuel cracks. Jet fuel prices lost ground against gasoil futures markets in Europe with reports of US airline demand undershooting expectations post the US Thanksgiving holiday and warmer temperatures in much of the Northern Hemisphere. USGC jet fuel cracks retreated to five-month lows close to $25/bbl, but are still marginally ahead of diesel cracks, while European jet fuel prices dipped below diesel by early December.

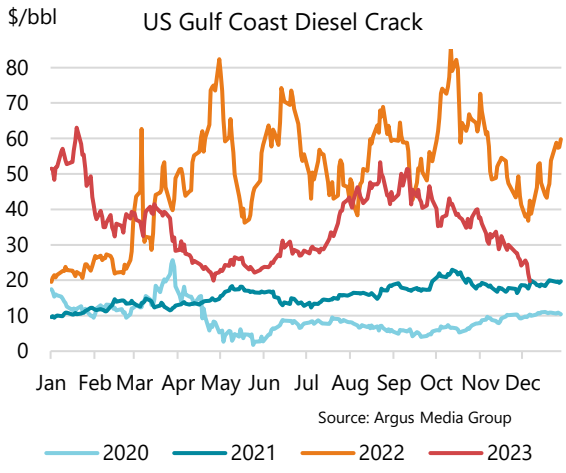




Diesel prices continued their decline in November, outpacing losses on crude – except in Europe – and underperforming all other grades in each region. Prices extended October's drop, falling by $7-14/bbl m-o-m, with USGC prices once again dropping the furthest. By early December, diesel had lost more than a quarter of its value versus the mid-September peak in Europe and Singapore, and a third of its value on the USGC.

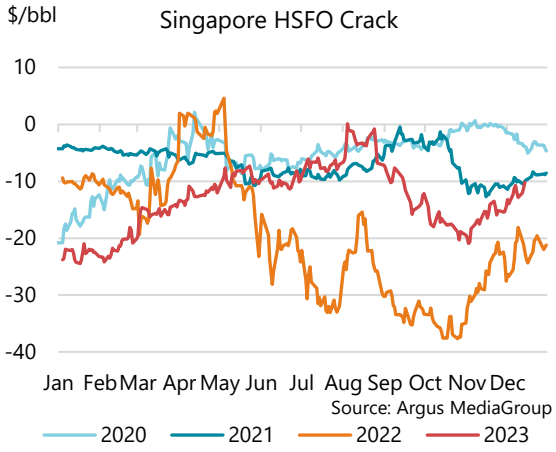
Consequently, diesel cracks eased by $5/bbl m-o-m in Singapore and the USGC but were marginally stronger in Europe. Atlantic Basin cracks were on average close to $32/bbl, while Singapore diesel cracks were just above $21/bbl. Early December saw further weakness, with USGC cracks dipping below $25/bbl, to their lowest level in six months. European cracks have thus far avoided the downturn seen elsewhere in December, widening the price arbitrage to other regions amidst reports of extremely tight supplies in the ARA barge market on a prompt basis. German specification diesel – which exceeds the UK and French specification diesel of -5°C cloud and -15°C cold filter plugging point (CFPP) - maintained its premium to French/UK diesel prices, even as diesel cracks started to soften again in early December.

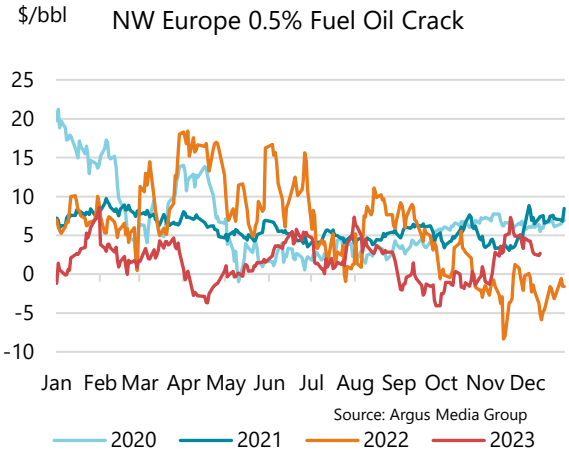




High sulphur fuel oil (HSFO) prices declined further in November, but not as fast as crude. Consequently, HSFO cracks, though still negative, improved on average last month by around $2/bbl in both Europe and Singapore to three-month highs. Nevertheless at -$15.60/bbl in Singapore and -$13.04/bbl in Europe, they remain a significant drag on cracking refinery profitability, overtaking naphtha as the weakest crack. Very low (0.5%) sulphur fuel oil (VLSFO) markets tightened, as the loss of supplies from the Al Zour refinery in the Middle East extended into December. However,

VLSFO cracks surrendered some of November's gains once the full restart of the refinery, likely in mid-December, was announced.

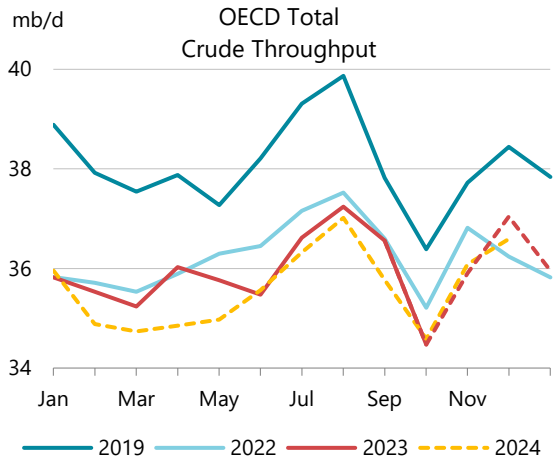


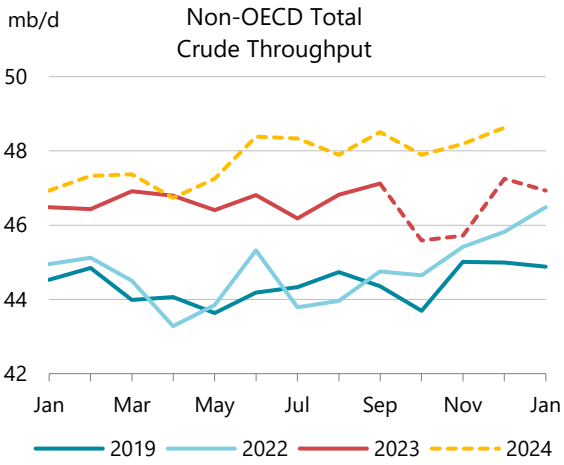


Regional refining developments

Global crude throughput now appears to have fallen far more in October than preliminary data indicated. OECD crude runs were 540 kb/d weaker than estimated last month, declining by 2.1 mb/d m-o-m to a 2.5-year low of 34.5 mb/d. Non-OECD runs were also depressed, with preliminary data 490 kb/d below expectations. Unplanned outages and heavy maintenance drove the shortfall. Consequently, 4Q23 global runs are now assessed at 81.9 mb/d, some 725 kb/d below last month's *Report.* Estimated average throughputs for 2023 and 2024 have been lowered to 82.4 mb/d and 83.3 mb/d, respectively with, annual growth trimmed to 1.6 mb/d this year and 880 kb/d in 2024.

We forecast refinery activity will reach a seasonal peak of 84.2 mb/d in December 2023, before maintenance in North America and the Middle East kick-start the spring turnaround season. For 2024 we assume that Nigeria's 650 kb/d Dangote refinery starts commercial operations in the middle of 1H24, following reports that the first crude deliveries are imminent. As highlighted by recent refinery start-ups, e.g. Al Zour and Duqm, the commissioning phase of new plants can last several quarters and, even then, achieving stable operating rates can prove elusive.





OECD refinery throughputs slumped by 2.1 mb/d in October to 34.5 mb/d, as extensive maintenance in the United States, Canada, Mexico and several European countries reduced activity. European runs dropped to 11.1 mb/d, some 350 kb/d below expectations, with German and UK runs once again falling short of expectations. Preliminary weekly November data point to OECD runs rebounding, with sequential increases in Europe, Japan, Canada, and the United States as the extended autumn maintenance season winds down.

Refinery Crude Throughput and Utilisation in OECD Countries
(million barrels per day)

							Change from		Utilisation rate	
	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	*Sep 23*	*Oct 22*	Oct 23	Oct 22
US[1]	16.21	16.39	16.60	16.69	16.24	15.26	-0.98	-0.52	85%	89%
Canada	1.68	1.81	1.85	1.85	1.74	1.53	-0.21	-0.12	84%	91%
Chile	0.19	0.14	0.19	0.19	0.20	0.19	0.00	0.00	85%	84%
Mexico	0.85	0.97	0.78	0.74	0.90	0.60	-0.30	-0.21	37%	50%
OECD Americas[1]	**18.93**	**19.32**	**19.42**	**19.47**	**19.07**	**17.58**	**-1.49**	**-0.84**	**81%**	**86%**
France	0.96	0.99	1.04	1.08	1.05	0.95	-0.10	0.51	78%	36%
Germany	1.54	1.68	1.71	1.72	1.60	1.58	-0.02	-0.30	77%	91%
Italy	1.17	1.18	1.22	1.32	1.43	1.42	-0.01	0.08	82%	77%
Netherlands	1.05	0.98	0.98	1.12	1.09	1.05	-0.05	0.00	84%	84%
Spain	1.18	1.17	1.29	1.27	1.31	1.21	-0.11	0.09	82%	76%
United Kingdom	1.05	0.94	1.00	0.99	0.89	0.78	-0.11	-0.27	65%	88%
Other OECD Europe[2]	4.04	4.08	4.33	4.44	4.34	4.14	-0.21	0.02	86%	85%
OECD Europe	**10.98**	**11.03**	**11.58**	**11.93**	**11.72**	**11.11**	**-0.61**	**0.13**	**81%**	**80%**
Japan	2.33	2.18	2.39	2.75	2.49	2.46	-0.04	-0.15	77%	78%
Korea	2.97	2.43	2.69	2.57	2.70	2.80	0.10	0.12	78%	75%
Other Asia Oceania[3]	0.55	0.51	0.53	0.52	0.57	0.52	-0.05	0.00	97%	97%
OECD Asia Oceania	**5.85**	**5.13**	**5.61**	**5.84**	**5.76**	**5.78**	**0.01**	**-0.02**	**79%**	**78%**
OECD Total	**35.76**	**35.47**	**36.61**	**37.24**	**36.56**	**34.47**	**-2.09**	**-0.74**	**81%**	**83%**

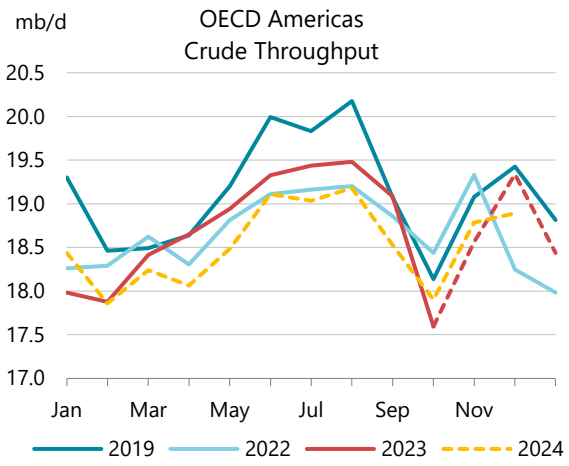
[1] US includes US50, OECD Americas include Chile and US territories

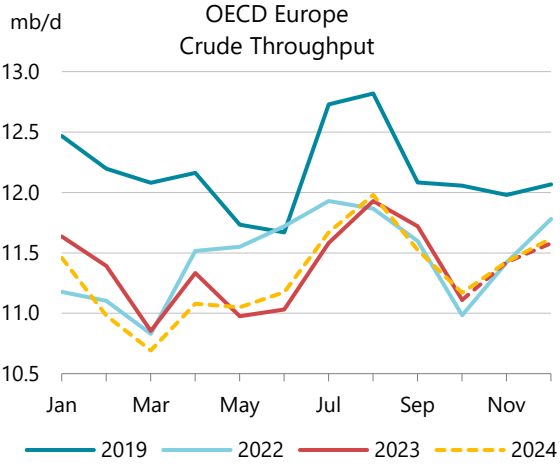
[2] Includes Lithuania

[3] Includes Israel

OECD Americas runs fell 1.5 mb/d m-o-m in October, to the lowest level since May 2021. Canadian throughputs dipped to 1.5 mb/d, their weakest run-rate in 2.5 years and Mexican throughputs were just 600 kb/d, some 25% below year-ago levels. **United States** runs of 15.3 mb/d reflected heavy planned maintenance that pegged runs 1 mb/d lower m-o-m and capped utilisation rates for the region at just 81%. Weekly EIA data point to maintenance extending well into November, with a knock-on impact on runs. Consequently, we have lowered our November estimate by 450 kb/d to 15.8 mb/d. However, absent a repeat of last December's weather-related outages, we expect runs to rebound to 16.5 mb/d in December.

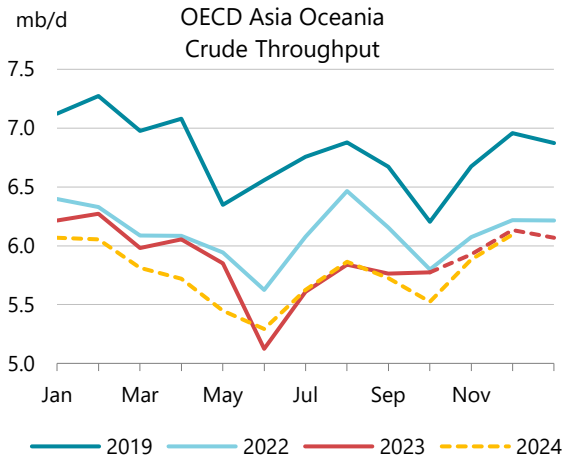
Mexican crude runs fell by 300 kb/d in October to 600 kb/d, their lowest level in three years. Nameplate capacity utilisation was just 37%, as reports indicate that the 190 kb/d Madero refinery was in a full turnaround for much of the month, while other plants struggled to lift operating rates. A recovery in crude runs is assumed for November and December, as maintenance is completed, and demand picks up ahead of the end of year holidays. However, crude runs will likely average 830 kb/d this year some 165 kb/d below Pemex's business plan published in December 2022. We forecast 2024 throughput to average 800 kb/d, as reliability at existing plants remains poor, raising the prospect of another year where imports meet the majority of oil demand. The recent approval by Mexico's Chamber of Deputies for a further $10 bn of investment in the 340 kb/d Dos Bocas refinery next year indicates that substantial work remains before it is ready to enter commercial operations.

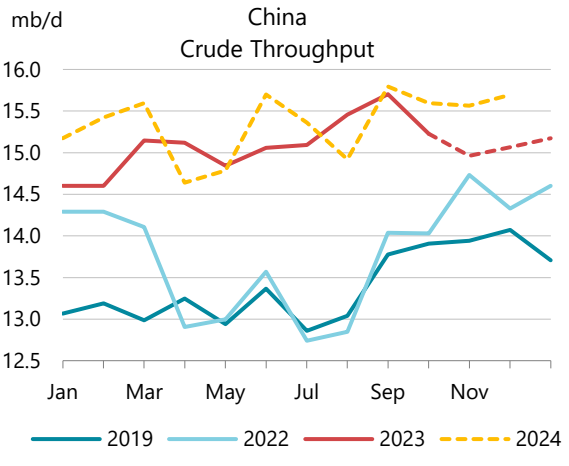




OECD European refinery throughputs fell 610 kb/d m-o-m to 11.1 mb/d in October, as seasonal maintenance reached its peak. Crude throughputs remained weak in Germany and the United Kingdom, and we have revised down our forecast for the former by 90 kb/d for 4Q23 and 1Q24. The announcement of the planned closure of the 150 kb/d Grangemouth refinery in Scotland during 2025 will lower UK runs in due course. However, it is noteworthy that even though the refinery benefits from a hydrocracker and a domestic market that is short of diesel, the operators do not see a viable path for ownership in the medium term. Joint owners Ineos and PetroChina are reportedly considering construction of a bio-refinery on the site in conjunction with converting existing facilities to import petroleum products.

OECD Asia Oceania runs were broadly unchanged in October (+10 kb/d m-o-m) at 5.8 mb/d, with offsetting moves by Japan and Korea. Korean runs reached a five-month high of 2.8 mb/d (+95 kb/d) amidst the tail-end of planned maintenance work. We expect Korean runs to increase further into year-end. Japanese runs were marginally below forecasts for October, but here-again the conclusion of seasonal maintenance should lift activity into year end.

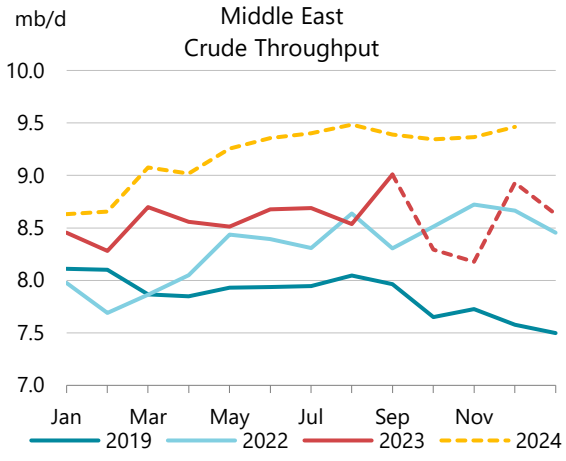


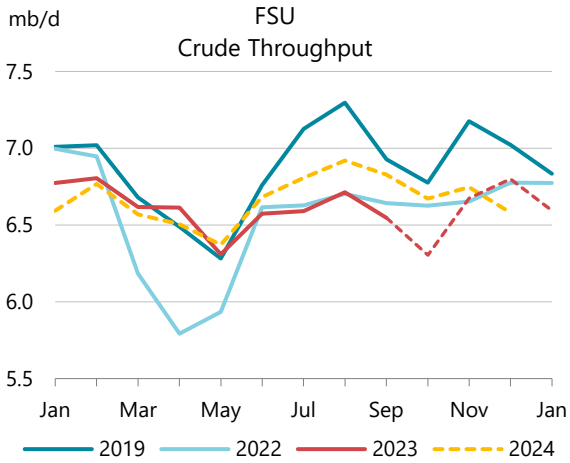


In line with our forecast, **Chinese** crude runs contracted m-o-m in October, to 15.2 mb/d, as planned maintenance and crude import quota constraints weighed on activity levels. Having reached a record monthly throughput of 15.7 mb/d in September, runs are forecast to average 15.1 mb/d in 4Q23, up 730 kb/d y-o-y. November throughputs are estimated to have averaged 15 mb/d while December should register a slight uptick, to 15.1 mb/d, following the end of seasonal maintenance. However, the lack of product export quotas – capped at 41 Mt since the fourth batch of allowances were issued

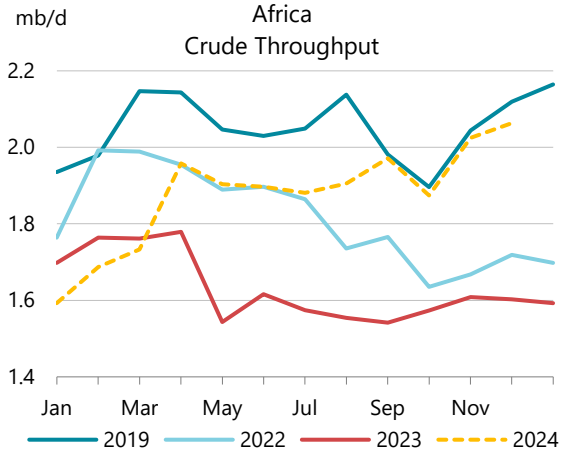
back in September – and reports of softening domestic demand from sectors such as construction skew risks to the downside. Offsetting this near-term bearish outlook, a revised schedule of planned maintenance lifts our 1Q24 estimate, but the forecast for 2024 runs is maintained at 15.4 mb/d.

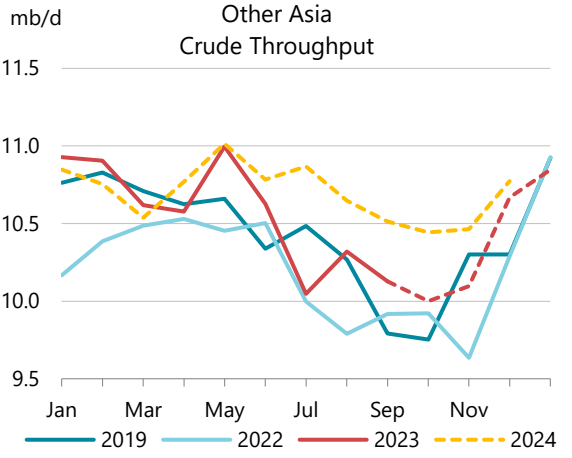
Middle East crude runs soared by nearly 500 kb/d m-o-m to a record high of 9 mb/d in September, according to preliminary data. Saudi Arabia led the gains, as its crude throughput reached a new high of 2.9 mb/d. Increased maintenance assessments for 4Q23 in the UAE and extended outages at Kuwait's Al Zour refinery, nevertheless lowered our 4Q23 estimate by 340 kb/d to 8.5 mb/d. The ongoing commissioning of Oman's Duqm refinery – with reports that upgrading units are to be started in 1Q24 – and our assumption that the 650 kb/d Al Zour returns to stable operations in the new year, combine to push runs above 9 mb/d in the coming months. **FSU runs** are lifted for 4Q23 by 70 kb/d, following stronger-than-expected Russian rates in October of 5.3 mb/d, and slightly higher for November/December, based on weekly data.





Other Asian crude runs appear to have passed their seasonal low point for the year of 10 mb/d in October and are set to reach 10.8 mb/d by January. Estimates for September were revised higher, following stronger data from India, Indonesia and Chinese Taipei. Our 4Q23 estimates have nevertheless been trimmed on the back of increased maintenance estimates for India and Viet Nam. **African** crude runs continue to languish at multi-year lows, with further downside due to the loss of Sudan's 70 kb/d refinery in the regional conflict. Our 2024 forecast of +240 kb/d y-o-y largely rests on progress at the Dangote refinery.

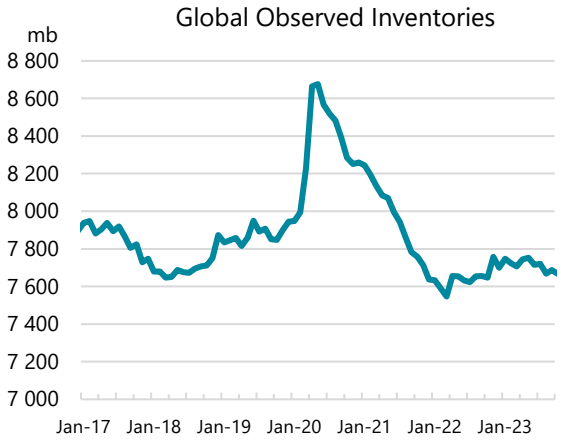


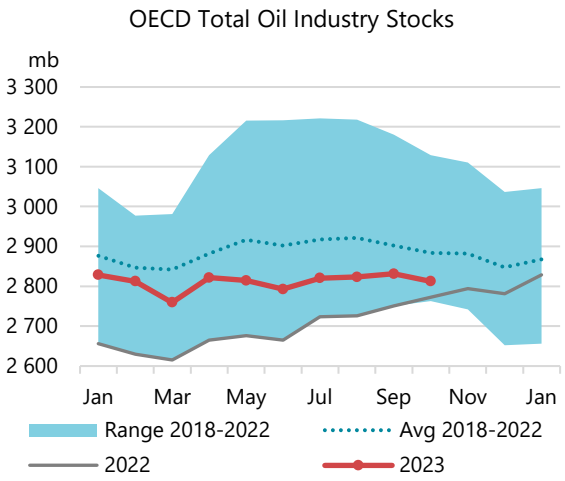


Stocks

Overview

Global observed oil inventories declined by 19.6 mb in October, in line with seasonal trends. While crude oil inventories were largely unchanged, oil product stocks fell for the first time in four months. The 18.1 mb product drawdown was driven by a massive 3.6 mb/d m-o-m cut in refinery output due to extensive maintenance work in October. The changes reverse the trends in 3Q23 when oil product stocks rose 121.2 mb, or 1.3 mb/d, while crude drew 149 mb, or 1.6 mb/d on average. OECD and non-OECD on-land stocks fell by 18.9 mb and 24.2 mb, respectively, while oil on water built for a second consecutive month, by 23.5 mb. Preliminary data suggest total inventories increased in November, mainly in crude oil.

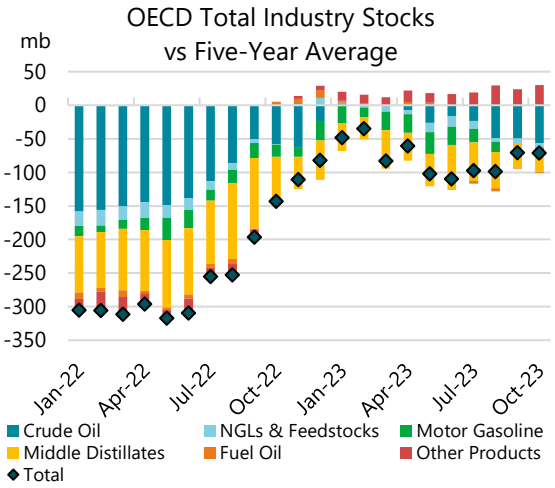




Sources: IEA, *Kayrros, Kpler, FEDCom/S&P Global Platts, Enterprise Singapore*

Industry stocks in OECD countries were down 19.1 mb to 2 812 mb in October, 71.2 mb below their five-year average. The deficit in crude oil, NGLs and feedstocks deepened to 62.7 mb while oil products narrowed to a marginal 8.5 mb, with a 31.1 mb shortfall in middle distillate stocks nearly offset by a 30 mb rise in other products, dominated by US LPG. In terms of forward demand, industry stocks covered 61.6 days, 0.5 days higher y-o-y.

In October, crude oil, NGL and feedstock inventories rose by 11.5 mb, led higher by a build in OECD Americas at +19.8 mb. By contrast, oil products declined by 30.6 mb. Middle distillates accounted for the largest share of the decrease at 16.5 mb, followed by gasoline at 8.2 mb. Other products fell by 3.4 mb but were at a record high level for October. OECD Americas entered the LPG stock draw season, but weak petrochemical demand in Europe and Asia tempered the decline. Fuel oil inventories were down by 2.6 mb.



In November, preliminary data suggest OECD commercial inventories edged up by 0.7 mb, led by the United States (+5.9 mb). Crude oil, NGL and feedstock inventories rose again, by 9.9 mb, with stock builds in the United States (+12.5 mb) and Japan (+3.4 mb) partly cancelled by a draw in Europe (-6 mb). Oil product inventories fell by 9.2 mb due to seasonal stock draw in other products (-12.9 mb), which were partially offset by typical builds in gasoline (+5.1 mb). Middle distillate and fuel oil inventories inched down by 0.7 mb and 0.8 mb, respectively.

Preliminary OECD Industry Stock Change in October 2023 and Third Quarter 2023

	October 2023 (preliminary) (million barrels)				October 2023 (preliminary) (million barrels per day)				Third Quarter 2023 (million barrels per day)			
	Am	Europe	As.Ocean	Total	Am	Europe	As.Ocean	Total	Am	Europe	As.Ocean	Total
Crude Oil	**17.9**	**-1.6**	**-8.1**	**8.1**	**0.6**	**-0.1**	**-0.3**	**0.3**	**-0.4**	**-0.2**	**-0.1**	**-0.7**
Gasoline	-8.3	-0.2	0.3	-8.2	-0.3	0.0	0.0	-0.3	0.1	0.1	0.0	0.2
Middle Distillates	-13.2	-5.0	1.7	-16.5	-0.4	-0.2	0.1	-0.5	0.1	0.2	0.1	0.4
Residual Fuel Oil	0.3	-2.3	-0.6	-2.6	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0
Other Products	-6.1	1.6	1.1	-3.4	-0.2	0.1	0.0	-0.1	0.5	0.1	0.0	0.5
Total Products	**-27.2**	**-5.9**	**2.5**	**-30.6**	**-0.9**	**-0.2**	**0.1**	**-1.0**	**0.6**	**0.3**	**0.1**	**1.0**
Other Oils[1]	1.9	2.2	-0.8	3.4	0.1	0.1	0.0	0.1	0.1	-0.1	0.1	0.1
Total Oil	**-7.5**	**-5.3**	**-6.4**	**-19.1**	**-0.2**	**-0.2**	**-0.2**	**-0.6**	**0.3**	**0.0**	**0.1**	**0.4**

[1] Other oils includes NGLs, feedstocks and other hydrocarbons.

OECD industry stocks for September were revised up by 0.6 mb following the submission of more complete data. Upward revisions in OECD Americas (+13.5 mb) and OECD Asia Oceania (+1.1 mb) were mostly offset by downward adjustments from OECD Europe (-14 mb). Oil products were revised higher by 6.8 mb, led by middle distillates (+7.8 mb), while crude oil, NGLs and feedstocks were reduced by 6.1 mb. August data were adjusted down, by 5.7 mb, mainly due to lower stocks in the Netherlands (-7.5 mb).

OECD Industry Stock Revisions versus November 2023 Oil Market Report

(million barrels)

	Americas		Europe		Asia Oceania		OECD	
	Aug-23	Sep-23	Aug-23	Sep-23	Aug-23	Sep-23	Aug-23	Sep-23
Crude Oil	**2.4**	**2.3**	**-5.8**	**-8.4**	**0.2**	**2.3**	**-3.2**	**-3.7**
Gasoline	0.0	-0.9	0.0	-0.2	0.0	0.2	-0.1	-0.9
Middle Distillates	0.0	3.1	-0.7	5.4	-0.2	-0.7	-0.9	7.8
Residual Fuel Oil	0.0	0.8	0.1	1.1	0.0	0.2	0.1	2.1
Other Products	-0.1	5.4	0.1	-6.7	0.0	-0.9	0.0	-2.2
Total Products	**-0.2**	**8.4**	**-0.5**	**-0.5**	**-0.2**	**-1.1**	**-0.8**	**6.8**
Other Oils[1]	0.0	2.8	-1.7	-5.2	0.0	-0.1	-1.7	-2.4
Total Oil	**2.3**	**13.5**	**-8.0**	**-14.0**	**0.1**	**1.1**	**-5.7**	**0.6**

[1] Other oils includes NGLs, feedstocks and other hydrocarbons.

Implied balance

In October, data available on global inventories show a decline of 630 kb/d, with drawdowns in both OECD and non-OECD stocks, of 610 kb/d and 780 kb/d, respectively, partially offset by an increase of oil on water of 760 kb/d. OECD crude industry stocks built by 370 kb/d while oil products fell by 990 kb/d. OECD government stocks were largely unchanged. Non-OECD crude stocks were down by 710 kb/d and product stocks at Fujairah and Singapore decreased by a combined 70 kb/d. Oil on water increased in both crude oil (+310 kb/d) and oil products (+450 kb/d). The IEA estimates the global oil demand and supply balance was in a surplus of 350 kb/d in October, with +990 kb/d unaccounted for. This might offset some of the -640 kb/d unaccounted for in the 3Q23 balance, due to differences in the timing for reporting of supply versus demand or stock changes.

IEA Global oil balance (implied stock change) (mb/d)									
	2019	2020	2021	2022	1Q23	2Q23	3Q23	Oct-23	Nov-23
Global oil balance	**-0.02**	**2.23**	**-1.99**	**0.65**	**1.68**	**0.16**	**-0.87**	**0.35**	**0.10**
Observed stock changes									
OECD industry stocks	**0.05**	**0.41**	**-1.06**	**0.35**	-0.25	0.37	0.42	-0.62	0.02
OECD government stocks	**-0.04**	**0.02**	**-0.16**	**-0.74**	0.03	-0.12	0.03	0.00	0.02
Non-OECD crude stocks*	**0.17**	**0.43**	**-0.46**	**0.26**	0.20	0.53	-0.19	-0.71	0.00
Selected non-OECD product stocks**	**-0.14**	**0.12**	**-0.02**	**-0.01**	0.35	-0.17	0.05	-0.07	0.01
Oil on w ater	**0.03**	**0.04**	**-0.05**	**0.28**	0.10	-0.59	-0.53	0.76	
Total observed stock changes	**0.07**	**1.02**	**-1.74**	**0.15**	0.44	0.01	-0.22	-0.63	
Unaccounted for balance	**-0.09**	**1.21**	**-0.24**	**0.50**	1.24	0.15	-0.64	0.99	

*Crude stock change data from *Kayrros* and estimated Saldanha Bay data from *Kpler*.

Kayrros data are available for selected countries and include only, and not all, above-ground storage.

**JODI data adjusted for monthly gaps in reporting, latest data for September 2023, plus Fujairah and Singapore inventories.

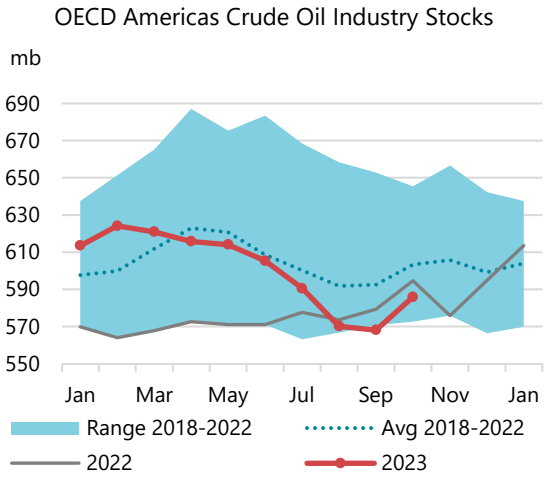
Sources: IEA, EIA, *PAJ* , *Euroilstock* , *Kayrros* , *JODI*, *Kpler* , *FEDCom/S&P Global Platts and* *Enterprise Singapore* .

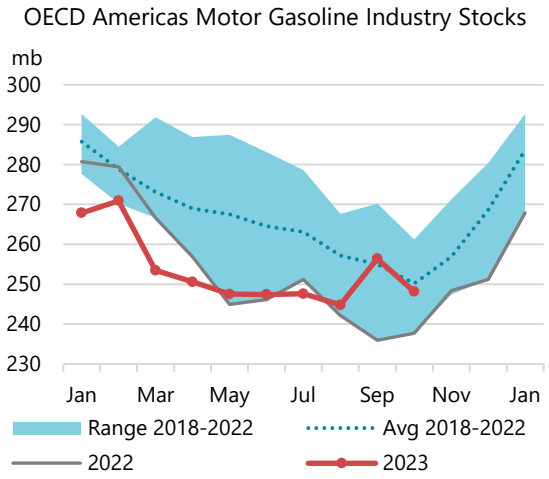
Recent OECD industry stock changes

OECD Americas

Commercial stocks in OECD Americas fell by 7.5 mb in October, largely on trend with the seasonal norm. Inventories stood at 1 534 mb by month-end, 11.9 mb below the five-year average. Crude oil stocks rose by 17.9 mb and were back within the five-year average range, due to larger than normal builds in the US (+14.8 mb) and Canada (+3 mb). This is partially explained by weak regional refinery intake that was 840 kb/d below a year ago. NGL and feedstock inventories inched up by 1.9 mb.

Oil product stocks dropped by a large 27.2 mb, led by a seasonal middle distillate inventory draw (-13.2 mb). Gasoline stocks fell by 8.3 mb, reversing a huge counter-seasonal build in the previous month. Other products decreased by 6.1 mb, in line with historical trends as the LPG stock-building season ended. Fuel oil stocks edged up by 0.3 mb but were 0.5 mb below the five-year range.





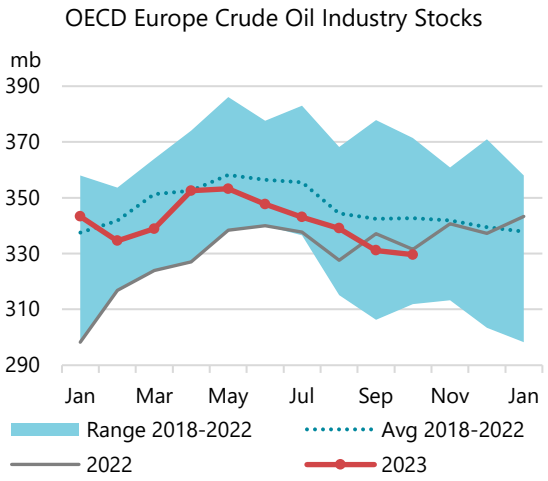
US commercial stocks built by 5.9 mb in November when they usually decline by 8.7 mb, according to weekly data from the US Energy Information Administration (EIA). Crude oil stocks surged by 13.2 mb, compared with a 0.5 mb five-year average draw, due to a lower refinery intake of 660 kb/d y-o-y. Volumes at the key Cushing, Oklahoma storage hub rose by 6.9 mb m-o-m, to 5.6 mb above

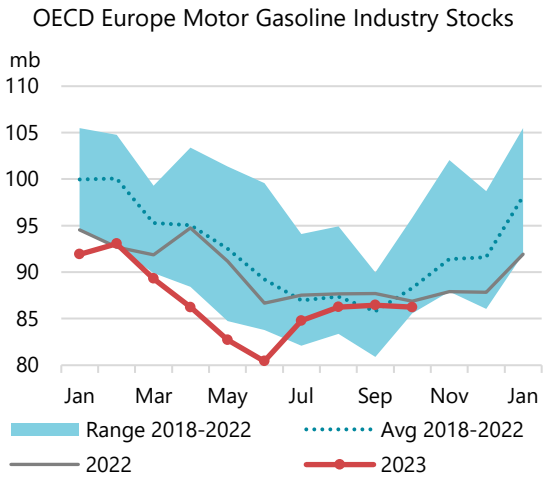
a year ago. Other oil inventories inched down by 0.8 mb. Oil product stocks dropped by 6.5 mb, in line with their seasonal pattern, despite low refinery runs and weaker imports (-430 kb/d y-o-y), suggesting sluggish demand for some products. Gasoline stocks rose by 4.6 mb. Middle distillate inventories increased by 1.7 mb, as higher diesel stocks (+4.7 mb) were partially offset by a 1.6 mb draw in heating oil inventories, which fell to their lowest level since at least 1993 based on available data. Fuel oil stocks drew by a larger than usual 1.5 mb, remaining 1 mb below the five-year range. Other product inventories declined by 11.4 mb.

OECD Europe

Industry stocks in OECD Europe fell by 5.3 mb, half the level of their typical October decline. They stood at 919.3 mb and remained 30.6 mb below the five-year average. Crude oil inventories were down by 1.6 mb, led by the Netherlands (-2.7 mb). The sharp fall from August pushed the country's stocks to the lowest since February 2022. NGL and feedstock inventories increased by 2.2 mb.

Oil product stocks declined by only 5.9 mb, compared with the five-year average of 12.5 mb. Lacklustre petrochemical demand led to other product inventories building by a counter-seasonal 1.6 mb – their highest in three years. Notably, in Germany other products jumped by 3.2 mb, or 34%. Middle distillate stocks fell by 5 mb when they normally decrease by 9.8 mb as inventory builds in France (+0.8 mb) and Germany (+0.5 mb) tempered the decline. Fuel oil fell by 2.3 mb, to a 14-month low. Gasoline stocks edged down counter-seasonally by 0.2 mb. The Netherlands reduced gasoline inventories by 0.9 mb to only 2.3 mb, the lowest since July 2018.



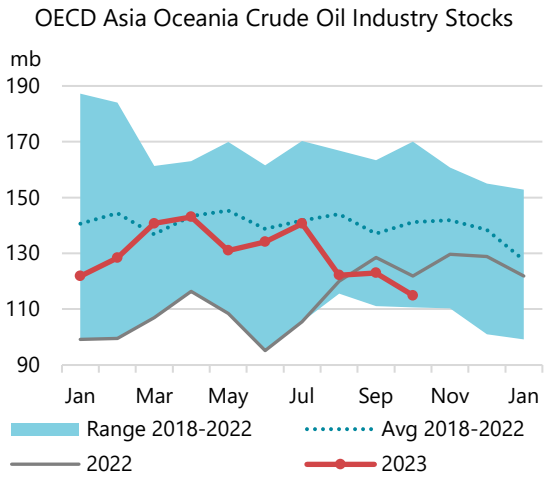


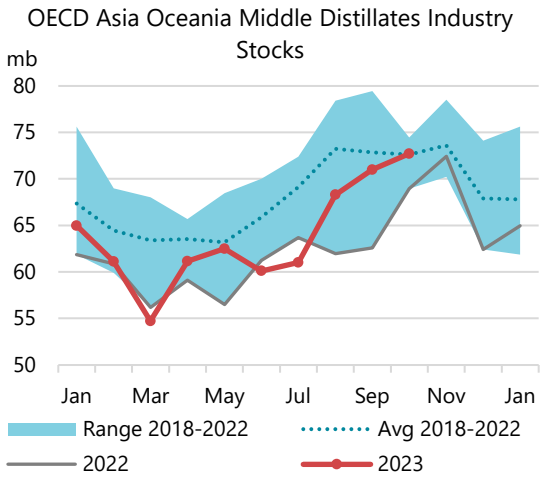
Preliminary November data from *Euroilstock* showed industry stocks fell by 4 mb. Crude oil inventories declined by 6 mb, led by Italy (-2.3 mb) and Germany (-1.8 mb). Oil product stocks built by 2 mb, mainly in France (+1.3 mb) and Spain (+1.2 mb), while they dropped in Germany (-1.1 mb) and Italy (-0.7 mb). Gasoline and fuel oil inventories increased by 1 mb and 2 mb, respectively. Middle distillate stocks drew by 1 mb and naphtha inventories were unchanged.

OECD Asia Oceania

In OECD Asia Oceania, commercial inventories declined by 6.4 mb to 359.1 mb in October, 28.7 mb below the five-year average. Crude oil stocks fell counter-seasonally by 8.1 mb to their lowest level since July 2022, led by Korea (-4.2 mb) and Japan (-3.9 mb). NGL and feedstock inventories were down by 0.8 mb.

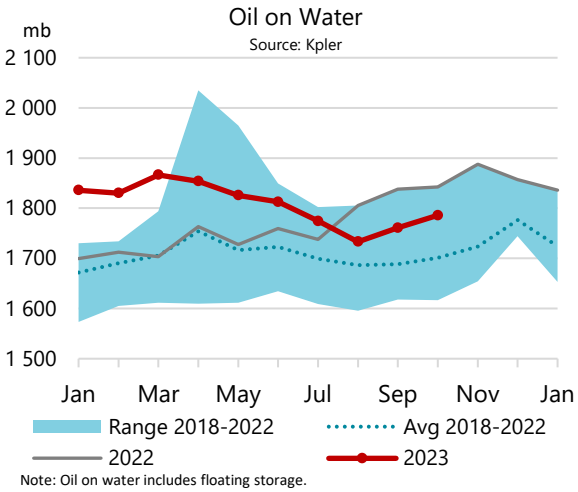
By contrast, oil product stocks in the region rose, by 2.5 mb, to their highest in 12 months. Middle distillate inventories led the increase, rising to their highest level since 2021, up 1.7 mb to 72.7 mb (slightly above the five-year average) as regional gasoil demand slumped. Due to relatively weak petrochemical activity, other product inventories increased by 1.1 mb, mainly in Japan (+1.2 mb). Gasoline stocks edged up by 0.3 mb while fuel oil decreased by 0.6 mb, in line with seasonal trends.



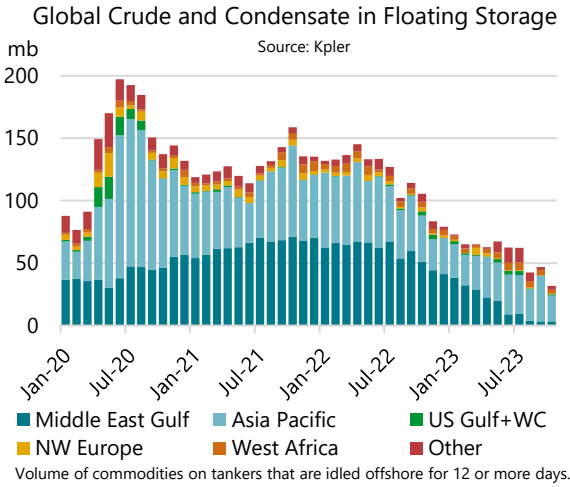


Weekly data from the *Petroleum Association of Japan* show commercial industry stocks decreased by 1.2 mb in November. Crude oil inventories rose counter-seasonally by 3.6 mb. Other oil stocks declined by a marginal 0.1 mb. Oil products fell by a total of 4.7 mb, when they normally build by 2.4 mb. Middle distillate stocks decreased by 1.4 mb, with kerosene (-1.8 mb) and jet fuel (-0.1 mb) easing against the five-year average while gasoil increased by 0.5 mb. Gasoline, fuel oil and other product stocks were down by 0.4 mb, 1.3 mb and 1.5 mb, respectively. Weak refinery crude intake (-240 kb/d y-o-y) partially explains these stock movements.

Other stock developments



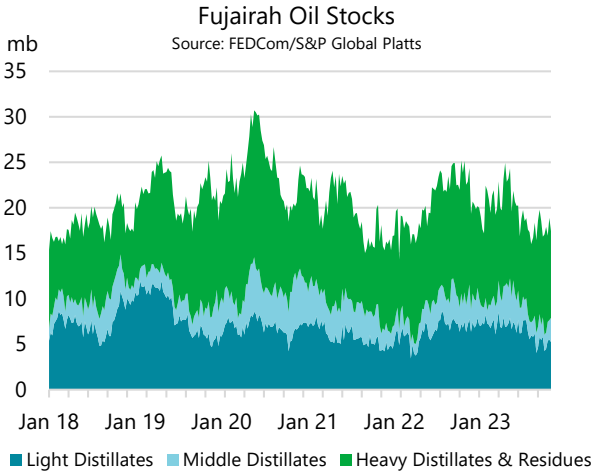
Note: Oil on water includes floating storage.

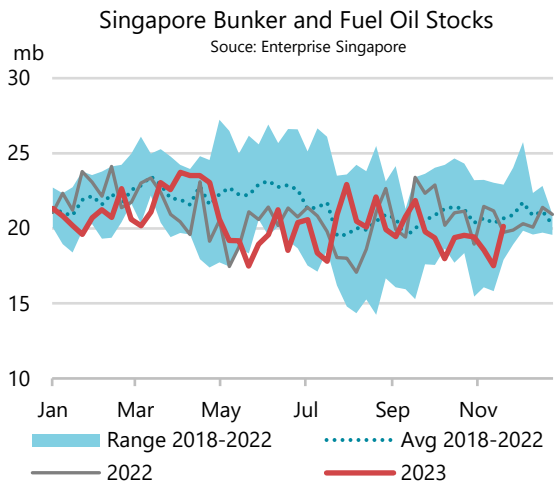


Volume of commodities on tankers that are idled offshore for 12 or more days.

In October, oil on water, including floating storage, swelled by 23.5 mb to 1 786 mb, according to tanker tracking data from *Kpler*. Crude oil and fuel oil rose by 9.7 mb and 13.6 mb, respectively, while clean products were stable. Fuel oil on water sharply rebounded from the bottom of the five-year range posted at the end of July thanks to rising export volumes from the Middle East, which hit a record high at 1.5 mb/d in October. Crude oil in floating storage plunged by 15 mb to 31.7 mb,

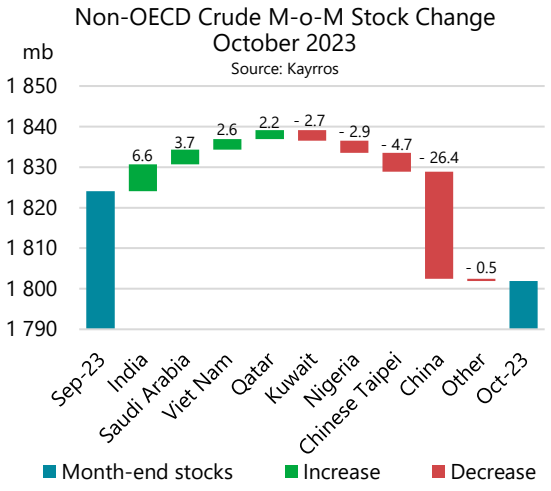
the lowest level in five years. In Asia, crude oil on water, mainly originating from the Middle East, declined by 15.7 mb. Oil products held in floating storage built by 2.6 mb.

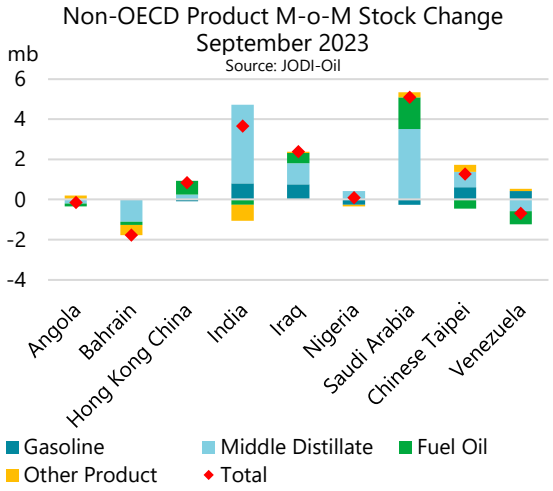




In Fujairah, independent product stocks decreased by 0.8 mb to 17.2 mb in October, as all three product categories declined, according to *FEDCom* and *S&P Global Platts* data. Middle distillate inventories fell by 0.5 mb to below the five-year range. Light distillate stocks edged down by 0.2 mb and remained below historical levels. Heavy distillate and residue inventories were down by a marginal 0.1 mb. In November, the total stocks recovered by 0.8 mb, as both light and middle distillates returned to the five-year range, while heavy distillates and residues fell.

Independent product stocks in Singapore declined by 1.2 mb to 40.9 mb in October, according to data from *Enterprise Singapore*. Similar to Fujairah, stock draws were observed in every category. Light distillate inventories fell for an eighth consecutive month, by 0.8 mb. Middle distillate and residual fuel oil stocks decreased by 0.3 mb and 0.2 mb, respectively. The total inventories drew again in November, by 0.6 mb to below the five-year range.





Observed crude oil stored in floating-roof tanks in non-OECD countries plunged by 22.2 mb in October, according to satellite data from *Kayrros*. China led the decline with a 26.4 mb draw, reflecting strong refinery runs at more than 15 mb/d of crude as the country kept product exports above 1 mb/d. In India, crude stocks built by 6.6 mb, reversing the stock draw in the previous month. Viet Nam stocks rose following the completion of turnaround work at the Ngi Son refinery. In November, non-OECD crude stocks were largely unchanged as a decline in China was offset by

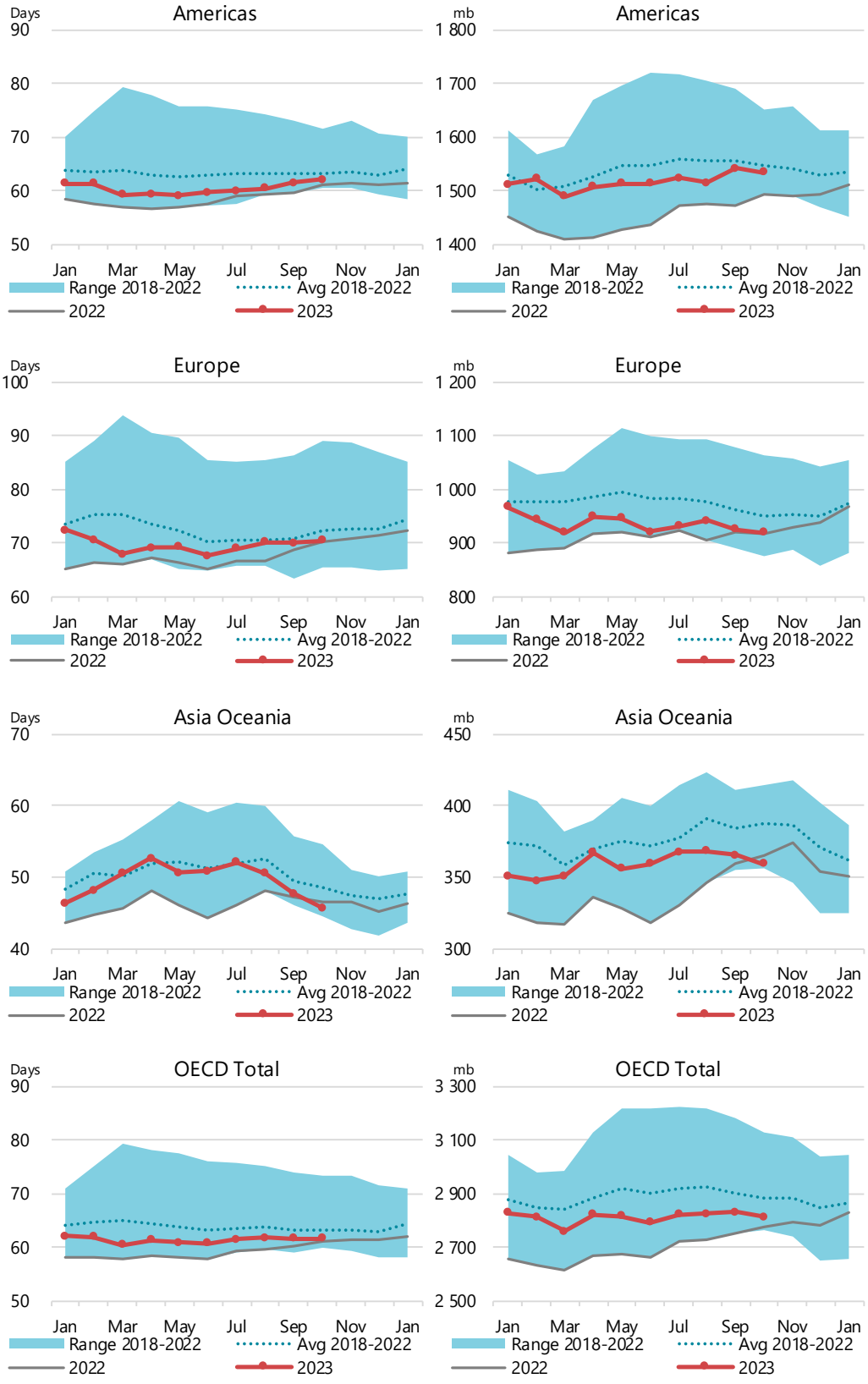
builds in other countries. China has depleted most of its 80 mb crude oil stock cushion built up between April and July, as their limited crude import quotas constrained purchases.

In September, oil product inventories in the nine non-OECD economies reporting to the *JODI-Oil World Database* rebounded by 10.7 mb, after declining by 8 mb in the previous month. Middle distillate stocks accounted for 8 mb of the increase, led by India (+3.9 mb) and Saudi Arabia (+3.5 mb). The builds occurred in the two countries despite robust gasoil and kerosene demand, as refinery output exceeded the five-year range while exports were below the range. Gasoline and fuel oil inventories also rose, by 2 mb and 1.1 mb, respectively. Other product stocks dipped by 0.4 mb, led by India (-0.8 mb) and Bahrain (-0.5 mb).

Regional OECD End-of-Month Industry Stocks

(in days of forward demand and million barrels of total oil)

Days[1] **Million Barrels**

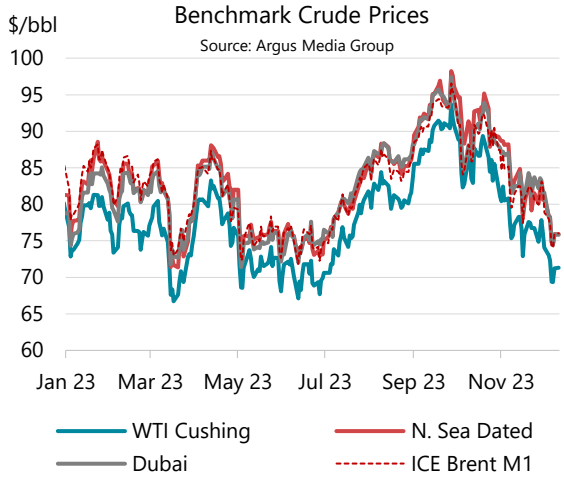


[1] Days of forward demand are based on average OECD demand over the next three months.

Prices

Overview

Oil prices extended their rout during November, with North Sea Dated falling by $7/bbl to $80.58/bbl over the course of the month. By the time of writing it had fallen to $74/bbl – almost $25/bbl below September's annual high and the lowest level in almost six months. A resurgence in US crude exports to Europe made for a well-supplied Atlantic Basin (see *WTI dominates Dated assessments as US crude exports flood Atlantic Basin*). North Sea Dated traded as low as $78/bbl mid-month, before recovering somewhat in anticipation of the 30 November OPEC+ meeting. However, the outcome of the gathering ultimately failed to galvanise prices and the sell off continued into early December. Bearishness in oil markets defied a sliding US dollar and bullish financial markets, as equities and bonds rallied on the expectation of central bank interest rate cuts in 1H24.



In November, WTI and Brent differentials to Dubai weakened, reflecting ample supplies west of Suez. Forward price structures continued to fade, as contango returned to prompt WTI spreads amid US restocking. At the same time, Dated slumped to a $2/bbl discount to ICE Brent futures. Gasoline cracks rebounded from last month's multi-year seasonal lows, while diesel cracks were little changed. Underscoring current investor pessimism surrounding the outlook for oil, net speculative exchange positions tumbled to their lowest level this year.

Anticipation of a dovish shift in central bank policy prompted a collapse in bond yields in November, with the 10-year US treasury yield slipping by 60 basis points – the biggest monthly drop in 15 years. Still, global economic activity is decelerating as the 2022-23 rate hikes and credit tightening take effect, resulting in slower GDP growth expectations for most major economies next year.

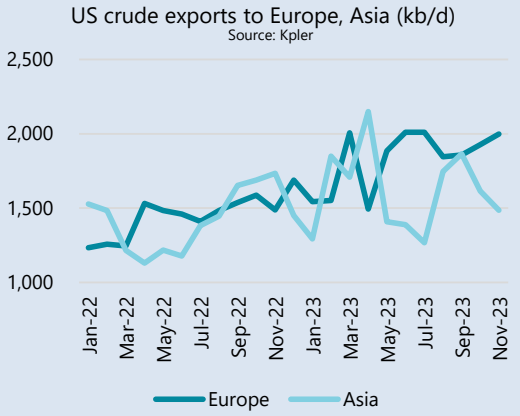
Among developed countries, a resilient United States compares to a sluggish Europe, with eurozone GDP growth seen at a scant 0.5% in both 2023 and 2024, dragged down by a moribund German economy. Still, November saw some signs of a nascent European recovery amid a modest pickup in manufacturing PMIs. Chinese data readings were mixed. The official PMI survey showed factory activity moving deeper into contraction in November (-0.1 to 49.4), while services decreased by almost a point to 49.3, falling below manufacturing for the first time this year. This sharply contradicts the Caixin manufacturing gauge (which is tilted towards small and medium-sized firms and exporters) that unexpectedly moved into expansion in November, at 50.7 (+1.2), while its services component also increased to 51.5 (+1.1). However, China's myriad economic woes, including rising unemployment, listless business and household sentiment, high local debt and a deep property downturn seem to preclude a sudden leap into expansion.

Crude Prices and Differentials ($/bbl)	Month			Week of:	Last:	Changes		Nov-23
	Sep 2023	Oct 2023	Nov 2023	27 Nov	11 Dec	*Monthly Δ	m-o-m Δ	y-o-y Δ
Crude Futures (M1)								
NYMEX WTI	89.43	85.47	77.38	75.83	71.32	*-5.06*	*-8.09*	*-7.01*
ICE Brent	92.59	88.70	82.03	81.29	76.03	*-4.58*	*-6.67*	*-8.82*
Crude Marker Grades								
North Sea Dated	93.96	91.12	83.05	81.18	75.92	*-8.28*	*-8.07*	*-8.04*
WTI (Cushing)	89.57	85.57	77.44	75.83	71.32	*-5.06*	*-8.14*	*-7.35*
Dubai (London close)	93.75	89.27	83.33	82.48	75.83	*-5.95*	*-5.93*	*-2.31*
Differential to North Sea Dated								
WTI (Cushing)	-4.39	-5.55	-5.62	-5.35	-4.60	*3.22*	*-0.07*	*0.69*
Dubai (London close)	-0.22	-1.86	0.28	1.30	-0.09	*2.33*	*2.14*	*5.73*
Differential to ICE Brent								
North Sea Dated	1.38	2.42	1.02	-0.11	-0.11	*-3.70*	*-1.40*	*0.78*
NYMEX WTI	-3.16	-3.24	-4.65	-5.46	-4.71	*-0.48*	*-1.42*	*1.81*

Sources: *Argus Media Group* , ICE, NYMEX (NYMEX WTI = NYMEX Light Sweet Crude).

*Monthly Δ refers to the difference in price between the current and previous end of month.

WTI dominates Dated assessments as US crude exports flood Atlantic Basin

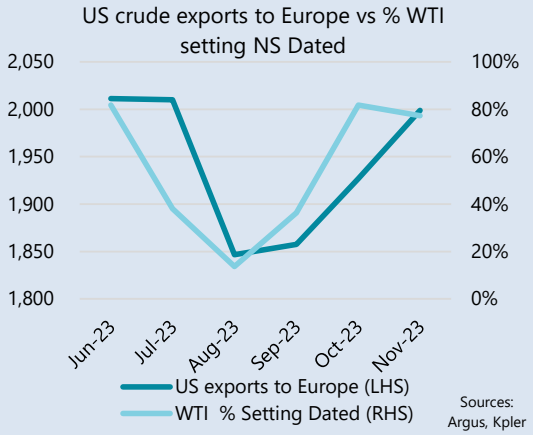


Price reporting agencies S&P Global Platts and Argus Media incorporated WTI Midland - a light sweet crude from the Texas Permian Basin - in their respective Dated Brent and North Sea Dated basket assessments as of June 2023. The geographic expansion was prompted by necessity, due to the dwindling liquidity of the local "BFOET" (Brent, Forties, Oseberg, Ekofisk and Troll) crude streams that had underpinned the Dated benchmarks previously. North Sea crude oil production has been in a state of relentless decline for over two decades. By massively expanding the volume of deliverable crude against the assessments, the decision to blend WTI into the Dated pool has summarily resolved the issue of volume decay. WTI Midland exports to Europe have averaged around 1.2 mb/d year-to-date (making up about two-thirds of total transatlantic crude exports). This compares to BFOET loadings that are on course to fall below 650 kb/d this year, according to *Argus* estimates.

The new price assessment regime culminates the US-led transformation of global oil markets that started with the US shale oil boom of the 2010s. The subsequent lifting of the crude export ban in 2015 and the expansion of pipelines connecting Permian Basin crude production to the Gulf Coast reinforced the link to the global seaborne market. Exports have soared, to an average of about 4 mb/d in 2023, with Europe accounting for almost half of shipments. The continent replaced Asia as the main destination in 2022, after sanctions forced Europe's refiners to supplant Russian supplies.

The integration of WTI deliveries into the Brent complex epitomises the global ascendancy of US oil, with the price difference between the two benchmarks essentially derived from transatlantic freight

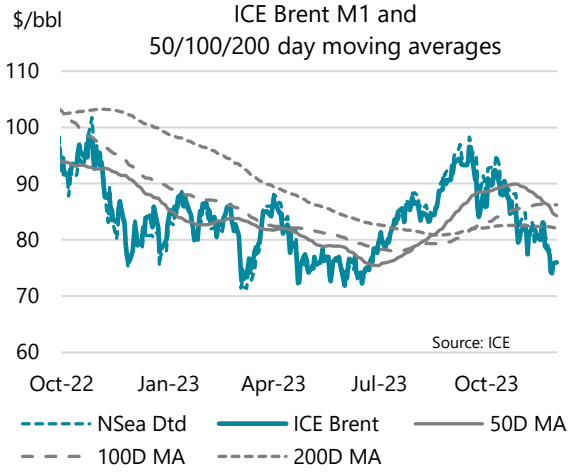
costs. Since its inclusion in the North Sea Dated assessment, WTI has dominated pricing, setting the Dated price more than half the time (as the lowest priced of the six deliverable grades). There is, however, considerable variation through time. In June, WTI set Dated about 80% of the time, but subsequently ceded first place to Forties and Brent between July and September, when it set the price only 30% of the time. This period saw increased interest in WTI from Asian refiners, as they briefly rebalanced their crude diet in the wake of Saudi production cuts and higher Urals prices. By bidding the grade away from European buyers, WTI lost its North Sea competitiveness, shifting above Brent and Forties. WTI then regained its former dominance in October and November as export flows to Europe recovered, with WTI setting Dated about 80% of the time in both months. Not all WTI cargoes to Europe are delivered into the Dated mechanism.



Futures markets

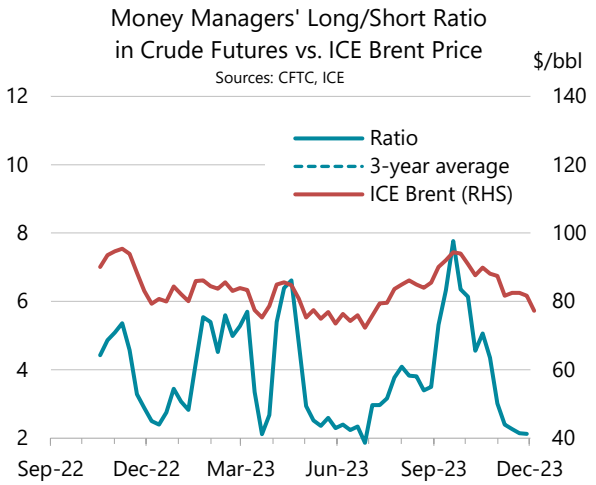
Crude futures fell $5/bbl in November, as traders ignored buoyant equity and bond markets by focussing on easing physical oil market balances and inventory builds. A weaker greenback (the US dollar index fell three percent m-o-m, its worst month in a year) failed to support prices.

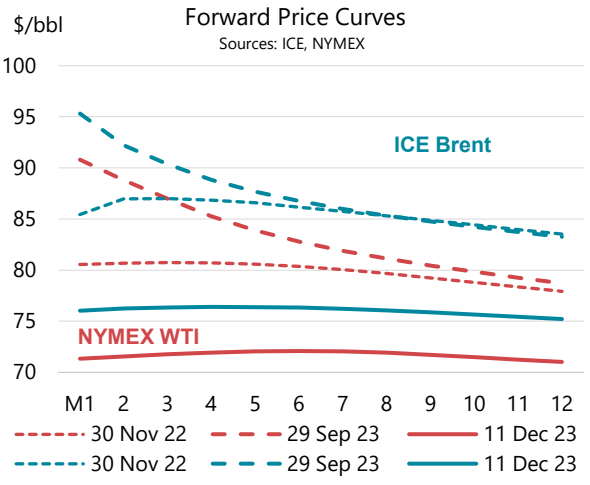
Oil's geopolitical risk premium deflated further in November, as fears of a broader Middle Eastern conflict subsided. Price volatility fell after October's war-related spike. Brent futures moved by a daily $1.45/bbl during November, in line with their one-year average. Technical price charts continued to deteriorate – crude traded below the 50- and 100-day moving averages during most of November before surrendering the 200-day level at month-end.



The forward price structure extended recent weakness, with the 1-12 month backwardation slumping to around $2/bbl for both WTI and Brent by end-month. Contango returned to prompt WTI spreads as US commercial crude stocks showed strong counter-seasonal builds throughout November, according to weekly EIA data. Inventories reached six-year seasonal highs (excluding the 2020 pandemic year). Stocks at the Cushing, Oklahoma delivery hub were similarly buoyant. The Brent curve remained in backwardation at month-end, but by early December had flipped into contango until mid-2024 maturities.

Gasoline cracks recovered from last month's 10-year seasonal lows, as US inventories drew during November, compared to their usual increase. The RBOB versus WTI front-month crack rose to the upper end of the 10-year seasonal historical range. Diesel cracks were stable, with the ULSD-WTI crack consolidating at last month's multi-year highs.





Investors remained exceptionally bearish on crude. The ratio of long-to-short crude future holdings by money managers slumped by one point to 2.1, the lowest level this year, with WTI seeing the heaviest liquidation. Funds had been net sellers of crude for five straight weeks before the streak ended at month-end, as traders reduced risk ahead of the approaching OPEC+ meeting. Refined products fared better, with net holdings rising 35 mb m-o-m, led mostly by RBOB gasoline.

Total open interest in the five main ICE and NYMEX futures contracts fell by 90 mb during the month, to 4 790 mb.

Prompt Month Oil Futures Prices

(monthly and weekly averages, $/bbl)

				Nov 2023			Week Commencing:				Last:
	Sep 2023	Oct 2023	Nov 2023	*Monthly Δ	m-o-m Δ	y-o-y Δ	06 Nov	13 Nov	20 Nov	27 Nov	11 Dec
NYMEX											
Light Sweet Crude Oil (WTI) 1st contract	89.43	85.47	77.38	-5.06	-8.09	-7.01	77.29	76.39	77.00	75.83	71.32
Light Sweet Crude Oil (WTI) 12th contract	81.82	79.34	76.40	2.73	-2.94	-2.38	74.15	74.35	75.93	74.66	71.00
RBOB	110.24	95.50	92.50	-0.96	-3.01	-13.96	91.41	91.95	93.69	92.52	85.81
ULSD	138.94	128.80	119.93	-6.74	-8.87	-30.13	117.62	118.17	121.29	118.65	109.57
ULSD ($/mmbtu)	25.03	23.20	21.60	-1.21	-1.60	-5.43	21.19	21.29	21.85	21.38	19.74
NYMEX Natural Gas ($/mmbtu)	2.70	3.15	3.06	-0.77	-0.09	-3.37	3.12	3.10	2.87	2.78	2.43
ICE											
Brent 1st contract	92.59	88.70	82.03	-4.58	-6.67	-8.82	81.55	80.84	81.75	81.29	76.03
Brent 12th; contract	85.69	83.32	80.46	2.85	-2.86	-3.70	78.25	78.41	80.13	78.96	75.20
Gasoil	130.61	121.22	111.95	-10.88	-9.27	-20.52	112.50	108.90	111.01	109.60	104.55
Prompt Month Differentials											
NYMEX WTI - ICE Brent	-3.16	-3.24	-4.65	-0.48	-1.42	1.81	-4.27	-4.45	-4.74	-5.46	-4.71
NYMEX WTI 1st vs. 12th	7.61	6.13	0.98	-7.79	-5.15	-4.63	3.13	2.04	1.08	1.17	0.32
ICE Brent 1st - 12th	6.90	5.38	1.57	-7.43	-3.81	-5.12	3.30	2.43	1.62	2.33	0.83
NYMEX ULSD - WTI	49.51	43.33	42.55	-1.68	-0.78	-23.12	40.33	41.78	44.29	42.82	38.25
NYMEX RBOB - WTI	20.80	10.04	15.12	4.10	5.08	-6.95	14.13	15.55	16.69	16.69	14.49
NYMEX 3-2-1 Crack (RBOB)	30.37	21.14	24.26	2.17	3.13	-12.34	22.86	24.29	25.89	25.40	22.41
NYMEX ULSD - Natural Gas ($/mmbtu)	22.33	20.05	18.55	-0.44	-1.50	-2.05	18.07	18.18	18.98	18.59	17.31
ICE Gasoil - ICE Brent	38.02	32.52	29.92	-6.30	-2.59	-11.70	30.95	28.06	29.26	28.30	28.52

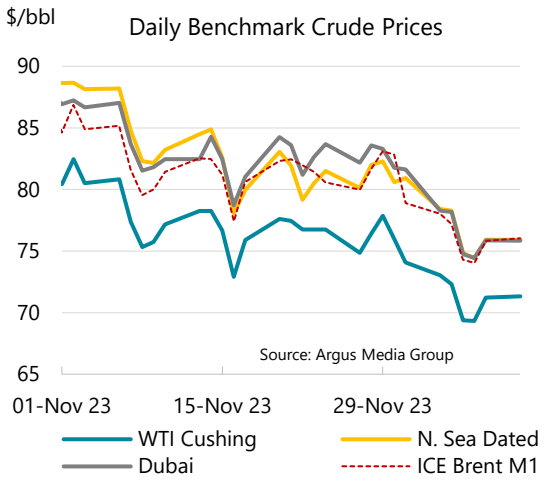
Sources: ICE, NYMEX

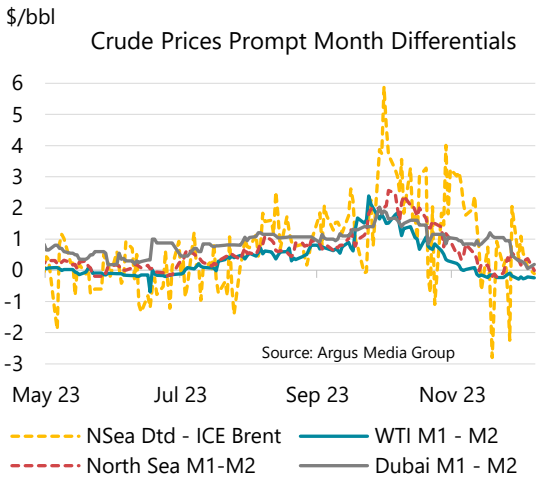
*Monthly Δ refers to the difference in price between the current and previous end of month.

Spot crude oil prices

Physical crude prices pulled back sharply in November, reflecting an adequately supplied market. Prices have fallen roughly 20% since their peak at end-September when North Sea Dated hit a high of $98.25/bbl. While ICE Brent dropped $6.67/bbl to $82.03/bbl, North Sea Dated fell $8.07/bbl to $83.05/bbl m-o-m, its lowest since July, as the physical crude market became increasingly long. US light sweet WTI softened by $8.14/bbl to $77.44/bbl, as both production and inventories increased. However, sour benchmark Dubai fell by a smaller $6.40/bbl to $83.41/bbl, as OPEC+ cuts continued to support tight sour crude markets.

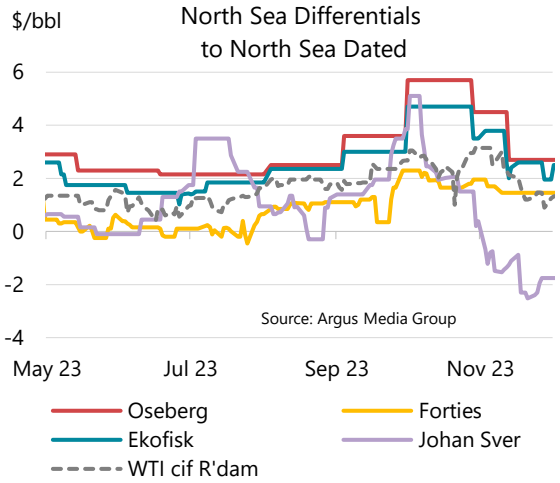
In November, the demand for prompt barrels eased in the Atlantic Basin as refinery uptake slowed due to weak demand and for year-end destocking for tax purposes. The steady supply of WTI crude in the Atlantic Basin left many cargoes unsold moving into December. The North Sea Dated to ICE Brent differential narrowed by $1.40/bbl m-o-m to a $1.02/bbl premium on average, briefly flipping to a $2.25/bbl discount following the 30 November OPEC+ meeting before reverting. By comparison, in early October the spread had widened to a high of $5.89/bbl, a level not seen since August 2022.

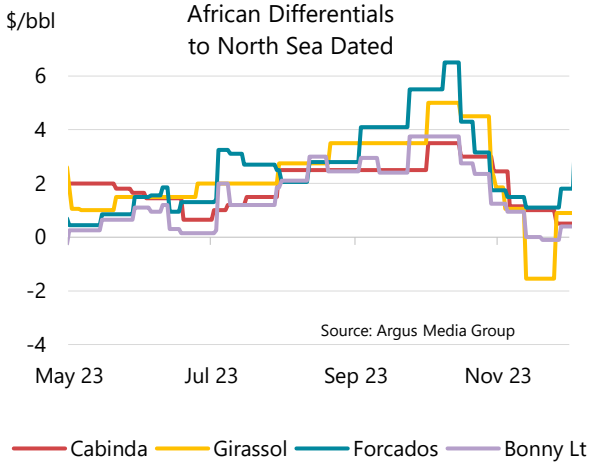




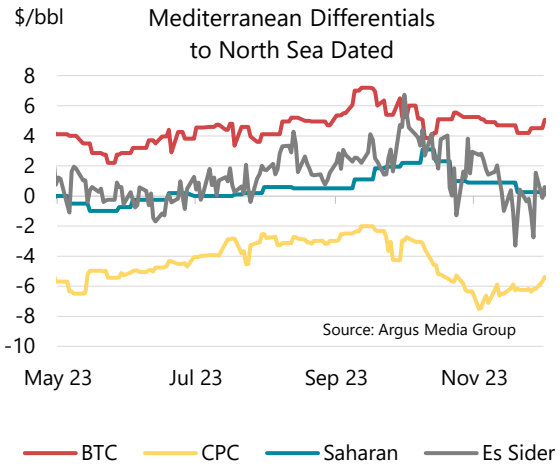
The Dubai backwardation, representing the premium of the front-month to the third-month contract, nearly halved in November, dropping to $1.57/bbl, indicative of slower demand. Chinese refiners have slowed both inputs and crude purchases as import quotas for independent refiners run low. Additionally, the Brent to Dubai EFS, measuring the spread between Brent futures and Dubai swaps, moved into negative territory by end-month. After widening in October, this spread declined by $1.73/bbl to $0.40/bbl, its lowest level since November 2020. This supported the arbitrage for the Atlantic Basin to East of Suez.

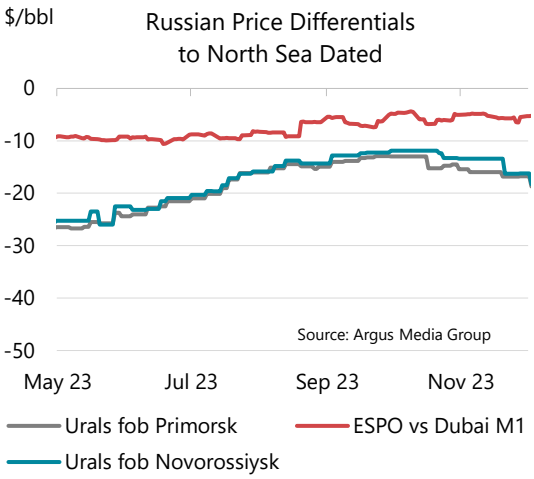
In November, North Sea light grades saw notable declines against Dated, prompted by ample market supply and slack refiner demand. Increased production and loadings from Norway's medium-sour Johan Sverdrup and Grane fields combined with lower Chinese buying and weaker demand for sour crudes to flip Johan Sverdrup pricing to a $2.52/bbl discount against Dated by end-month – nearly a $8/bbl decline from its early October premium. By contrast, the Forties spread to Dated remained relatively stable, decreasing by only $0.36/bbl m-o-m to $1.59/bbl on sustained interest from Chinese buyer Unipec. Among lighter crudes, premiums to Dated for Ekofisk and Oseberg shed close to $2/bbl each reaching $3.06/bbl and $3.60/bbl, while WTI CIF Rotterdam dropped by $0.29/bbl m-o-m to $2.22/bbl.





West African crude differentials to North Sea Dated collapsed by around $3/bbl on average, following an exceptionally robust October. The sharp decline was due to reduced demand from Asia and Europe as a result of lower refinery runs, elevated freight costs and lower light product cracks. Demand for Nigerian crudes remained weak, as the Atlantic Basin was saturated in sweet crude, and prices plummeted to a seven-month low in order to clear unsold cargoes. Forcados' premium fell by $3.62/bbl m-o-m to $1.36/bbl, Qua Iboe shed $2.35/bbl m-o-m to $1.06, and Bonny Lights' premium fell by $2.73/bbl m-o-m to $0.52/bbl. Brass River, however, experienced a significant $4.32/bbl m-o-m decline, flipping to a -$0.58/bbl discount. Angolan crudes were impacted by slower Chinese buying along with higher freight rates which dampened shipments eastward. However, towards end-month, some buyers seized the opportunity to purchase discounted unsold cargoes, pushing Girassol from a $1.55/bbl discount mid-month to a $0.90/bbl premium in early December. Meanwhile, Cabinda posted a steady decline, down $1.75/bbl m-o-m to $1.41/bbl, closing the month at a $0.50/bbl premium.



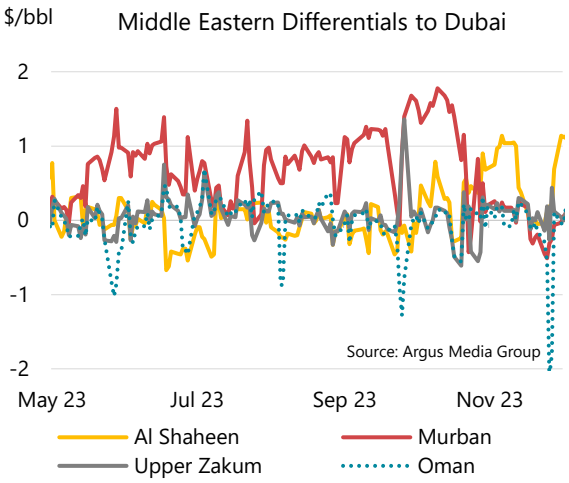


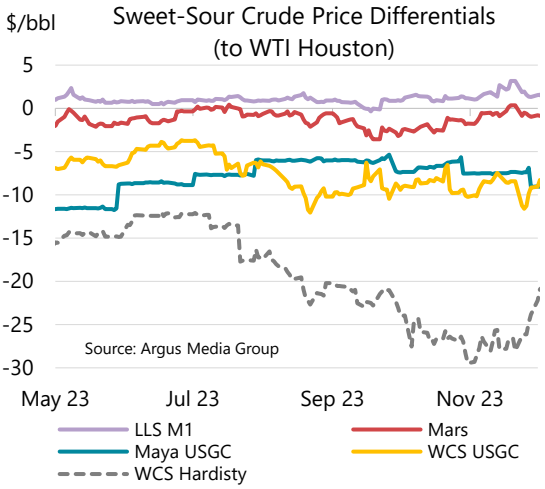
Weather conditions wreaked havoc on Mediterranean ports in November, with a Black Sea storm taking out the CPC terminal for the last portion of the month. At the same time, ports in Libya and Algeria were shut in early November. The temporary halt in loadings led to backlogs and in some cases resulted in lost production, pushing November cargoes into December. The CPC discount widened by $2.13/bbl m-o-m to -$6.46/bbl due to the loading uncertainties. BTC Azeri values dropped comparably less, weakening in-line with the overall market (-$0.37/bbl to $4.75/bbl). Weak end-year European refinery uptake pressured North African grades despite stronger overall naphtha

cracks. Algerian crude Saharan Blend fell $1.38/bbl m-o-m, to $0.72/bbl, while Libya's medium sweet Es Sider moved to a discount, dropping by $1.03/bbl to -$0.39/bbl below Dated.

The discount for ESPO against Dubai inched up by $0.17/bbl m-o-m to -$5.35/bbl. Shandong independent refiners continue to be significant buyers of ESPO Blend, yet their market share is declining. Recent weakness in ESPO Blend differentials primarily stems from the exhaustion of 2023 import quotas. However, the latest surge in freight rates supported ESPO in November. Russian Urals prices lost ground in November owing to the rally in freight rates along with tougher sanctions enforcement by the US Treasury. Urals FOB Primorsk fell by $2.25/bbl to -$15.99/bbl m-o-m, while Urals FOB Novorossiysk declined by $1.90/bbl to -$14.25/bbl (see *Russian oil export revenues drop sharply as Urals prices slump below its $60/bbl cap*).

Middle East crude spreads have closely aligned with the Dubai benchmark in recent months as the flattening of the Dubai curve highlights the waning interest in spot barrels. UAE light sour Murban fell to parity against Dubai, decreasing by $1.19/bbl m-o-m, and reaching its lowest monthly spread since 2021 when it usually commands a premium over heavier grades in the basket. Medium sour crude from the Mideast Gulf showed more stability than the region's lighter supply which came under pressure from as the arbitrage widened for Atlantic Basin sweet grades to East of Suez and on anticipation of higher exports of Murban in January due to a refinery turnaround at Ruwais. In addition, light grades were impacted by weaker gasoline margins. Oman discounts widened by only $0.15/bbl m-o-m to -$0.17/bbl, with most of the weakness occurring on the last two days of the month as a result of the front month contract expiry. Medium sour grades saw more support, in line with more favourable refining margins. Qatar Al-Shaheen added $0.27/bbl m-o-m to $0.50/bbl, while Upper Zakum differentials to Dubai rose by $0.20/bbl m-o-m to a premium of $0.13/bbl over the benchmark.





On the US Gulf Coast, the transatlantic arbitrage widened in October and into early November to a 7-month high of around $6/bbl due to surging freight rates and a rise in US inventories. However, the spread narrowed throughout November as freight costs eased. Weaker gasoline cracks exerted further downward pressure on WTI, as did the forward curve falling into contango. Both WTI Midland and Houston strengthened against WTI Cushing in November. A surge in production in the US Midcontinent depressed WTI Cushing relative to Houston, widening the spread to $1.18/bbl m-o-m (+$0.28/bbl), while that for WTI Midland hit $0.95/bbl (+$0.24/bbl). Subsequently, premiums for WTI Houston rose further to end the month at $1.63/bbl. Exports out of the USGC hit record highs in November of 4.5 mb/d. Louisiana Light Sweet (LLS) differential to WTI Houston increased to a high of $3.18/bbl on 20 November as a result of an oil spill in the Gulf of Mexico but retreated to $1.32/bbl by the end of November.

Heavy sour crude markets faced pressure from an influx of Venezuelan and Canadian crudes into the US Gulf Coast. Heavy grade WCS Houston dropped by $0.64/bbl to a $9.31/bbl discount to WTI Houston, while Maya fell by $0.65/bbl, to -$7.47/bbl. By contrast, medium sour Mars crude strengthened by $1.39/bbl to -$0.83/bbl as US SPR buybacks in December provided support.

Spot Crude Oil Prices and Differentials
(monthly and weekly averages, $/bbl)

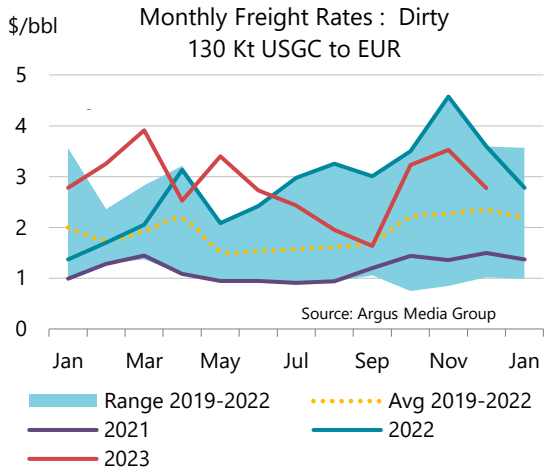
				Nov 2023			Week Commencing:				Last:
	Sep 2023	Oct 2023	Nov 2023	*Monthly Δ	m-o-m Δ	y-o-y Δ	06 Nov	13 Nov	20 Nov	27 Nov	11 Dec
Crudes											
North Sea Dated	93.96	91.12	83.05	-8.28	-8.07	-8.04	84.12	82.00	81.23	81.18	75.92
North Sea Mth 1	93.76	90.62	82.60	-6.79	-8.02	-9.68	82.94	81.45	81.45	81.56	75.61
North Sea Mth 2	92.72	88.78	82.24	-6.31	-6.53	-8.84	82.40	81.12	81.54	81.29	75.62
WTI (Cushing) Mth 1	89.57	85.57	77.44	-5.06	-8.14	-7.35	77.29	76.39	77.27	75.83	71.32
WTI (Cushing) Mth 2	88.57	84.39	77.46	-4.45	-6.93	-6.81	77.20	76.46	77.57	75.99	71.56
WTI (Houston) Mth 1	91.01	86.47	78.61	-4.26	-7.85	-7.66	78.18	77.50	78.64	77.42	72.77
Urals FOB Primorsk	80.25	77.39	67.07	-10.63	-10.33	4.53	68.39	66.05	64.92	64.35	57.22
Dubai (1st month)	93.19	89.81	83.41	-3.54	-6.40	-2.70	83.36	81.71	83.19	82.50	76.51
Differentials to Futures											
North Sea Dated vs. ICE Brent	1.38	2.42	1.02	-3.70	-1.40	0.78	2.57	1.16	-0.51	-0.11	-0.11
WTI (Cushing) Mth1 vs. NYMEX	0.14	0.11	0.06	0.00	-0.05	-0.34	0.00	0.00	0.26	0.00	0.00
Differentials to Physical Markers											
WTI (Houston) vs. North Sea Mth 2	-1.71	-2.31	-3.63	2.05	-1.32	1.18	-4.22	-3.62	-2.89	-3.88	-2.85
WTI (Houston) vs.WTI (Cushing)	1.44	0.89	1.18	0.80	0.28	-0.31	0.89	1.11	1.38	1.59	1.45
Urals FOB Prim vs. North Sea Dated	-13.71	-13.73	-15.99	-2.35	-2.25	12.57	-15.73	-15.95	-16.31	-16.83	-18.70
Dubai vs. ICE Brent	0.60	1.11	1.38	1.04	0.28	6.35	1.80	0.86	1.45	1.20	0.48
Dubai vs. WTI (Cushing) Mth 2	4.62	5.42	5.95	0.91	0.54	4.10	6.15	5.25	5.63	6.50	4.95
Prompt Month Differentials											
Forw ard North Sea Mth1-Mth2	1.04	1.84	0.36	-0.48	-1.48	-0.84	0.54	0.33	-0.08	0.26	-0.01
Forw ard WTI Cushing Mth1-Mth2	1.00	1.18	-0.03	-0.61	-1.21	-0.54	0.08	-0.06	-0.30	-0.16	-0.24
Forw ard Dubai Mth1-Mth2	1.17	1.49	0.97	-0.20	-0.52	-0.73	0.92	0.85	1.09	0.88	0.19

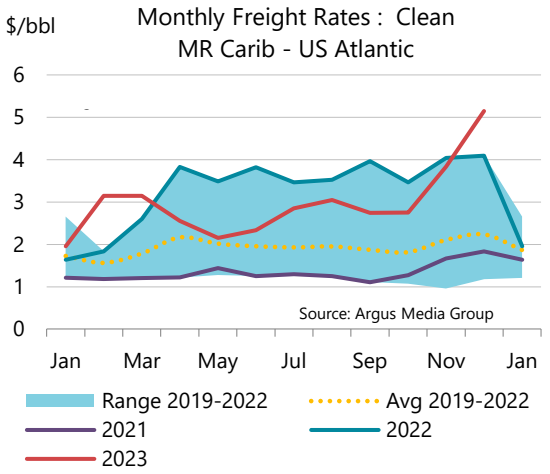
Sources: *Argus Media group* , ICE, NYMEX

*Monthly Δ refers to the difference in price between the current and previous end of month.

Freight

Global freight rates retreated after a strong run-up in October as a result of the extra slack in the market, particularly by the end of the month. Crude tanker rates, while higher m-o-m, saw sharp declines by the end of November and into December. Suezmax rates for tankers out of West Africa to Europe plunged by $1.78/bbl from the prior month's high of $4.36/bbl, to $2.58/bbl by the end of November. Similarly, the rates for Suezmax charters from the US to the UK fell by $1.84/bbl over the month, to average $2.84/bbl in the last week. North Sea Aframax rates also subsided from a high of $1.75/bbl to $1.29/bbl by the end of the month amid cargoes that failed to load in Mediterranean and long tonnage lists. With the exception of longer-haul VLCC charters, rates sustained much of their October momentum, with rates from the Middle East to Asia up $0.50/bbl m-o-m to average $2.15/bbl in November and stood at $2.08/bbl in the final week.





Clean tanker rates saw a mixed performance in November. Long-range (LR) shipments from the Middle East to Asia dropped by $0.97/bbl m-o-m, sliding further by month-end due to reduced activity following the closure at the Al-Zour refinery. Medium-range (MR) shipments within Asia decreased by $1.05/bbl m-o-m to $2.49/bbl. Meanwhile, MR shipments from South America to the USGC surged by $2.39/bbl throughout the month, and by $1.08/bbl on average, due to severe delays caused by disruptions at the Panama Canal, which are expected to persist into 2024. Additionally, MR rates for UK to US shipments rose by $0.66/bbl to $4.07/bbl with increased diesel and gasoil exports from the US to Europe. Reduced gasoline imports from the UK to the US added to rate tensions as fewer loaded ships took the west-bound route.

Freight Costs

(monthly and weekly averages, $/bbl)

			Nov-23			Week Commencing					
	Sep 23	Oct 23	Nov 23	*m-o-m chg*	*y-o-y chg*	30-Oct	06-Nov	13-Nov	20-Nov	27-Nov	04-Dec
Crude Tankers											
VLCC MEG-Asia	1.31	1.65	2.15	0.50	-0.73	2.21	2.14	2.18	2.12	2.08	2.05
130Kt WAF - UKC	1.88	2.94	3.00	0.06	-1.28	4.32	3.33	2.63	2.64	2.60	2.71
130Kt USGC to EUR	1.64	3.23	3.53	0.30	-1.05	4.67	3.92	3.19	3.27	2.84	2.79
North Sea Aframax	0.82	1.27	1.56	0.28	-0.24	1.75	1.70	1.58	1.49	1.29	1.25
Product Tankers											
LR MEG - Japan	4.35	4.98	4.31	-0.67	-1.32	5.22	4.51	4.10	4.11	3.93	3.83
MR Sing - JPN	3.73	3.54	2.49	-1.05	-2.06	2.93	2.55	2.46	2.28	2.45	2.86
MR Carib - US Atlantic	2.74	2.75	3.84	1.08	-0.21	2.62	3.03	4.07	4.46	5.01	5.17
MR UK-US Atlantic	3.84	3.41	4.07	0.66	-1.55	3.69	4.36	3.96	3.75	4.42	4.06

Source: *Argus Media Group.*

Tables

Table 1
WORLD OIL SUPPLY AND DEMAND
(million barrels per day)

	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024
OECD DEMAND																	
Americas	22.5	24.3	24.7	24.8	24.9	24.7	24.8	24.5	25.2	25.4	25.1	25.0	24.5	24.9	25.1	24.9	24.9
Europe	12.4	13.2	13.2	13.5	14.0	13.3	13.5	13.1	13.5	13.6	13.2	13.4	13.1	13.4	13.3	13.3	13.3
Asia Oceania	7.2	7.3	7.8	6.9	7.2	7.6	7.4	7.8	7.0	7.1	7.7	7.4	7.7	7.0	7.1	7.7	7.4
Total OECD	**42.1**	**44.8**	**45.7**	**45.2**	**46.1**	**45.7**	**45.7**	**45.4**	**45.7**	**46.0**	**45.9**	**45.8**	**45.3**	**45.3**	**45.5**	**45.9**	**45.5**
NON-OECD DEMAND																	
FSU	4.6	4.9	4.8	4.8	5.1	5.1	4.9	4.9	4.9	5.0	4.9	4.9	4.8	4.8	5.0	5.0	4.9
Europe	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
China	14.3	15.1	15.1	14.0	14.5	15.0	14.7	15.6	16.6	16.9	16.7	16.4	16.7	17.0	17.5	17.5	17.2
Other Asia	13.0	13.5	14.2	14.2	13.6	14.3	14.1	14.4	14.5	14.1	14.6	14.4	14.7	14.8	14.4	15.0	14.7
Americas	5.4	6.0	6.0	6.2	6.4	6.3	6.2	6.2	6.3	6.5	6.3	6.3	6.2	6.4	6.5	6.5	6.4
Middle East	8.0	8.3	8.4	8.9	9.3	8.7	8.8	8.7	8.8	9.3	8.6	8.9	8.6	9.0	9.4	8.8	9.0
Africa	3.8	4.0	4.3	4.2	4.2	4.4	4.3	4.3	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.5	4.3
Total Non-OECD	**49.8**	**52.7**	**53.5**	**53.1**	**53.9**	**54.6**	**53.8**	**54.8**	**56.0**	**56.8**	**56.2**	**56.0**	**56.1**	**57.0**	**57.9**	**58.0**	**57.3**
Total Demand[1]	**91.9**	**97.5**	**99.2**	**98.3**	**100.0**	**100.2**	**99.5**	**100.2**	**101.7**	**102.8**	**102.2**	**101.7**	**101.4**	**102.4**	**103.4**	**103.9**	**102.8**
OECD SUPPLY																	
Americas	23.9	24.3	25.0	25.4	26.1	26.3	25.7	26.7	26.9	27.7	27.7	27.2	27.6	27.9	28.1	28.0	27.9
Europe	3.6	3.4	3.3	3.0	3.1	3.2	3.2	3.3	3.2	3.0	3.1	3.2	3.2	3.1	3.0	3.1	3.1
Asia Oceania	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total OECD[2]	**28.0**	**28.2**	**28.8**	**28.9**	**29.6**	**30.0**	**29.3**	**30.4**	**30.5**	**31.2**	**31.3**	**30.9**	**31.2**	**31.4**	**31.6**	**31.7**	**31.5**
NON-OECD SUPPLY																	
FSU	13.5	13.8	14.4	13.4	13.7	14.1	13.9	14.2	13.8	13.6	13.7	13.8	13.7	13.7	13.7	13.8	13.7
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.0	4.1	4.2	4.2	4.1	4.1	4.2	4.3	4.3	4.2	4.2	4.3	4.3	4.4	4.3	4.3	4.3
Other Asia	3.0	2.9	2.8	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.6
Americas	5.3	5.3	5.4	5.5	5.8	5.9	5.6	6.0	6.0	6.3	6.4	6.2	6.6	6.6	6.7	6.7	6.7
Middle East	3.0	3.1	3.1	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Africa	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total Non-OECD[2]	**30.3**	**30.5**	**31.3**	**30.4**	**30.8**	**31.4**	**31.0**	**31.6**	**31.3**	**31.2**	**31.4**	**31.4**	**31.7**	**31.8**	**31.8**	**31.9**	**31.8**
Processing gains[3]	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Global Biofuels	2.6	2.8	2.5	3.1	3.3	2.9	2.9	2.7	3.3	3.6	3.2	3.2	2.8	3.4	3.7	3.3	3.3
Total Non-OPEC Supply	**63.1**	**63.8**	**65.0**	**64.7**	**66.0**	**66.6**	**65.6**	**67.0**	**67.5**	**68.4**	**68.3**	**67.8**	**68.1**	**69.1**	**69.4**	**69.2**	**69.0**
OPEC[4]																	
Crude	25.7	26.5	28.6	28.7	29.6	29.4	29.1	29.3	28.9	28.0							
NGLs	5.3	5.3	5.4	5.5	5.5	5.4	5.4	5.5	5.5	5.6	5.6	5.5	5.6	5.6	5.7	5.7	5.6
Total OPEC	**31.0**	**31.7**	**34.0**	**34.2**	**35.1**	**34.8**	**34.5**	**34.8**	**34.4**	**33.6**							
Total Supply	**94.1**	**95.5**	**98.9**	**98.9**	**101.1**	**101.4**	**100.1**	**101.9**	**101.9**	**102.0**							
STOCK CHANGES AND MISCELLANEOUS																	
Reported OECD																	
Industry	0.4	-1.1	-0.4	0.5	0.9	0.3	0.4	-0.2	0.4	0.4							
Government	0.0	-0.2	-0.5	-1.1	-1.1	-0.3	-0.7	0.0	-0.1	0.0							
Total	**0.4**	**-1.2**	**-0.9**	**-0.5**	**-0.1**	**0.0**	**-0.4**	**-0.2**	**0.2**	**0.5**							
Floating storage/Oil in transit	0.0	0.0	-0.6	0.6	0.9	0.2	0.3	0.1	-0.6	-0.5							
Miscellaneous to balance[5]	1.8	-0.7	1.1	0.6	0.3	1.0	0.8	1.8	0.5	-0.8							
Total Stock Ch. & Misc	**2.2**	**-2.0**	**-0.3**	**0.7**	**1.1**	**1.2**	**0.7**	**1.7**	**0.2**	**-0.9**							
Memo items:																	
Call on OPEC crude & stock changes[6]	23.5	28.4	28.9	28.1	28.5	28.2	28.4	27.7	28.7	28.9	28.3	28.4	27.7	27.7	28.3	29.0	28.2

1 Measured as deliveries from refineries and primary stocks, comprises inland deliveries, international marine bunkers, refinery fuel, crude for direct burning,oil from non-conventional sources and other sources of supply. Includes biofuels.
2 Comprises crude oil, condensates, NGLs, oil from non-conventional sources and other sources of supply.
3 Net volumetric gains and losses in the refining process and marine transportation losses.
4 OPEC include current members throughout the time series.
5 Includes changes in non-reported stocks in OECD and non-OECD.
6 Total demand minus total non-OPEC supply minus OPEC NGLs.

For the purpose of this and the following tables :
- OECD comprises of Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherland, Norway, New Zealand, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Republic of Türkiye, UK, US.
- OPEC comprises of Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Neutral zone, Nigeria, Saudi Arabia, UAE, Venezuela.
- OPEC+ comprises of OPEC members throughtout time series plus Sudan, South Sudan, Russia, Oman, Mexico, Malaysia, Kazakhstan, Brunei, Bahrain, Azerbaijan.

Table 1a
WORLD OIL SUPPLY AND DEMAND: CHANGES FROM LAST MONTH'S TABLE 1
(million barrels per day)

	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024
OECD DEMAND																	
Americas	0.0	0.0	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	0.0	0.0
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.2	0.0	0.0	0.0	-0.1	0.0	0.0
Asia Oceania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total OECD	**0.0**	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**-0.2**	**-0.1**	**0.1**	**0.1**	**-0.1**	**-0.1**	**0.0**
NON-OECD DEMAND																	
FSU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0
Europe	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	0.0	0.0	0.0	0.0
China	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1
Other Asia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	0.0	0.1	0.1	0.0	-0.1	0.0
Americas	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	0.0	0.0	0.0	0.0
Middle East	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2
Africa	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	0.0	0.0	0.0	0.0
Total Non-OECD	**0.0**	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**-0.4**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**-0.1**
Total Demand	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.2**	**-0.2**	**-0.1**	**-0.2**	**0.0**	**-0.2**	**-0.6**	**-0.2**	**-0.1**	**0.0**	**-0.1**	**-0.2**	**-0.1**
OECD SUPPLY																	
Americas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Europe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1
Asia Oceania	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	0.0	0.0	0.0	0.0
Total OECD	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.2**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**
NON-OECD SUPPLY																	
FSU	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	0.0	0.0	0.0	0.0
Europe	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	0.0	0.0	0.0	0.0
China	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other Asia	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	0.0	0.0	0.0	0.0
Americas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0
Middle East	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	0.0	0.0	0.0	0.0
Africa	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	0.0	0.0	0.0	0.0
Total Non-OECD	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-0.1**	**0.0**	**-0.2**	**0.0**	**0.0**	**0.0**	**-0.1**
Processing gains	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	0.0	0.0	0.0	0.0
Global Biofuels	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	0.0	0.0	0.0	0.0
Total Non-OPEC Supply	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.1**	**0.1**	**-0.1**	**0.1**	**0.2**	**0.2**	**0.1**
OPEC																	
Crude	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
NGLs	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	0.0	0.0	0.0	0.0
Total OPEC	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**							
Total Supply	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**							
STOCK CHANGES AND MISCELLANEOUS																	
REPORTED OECD																	
Industry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
Government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**							
Floating storage/Oil in transit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
Miscellaneous to balance	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.5							
Total Stock Ch. & Misc	**0.0**	**0.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.0**	**0.5**							
Memo items:																	
Call on OPEC crude & stock changes	0.0	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	0.0	-0.5	-0.6	-0.3	0.0	-0.1	-0.3	-0.4	-0.2

Note: When submitting monthly oil statistics, OECD member countries may update data for prior periods. Similar updates to non-OECD data can also occur.

Table 1b
WORLD OIL SUPPLY AND DEMAND (Including OPEC+ based on current agreement[1])
(million barrels per day)

	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024
Total Demand	**91.9**	**97.5**	**99.2**	**98.3**	**100.0**	**100.2**	**99.5**	**100.2**	**101.7**	**102.8**	**102.2**	**101.7**	**101.4**	**102.4**	**103.4**	**103.9**	**102.8**
OECD SUPPLY																	
Americas[2]	21.9	22.4	23.0	23.4	24.1	24.3	23.7	24.6	24.7	25.6	25.6	25.1	25.5	25.8	26.0	26.0	25.8
Europe	3.6	3.4	3.3	3.0	3.1	3.2	3.2	3.3	3.2	3.0	3.1	3.2	3.2	3.1	3.0	3.1	3.1
Asia Oceania	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total OECD (non-OPEC+)	**26.0**	**26.3**	**26.8**	**26.9**	**27.6**	**28.0**	**27.3**	**28.3**	**28.4**	**29.1**	**29.2**	**28.8**	**29.1**	**29.3**	**29.5**	**29.6**	**29.4**
NON-OECD SUPPLY																	
FSU[3]	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.0	4.1	4.2	4.2	4.1	4.1	4.2	4.3	4.3	4.2	4.2	4.3	4.3	4.4	4.3	4.3	4.3
Other Asia[4]	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9
Latin America	5.3	5.3	5.4	5.5	5.8	5.9	5.6	6.0	6.0	6.3	6.4	6.2	6.6	6.6	6.7	6.7	6.7
Middle East[5]	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Africa[6]	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Total Non-OECD (non-OPEC+)	**15.1**	**15.0**	**15.2**	**15.2**	**15.3**	**15.4**	**15.3**	**15.7**	**15.7**	**15.8**	**15.8**	**15.8**	**16.3**	**16.3**	**16.3**	**16.3**	**16.3**
Processing Gains	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Global Biofuels	2.6	2.8	2.5	3.1	3.3	2.9	2.9	2.7	3.3	3.6	3.2	3.2	2.8	3.4	3.7	3.3	3.3
Total Non-OPEC+	**45.9**	**46.3**	**46.8**	**47.5**	**48.5**	**48.6**	**47.9**	**49.0**	**49.8**	**50.9**	**50.6**	**50.1**	**50.6**	**51.5**	**51.9**	**51.6**	**51.4**
OPEC+ CRUDE																	
Algeria	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0	0.9	0.9	1.0	1.0	0.9
Angola	1.3	1.1	1.2	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0
Azerbaijan	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Bahrain	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Brunei	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Congo	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Equatorial Guinea	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gabon	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Iran	2.0	2.4	2.5	2.5	2.5	2.6	2.5	2.7	3.0	3.1	3.2	3.0	3.2	3.2	3.2	3.2	3.2
Iraq	4.0	4.0	4.3	4.4	4.5	4.5	4.4	4.3	4.1	4.3	4.3	4.3	4.1	4.2	4.3	4.3	4.2
Kazakhstan	1.5	1.5	1.6	1.4	1.4	1.6	1.5	1.6	1.6	1.5	1.6	1.6	1.5	1.6	1.5	1.6	1.6
Kuwait	2.4	2.4	2.6	2.7	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.4	2.5	2.5	2.5	2.5
Libya	0.4	1.1	1.1	0.8	1.0	1.2	1.0	1.2	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Malaysia	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Mexico	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7
Nigeria	1.5	1.3	1.3	1.2	1.0	1.1	1.1	1.3	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.2	1.2
Oman	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Russia	9.4	9.6	10.0	9.4	9.8	9.8	9.8	9.7	9.5	9.5	9.5	9.6	9.4	9.4	9.4	9.4	9.4
Saudi Arabia	9.2	9.2	10.2	10.4	10.9	10.6	10.5	10.4	10.1	9.0	9.0	9.6	9.0	9.6	10.0	10.0	9.6
South Sudan	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Sudan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
UAE	2.9	2.8	3.1	3.3	3.5	3.4	3.3	3.4	3.3	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3
Venezuela	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8
OPEC+ Crude	**40.6**	**41.5**	**44.1**	**43.4**	**44.6**	**44.6**	**44.2**	**44.6**	**43.8**	**42.8**	**43.0**	**43.5**	**42.4**	**43.4**	**43.8**	**43.9**	**43.4**
OPEC+ NGLs & Condensate	7.4	7.6	7.9	7.9	7.8	8.0	7.9	8.2	8.2	8.1	8.2	8.2	8.3	8.3	8.3	8.3	8.3
OPEC+ Nonconventionals	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total OPEC+	**48.2**	**49.2**	**52.1**	**51.4**	**52.6**	**52.8**	**52.2**	**52.9**	**52.1**	**51.0**	**51.3**	**51.8**	**50.7**	**51.8**	**52.2**	**52.3**	**51.8**
Total Supply Oil	**94.1**	**95.5**	**98.9**	**98.9**	**101.1**	**101.4**	**100.1**	**101.9**	**101.9**	**102.0**	**101.9**	**101.9**	**101.3**	**103.3**	**104.1**	**103.9**	**103.2**
Memo items:																	
Call on OPEC+ crude & stock changes	38.4	43.5	44.4	42.8	43.6	43.5	43.6	42.9	43.7	43.7	43.2	43.4	42.5	42.6	43.1	43.9	43.0

1 From November 2022, OPEC+ supply reflects latest OPEC+ deal and individual country's sustainable capacity. Libya and Iran held at most recent level through 2024.
2 OECD Americas excludes Mexico.
3 FSU excludes Russia, Kazakhstan, Azerbaijan.
4 Other Asia excludes Brunei, Malaysia.
5 Middle East excludes Oman, Bahrain.
6 Africa excludes Sudan, South Sudan.

Table 2
SUMMARY OF GLOBAL OIL DEMAND

	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023	1Q24	2Q24	3Q24	4Q24	2024
Demand (mb/d)																
Americas	24.28	24.74	24.79	24.95	24.70	24.79	24.46	25.18	25.36	25.06	25.02	24.51	24.94	25.08	24.87	24.85
Europe	13.19	13.20	13.47	14.01	13.35	13.51	13.10	13.55	13.62	13.23	13.38	13.13	13.43	13.31	13.28	13.29
Asia Oceania	7.34	7.78	6.93	7.17	7.63	7.38	7.81	6.96	7.06	7.66	7.37	7.67	6.97	7.06	7.72	7.35
Total OECD	**44.81**	**45.72**	**45.19**	**46.13**	**45.68**	**45.68**	**45.37**	**45.68**	**46.04**	**45.95**	**45.76**	**45.31**	**45.35**	**45.45**	**45.87**	**45.49**
Asia	28.62	29.30	28.21	28.11	29.27	28.72	29.98	31.07	31.06	31.30	30.86	31.41	31.82	31.86	32.50	31.90
Middle East	8.34	8.40	8.92	9.29	8.74	8.84	8.67	8.80	9.33	8.64	8.86	8.63	8.97	9.43	8.81	8.96
Americas	6.00	6.00	6.17	6.36	6.30	6.21	6.18	6.32	6.47	6.35	6.33	6.21	6.40	6.52	6.47	6.40
FSU	4.89	4.80	4.78	5.12	5.08	4.94	4.87	4.90	4.99	4.91	4.92	4.80	4.80	4.99	4.97	4.89
Africa	4.05	4.26	4.24	4.24	4.38	4.28	4.32	4.18	4.15	4.22	4.22	4.29	4.28	4.33	4.47	4.34
Europe	0.77	0.78	0.77	0.79	0.80	0.79	0.78	0.76	0.79	0.80	0.78	0.79	0.78	0.80	0.82	0.80
Total Non-OECD	**52.67**	**53.53**	**53.08**	**53.91**	**54.56**	**53.77**	**54.81**	**56.03**	**56.79**	**56.22**	**55.97**	**56.12**	**57.05**	**57.93**	**58.04**	**57.29**
World	**97.48**	**99.25**	**98.27**	**100.04**	**100.23**	**99.45**	**100.18**	**101.71**	**102.82**	**102.17**	**101.73**	**101.43**	**102.40**	**103.38**	**103.91**	**102.78**
of which:																
United States[1]	19.89	20.09	20.00	20.11	19.85	20.01	19.80	20.38	20.37	20.20	20.19	19.84	20.18	20.14	20.04	20.05
Europe 5[2]	7.38	7.43	7.66	7.83	7.43	7.59	7.37	7.53	7.51	7.28	7.42	7.41	7.45	7.35	7.36	7.39
China	15.09	15.09	14.04	14.51	15.01	14.66	15.58	16.58	16.93	16.67	16.44	16.68	17.02	17.45	17.46	17.16
Japan	3.41	3.70	3.04	3.20	3.57	3.38	3.73	3.10	3.10	3.57	3.37	3.68	3.08	3.14	3.60	3.37
India	4.90	5.38	5.29	5.01	5.42	5.28	5.57	5.58	5.29	5.53	5.49	5.66	5.68	5.43	5.74	5.63
Russia	3.68	3.69	3.64	3.95	3.84	3.78	3.74	3.74	3.81	3.66	3.74	3.65	3.61	3.78	3.69	3.68
Brazil	3.03	2.97	3.01	3.18	3.17	3.09	3.10	3.16	3.28	3.23	3.19	3.13	3.23	3.34	3.32	3.26
Saudi Arabia	3.51	3.35	3.84	3.98	3.74	3.73	3.54	3.71	4.00	3.67	3.73	3.54	3.83	4.07	3.73	3.79
Canada	2.26	2.36	2.36	2.44	2.47	2.41	2.33	2.47	2.64	2.49	2.48	2.37	2.46	2.61	2.46	2.48
Korea	2.56	2.69	2.45	2.51	2.54	2.55	2.57	2.34	2.45	2.54	2.48	2.51	2.39	2.42	2.55	2.47
Mexico	1.63	1.75	1.92	1.89	1.86	1.86	1.83	1.84	1.86	1.85	1.84	1.80	1.81	1.83	1.85	1.82
Iran	1.79	1.85	1.76	1.74	1.71	1.76	1.80	1.72	1.69	1.67	1.72	1.76	1.74	1.74	1.73	1.74
Total	**69.12**	**70.36**	**69.01**	**70.36**	**70.61**	**70.09**	**70.96**	**72.16**	**72.93**	**72.35**	**72.10**	**72.01**	**72.49**	**73.31**	**73.52**	**72.84**
% of World	70.9%	70.9%	70.2%	70.3%	70.4%	70.5%	70.8%	71.0%	70.9%	70.8%	70.9%	71.0%	70.8%	70.9%	70.8%	70.9%
Annual Change (% per annum)																
Americas	7.8	8.0	1.8	0.8	-1.6	2.1	-1.1	1.6	1.6	1.5	0.9	0.2	-0.9	-1.1	-0.8	-0.7
Europe	6.3	9.9	5.9	0.3	-4.9	2.4	-0.7	0.5	-2.8	-0.9	-1.0	0.2	-0.8	-2.3	0.4	-0.6
Asia Oceania	2.5	1.8	-0.2	2.1	-1.3	0.6	0.4	0.3	-1.6	0.4	-0.1	-1.8	0.2	0.0	0.8	-0.2
Total OECD	**6.5**	**7.4**	**2.7**	**0.8**	**-2.5**	**1.9**	**-0.8**	**1.1**	**-0.2**	**0.6**	**0.2**	**-0.1**	**-0.7**	**-1.3**	**-0.2**	**-0.6**
Asia	5.0	2.8	-1.4	0.2	-0.2	0.4	2.3	10.1	10.5	6.9	7.4	4.7	2.4	2.6	3.8	3.4
Middle East	3.6	4.5	7.4	6.3	5.6	6.0	3.2	-1.4	0.5	-1.1	0.3	-0.4	2.0	1.1	2.0	1.1
Americas	11.1	3.4	5.3	2.7	2.3	3.4	3.0	2.4	1.7	0.8	2.0	0.5	1.4	0.9	2.0	1.2
FSU	6.6	2.7	-0.1	2.0	-0.1	1.1	1.6	2.6	-2.6	-3.3	-0.5	-1.5	-2.2	0.0	1.2	-0.6
Africa	7.7	4.1	6.0	7.3	5.4	5.7	1.6	-1.3	-2.0	-3.6	-1.4	-0.8	2.5	4.2	5.8	2.9
Europe	6.7	2.8	1.9	1.5	1.3	1.9	0.5	-0.9	-0.9	0.7	-0.2	0.6	1.7	2.0	2.0	1.6
Total Non-OECD	**5.8**	**3.2**	**1.5**	**2.2**	**1.5**	**2.1**	**2.4**	**5.6**	**5.3**	**3.0**	**4.1**	**2.4**	**1.8**	**2.0**	**3.2**	**2.4**
World	**6.1**	**5.1**	**2.0**	**1.6**	**-0.4**	**2.0**	**0.9**	**3.5**	**2.8**	**1.9**	**2.3**	**1.2**	**0.7**	**0.5**	**1.7**	**1.0**
Annual Change (mb/d)																
Americas	1.76	1.83	0.44	0.19	-0.40	0.51	-0.28	0.39	0.41	0.36	0.22	0.05	-0.23	-0.28	-0.19	-0.16
Europe	0.78	1.19	0.75	0.05	-0.69	0.32	-0.10	0.07	-0.39	-0.12	-0.14	0.03	-0.11	-0.31	0.05	-0.09
Asia Oceania	0.18	0.14	-0.02	0.15	-0.10	0.04	0.03	0.02	-0.12	0.03	-0.01	-0.14	0.01	0.00	0.06	-0.01
Total OECD	**2.72**	**3.16**	**1.17**	**0.38**	**-1.19**	**0.87**	**-0.35**	**0.48**	**-0.10**	**0.27**	**0.08**	**-0.06**	**-0.33**	**-0.58**	**-0.08**	**-0.27**
Asia	1.36	0.79	-0.39	0.07	-0.04	0.10	0.68	2.86	2.94	2.03	2.14	1.42	0.75	0.80	1.20	1.04
Middle East	0.29	0.36	0.62	0.55	0.47	0.50	0.27	-0.12	0.05	-0.10	0.02	-0.04	0.17	0.10	0.17	0.10
Americas	0.60	0.20	0.31	0.17	0.14	0.20	0.18	0.15	0.11	0.05	0.12	0.03	0.09	0.06	0.12	0.07
FSU	0.30	0.13	0.00	0.10	-0.01	0.05	0.08	0.12	-0.13	-0.17	-0.03	-0.07	-0.11	0.00	0.06	-0.03
Africa	0.29	0.17	0.24	0.29	0.23	0.23	0.07	-0.06	-0.09	-0.16	-0.06	-0.03	0.10	0.18	0.25	0.12
Europe	0.05	0.02	0.01	0.01	0.01	0.01	0.00	-0.01	-0.01	0.01	0.00	0.00	0.01	0.02	0.02	0.01
Total Non-OECD	**2.89**	**1.66**	**0.79**	**1.19**	**0.79**	**1.10**	**1.29**	**2.95**	**2.88**	**1.66**	**2.20**	**1.31**	**1.02**	**1.15**	**1.82**	**1.32**
World	**5.61**	**4.82**	**1.96**	**1.57**	**-0.40**	**1.97**	**0.94**	**3.43**	**2.78**	**1.93**	**2.27**	**1.25**	**0.69**	**0.56**	**1.74**	**1.06**
Revisions to Oil Demand from Last Month's Report (mb/d)																
Americas	-0.04	-0.02	-0.08	-0.09	-0.10	-0.07	-0.06	-0.03	-0.11	-0.06	-0.07	0.07	0.08	-0.02	0.01	0.03
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	-0.20	-0.03	-0.01	0.01	-0.08	-0.05	-0.03
Asia Oceania	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.05	0.01	0.00	0.00	-0.04	-0.02	-0.02
Total OECD	**-0.04**	**-0.02**	**-0.08**	**-0.09**	**-0.10**	**-0.07**	**-0.06**	**-0.03**	**-0.05**	**-0.21**	**-0.09**	**0.06**	**0.09**	**-0.15**	**-0.06**	**-0.01**
Asia	0.00	0.01	0.00	0.00	0.00	0.00	-0.01	0.09	0.03	-0.05	0.01	0.16	0.10	0.13	0.05	0.11
Middle East	-0.01	-0.05	-0.06	-0.07	-0.10	-0.07	-0.11	-0.07	-0.12	-0.21	-0.13	-0.23	-0.14	-0.09	-0.15	-0.15
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	-0.01	0.00	0.01	0.01	0.02	0.00	0.01
FSU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.08	-0.09	-0.04	-0.06	-0.05	-0.03	-0.03	-0.04
Africa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	-0.02	0.00	-0.02	0.00	-0.02	-0.01	-0.01
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-OECD	**-0.01**	**-0.04**	**-0.06**	**-0.07**	**-0.09**	**-0.07**	**-0.11**	**0.02**	**-0.11**	**-0.38**	**-0.14**	**-0.14**	**-0.08**	**0.00**	**-0.13**	**-0.09**
World	**-0.05**	**-0.06**	**-0.14**	**-0.16**	**-0.20**	**-0.14**	**-0.17**	**-0.01**	**-0.17**	**-0.59**	**-0.23**	**-0.08**	**0.01**	**-0.15**	**-0.20**	**-0.10**
Revisions to Oil Demand Growth from Last Month's Report (mb/d)																
World	-0.08	-0.03	-0.10	-0.11	-0.13	-0.09	-0.11	0.13	-0.01	-0.39	-0.09	0.08	0.02	0.02	0.39	0.13

1 US figures exclude US territories.
2 France, Germany, Italy, Spain and UK.

Table 2a
OECD REGIONAL OIL DEMAND[1]
(million barrels per day)

	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23 [2]	Latest month vs. Aug 23	Latest month vs. Sep 22
Americas											
LPG and ethane	3.78	3.90	3.93	4.07	3.93	3.90	4.14	3.82	3.73	-0.09	-0.01
Naphtha	0.26	0.23	0.22	0.22	0.25	0.23	0.23	0.21	0.24	0.03	0.02
Motor gasoline	10.26	10.38	10.33	10.15	10.72	10.66	10.57	10.95	10.45	-0.51	0.01
Jet and kerosene	1.56	1.84	1.86	1.84	1.97	2.05	2.10	2.05	2.00	-0.05	0.18
Gasoil/diesel oil	4.98	5.17	5.17	5.13	4.97	5.02	4.75	5.25	5.06	-0.20	-0.20
Residual fuel oil	0.58	0.57	0.55	0.53	0.44	0.49	0.47	0.56	0.44	-0.12	-0.24
Other products	2.86	2.71	2.64	2.52	2.88	3.01	2.92	3.07	3.03	-0.04	0.29
Total	**24.28**	**24.79**	**24.70**	**24.46**	**25.18**	**25.36**	**25.19**	**25.92**	**24.95**	**-0.97**	**0.05**
Europe											
LPG and ethane	1.09	1.04	0.99	1.10	1.11	1.05	1.00	1.09	1.06	-0.03	0.00
Naphtha	1.16	0.96	0.84	0.97	0.83	0.77	0.74	0.74	0.84	0.09	0.04
Motor gasoline	1.93	2.04	2.02	1.98	2.19	2.24	2.23	2.25	2.25	0.00	0.16
Jet and kerosene	0.86	1.29	1.32	1.26	1.46	1.64	1.64	1.64	1.64	0.00	0.16
Gasoil/diesel oil	6.29	6.25	6.31	5.98	6.06	5.99	6.09	5.82	6.06	0.24	-0.61
Residual fuel oil	0.72	0.78	0.77	0.76	0.73	0.71	0.72	0.73	0.69	-0.04	-0.11
Other products	1.16	1.16	1.11	1.05	1.16	1.21	1.21	1.18	1.24	0.06	-0.05
Total	**13.19**	**13.51**	**13.35**	**13.10**	**13.54**	**13.62**	**13.65**	**13.46**	**13.77**	**0.32**	**-0.41**
Asia Oceania											
LPG and ethane	0.76	0.79	0.80	0.90	0.70	0.74	0.71	0.77	0.74	-0.02	0.03
Naphtha	1.97	1.85	1.84	1.94	1.69	1.74	1.69	1.77	1.77	0.00	0.01
Motor gasoline	1.39	1.44	1.50	1.41	1.43	1.52	1.51	1.55	1.48	-0.08	-0.01
Jet and kerosene	0.60	0.68	0.83	0.94	0.67	0.64	0.66	0.64	0.64	0.00	0.09
Gasoil/diesel oil	1.86	1.87	1.94	1.89	1.84	1.83	1.87	1.79	1.83	0.04	0.00
Residual fuel oil	0.45	0.50	0.51	0.54	0.42	0.42	0.43	0.40	0.42	0.02	-0.05
Other products	0.30	0.24	0.22	0.19	0.19	0.17	0.18	0.16	0.16	0.00	-0.08
Total	**7.34**	**7.38**	**7.63**	**7.81**	**6.96**	**7.06**	**7.05**	**7.08**	**7.04**	**-0.04**	**-0.01**
OECD											
LPG and ethane	5.62	5.74	5.71	6.07	5.74	5.69	5.85	5.68	5.54	-0.14	0.01
Naphtha	3.39	3.04	2.89	3.13	2.78	2.74	2.67	2.72	2.84	0.12	0.06
Motor gasoline	13.58	13.85	13.85	13.55	14.35	14.42	14.32	14.76	14.17	-0.58	0.16
Jet and kerosene	3.02	3.81	4.01	4.03	4.10	4.34	4.41	4.33	4.28	-0.05	0.43
Gasoil/diesel oil	13.12	13.30	13.42	13.00	12.88	12.83	12.71	12.86	12.94	0.08	-0.81
Residual fuel oil	1.75	1.84	1.83	1.83	1.60	1.62	1.63	1.69	1.55	-0.14	-0.40
Other products	4.33	4.11	3.97	3.76	4.23	4.38	4.31	4.41	4.43	0.02	0.16
Total	**44.81**	**45.68**	**45.68**	**45.37**	**45.68**	**46.04**	**45.89**	**46.45**	**45.76**	**-0.69**	**-0.37**

1 Demand, measured as deliveries from refineries and primary stocks, comprises inland deliveries, international bunkers and refinery fuel. It includes crude for direct burning, oil from non-conventional sources and other sources of supply. Jet/kerosene comprises jet kerosene and non-aviation kerosene. Gasoil comprises diesel, light heating oil and other gasoils. Americas comprises US 50 states, US territories, Mexico, Canada and Chile.
2 Latest official OECD submissions (MOS).

Table 2b
OIL DEMAND IN SELECTED OECD COUNTRIES[1]
(million barrels per day)

	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23 [2]	Latest month vs. Aug 23	Latest month vs. Sep 22
United States[3]											
LPG and ethane	2.88	3.08	3.08	3.24	3.08	2.99	3.13	2.91	2.91	0.00	-0.03
Naphtha	0.19	0.14	0.13	0.13	0.15	0.14	0.14	0.13	0.15	0.02	0.02
Motor gasoline	8.82	8.81	8.74	8.67	9.13	9.05	9.01	9.30	8.83	-0.47	-0.01
Jet and kerosene	1.38	1.56	1.58	1.57	1.68	1.73	1.78	1.71	1.70	-0.02	0.16
Gasoil/diesel oil	3.97	4.03	4.00	4.01	3.93	3.90	3.65	4.13	3.92	-0.21	-0.17
Residual fuel oil	0.31	0.33	0.30	0.29	0.22	0.27	0.26	0.33	0.22	-0.10	-0.24
Other products	2.35	2.06	2.01	1.90	2.20	2.29	2.15	2.37	2.36	-0.01	0.23
Total	**19.89**	**20.01**	**19.85**	**19.80**	**20.38**	**20.37**	**20.12**	**20.88**	**20.09**	**-0.79**	**-0.04**
Japan											
LPG and ethane	0.40	0.39	0.41	0.51	0.35	0.34	0.33	0.34	0.36	0.02	0.02
Naphtha	0.69	0.61	0.64	0.64	0.56	0.56	0.51	0.61	0.57	-0.04	0.02
Motor gasoline	0.77	0.80	0.82	0.77	0.79	0.86	0.86	0.89	0.83	-0.07	0.01
Jet and kerosene	0.37	0.38	0.47	0.57	0.33	0.28	0.29	0.27	0.27	0.00	0.02
Diesel	0.42	0.42	0.43	0.41	0.41	0.42	0.43	0.41	0.44	0.03	0.01
Other gasoil	0.31	0.31	0.32	0.34	0.28	0.26	0.27	0.26	0.27	0.01	-0.01
Residual fuel oil	0.25	0.26	0.27	0.30	0.21	0.22	0.23	0.21	0.22	0.00	-0.04
Other products	0.21	0.20	0.20	0.18	0.17	0.16	0.16	0.14	0.16	0.02	-0.08
Total	**3.41**	**3.38**	**3.57**	**3.73**	**3.10**	**3.10**	**3.08**	**3.13**	**3.11**	**-0.03**	**-0.06**
Germany											
LPG and ethane	0.11	0.11	0.09	0.10	0.10	0.10	0.11	0.10	0.09	-0.01	-0.01
Naphtha	0.37	0.31	0.27	0.30	0.28	0.22	0.24	0.21	0.22	0.01	-0.02
Motor gasoline	0.46	0.45	0.44	0.45	0.46	0.46	0.46	0.45	0.48	0.04	0.07
Jet and kerosene	0.13	0.20	0.21	0.18	0.20	0.23	0.23	0.22	0.23	0.01	0.01
Diesel	0.73	0.71	0.71	0.66	0.69	0.69	0.71	0.67	0.69	0.01	0.00
Other gasoil	0.30	0.28	0.31	0.29	0.27	0.22	0.23	0.21	0.21	0.00	-0.13
Residual fuel oil	0.05	0.06	0.05	0.04	0.05	0.04	0.05	0.04	0.04	-0.01	-0.02
Other products	0.08	0.06	0.05	0.04	0.04	0.06	0.07	0.05	0.05	0.00	-0.04
Total	**2.23**	**2.18**	**2.13**	**2.06**	**2.10**	**2.02**	**2.10**	**1.95**	**2.00**	**0.05**	**-0.14**
Italy											
LPG and ethane	0.10	0.11	0.11	0.12	0.09	0.10	0.10	0.11	0.10	-0.01	-0.01
Naphtha	0.08	0.06	0.05	0.06	0.05	0.04	0.03	0.05	0.05	0.00	0.00
Motor gasoline	0.17	0.18	0.18	0.16	0.19	0.20	0.20	0.21	0.20	-0.01	0.00
Jet and kerosene	0.05	0.09	0.08	0.07	0.10	0.12	0.13	0.12	0.12	-0.01	0.01
Diesel	0.48	0.49	0.50	0.47	0.49	0.49	0.51	0.46	0.50	0.04	-0.03
Other gasoil	0.07	0.05	0.05	0.03	0.04	0.05	0.06	0.04	0.05	0.01	-0.01
Residual fuel oil	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.06	0.06	0.00	-0.01
Other products	0.15	0.16	0.16	0.15	0.16	0.16	0.16	0.14	0.17	0.03	-0.01
Total	**1.16**	**1.19**	**1.18**	**1.13**	**1.18**	**1.22**	**1.25**	**1.18**	**1.23**	**0.05**	**-0.07**
France											
LPG and ethane	0.11	0.10	0.07	0.11	0.11	0.11	0.11	0.11	0.11	0.00	0.02
Naphtha	0.14	0.10	0.08	0.11	0.11	0.11	0.10	0.12	0.12	0.01	0.04
Motor gasoline	0.21	0.23	0.23	0.22	0.25	0.26	0.26	0.27	0.25	-0.02	0.00
Jet and kerosene	0.09	0.14	0.14	0.15	0.17	0.19	0.19	0.20	0.18	-0.01	0.03
Diesel	0.72	0.73	0.72	0.69	0.71	0.70	0.72	0.66	0.71	0.05	-0.11
Other gasoil	0.14	0.11	0.11	0.14	0.08	0.08	0.08	0.08	0.08	0.00	-0.07
Residual fuel oil	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.00	0.00
Other products	0.09	0.09	0.08	0.07	0.10	0.09	0.10	0.09	0.09	0.00	-0.02
Total	**1.54**	**1.54**	**1.47**	**1.53**	**1.55**	**1.58**	**1.60**	**1.56**	**1.59**	**0.03**	**-0.11**
United Kingdom											
LPG and ethane	0.11	0.10	0.08	0.10	0.09	0.07	0.06	0.06	0.08	0.01	-0.01
Naphtha	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor gasoline	0.25	0.28	0.27	0.28	0.30	0.29	0.27	0.29	0.31	0.01	0.02
Jet and kerosene	0.17	0.27	0.28	0.29	0.30	0.32	0.31	0.31	0.33	0.02	0.04
Diesel	0.47	0.47	0.47	0.47	0.53	0.50	0.49	0.51	0.51	0.00	0.04
Other gasoil	0.13	0.13	0.12	0.12	0.09	0.09	0.08	0.09	0.10	0.01	-0.05
Residual fuel oil	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.00	0.00
Other products	0.10	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.00	0.01
Total	**1.25**	**1.38**	**1.36**	**1.40**	**1.44**	**1.41**	**1.35**	**1.41**	**1.47**	**0.06**	**0.04**
Canada											
LPG and ethane	0.46	0.38	0.41	0.38	0.41	0.47	0.56	0.47	0.37	-0.10	0.01
Naphtha	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.06	0.00	0.00
Motor gasoline	0.76	0.78	0.80	0.73	0.83	0.83	0.80	0.86	0.83	-0.03	0.03
Jet and kerosene	0.09	0.14	0.15	0.14	0.16	0.19	0.19	0.21	0.18	-0.03	0.03
Diesel	0.29	0.32	0.34	0.31	0.28	0.33	0.32	0.32	0.35	0.03	0.00
Other gasoil	0.27	0.27	0.27	0.28	0.26	0.26	0.25	0.25	0.26	0.01	0.00
Residual fuel oil	0.03	0.03	0.04	0.04	0.02	0.02	0.03	0.01	0.02	0.00	0.00
Other products	0.31	0.42	0.40	0.39	0.44	0.47	0.51	0.47	0.44	-0.03	0.03
Total	**2.26**	**2.41**	**2.47**	**2.33**	**2.47**	**2.64**	**2.73**	**2.66**	**2.51**	**-0.15**	**0.10**

1 Demand, measured as deliveries from refineries and primary stocks, comprises inland deliveries, international bunkers and refinery fuel. It includes crude for direct burning, oil from non-conventional sources and other sources of supply. Jet/kerosene comprises jet kerosene and non-aviation kerosene. Gasoil comprises diesel, light heating oil and other gasoils.
2 Latest official OECD submissions (MOS).
3 US figures exclude US territories.

Table 3
WORLD OIL PRODUCTION
(million barrels per day)

	2022	2023	2024	2Q23	3Q23	4Q23	1Q24	2Q24	Sep 23	Oct 23	Nov 23
OPEC											
Crude Oil											
Saudi Arabia	10.53			10.14	9.02				9.03	8.99	9.00
Iran	2.55			3.00	3.11				3.14	3.10	3.19
Iraq	4.45			4.12	4.29				4.32	4.36	4.29
UAE	3.34			3.27	3.23				3.25	3.25	3.24
Kuwait	2.70			2.63	2.57				2.59	2.57	2.60
Angola	1.14			1.10	1.13				1.11	1.15	1.08
Nigeria	1.15			1.15	1.21				1.35	1.35	1.26
Libya	0.99			1.16	1.15				1.15	1.14	1.14
Algeria	1.01			0.97	0.95				0.95	0.96	0.96
Congo	0.26			0.28	0.27				0.25	0.27	0.26
Gabon	0.19			0.20	0.23				0.23	0.23	0.23
Equatorial Guinea	0.08			0.06	0.06				0.06	0.05	0.05
Venezuela	0.70			0.79	0.79				0.77	0.78	0.80
Total Crude Oil	**29.08**			**28.87**	**28.00**				**28.20**	**28.20**	**28.10**
of which Neutral Zone [1]	*0.28*			*0.30*	*0.24*				*0.24*	*0.30*	*0.28*
Total NGLs[2]	**5.44**	**5.54**	**5.63**	**5.53**	**5.56**	**5.58**	**5.61**	**5.62**	**5.58**	**5.57**	**5.59**
Total OPEC[3]	**34.52**			**34.39**	**33.57**				**33.78**	**33.77**	**33.69**
NON-OPEC[4]											
OECD											
Americas	25.70	27.24	27.89	26.86	27.69	27.70	27.58	27.85	27.90	27.66	27.88
United States	17.93	19.37	19.96	19.25	19.72	19.77	19.63	20.03	20.07	19.85	19.94
Mexico	2.01	2.11	2.08	2.14	2.09	2.09	2.10	2.09	2.10	2.07	2.10
Canada	5.76	5.75	5.83	5.46	5.87	5.84	5.84	5.72	5.72	5.73	5.84
Chile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Europe	3.16	3.17	3.11	3.23	3.04	3.13	3.16	3.10	2.92	3.12	3.16
UK	0.83	0.73	0.66	0.77	0.63	0.67	0.66	0.66	0.63	0.67	0.67
Norway	1.90	1.99	1.98	2.01	1.96	1.99	2.03	1.97	1.83	1.99	2.01
Others	0.43	0.45	0.47	0.45	0.45	0.47	0.47	0.47	0.46	0.46	0.48
Asia Oceania	0.48	0.46	0.48	0.46	0.46	0.47	0.50	0.48	0.46	0.47	0.50
Australia	0.41	0.39	0.40	0.38	0.38	0.40	0.42	0.40	0.38	0.41	0.42
Others	0.07	0.07	0.06	0.07	0.07	0.06	0.06	0.06	0.07	0.06	0.06
Total OECD	**29.34**	**30.87**	**31.47**	**30.54**	**31.19**	**31.31**	**31.24**	**31.43**	**31.28**	**31.25**	**31.54**
NON-OECD											
Former USSR	13.90	13.82	13.72	13.79	13.59	13.75	13.65	13.73	13.69	13.79	13.74
Russia	11.09	10.95	10.84	10.91	10.81	10.89	10.84	10.84	10.86	10.93	10.90
Azerbaijan	0.67	0.62	0.65	0.62	0.62	0.61	0.63	0.64	0.61	0.60	0.61
Kazakhstan	1.82	1.93	1.92	1.95	1.85	1.94	1.87	1.95	1.91	1.95	1.93
Others	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Asia	6.88	6.91	6.88	6.99	6.84	6.79	6.93	6.93	6.83	6.83	6.79
China	4.18	4.26	4.31	4.34	4.21	4.16	4.34	4.36	4.21	4.19	4.16
Malaysia	0.56	0.56	0.54	0.55	0.54	0.57	0.55	0.54	0.54	0.58	0.56
India	0.70	0.69	0.69	0.69	0.69	0.68	0.68	0.69	0.68	0.68	0.68
Indonesia	0.63	0.63	0.60	0.64	0.62	0.61	0.61	0.60	0.61	0.62	0.61
Others	0.81	0.78	0.74	0.78	0.77	0.77	0.75	0.74	0.77	0.77	0.77
Europe	0.11	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Americas	5.65	6.15	6.67	6.00	6.28	6.35	6.60	6.64	6.39	6.34	6.29
Brazil	3.12	3.47	3.79	3.32	3.63	3.62	3.77	3.74	3.76	3.63	3.56
Argentina	0.71	0.76	0.80	0.76	0.76	0.79	0.79	0.80	0.77	0.78	0.79
Colombia	0.76	0.79	0.77	0.79	0.79	0.79	0.78	0.77	0.79	0.79	0.79
Ecuador	0.47	0.45	0.46	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Others	0.59	0.67	0.85	0.68	0.64	0.70	0.80	0.87	0.61	0.67	0.69
Middle East	3.16	3.13	3.12	3.15	3.11	3.13	3.10	3.12	3.14	3.13	3.13
Oman	1.07	1.06	1.03	1.06	1.05	1.05	1.01	1.03	1.05	1.05	1.05
Qatar	1.80	1.81	1.81	1.81	1.81	1.81	1.82	1.81	1.81	1.81	1.81
Others	0.29	0.26	0.28	0.28	0.25	0.27	0.28	0.28	0.28	0.27	0.27
Africa	1.29	1.27	1.30	1.27	1.30	1.29	1.29	1.30	1.29	1.30	1.29
Egypt	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Others	0.70	0.67	0.70	0.66	0.70	0.69	0.69	0.70	0.69	0.70	0.69
Total Non-OECD	**30.99**	**31.39**	**31.78**	**31.31**	**31.22**	**31.41**	**31.67**	**31.81**	**31.43**	**31.49**	**31.34**
Processing gains[5]	2.31	2.35	2.44	2.35	2.38	2.37	2.44	2.44	2.36	2.34	2.37
Global biofuels	2.95	3.18	3.28	3.28	3.60	3.16	2.77	3.39	3.54	3.41	3.19
TOTAL NON-OPEC	**65.59**	**67.79**	**68.96**	**67.47**	**68.39**	**68.26**	**68.12**	**69.07**	**68.62**	**68.48**	**68.45**
TOTAL SUPPLY	**100.11**			**101.87**	**101.96**				**102.40**	**102.25**	**102.13**

1 Neutral Zone production is already included in Saudi Arabia and Kuwait production with their respective shares.

2 Includes condensates reported by OPEC countries, oil from non-conventional sources, e.g. GTL in Nigeria and non-oil inputs to Saudi Arabian MTBE.

3 OPEC data based on today's membership throughout the time series.

4 Comprises crude oil, condensates, NGLs and oil from non-conventional sources.

5 Net volumetric gains and losses in refining and marine transportation losses.

Table 3a
OIL SUPPLY IN OECD COUNTRIES[1]
(thousand of barrels per day)

	2022	2023	2024	2Q23	3Q23	4Q23	1Q24	2Q24	Sep 23	Oct 23	Nov 23
United States											
Alaska	437	429	440	429	403	444	458	439	415	435	437
California	349	315	305	318	316	313	310	307	315	314	313
Texas	5060	5516	5669	5482	5571	5647	5594	5662	5573	5621	5682
New Mexico	1589	1806	1920	1812	1791	1803	1834	1920	1818	1784	1828
Federal Gulf of Mexico[2]	1730	1900	1965	1767	1942	2018	2023	1996	2000	1994	2018
Other US Lower 48	2746	2958	2985	2937	3034	3034	3004	2995	3116	3071	3027
NGLs[3]	5933	6363	6602	6424	6581	6431	6325	6646	6754	6560	6544
Other Hydrocarbons	84	80	77	77	87	74	80	70	81	67	87
Total	**17928**	**19367**	**19963**	**19246**	**19725**	**19765**	**19627**	**20035**	**20072**	**19846**	**19936**
Canada											
Alberta Light/Medium/Heavy	491	516	543	498	521	523	549	545	522	527	522
Alberta Bitumen	1995	2007	2010	1840	2089	2121	1959	1949	2176	2190	2108
Saskatchewan	454	451	440	451	450	445	446	442	447	447	446
Other Crude	432	364	380	402	312	339	390	441	314	275	352
NGLs	1036	1032	1062	979	1048	1048	1053	1059	1014	1051	1050
Other Upgraders	181	186	187	176	183	191	196	175	169	173	196
Synthetic Crudes	1167	1199	1209	1115	1254	1182	1249	1109	1077	1074	1182
Total	**5756**	**5754**	**5832**	**5458**	**5868**	**5841**	**5839**	**5716**	**5717**	**5728**	**5843**
Mexico											
Crude	1843	1942	1936	1965	1935	1936	1952	1946	1942	1919	1943
NGLs	158	159	142	173	151	148	146	143	153	149	148
Total	**2006**	**2106**	**2083**	**2141**	**2090**	**2089**	**2103**	**2094**	**2100**	**2072**	**2095**
UK											
Brent Fields	23	18	10	23	14	14	13	13	11	15	13
Forties Fields	210	173	130	178	143	168	162	90	174	178	159
Ninian Fields	20	24	18	28	22	21	19	18	10	25	20
Flotta Fields	40	27	20	27	23	23	22	18	18	28	20
Other Fields	474	434	447	458	388	408	412	486	395	384	421
NGLs	66	48	35	57	42	37	36	35	23	41	37
Total	**833**	**726**	**661**	**771**	**631**	**672**	**664**	**660**	**630**	**671**	**671**
Norway[4]											
Ekofisk-Ula Area	122	117	110	114	110	113	114	106	113	108	116
Oseberg-Troll Area	192	173	157	178	161	163	161	159	140	170	162
Statfjord-Gullfaks Area	250	219	211	198	222	221	217	213	225	220	223
Haltenbanken Area	237	233	246	230	231	244	249	250	220	240	245
Sleipner-Frigg Area	784	964	1017	979	970	983	1013	957	931	962	990
Other Fields	124	102	59	120	94	87	97	107	67	104	95
NGLs	190	180	177	186	168	179	179	179	140	184	180
Total	**1899**	**1988**	**1979**	**2006**	**1956**	**1990**	**2030**	**1970**	**1834**	**1987**	**2010**
Other OECD Europe											
Denmark	65	62	71	57	63	67	72	73	61	66	68
Italy	83	83	70	91	79	81	71	70	67	82	82
Türkiye	69	78	90	76	81	84	87	90	83	83	84
Other	78	66	70	66	52	74	72	71	53	75	75
NGLs	7	6	5	6	5	5	5	5	6	5	6
Non-Conventional Oils	129	158	160	152	170	159	160	160	191	153	161
Total	**431**	**454**	**467**	**448**	**450**	**471**	**467**	**469**	**460**	**464**	**475**
Australia											
Gippsland Basin	8	9	9	9	9	9	9	9	9	9	9
Cooper-Eromanga Basin	18	18	17	19	18	18	18	17	18	18	18
Carnarvon Basin	108	79	92	50	94	98	96	93	102	98	97
Other Crude	177	179	182	199	153	174	196	179	143	175	190
NGLs	102	105	101	108	107	105	103	102	105	105	106
Total	**413**	**390**	**401**	**385**	**381**	**404**	**422**	**400**	**377**	**406**	**421**
Other OECD Asia Oceania											
New Zealand	16	17	14	18	19	15	14	14	19	15	15
Japan	3	3	3	3	3	3	3	3	3	3	3
NGLs	11	10	8	10	10	8	8	8	10	8	8
Non-Conventional Oils	38	38	37	38	40	37	37	37	41	34	39
Total	**68**	**68**	**62**	**69**	**72**	**62**	**63**	**62**	**72**	**59**	**65**
OECD											
Crude Oil	20228	21293	21656	21031	21317	21703	21653	21693	21508	21644	21800
NGLs	7510	7910	8140	7952	8118	7970	7862	8184	8212	8111	8086
Non-Conventional Oils[5]	1605	1665	1675	1558	1751	1639	1724	1553	1561	1496	1656
Total	**29342**	**30868**	**31471**	**30541**	**31186**	**31312**	**31239**	**31431**	**31281**	**31250**	**31541**

1 Subcategories refer to crude oil only unless otherwise noted.
2 Only production from Federal waters is included.
3 To the extent possible, condensates from natural gas processing plants are included with NGLs, while field condensates are aggregated with crude oil.
4 North Sea production is grouped into crude streams that include all fields being processed through the named field complex, i.e. the name corresponds to the crude stream not just the field of that name.
5 Does not include biofuels.

Table 3b
WORLD OIL PRODUCTION (Including OPEC+ based on current agreement[1])
(million barrels per day)

	2022	2023	2024	2Q23	3Q23	4Q23	1Q24	2Q24	Sep 23	Oct 23	Nov 23
OPEC+											
Crude Oil											
Algeria	1.01	0.97	0.94	0.97	0.95	0.96	0.91	0.94	0.95	0.96	0.96
Angola	1.14	1.09	1.04	1.10	1.13	1.10	1.07	1.05	1.11	1.15	1.08
Azerbaijan	0.56	0.50	0.53	0.50	0.50	0.49	0.51	0.52	0.49	0.49	0.49
Bahrain	0.19	0.18	0.19	0.20	0.17	0.20	0.20	0.19	0.20	0.20	0.20
Brunei	0.07	0.07	0.08	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Congo	0.26	0.27	0.27	0.28	0.27	0.27	0.27	0.27	0.25	0.27	0.26
Equatorial Guinea	0.08	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.05	0.05
Gabon	0.19	0.21	0.20	0.20	0.23	0.23	0.20	0.20	0.23	0.23	0.23
Iran	2.55	2.99	3.17	3.00	3.11	3.15	3.17	3.17	3.14	3.10	3.19
Iraq	4.45	4.27	4.22	4.12	4.29	4.31	4.07	4.21	4.32	4.36	4.29
Kazakhstan	1.50	1.60	1.58	1.62	1.53	1.61	1.52	1.60	1.62	1.62	1.60
Kuwait	2.70	2.62	2.50	2.63	2.57	2.57	2.41	2.50	2.59	2.57	2.60
Libya	0.99	1.15	1.17	1.16	1.15	1.14	1.16	1.18	1.15	1.14	1.14
Malaysia	0.40	0.37	0.35	0.36	0.36	0.37	0.36	0.35	0.37	0.38	0.37
Mexico	1.62	1.66	1.66	1.67	1.65	1.65	1.67	1.67	1.66	1.63	1.66
Nigeria	1.15	1.23	1.25	1.15	1.21	1.29	1.27	1.25	1.35	1.35	1.26
Oman	0.85	0.81	0.79	0.82	0.80	0.80	0.76	0.79	0.80	0.80	0.80
Russia	9.75	9.56	9.45	9.51	9.48	9.49	9.45	9.45	9.50	9.53	9.50
Saudi Arabia	10.53	9.64	9.65	10.14	9.02	8.99	8.98	9.65	9.03	8.99	9.00
South Sudan	0.14	0.15	0.15	0.14	0.17	0.16	0.15	0.15	0.17	0.16	0.16
Sudan	0.06	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.05
UAE	3.34	3.30	3.25	3.27	3.23	3.24	3.25	3.25	3.25	3.25	3.24
Venezuela	0.70	0.77	0.84	0.79	0.79	0.79	0.81	0.85	0.77	0.78	0.80
Total Crude Oil	**44.22**	**43.54**	**43.39**	**43.82**	**42.81**	**43.01**	**42.38**	**43.43**	**43.14**	**43.14**	**43.01**
of which Neutral Zone	*0.28*			*0.30*	*0.24*				*0.24*	*0.30*	*0.28*
Total NGLs	**8.01**	**8.29**	**8.38**	**8.29**	**8.22**	**8.33**	**8.37**	**8.37**	**8.24**	**8.33**	**8.33**
TOTAL OPEC+	**52.2**	**51.8**	**51.8**	**52.1**	**51.0**	**51.3**	**50.7**	**51.8**	**51.4**	**51.5**	**51.3**
NON-OPEC+											
OECD											
Americas[2]	23.69	25.13	25.81	24.71	25.60	25.62	25.48	25.76	25.80	25.58	25.79
United States	17.93	19.37	19.96	19.25	19.72	19.77	19.63	20.03	20.07	19.85	19.94
Canada	5.76	5.75	5.83	5.46	5.87	5.84	5.84	5.72	5.72	5.73	5.84
Chile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Europe	3.16	3.17	3.11	3.23	3.04	3.13	3.16	3.10	2.92	3.12	3.16
UK	0.83	0.73	0.66	0.77	0.63	0.67	0.66	0.66	0.63	0.67	0.67
Norway	1.90	1.99	1.98	2.01	1.96	1.99	2.03	1.97	1.83	1.99	2.01
Others	0.43	0.45	0.47	0.45	0.45	0.47	0.47	0.47	0.46	0.46	0.48
Asia Oceania	0.48	0.46	0.48	0.46	0.46	0.47	0.50	0.48	0.46	0.47	0.50
Australia	0.41	0.39	0.40	0.38	0.38	0.40	0.42	0.40	0.38	0.41	0.42
Others	0.07	0.07	0.08	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.08
Total OECD (non-OPEC+)	**27.34**	**28.76**	**29.39**	**28.40**	**29.10**	**29.22**	**29.14**	**29.34**	**29.18**	**29.18**	**29.45**
Non-OECD											
FSU	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Asia	6.23	6.26	6.24	6.36	6.20	6.13	6.28	6.29	6.18	6.16	6.13
China	4.18	4.26	4.31	4.34	4.21	4.16	4.34	4.36	4.21	4.19	4.16
India	0.70	0.69	0.69	0.69	0.69	0.68	0.68	0.69	0.68	0.68	0.68
Indonesia	0.63	0.63	0.60	0.64	0.62	0.61	0.61	0.60	0.61	0.62	0.61
Others	0.71	0.68	0.64	0.69	0.68	0.67	0.65	0.64	0.67	0.67	0.67
Europe	0.11	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Americas	5.65	6.15	6.67	6.00	6.28	6.35	6.60	6.64	6.39	6.34	6.29
Brazil	3.12	3.47	3.79	3.32	3.63	3.62	3.77	3.74	3.76	3.63	3.56
Argentina	0.71	0.76	0.80	0.76	0.76	0.79	0.79	0.80	0.77	0.78	0.79
Colombia	0.76	0.79	0.77	0.79	0.79	0.79	0.78	0.77	0.79	0.79	0.79
Ecuador	0.47	0.45	0.46	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Others	0.59	0.67	0.85	0.68	0.64	0.70	0.80	0.87	0.61	0.67	0.69
Middle East	1.89	1.88	1.89	1.89	1.88	1.88	1.89	1.88	1.88	1.87	1.88
Qatar	1.80	1.81	1.81	1.81	1.81	1.81	1.82	1.81	1.81	1.81	1.81
Others	0.09	0.07	0.08	0.07	0.07	0.07	0.07	0.08	0.07	0.06	0.07
Africa	1.09	1.07	1.10	1.07	1.07	1.08	1.08	1.09	1.06	1.08	1.08
Egypt	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Others	0.49	0.47	0.49	0.46	0.47	0.48	0.49	0.49	0.46	0.48	0.48
Total non-OECD (non-OPEC+)	**15.28**	**15.78**	**16.28**	**15.73**	**15.84**	**15.85**	**16.27**	**16.31**	**15.93**	**15.86**	**15.78**
Processing gains	2.31	2.35	2.44	2.35	2.38	2.37	2.44	2.44	2.36	2.34	2.37
Global biofuels	2.95	3.18	3.28	3.28	3.60	3.16	2.77	3.39	3.54	3.41	3.19
TOTAL NON-OPEC+	**47.87**	**50.07**	**51.39**	**49.76**	**50.93**	**50.60**	**50.61**	**51.47**	**51.01**	**50.79**	**50.79**
TOTAL SUPPLY	**100.11**	**101.91**	**103.16**	**101.87**	**101.96**	**101.95**	**101.35**	**103.26**	**102.40**	**102.25**	**102.13**

1 From December 2023, OPEC+ supply reflects latest OPEC+ deal and individual country's sustainable capacity. Libya and Iran held at most recent level through 2024.
2 Excludes Mexico.

Table 4
OECD STOCKS AND QUARTERLY STOCK CHANGES

	RECENT MONTHLY STOCKS[2] in Million Barrels					PRIOR YEARS' STOCKS[2] in Million Barrels			STOCK CHANGES in mb/d			
	Jun2023	Jul2023	Aug2023	Sep2023	Oct2023[3]	Oct2020	Oct2021	Oct2022	4Q2022	1Q2023	2Q2023	3Q2023
OECD INDUSTRY-CONTROLLED STOCKS[1]												
OECD Americas												
Crude	605.4	590.6	570.2	568.1	586.0	645.5	608.5	594.6	0.17	0.29	-0.17	-0.41
Motor Gasoline	247.4	247.6	244.8	256.4	248.1	257.0	243.1	237.7	0.17	0.03	-0.07	0.10
Middle Distillate	183.4	191.8	189.1	192.1	178.8	223.7	202.8	174.6	0.10	-0.04	0.03	0.09
Residual Fuel Oil	36.4	34.2	31.9	34.0	34.3	38.0	35.6	35.8	0.03	-0.02	0.01	-0.03
Total Products[4]	747.7	768.3	780.0	804.8	777.6	830.7	758.3	732.7	0.00	-0.30	0.47	0.62
Total[5]	**1513.1**	**1522.6**	**1514.2**	**1541.2**	**1533.8**	**1651.0**	**1531.1**	**1491.5**	**0.20**	**-0.03**	**0.27**	**0.31**
OECD Europe												
Crude	347.7	343.0	339.0	331.1	329.5	371.4	311.9	331.5	0.00	0.02	0.10	-0.18
Motor Gasoline	80.4	84.8	86.2	86.4	86.2	95.9	85.9	86.9	0.00	0.02	-0.10	0.07
Middle Distillate	245.9	253.2	262.6	259.9	254.9	333.9	250.9	239.9	0.17	-0.05	-0.01	0.15
Residual Fuel Oil	65.5	63.0	62.4	64.4	62.1	64.9	58.6	66.9	0.04	-0.03	-0.02	-0.01
Total Products[4]	495.9	509.4	523.3	522.2	516.3	609.1	490.9	499.8	0.19	-0.14	-0.11	0.29
Total[5]	**920.5**	**930.1**	**940.9**	**924.5**	**919.3**	**1063.6**	**875.7**	**915.4**	**0.20**	**-0.19**	**0.01**	**0.04**
OECD Asia Oceania												
Crude	134.1	140.7	122.2	123.0	114.9	170.0	110.6	121.9	0.00	0.13	-0.07	-0.12
Motor Gasoline	25.1	23.5	24.0	24.5	24.8	26.1	28.0	24.8	0.01	0.00	0.01	-0.01
Middle Distillate	60.1	61.0	68.3	71.0	72.7	73.3	72.6	69.0	0.00	-0.09	0.06	0.12
Residual Fuel Oil	17.2	17.7	18.7	18.8	18.2	16.2	16.4	19.0	0.00	0.00	0.01	0.02
Total Products[4]	167.5	167.6	181.8	179.6	182.1	181.1	185.2	182.7	-0.05	-0.08	0.11	0.13
Total[5]	**358.9**	**367.6**	**368.0**	**365.5**	**359.1**	**413.9**	**355.6**	**365.5**	**-0.06**	**-0.03**	**0.09**	**0.07**
Total OECD												
Crude	1087.2	1074.3	1031.4	1022.2	1030.4	1186.9	1031.0	1048.0	0.17	0.44	-0.15	-0.71
Motor Gasoline	352.9	355.8	355.0	367.3	359.1	378.9	357.0	349.4	0.18	0.04	-0.16	0.16
Middle Distillate	489.4	506.1	520.0	522.9	506.4	630.9	526.3	483.4	0.27	-0.17	0.08	0.36
Residual Fuel Oil	119.2	114.9	113.1	117.2	114.6	119.1	110.6	121.6	0.07	-0.05	0.00	-0.02
Total Products[4]	1411.0	1445.4	1485.1	1506.7	1476.1	1620.9	1434.4	1415.3	0.15	-0.52	0.47	1.04
Total[5]	**2792.4**	**2820.3**	**2823.1**	**2831.2**	**2812.2**	**3128.5**	**2762.4**	**2772.4**	**0.34**	**-0.25**	**0.37**	**0.42**
OECD GOVERNMENT-CONTROLLED STOCKS[6]												
OECD Americas												
Crude	347.2	347.5	350.3	351.3	351.3	638.6	610.7	398.6	-0.48	-0.01	-0.26	0.04
Products	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.00	0.00	0.00	0.00
OECD Europe												
Crude	189.3	191.1	191.1	191.4	191.2	204.9	203.2	193.4	-0.01	-0.06	0.02	0.02
Products	278.8	279.0	279.5	278.1	278.4	282.3	274.6	251.7	0.15	0.05	0.09	-0.01
OECD Asia Oceania												
Crude	351.3	348.1	349.1	349.2	348.6	374.5	369.5	343.7	0.01	0.06	0.04	-0.02
Products	35.7	35.5	34.8	35.1	35.6	39.1	38.9	36.0	-0.02	0.00	0.00	-0.01
Total OECD												
Crude	887.8	886.6	890.6	891.8	891.1	1218.0	1183.4	935.6	-0.49	-0.01	-0.21	0.04
Products	316.5	316.5	316.3	315.2	316.0	323.4	315.6	289.7	0.13	0.04	0.09	-0.01
Total[5]	**1205.8**	**1205.3**	**1209.1**	**1208.9**	**1209.1**	**1543.4**	**1500.6**	**1226.2**	**-0.35**	**0.03**	**-0.12**	**0.03**

1 Stocks are primary national territory stocks on land (excluding utility stocks and including pipeline and entrepot stocks where known) and include stocks held by industry to meet IEA, EU and national emergency reserve commitments and are subject to government control in emergencies.
2 Closing stock levels.
3 Estimated.
4 Total products includes gasoline, middle distillates, fuel oil and other products.
5 Total includes NGLs, refinery feedstocks, additives/oxygenates and other hydrocarbons.
6 Includes government-owned stocks and stock holding organisation stocks held for emergency purposes.

Table 4a
INDUSTRY STOCKS[1] ON LAND IN SELECTED COUNTRIES

(million barrels)

	May			June			July			August			September		
	2022	2023	%	2022	2023	%	2022	2023	%	2022	2023	%	2022	2023	%
United States[2]															
Crude	415.1	460.8	11.0	417.8	454.7	8.8	424.1	439.8	3.7	419.8	417.3	-0.6	429.0	417.5	-2.7
Motor Gasoline	220.7	222.1	0.6	221.0	223.2	1.0	225.1	222.1	-1.3	215.6	218.9	1.5	209.5	227.6	8.6
Middle Distillate	152.1	156.8	3.1	151.6	156.6	3.3	154.9	164.3	6.1	152.6	161.0	5.5	148.0	164.1	10.9
Residual Fuel Oil	29.5	32.8	11.2	29.3	30.4	3.8	29.2	28.5	-2.4	28.6	26.0	-9.1	27.4	27.5	0.4
Other Products	211.6	245.1	15.8	219.4	258.9	18.0	238.8	272.1	13.9	254.6	291.5	14.5	264.9	300.7	13.5
Total Products	613.9	656.8	7.0	621.3	669.1	7.7	648.0	687.0	6.0	651.4	697.4	7.1	649.8	719.9	10.8
Other[3]	143.2	141.7	-1.0	141.3	140.5	-0.6	143.2	144.7	1.0	141.5	143.5	1.4	136.8	146.0	6.7
Total	**1172.2**	**1259.3**	**7.4**	**1180.4**	**1264.3**	**7.1**	**1215.3**	**1271.5**	**4.6**	**1212.7**	**1258.2**	**3.8**	**1215.6**	**1283.4**	**5.6**
Japan															
Crude	74.9	77.1	2.9	67.0	84.2	25.7	66.7	91.3	36.9	76.2	78.0	2.4	86.2	82.7	-4.1
Motor Gasoline	10.3	10.6	2.9	9.9	10.1	2.0	8.8	8.8	0.0	9.6	9.6	0.0	9.7	9.9	2.1
Middle Distillate	26.6	27.4	3.0	26.6	27.4	3.0	28.8	28.2	-2.1	30.9	33.4	8.1	31.4	35.4	12.7
Residual Fuel Oil	6.8	7.4	8.8	6.7	8.0	19.4	6.2	7.6	22.6	6.8	8.8	29.4	6.8	8.1	19.1
Other Products	34.8	34.9	0.3	34.8	36.0	3.4	35.8	37.3	4.2	36.9	40.8	10.6	39.1	38.2	-2.3
Total Products	78.5	80.3	2.3	78.0	81.5	4.5	79.6	81.9	2.9	84.2	92.6	10.0	87.0	91.6	5.3
Other[3]	49.9	47.1	-5.6	47.8	47.5	-0.6	47.1	49.5	5.1	49.2	53.6	8.9	51.2	52.2	2.0
Total	**203.3**	**204.5**	**0.6**	**192.8**	**213.2**	**10.6**	**193.4**	**222.7**	**15.1**	**209.6**	**224.2**	**7.0**	**224.4**	**226.5**	**0.9**
Germany															
Crude	50.7	53.7	5.9	49.6	50.3	1.4	48.4	51.8	7.0	47.9	50.9	6.3	47.8	46.9	-1.9
Motor Gasoline	11.9	8.8	-26.1	10.2	8.9	-12.7	10.5	10.2	-2.9	9.2	10.1	9.8	10.6	10.5	-0.9
Middle Distillate	26.2	25.4	-3.1	25.2	23.7	-6.0	23.6	25.5	8.1	23.2	27.6	19.0	23.5	25.8	9.8
Residual Fuel Oil	8.3	8.8	6.0	8.7	8.6	-1.1	8.1	8.7	7.4	8.4	8.1	-3.6	9.5	7.5	-21.1
Other Products	9.7	9.8	1.0	9.4	9.6	2.1	9.7	10.0	3.1	9.8	9.6	-2.0	9.9	9.5	-4.0
Total Products	56.1	52.8	-5.9	53.5	50.8	-5.0	51.9	54.4	4.8	50.6	55.4	9.5	53.5	53.3	-0.4
Other[3]	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	0.0	0.0
Total	**106.8**	**106.5**	**-0.3**	**103.1**	**101.1**	**-1.9**	**100.3**	**106.2**	**5.9**	**98.5**	**106.3**	**7.9**	**101.3**	**100.2**	**-1.1**
Italy															
Crude	36.4	39.0	7.1	38.2	36.7	-3.9	34.3	37.3	8.7	36.2	36.7	1.4	40.0	39.7	-0.7
Motor Gasoline	11.6	10.0	-13.8	10.2	9.0	-11.8	10.0	9.6	-4.0	10.2	9.9	-2.9	11.1	10.0	-9.9
Middle Distillate	22.5	25.0	11.1	21.2	23.6	11.3	22.6	23.5	4.0	21.7	26.7	23.0	22.8	25.7	12.7
Residual Fuel Oil	8.3	7.2	-13.3	7.8	6.3	-19.2	7.2	6.1	-15.3	7.0	6.9	-1.4	8.1	6.9	-14.8
Other Products	11.8	11.7	-0.8	11.5	10.8	-6.1	11.6	11.2	-3.4	10.7	11.7	9.3	11.6	11.7	0.9
Total Products	54.2	53.9	-0.6	50.7	49.7	-2.0	51.4	50.4	-1.9	49.6	55.2	11.3	53.6	54.3	1.3
Other[3]	13.8	15.1	9.4	14.9	15.8	6.0	14.6	15.4	5.5	14.6	14.4	-1.4	14.3	13.7	-4.2
Total	**104.4**	**108.0**	**3.4**	**103.8**	**102.2**	**-1.5**	**100.3**	**103.1**	**2.8**	**100.4**	**106.3**	**5.9**	**107.9**	**107.7**	**-0.2**
France															
Crude	11.9	13.6	14.3	13.5	10.6	-21.5	12.0	11.9	-0.8	11.5	11.7	1.7	11.6	10.7	-7.8
Motor Gasoline	4.5	5.4	20.0	4.4	4.7	6.8	5.6	5.2	-7.1	5.4	5.4	0.0	4.6	5.7	23.9
Middle Distillate	19.7	20.2	2.5	17.2	17.9	4.1	19.5	17.6	-9.7	21.8	17.6	-19.3	17.2	17.8	3.5
Residual Fuel Oil	1.5	1.3	-13.3	2.1	0.8	-61.9	2.6	0.7	-73.1	3.0	0.7	-76.7	2.5	1.5	-40.0
Other Products	3.5	3.5	0.0	3.6	3.6	0.0	3.7	4.1	10.8	3.7	3.6	-2.7	4.0	3.4	-15.0
Total Products	29.2	30.4	4.1	27.3	27.0	-1.1	31.4	27.6	-12.1	33.9	27.3	-19.5	28.3	28.4	0.4
Other[3]	8.2	7.1	-13.4	7.7	6.8	-11.7	7.0	7.3	4.3	7.1	7.7	8.5	7.6	7.2	-5.3
Total	**49.3**	**51.1**	**3.7**	**48.5**	**44.4**	**-8.5**	**50.4**	**46.8**	**-7.1**	**52.5**	**46.7**	**-11.0**	**47.5**	**46.3**	**-2.5**
United Kingdom															
Crude	24.1	28.2	17.0	23.6	25.6	8.5	27.4	26.9	-1.8	25.9	26.2	1.2	27.9	27.0	-3.2
Motor Gasoline	9.7	8.2	-15.5	9.4	8.7	-7.4	8.9	8.7	-2.2	9.1	8.8	-3.3	9.3	9.0	-3.2
Middle Distillate	18.1	20.9	15.5	17.9	18.2	1.7	18.9	19.5	3.2	17.5	20.3	16.0	18.1	19.8	9.4
Residual Fuel Oil	1.7	1.0	-41.2	1.4	1.3	-7.1	1.2	1.4	16.7	1.5	1.3	-13.3	1.4	1.4	0.0
Other Products	6.8	6.2	-8.8	6.8	5.9	-13.2	6.7	6.2	-7.5	6.7	6.6	-1.5	6.9	6.5	-5.8
Total Products	36.3	36.3	0.0	35.5	34.1	-3.9	35.7	35.8	0.3	34.8	37.0	6.3	35.7	36.7	2.8
Other[3]	6.8	7.6	11.8	7.2	7.2	0.0	7.8	7.2	-7.7	7.4	9.2	24.3	7.5	7.8	4.0
Total	**67.2**	**72.1**	**7.3**	**66.3**	**66.9**	**0.9**	**70.9**	**69.9**	**-1.4**	**68.1**	**72.4**	**6.3**	**71.1**	**71.5**	**0.6**
Canada[4]															
Crude	121.6	117.3	-3.5	120.1	114.2	-4.9	119.8	114.1	-4.8	120.3	116.4	-3.2	116.5	115.0	-1.3
Motor Gasoline	13.1	14.0	6.9	13.4	14.2	6.0	14.3	16.1	12.6	14.3	16.6	16.1	14.9	17.2	15.4
Middle Distillate	16.8	17.9	6.5	16.0	17.8	11.3	16.9	19.3	14.2	17.2	19.7	14.5	16.5	18.5	12.1
Residual Fuel Oil	2.7	2.2	-18.5	2.1	2.1	0.0	1.6	1.8	12.5	1.9	1.9	0.0	2.4	2.1	-12.5
Other Products	13.5	13.4	-0.7	13.3	12.3	-7.5	13.0	13.2	1.5	13.0	13.1	0.8	12.6	12.6	0.0
Total Products	46.1	47.5	3.0	44.8	46.4	3.6	45.8	50.4	10.0	46.4	51.3	10.6	46.4	50.4	8.6
Other[3]	19.5	18.4	-5.6	21.2	19.4	-8.5	23.5	18.8	-20.0	25.5	20.4	-20.0	25.2	22.3	-11.5
Total	**187.2**	**183.2**	**-2.1**	**186.1**	**180.0**	**-3.3**	**189.1**	**183.3**	**-3.1**	**192.2**	**188.1**	**-2.1**	**188.1**	**187.7**	**-0.2**

1 Stocks are primary national territory stocks on land (excluding utilitity stocks and including pipeline and entrepot stocks where known) and include stocks held by industry to meet IEA, EU and national emergency reserve commitments and are subject to government control in emergencies.
2 US figures exclude US territories.
3 Other includes NGLs, refinery feedstocks, additives/oxygenates and other hydrocarbons.
4 Canadian stock information for recent months is the administration's best estimate. Data are usually finalised three months after first publication.

Table 5
TOTAL STOCKS ON LAND IN OECD COUNTRIES[1]
('millions of barrels' and 'days')

	End September 2022		End December 2022		End March 2023		End June 2023		End September 2023 [3]	
	Stock Level	Days Fwd[2] Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand
OECD Americas										
Canada	188.1	76	199.8	86	188.3	76	180.0	68	187.7	-
Chile	10.6	29	10.6	28	10.8	29	10.9	29	11.3	-
Mexico	36.7	20	36.6	20	37.3	20	35.8	19	36.7	-
United States[a]	1634.0	82	1596.6	81	1603.5	79	1613.6	79	1636.7	-
Total[4]	**1891.4**	**77**	**1865.7**	**76**	**1862.0**	**74**	**1862.3**	**73**	**1894.5**	**76**
OECD Asia Oceania										
Australia	35.8	32	38.7	35	39.8	35	38.9	35	39.8	-
Israel	-	-	-	-	-	-	-	-	-	-
Japan	522.4	146	513.9	138	492.5	159	510.7	165	520.8	-
Korea	174.5	69	173.8	68	196.0	84	190.8	78	183.4	-
New Zealand	6.1	35	5.5	36	5.8	38	5.4	37	5.6	-
Total	**738.8**	**97**	**731.9**	**94**	**734.1**	**106**	**745.9**	**106**	**749.7**	**98**
OECD Europe[5]										
Austria	17.4	72	21.3	91	22.6	91	22.0	90	22.1	-
Belgium	45.4	77	45.7	73	45.5	77	46.9	84	48.5	-
Czech Republic	22.6	105	23.1	116	23.6	113	22.0	98	23.4	-
Denmark	21.1	142	23.6	167	22.8	149	21.8	134	21.7	-
Estonia	2.3	80	3.4	120	3.2	110	3.0	95	2.5	-
Finland	40.4	219	38.0	222	35.9	198	36.4	223	35.1	-
France	142.3	97	151.3	99	138.7	89	151.8	96	154.7	-
Germany	265.6	125	271.7	132	264.3	126	264.8	131	261.9	-
Greece	30.4	97	31.9	118	32.1	107	31.6	93	32.6	-
Hungary	28.6	172	28.7	177	30.5	172	30.7	167	30.4	-
Ireland	10.3	65	11.0	70	10.3	67	10.3	71	10.2	-
Italy	123.3	104	120.0	106	122.9	104	117.7	96	123.8	-
Latvia	2.8	82	2.9	89	1.9	55	3.0	77	3.0	-
Lithuania	8.2	115	8.3	133	8.7	122	8.5	117	8.4	-
Luxembourg	0.6	14	0.5	11	0.5	10	0.5	11	0.5	-
Netherlands	125.2	141	139.8	155	130.1	142	126.3	145	119.2	-
Norway	26.0	128	27.2	123	27.8	115	26.1	120	27.7	-
Poland	82.1	116	83.8	128	88.5	125	87.5	118	86.6	-
Portugal	21.1	103	20.0	91	18.9	86	19.1	89	20.1	-
Slovak Republic	13.5	141	13.1	141	13.5	146	13.5	142	13.8	-
Slovenia	4.5	85	4.9	100	4.5	92	4.7	102	5.3	-
Spain	111.5	87	109.5	87	110.2	88	112.9	88	113.3	-
Sweden	34.5	118	36.0	121	36.9	121	39.2	137	38.3	-
Switzerland	28.2	140	27.4	145	28.4	144	29.0	154	30.3	-
Republic of Türkiye	86.6	83	88.6	92	87.9	82	93.9	77	91.2	-
United Kingdom	71.1	52	65.9	47	69.6	48	66.9	47	71.6	-
Total	**1365.8**	**102**	**1397.5**	**107**	**1379.7**	**102**	**1390.2**	**102**	**1396.0**	**106**
Total OECD	**3996.0**	**87**	**3995.1**	**88**	**3975.8**	**87**	**3998.3**	**87**	**4040.2**	**88**
DAYS OF IEA Net Imports[6]	**-**	**242**	**-**	**242**	**-**	**243**	**-**	**143**	**-**	**144**

1 Total Stocks are industry and government-controlled stocks (see breakdown in the table below). Stocks are primary national territory stocks on land (excluding utility stocks and including pipeline and entrepot stocks where known) they include stocks held by industry to meet IEA, EU and national emergency reserves commitments and are subject to government control in emergencies.
2 Note that days of forward demand represent the stock level divided by the forward quarter average daily demand and is very different from the days of net imports used for the calculation of IEA Emergency Reserves.
3 End September 2023 forward demand figures are IEA Secretariat forecasts.
4 US figures exclude US territories. Total includes US territories.
5 Data not available for Iceland.
6 Reflects stock levels and prior calendar year's net imports adjusted according to IEA emergency reserve definitions (see www.iea.org/netimports.asp). Net exporting IEA countries are excluded.

TOTAL OECD STOCKS

CLOSING STOCKS	Total	Government[1] controlled	Industry	Total	Government[1] controlled	Industry
	Millions of Barrels			*Days of Fwd. Demand*[2]		
3Q2020	4732	1551	3181	110	36	74
4Q2020	4578	1541	3037	108	36	71
1Q2021	4470	1546	2924	102	35	66
2Q2021	4405	1524	2882	96	33	63
3Q2021	4281	1513	2769	91	32	59
4Q2021	4136	1484	2652	90	32	58
1Q2022	4057	1442	2615	90	32	58
2Q2022	4008	1343	2664	87	29	58
3Q2022	3996	1246	2750	87	27	60
4Q2022	3995	1214	2781	88	27	61
1Q2023	3976	1217	2759	87	27	60
2Q2023	3998	1206	2792	87	26	61
3Q2023	4040	1209	2831	88	26	62

1 Includes government-owned stocks and stock holding organisation stocks held for emergency purposes.
2 Days of forward demand calculated using actual demand except in 3Q2023 (where latest forecasts are used).

Table 6
IEA MEMBER COUNTRY DESTINATIONS OF SELECTED CRUDE STREAMS[1]
(million barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
Saudi Light & Extra Light												
Americas	0.26	0.34	0.46	0.41	0.39	0.39	0.24	0.30	0.39	0.03	0.48	-0.45
Europe	0.59	0.48	0.62	0.67	0.73	0.67	0.47	0.47	0.50	0.45	0.57	-0.12
Asia Oceania	1.39	1.30	1.51	1.58	1.58	1.43	1.39	1.37	1.28	1.53	1.42	0.11
Saudi Medium												
Americas	0.14	0.01	-	-	-	-	-	-	-	-	-	-
Europe	0.02	0.01	0.02	0.01	0.01	-	0.01	0.02	-	-	0.02	-
Asia Oceania	0.25	0.21	0.23	0.23	0.25	0.16	0.24	0.22	0.33	0.18	0.20	-0.02
Canada Heavy												
Americas	2.39	2.59	2.61	2.63	2.70	2.57	2.47	2.44	2.47	2.49	2.71	-0.22
Europe	0.03	0.03	0.08	0.11	0.07	0.14	0.10	0.11	0.13	0.06	0.09	-0.03
Asia Oceania	0.00	0.02	0.01	-	-	-	-	-	-	-	0.03	-
Iraqi Basrah Light[2]												
Americas	0.11	0.08	0.21	0.13	0.33	0.18	0.22	0.18	0.34	0.14	0.33	-0.19
Europe	0.58	0.62	0.69	0.69	0.71	0.75	0.81	0.80	0.79	0.86	0.80	0.06
Asia Oceania	0.22	0.17	0.23	0.26	0.27	0.26	0.23	0.22	0.25	0.23	0.29	-0.07
Kuwait Blend												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.04	-	-	-	-	-	-	-	-	-	-	-
Asia Oceania	0.55	0.48	0.48	0.46	0.51	0.45	0.47	0.50	0.41	0.51	0.39	0.12
Iranian Light												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
Iranian Heavy[3]												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
BFOE												
Americas	-	0.00	-	-	-	-	0.01	0.02	-	-	-	-
Europe	0.42	0.36	0.41	0.38	0.50	0.47	0.54	0.53	0.49	0.59	0.39	0.21
Asia Oceania	0.03	0.05	0.03	-	-	-	-	-	-	-	0.07	-
Kazakhstan												
Americas	-	0.01	-	-	-	-	-	-	-	-	-	-
Europe	0.74	0.69	0.73	0.70	0.98	0.97	0.88	0.93	0.92	0.78	0.57	0.21
Asia Oceania	0.07	0.09	0.13	0.14	0.15	0.14	0.08	0.14	0.07	0.03	0.04	0.00
Venezuelan 22 API and heavier												
Americas	-	-	-	-	-	0.03	0.06	0.09	0.09	-	-	-
Europe	0.04	-	0.01	0.02	0.01	0.02	0.03	0.05	0.03	0.01	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
Mexican Maya												
Americas	0.48	0.40	0.40	0.36	0.43	0.38	0.40	0.37	0.39	0.44	0.40	0.04
Europe	0.16	0.14	0.10	0.12	0.09	0.10	0.07	0.03	0.08	0.09	0.07	0.02
Asia Oceania	0.12	0.14	0.06	0.08	0.05	0.05	0.05	0.05	-	0.10	0.03	0.07
Russian Urals												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	1.12	1.05	0.74	0.40	0.13	0.09	0.09	0.10	0.09	0.08	0.75	-0.67
Asia Oceania	-	0.01	-	-	-	-	-	-	-	-	-	-
Cabinda and Other Angola												
North America	0.01	-	0.00	-	-	-	-	-	-	-	-	-
Europe	0.12	0.03	0.23	0.31	0.35	0.22	0.30	0.19	0.37	0.35	0.20	0.14
Pacific	-	-	0.00	0.01	-	-	-	-	-	-	0.02	-
Nigerian Light[4]												
Americas	-	0.02	0.00	-	-	-	-	-	-	-	-	-
Europe	0.49	0.41	0.41	0.46	0.53	0.43	0.44	0.46	0.51	0.34	0.29	0.05
Asia Oceania	0.02	0.01	0.01	0.02	0.00	0.00	-	-	-	-	0.02	-
Libya Light and Medium												
Americas	-	0.02	-	-	-	-	-	-	-	-	-	-
Europe	0.19	0.80	0.63	0.76	0.65	0.76	0.79	0.91	0.80	0.64	0.76	-0.12
Asia Oceania	0.01	0.02	0.01	0.01	0.02	0.00	0.01	0.02	0.02	-	0.02	-

1 Data based on monthly submissions from IEA countries to the crude oil import register (in '000 bbl), subject to availability. May differ from Table 8 of the Report. IEA Americas includes United States and Canada. IEA Europe includes all countries in OECD Europe except Estonia, Hungary, Slovenia and Latvia. IEA Asia Oceania includes Australia, New Zealand, Korea and Japan.
2 Iraqi Total minus Kirkuk.
3 Iranian Total minus Iranian Light.
4 33° API and lighter (e.g., Bonny Light, Escravos, Qua Iboe and Oso Condensate).

Table 7
REGIONAL OECD IMPORTS[1,2]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier % change
Crude Oil												
Americas	1895	2077	2116	2129	2105	2182	2405	2255	2599	2360	2007	18%
Europe	8349	8520	9090	8986	8368	8337	8758	8331	8848	9105	9451	-4%
Asia Oceania	5579	5526	5878	5731	5934	5407	5487	5609	5051	5812	6057	-4%
Total OECD	**15823**	**16123**	**17084**	**16846**	**16408**	**15926**	**16650**	**16194**	**16498**	**17278**	**17515**	**-1%**
LPG												
Americas	28	21	25	18	31	23	25	23	21	32	25	25%
Europe	422	404	525	578	543	538	527	482	540	559	499	12%
Asia Oceania	559	562	579	538	677	486	504	514	586	410	518	-21%
Total OECD	**1009**	**987**	**1130**	**1134**	**1251**	**1048**	**1056**	**1020**	**1146**	**1000**	**1043**	**-4%**
Naphtha												
Americas	7	8	7	8	5	14	5	7	5	2	6	-70%
Europe	409	513	306	195	176	134	158	189	171	111	152	-27%
Asia Oceania	1003	1146	1046	1074	1118	933	1021	897	1116	1050	985	7%
Total OECD	**1419**	**1667**	**1359**	**1277**	**1298**	**1082**	**1183**	**1093**	**1292**	**1163**	**1143**	**2%**
Gasoline[3]												
Americas	576	805	675	590	548	988	874	834	912	877	672	30%
Europe	109	106	101	69	63	53	64	63	56	74	102	-27%
Asia Oceania	116	153	176	179	197	196	186	200	201	154	221	-30%
Total OECD	**800**	**1064**	**953**	**838**	**808**	**1237**	**1124**	**1097**	**1169**	**1105**	**995**	**11%**
Jet & Kerosene												
Americas	159	165	134	177	178	160	136	166	111	130	88	48%
Europe	337	329	453	536	383	478	607	625	585	613	578	6%
Asia Oceania	60	69	87	139	161	113	127	113	110	161	67	141%
Total OECD	**556**	**563**	**674**	**852**	**722**	**751**	**870**	**903**	**805**	**904**	**732**	**23%**
Gasoil/Diesel												
Americas	134	197	99	120	158	59	51	46	50	58	26	122%
Europe	1192	1188	1225	1486	1164	1261	1088	1213	981	1070	1232	-13%
Asia Oceania	328	349	319	325	336	383	424	473	416	380	343	11%
Total OECD	**1654**	**1735**	**1644**	**1931**	**1658**	**1704**	**1563**	**1733**	**1447**	**1508**	**1601**	**-6%**
Heavy Fuel Oil												
Americas	143	102	122	132	105	51	59	29	57	91	84	8%
Europe	295	374	260	241	146	158	124	167	119	84	260	-68%
Asia Oceania	88	119	89	75	107	86	131	121	120	153	71	117%
Total OECD	**526**	**594**	**470**	**448**	**358**	**295**	**314**	**318**	**296**	**328**	**414**	**-21%**
Other Products												
Americas	592	581	498	457	473	477	411	468	379	384	426	-10%
Europe	574	605	629	605	561	615	637	637	649	626	682	-8%
Asia Oceania	207	199	188	188	167	192	182	165	193	188	236	-20%
Total OECD	**1373**	**1386**	**1316**	**1250**	**1201**	**1284**	**1230**	**1269**	**1221**	**1198**	**1344**	**-11%**
Total Products												
Americas	1639	1879	1560	1502	1499	1772	1560	1574	1534	1574	1327	19%
Europe	3339	3518	3500	3711	3035	3238	3205	3376	3100	3136	3506	-11%
Asia Oceania	2360	2598	2486	2517	2761	2390	2575	2483	2742	2497	2441	2%
Total OECD	**7339**	**7995**	**7546**	**7730**	**7295**	**7399**	**7340**	**7433**	**7376**	**7207**	**7273**	**-1%**
Total Oil												
Americas	3535	3957	3676	3632	3604	3954	3965	3828	4133	3934	3334	18%
Europe	11688	12037	12590	12697	11403	11574	11963	11707	11948	12242	12956	-6%
Asia Oceania	7939	8124	8363	8247	8696	7797	8062	8092	7792	8309	8498	-2%
Total OECD	**23162**	**24119**	**24629**	**24576**	**23703**	**23325**	**23990**	**23627**	**23874**	**24485**	**24788**	**-1%**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes and converted to barrels conversion factors available at https://www.iea.org/articles/oil-market-report-glossary#a.
2 Excludes intra-regional trade.
3 Includes additives.

Table 7a
REGIONAL OECD IMPORTS FROM NON-OECD COUNTRIES[1,2]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier % change
Crude Oil												
Americas	1835	1982	2049	2057	2053	2110	2357	2202	2575	2292	1937	18%
Europe	7115	7265	7523	7251	6564	6441	6597	6288	6573	6940	7870	-12%
Asia Oceania	5051	4917	5299	5089	5380	4920	5028	5029	4761	5303	5562	-5%
Total OECD	**14002**	**14164**	**14872**	**14398**	**13998**	**13472**	**13982**	**13519**	**13909**	**14535**	**15369**	**-5%**
LPG												
Americas	22	20	25	18	31	23	25	23	21	32	25	25%
Europe	252	243	256	283	263	275	260	251	246	285	264	8%
Asia Oceania	58	46	62	52	50	34	24	28	20	25	40	-37%
Total OECD	**331**	**309**	**343**	**353**	**345**	**332**	**310**	**302**	**286**	**341**	**330**	**4%**
Naphtha												
Americas	1	4	3	6	3	6	3	6	1	1	1	46%
Europe	390	426	272	194	162	103	136	180	137	91	152	-40%
Asia Oceania	832	974	945	958	1047	889	959	863	1072	940	871	8%
Total OECD	**1223**	**1404**	**1220**	**1158**	**1212**	**998**	**1098**	**1049**	**1211**	**1032**	**1024**	**1%**
Gasoline[3]												
Americas	195	248	174	137	155	329	279	287	259	291	162	80%
Europe	104	100	84	58	49	38	48	52	38	55	86	-36%
Asia Oceania	98	149	176	179	197	196	186	200	201	154	221	-30%
Total OECD	**397**	**497**	**434**	**374**	**400**	**562**	**513**	**539**	**498**	**500**	**469**	**7%**
Jet & Kerosene												
Americas	55	63	48	89	91	60	66	86	39	74	25	192%
Europe	297	294	393	423	370	423	509	565	497	463	464	0%
Asia Oceania	60	69	87	139	161	113	127	113	110	161	67	141%
Total OECD	**413**	**426**	**528**	**650**	**622**	**597**	**702**	**764**	**645**	**697**	**556**	**25%**
Gasoil/Diesel												
Americas	103	134	43	48	98	39	40	36	43	41	7	493%
Europe	1062	1107	1120	1315	1008	1021	895	908	796	983	1088	-10%
Asia Oceania	323	349	319	325	336	383	423	473	415	380	343	11%
Total OECD	**1488**	**1591**	**1482**	**1688**	**1441**	**1443**	**1359**	**1418**	**1255**	**1405**	**1437**	**-2%**
Heavy Fuel Oil												
Americas	110	86	90	96	86	38	54	16	57	91	36	151%
Europe	279	347	239	220	126	133	103	161	82	64	230	-72%
Asia Oceania	88	119	89	75	107	86	131	121	120	153	71	117%
Total OECD	**477**	**552**	**418**	**390**	**318**	**257**	**288**	**297**	**259**	**308**	**337**	**-9%**
Other Products												
Americas	514	530	421	360	385	421	317	379	287	284	367	-23%
Europe	352	427	443	415	314	365	421	474	402	385	466	-17%
Asia Oceania	130	121	116	116	101	105	110	101	101	128	148	-13%
Total OECD	**996**	**1078**	**980**	**890**	**800**	**890**	**847**	**953**	**790**	**797**	**981**	**-19%**
Total Products												
Americas	1001	1086	804	754	848	917	784	833	707	814	623	31%
Europe	2735	2944	2806	2907	2291	2357	2372	2590	2199	2325	2751	-15%
Asia Oceania	1590	1827	1794	1843	1999	1806	1960	1899	2039	1942	1761	10%
Total OECD	**5325**	**5857**	**5404**	**5504**	**5138**	**5080**	**5116**	**5322**	**4945**	**5081**	**5135**	**-1%**
Total Oil												
Americas	2836	3068	2853	2811	2901	3027	3141	3035	3282	3107	2560	21%
Europe	9850	10209	10330	10158	8855	8799	8968	8878	8772	9264	10621	-13%
Asia Oceania	6641	6744	7093	6933	7379	6726	6988	6928	6800	7245	7323	-1%
Total OECD	**19327**	**20020**	**20276**	**19902**	**19135**	**18552**	**19098**	**18842**	**18854**	**19616**	**20504**	**-4%**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes and converted to barrels converson factors available at https://www.iea.org/articles/oil-market-report-glossary#a.
2 Excludes intra-regional trade.
3 Includes additives.

Table 7b
INTER-REGIONAL OECD TRANSFERS[1,2]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier % change
Crude Oil												
Americas	60	95	66	72	52	71	48	53	25	68	70	-3%
Europe	1234	1255	1567	1735	1804	1895	2161	2043	2275	2166	1581	37%
Asia Oceania	527	610	578	641	554	487	459	579	289	510	495	3%
Total OECD	**1821**	**1959**	**2212**	**2448**	**2410**	**2454**	**2668**	**2675**	**2589**	**2743**	**2145**	**28%**
LPG												
Americas	6	1	1	0	0	0	0	0	0	0	0	na
Europe	171	161	269	296	280	264	266	231	294	274	235	17%
Asia Oceania	501	516	517	486	626	452	480	487	566	384	478	-20%
Total OECD	**678**	**678**	**787**	**782**	**906**	**716**	**746**	**718**	**860**	**659**	**713**	**-8%**
Naphtha												
Americas	6	4	3	2	2	8	2	2	4	1	5	-84%
Europe	20	87	35	1	14	31	21	10	34	20	0	50516%
Asia Oceania	170	172	101	115	70	44	62	33	44	110	114	-3%
Total OECD	**196**	**263**	**139**	**119**	**86**	**83**	**85**	**45**	**82**	**131**	**119**	**10%**
Gasoline[3]												
Americas	381	557	501	452	394	660	595	547	653	585	511	15%
Europe	5	6	17	11	15	15	16	11	18	19	16	22%
Asia Oceania	18	5	0	0	0	0	0	0	0	0	0	6%
Total OECD	**403**	**567**	**518**	**464**	**408**	**675**	**611**	**558**	**670**	**605**	**527**	**15%**
Jet & Kerosene												
Americas	103	102	87	88	87	99	69	79	72	57	63	-10%
Europe	40	35	60	114	12	54	99	60	88	150	113	32%
Asia Oceania	0	0	0	0	0	0	0	0	0	0	0	na
Total OECD	**144**	**137**	**147**	**202**	**100**	**154**	**168**	**139**	**160**	**207**	**176**	**17%**
Gasoil/Diesel												
Americas	31	63	56	72	61	20	11	10	7	17	19	-12%
Europe	131	81	106	171	156	241	193	305	185	86	145	-40%
Asia Oceania	4	0	0	0	0	0	0	0	0	0	0	-50%
Total OECD	**166**	**144**	**162**	**243**	**217**	**261**	**204**	**315**	**192**	**103**	**164**	**-37%**
Heavy Fuel Oil												
Americas	33	16	31	35	20	12	5	14	0	0	48	-100%
Europe	16	27	21	22	21	26	21	7	37	20	30	-32%
Asia Oceania	0	0	0	0	0	0	0	0	0	0	0	-100%
Total OECD	**49**	**42**	**52**	**57**	**40**	**38**	**26**	**20**	**37**	**20**	**77**	**-74%**
Other Products												
Americas	78	51	78	98	88	56	94	89	92	100	58	71%
Europe	222	178	186	190	247	250	217	163	246	241	216	12%
Asia Oceania	77	78	73	71	66	87	72	64	92	60	88	-32%
Total OECD	**377**	**307**	**336**	**359**	**401**	**393**	**383**	**316**	**431**	**401**	**363**	**11%**
Total Products												
Americas	639	794	756	748	650	855	776	740	827	759	704	8%
Europe	604	574	694	805	744	881	833	786	902	811	754	8%
Asia Oceania	770	771	691	673	763	584	615	584	702	555	680	-18%
Total OECD	**2013**	**2139**	**2141**	**2226**	**2158**	**2320**	**2224**	**2110**	**2431**	**2126**	**2138**	**-1%**
Total Oil												
Americas	699	889	823	820	702	927	824	793	852	827	774	7%
Europe	1838	1829	2261	2539	2548	2776	2994	2829	3176	2977	2335	27%
Asia Oceania	1297	1381	1270	1314	1317	1071	1073	1163	992	1065	1175	-9%
Total OECD	**3834**	**4098**	**4353**	**4674**	**4568**	**4773**	**4892**	**4786**	**5020**	**4869**	**4284**	**14%**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes and converted to barrels converson factors available at https://www.iea.org/articles/oil-market-report-glossary#a.
2 Excludes intra-regional trade.
3 Includes additives.

Table 8
REGIONAL OECD CRUDE IMPORTS BY SOURCE[1]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
OECD Americas												
Venezuela	-	-	-	-	69	151	154	153	145	163	-	-
Other Central & South America	745	719	845	879	837	808	1016	966	1148	931	952	-20
North Sea	59	92	64	72	52	63	48	53	25	68	70	-2
Other OECD Europe	1	3	-	-	-	4	-	-	-	-	-	-
Non-OECD Europe	-	-	-	-	-	-	-	-	-	-	-	-
Former Soviet Union	91	229	43	19	23	32	46	60	22	57	-	-
Saudi Arabia	588	427	535	516	487	434	424	457	429	386	462	-76
Kuwait	21	21	27	42	14	19	37	26	60	25	-	-
Iran	-	3	1	-	-	-	11	-	14	18	-	-
Iraq	177	152	244	245	257	190	235	204	252	251	231	19
Oman	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	5	17	12	-	16	-	23	-	-	71	-	-
Other Middle East	-	-	-	-	-	-	-	-	-	-	-	-
West Africa[2]	145	228	186	160	264	288	282	298	308	240	150	89
Other Africa	45	161	153	196	80	186	123	38	197	134	120	14
Asia	17	25	5	-	-	7	-	-	-	-	21	-
Other	3	-	-	-	6	-	5	-	-	16	-	-
Total	**1895**	**2077**	**2116**	**2129**	**2105**	**2182**	**2405**	**2255**	**2599**	**2360**	**2007**	**353**
of which Non-OECD	**1835**	**1982**	**2049**	**2057**	**2053**	**2110**	**2357**	**2202**	**2575**	**2292**	**1937**	**355**
OECD Europe												
Canada	95	83	129	172	131	207	179	210	183	142	123	19
Mexico + USA	1139	1172	1438	1562	1673	1689	1977	1822	2088	2024	1458	566
Venezuela	44	-	15	23	8	25	42	57	38	30	-	-
Other Central & South America	208	219	409	443	610	580	566	449	646	603	626	-23
Non-OECD Europe	25	23	15	15	19	17	12	14	16	5	15	-10
Former Soviet Union	3504	3538	3179	2528	1813	1845	1815	1978	1718	1747	2971	-1224
Saudi Arabia	756	518	763	882	873	854	653	744	675	538	1021	-482
Kuwait	48	0	-	-	-	-	-	-	-	-	-	-
Iran	6	1	-	-	-	-	-	-	-	-	-	-
Iraq	814	912	989	940	932	876	928	799	930	1060	1108	-48
Oman	-	-	-	-	11	11	21	-	30	34	-	-
United Arab Emirates	-	-	48	76	75	49	89	110	93	63	78	-15
Other Middle East	8	9	7	10	22	-	22	-	64	-	-	-
West Africa[2]	1074	822	1001	1055	1090	980	1025	835	1056	1189	697	492
Other Africa	596	1198	1071	1269	1064	1186	1213	1285	1305	1045	1323	-279
Asia	0	0	1	-	-	-	5	11	4	0	-	-
Other	11	1	3	-	0	-	174	-	-	532	-	-
Total	**8329**	**8496**	**9067**	**8976**	**8321**	**8318**	**8721**	**8315**	**8846**	**9012**	**9420**	**-408**
of which Non-OECD	**7115**	**7265**	**7523**	**7251**	**6564**	**6441**	**6597**	**6288**	**6573**	**6940**	**7870**	**-930**
OECD Asia Oceania												
Canada	1	16	6	-	-	-	0	-	-	0	32	-32
Mexico + USA	477	496	538	633	554	479	459	579	289	510	395	115
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	91	110	120	109	95	94	100	79	101	122	138	-17
North Sea	49	98	34	8	0	8	0	0	0	-	69	-
Other OECD Europe	-	0	0	0	0	0	0	0	0	0	0	0
Non-OECD Europe	-	-	-	-	-	-	-	-	-	-	-	-
Former Soviet Union	300	336	239	161	154	145	79	136	67	34	61	-26
Saudi Arabia	1867	1766	1991	2033	2128	1845	1865	1819	1796	1983	1886	97
Kuwait	584	506	534	524	586	485	536	569	459	582	442	141
Iran	-	-	-	-	-	-	-	-	-	-	-	-
Iraq	224	167	220	241	247	241	223	221	222	226	295	-69
Oman	22	32	40	26	28	49	49	32	48	67	33	35
United Arab Emirates	1096	1083	1287	1288	1220	1325	1346	1157	1458	1424	1538	-114
Other Middle East	387	362	370	289	371	394	338	322	343	349	403	-54
West Africa[2]	65	71	64	55	35	5	10	14	14	-	135	-
Other Africa	42	56	40	43	44	27	31	29	29	35	41	-6
Non-OECD Asia	161	185	125	141	139	126	134	136	132	134	83	51
Other	210	237	266	173	332	184	313	504	91	347	509	-162
Total	**5577**	**5522**	**5874**	**5726**	**5934**	**5407**	**5484**	**5598**	**5051**	**5812**	**6057**	**-245**
of which Non-OECD	**5051**	**4917**	**5299**	**5089**	**5380**	**4920**	**5028**	**5029**	**4761**	**5303**	**5562**	**-260**
Total OECD Trade	**15801**	**16096**	**17057**	**16831**	**16361**	**15907**	**16610**	**16167**	**16496**	**17184**	**17484**	**-300**
of which Non-OECD	**14002**	**14164**	**14872**	**14398**	**13998**	**13472**	**13982**	**13519**	**13909**	**14535**	**15369**	**-835**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes, and converted to barrels at 7.37 barrels per tonne.Data will differ from Table 6 which is based on submissions in barrels.
2 West Africa includes Angola, Nigeria, Gabon, Equatorial Guniea, Congo and Democratic Republic of Congo.

Table 9
REGIONAL OECD GASOLINE IMPORTS BY SOURCE[1]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
OECD Americas												
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	40	41	45	62	49	65	56	47	38	84	59	25
ARA (Belgium Germany Netherlands)	148	194	170	100	97	216	214	219	247	174	182	-8
Other Europe	213	327	293	320	259	389	337	296	368	346	276	71
FSU	56	83	8	-	-	-	0	-	0	-	0	-
Saudi Arabia	6	24	27	20	8	33	37	33	42	34	22	13
Algeria	4	1	1	1	-	21	12	21	14	1	5	-4
Other Middle East & Africa	13	13	14	13	15	20	20	10	21	28	14	14
Singapore	1	4	2	2	10	29	38	36	29	50	9	41
OECD Asia Oceania	21	37	38	32	38	63	47	35	38	67	53	14
Non-OECD Asia (excl. Singapore)	72	81	76	38	71	153	115	136	115	92	53	39
Other	-	0	0	0	-	-	-	-	-	-	-	-
Total[2]	**576**	**805**	**675**	**590**	**548**	**988**	**874**	**834**	**912**	**877**	**672**	**205**
of which Non-OECD	**195**	**248**	**174**	**137**	**155**	**329**	**279**	**287**	**259**	**291**	**162**	**130**
OECD Europe												
OECD Americas	3	5	16	11	11	14	15	10	18	17	14	3
Venezuela	0	2	2	2	3	2	1	1	-	1	4	-3
Other Central & South America	4	7	10	6	7	6	3	2	5	2	20	-18
Non-OECD Europe	16	10	8	6	8	9	9	9	6	12	21	-9
FSU	31	8	9	2	7	1	1	1	0	1	6	-5
Saudi Arabia	8	3	1	-	0	-	4	10	1	1	-	-
Algeria	1	-	6	4	7	2	5	10	6	-	-	-
Other Middle East & Africa	3	5	8	5	5	5	4	3	3	5	7	-2
Singapore	2	0	2	3	2	3	4	1	4	6	1	4
OECD Asia Oceania	1	1	1	1	4	1	1	1	-	2	2	1
Non-OECD Asia (excl. Singapore)	0	3	3	3	3	4	4	3	9	-	4	-
Other	37	63	36	26	8	6	14	11	5	28	23	4
Total[2]	**107**	**106**	**101**	**69**	**63**	**53**	**64**	**63**	**56**	**74**	**102**	**-28**
of which Non-OECD	**104**	**100**	**84**	**58**	**49**	**38**	**48**	**52**	**38**	**55**	**86**	**-31**
OECD Asia Oceania												
OECD Americas	4	1	0	0	0	0	0	0	0	0	0	0
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	-	-	-	-	-	0	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	4	4	0	0	0	0	0	-	0	0	0	0
Other Europe	10	0	0	0	0	0	0	0	0	0	0	0
FSU	0	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	4	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East & Africa	1	-	-	-	-	-	0	-	0	-	-	-
Singapore	51	100	126	125	141	123	101	122	105	76	121	-45
Non-OECD Asia (excl. Singapore)	37	29	30	27	38	53	63	62	80	46	61	-15
Other	9	20	21	27	17	17	21	16	16	32	39	-6
Total[2]	**116**	**153**	**176**	**179**	**197**	**196**	**186**	**200**	**201**	**154**	**221**	**-67**
of which Non-OECD	**98**	**149**	**176**	**179**	**197**	**196**	**186**	**200**	**201**	**154**	**221**	**-67**
Total OECD Trade[2]	**798**	**1064**	**953**	**838**	**808**	**1237**	**1124**	**1097**	**1169**	**1105**	**995**	**110**
of which Non-OECD	**397**	**497**	**434**	**374**	**400**	**562**	**513**	**539**	**498**	**500**	**469**	**32**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes.
2 Total figure excludes intra-regional trade.

Table 10
REGIONAL OECD GASOIL/DIESEL IMPORTS BY SOURCE[1]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
OECD Americas												
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	34	28	6	3	15	17	29	34	14	37	7	30
ARA (Belgium Germany Netherlands)	11	34	15	11	3	1	1	0	2	2	4	-2
Other Europe	4	5	2	3	0	0	1	2	0	-	0	-
FSU	12	25	6	-	-	1	-	-	-	-	-	-
Saudi Arabia	8	15	9	5	9	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	9	25	4	8	7	8	1	2	-	-	-	-
Singapore	-	2	1	2	3	-	2	-	6	-	-	-
OECD Asia Oceania	16	25	39	58	57	19	9	8	5	15	15	0
Non-OECD Asia (excl. Singapore)	34	27	5	17	52	12	9	-	22	4	-	-
Other	6	12	11	13	12	-	-	-	-	-	-	-
Total[2]	**134**	**197**	**99**	**120**	**158**	**59**	**51**	**46**	**50**	**58**	**26**	**32**
of which Non-OECD	**103**	**134**	**43**	**48**	**98**	**39**	**40**	**36**	**43**	**41**	**7**	**34**
OECD Europe												
OECD Americas	99	38	76	126	126	214	176	278	168	80	109	-29
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	3	1	1	0	-	-	0	-	1	0	9	-9
Non-OECD Europe	30	35	44	45	24	32	27	7	47	28	65	-37
FSU	627	612	530	538	299	287	278	329	248	257	437	-180
Saudi Arabia	193	141	169	221	231	209	131	154	139	97	207	-110
Algeria	2	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	71	156	161	200	208	270	249	269	228	251	134	117
Singapore	17	19	37	33	33	32	20	28	22	11	50	-39
OECD Asia Oceania	32	42	30	45	30	26	17	27	17	6	35	-29
Non-OECD Asia (excl. Singapore)	101	123	152	269	204	182	137	120	104	189	171	19
Other	15	21	23	9	9	7	52	1	8	150	15	135
Total[2]	**1190**	**1188**	**1223**	**1486**	**1164**	**1260**	**1088**	**1213**	**981**	**1070**	**1232**	**-163**
of which Non-OECD	**1062**	**1107**	**1120**	**1315**	**1008**	**1021**	**895**	**908**	**796**	**983**	**1088**	**-104**
OECD Asia Oceania												
OECD Americas	4	0	0	0	0	-	0	-	-	0	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	0	-	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	0	0	0	0	0	0	0	0	0	-	-	-
Other Europe	-	0	0	-	0	-	-	-	-	-	0	-
FSU	2	1	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	13	4	6	-	-	3	5	16	-	-	-	-
Singapore	91	109	112	97	123	76	84	79	86	86	87	-1
Non-OECD Asia (excl. Singapore)	208	229	191	209	209	297	322	376	327	260	232	28
Other	9	6	10	20	3	7	12	2	2	34	23	10
Total[2]	**328**	**349**	**319**	**325**	**336**	**383**	**424**	**473**	**416**	**380**	**343**	**38**
of which Non-OECD	**323**	**349**	**319**	**325**	**336**	**383**	**423**	**473**	**415**	**380**	**343**	**38**
Total OECD Trade[2]	**1652**	**1734**	**1641**	**1931**	**1658**	**1703**	**1563**	**1733**	**1447**	**1508**	**1601**	**-93**
of which Non-OECD	**1488**	**1591**	**1482**	**1688**	**1441**	**1443**	**1359**	**1418**	**1255**	**1405**	**1437**	**-32**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes.
2 Total figure excludes intra-regional trade.

Table 11
REGIONAL OECD JET AND KEROSENE IMPORTS BY SOURCE[1]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
OECD Americas												
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	5	1	0	1	1	3	1	1	-	3	-	-
ARA (Belgium Germany Netherlands)	-	5	0	0	-	1	1	2	-	-	-	-
Other Europe	4	7	1	4	11	1	1	0	2	-	-	-
FSU	0	4	1	-	-	-	-	-	-	-	-	-
Saudi Arabia	6	6	1	1	3	5	5	14	-	-	-	-
Algeria	1	4	0	1	-	-	-	-	-	-	-	-
Other Middle East and Africa	11	18	16	38	33	32	27	48	11	22	5	17
Singapore	4	2	1	2	-	5	2	-	5	3	2	1
OECD Asia Oceania	100	91	85	85	80	97	68	77	70	57	63	-6
Non-OECD Asia (excl. Singapore)	23	27	24	44	48	12	24	14	14	46	18	27
Other	4	1	3	1	4	3	7	10	10	-	-	-
Total[2]	**159**	**165**	**134**	**177**	**178**	**160**	**136**	**166**	**111**	**130**	**88**	**42**
of which Non-OECD	**55**	**63**	**48**	**89**	**91**	**60**	**66**	**86**	**39**	**74**	**25**	**48**
OECD Europe												
OECD Americas	13	3	6	11	6	6	9	5	19	3	11	-8
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	0	0	0	-	3	-	1	-	-	3	-	-
Non-OECD Europe	0	0	3	5	1	3	3	7	-	0	9	-9
FSU	21	27	16	14	15	19	11	9	10	13	14	0
Saudi Arabia	40	27	57	61	45	51	62	64	51	72	59	13
Algeria	9	5	4	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	155	153	172	145	186	199	282	338	306	201	237	-36
Singapore	10	11	13	10	11	-	3	7	3	-	39	-
OECD Asia Oceania	27	32	54	102	6	49	90	54	69	147	102	45
Non-OECD Asia (excl. Singapore)	50	61	121	187	107	149	138	137	124	153	104	49
Other	10	9	5	0	1	0	1	0	1	1	2	-1
Total[2]	**336**	**328**	**452**	**536**	**380**	**475**	**600**	**622**	**583**	**594**	**578**	**16**
of which Non-OECD	**297**	**294**	**393**	**423**	**370**	**423**	**509**	**565**	**497**	**463**	**464**	**-1**
OECD Asia Oceania												
OECD Americas	-	0	0	0	0	0	0	-	-	0	0	0
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	-	-	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	-	0	0	0	-	-	-	-	-	-	-	-
Other Europe	-	0	0	-	-	0	0	-	0	-	0	-
FSU	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	-	1	0	0	0	0	2	5	0	0	-	-
Singapore	14	16	34	39	44	41	34	23	40	38	31	8
Non-OECD Asia (excl. Singapore)	28	34	38	72	83	41	66	66	57	77	28	49
Other	18	19	15	27	33	32	26	19	13	45	8	37
Total[2]	**60**	**69**	**87**	**139**	**161**	**113**	**127**	**113**	**110**	**161**	**67**	**94**
of which Non-OECD	**60**	**69**	**87**	**139**	**161**	**113**	**127**	**113**	**110**	**161**	**67**	**94**
Total OECD Trade[2]	**555**	**562**	**673**	**852**	**720**	**748**	**863**	**901**	**804**	**885**	**732**	**153**
of which Non-OECD	**413**	**426**	**528**	**650**	**622**	**597**	**702**	**764**	**645**	**697**	**556**	**141**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes.
2 Total figure excludes intra-regional trade.

Table 12
REGIONAL OECD RESIDUAL FUEL OIL IMPORTS BY SOURCE[1]
(thousand barrels per day)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jul 23	Aug 23	Sep 23	Year Earlier Sep 22	Year Earlier change
OECD Americas												
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	52	34	53	69	44	16	42	1	46	79	20	58
ARA (Belgium Germany Netherlands)	12	6	12	18	9	4	1	3	-	0	40	-40
Other Europe	21	10	19	18	11	1	3	10	0	-	8	-
FSU	43	34	21	9	1	4	-	-	-	-	-	-
Saudi Arabia	2	0	7	6	3	0	-	-	-	-	8	-
Algeria	2	7	4	1	18	4	-	-	-	-	-	-
Other Middle East and Africa	10	8	4	5	15	10	9	12	2	13	2	10
Singapore	1	0	-	-	-	-	1	-	2	-	-	-
OECD Asia Oceania	-	0	-	-	-	8	-	-	-	-	-	-
Non-OECD Asia (excl. Singapore)	-	2	2	6	4	4	3	3	5	-	6	-
Other	-	-	-	-	-	-	0	-	1	-	-	-
Total[2]	**143**	**102**	**122**	**132**	**105**	**51**	**59**	**29**	**57**	**91**	**84**	**7**
of which Non-OECD	**110**	**86**	**90**	**96**	**86**	**38**	**54**	**16**	**57**	**91**	**36**	**55**
OECD Europe												
OECD Americas	12	24	13	11	5	16	15	7	30	7	27	-20
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	6	4	5	10	4	11	6	15	3	1	-	-
Non-OECD Europe	13	12	31	25	21	25	21	25	25	15	58	-43
FSU	141	247	121	63	45	59	61	99	42	40	60	-20
Saudi Arabia	2	-	-	-	10	0	-	-	-	-	-	-
Algeria	2	2	5	2	5	9	6	10	7	2	-	-
Other Middle East and Africa	13	14	21	31	27	26	4	4	5	4	5	0
Singapore	3	3	2	0	1	-	-	-	-	-	2	-
OECD Asia Oceania	4	3	8	11	16	10	6	-	7	13	2	10
Non-OECD Asia (excl. Singapore)	-	0	2	6	8	-	-	-	-	-	7	-
Other	93	59	45	67	2	1	2	5	1	1	89	-87
Total[2]	**288**	**368**	**254**	**227**	**144**	**157**	**123**	**164**	**119**	**84**	**250**	**-166**
of which Non-OECD	**279**	**347**	**239**	**220**	**126**	**133**	**103**	**161**	**82**	**64**	**230**	**-167**
OECD Asia Oceania												
OECD Americas	-	-	0	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	0	-	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	-	0	0	0	-	-	-	-	-	-	0	-
Other Europe	-	-	0	0	-	-	-	-	-	-	-	-
FSU	5	0	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	1	13	16	7	7	11	13	30	10	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	38	30	7	13	9	7	13	-	-	41	6	36
Singapore	18	29	22	14	37	19	33	61	18	19	29	-9
Non-OECD Asia (excl. Singapore)	26	47	44	41	54	49	68	30	88	87	36	51
Other	-	-	-	-	-	-	3	-	4	6	-	-
Total[2]	**88**	**119**	**89**	**75**	**107**	**86**	**131**	**121**	**120**	**153**	**71**	**83**
of which Non-OECD	**88**	**119**	**89**	**75**	**107**	**86**	**131**	**121**	**120**	**153**	**71**	**83**
Total OECD Trade[2]	**519**	**588**	**464**	**434**	**356**	**293**	**313**	**314**	**296**	**328**	**405**	**-77**
of which Non-OECD	**477**	**552**	**418**	**390**	**318**	**257**	**288**	**297**	**259**	**308**	**337**	**-29**

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes.

2 Total figure excludes intra-regional trade.

Table 13
AVERAGE IEA CIF CRUDE COST AND SPOT CRUDE AND PRODUCT PRICES

($/bbl)

	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23
CRUDE PRICES													
IEA CIF Average Import[1]													
IEA Europe	42.91	70.67	100.22	89.42	82.16	79.75	87.93	76.56	81.61	87.93	94.76		
IEA Americas	37.31	64.78	90.77	77.18	67.91	70.63	78.04	69.70	72.27	78.62	84.02		
IEA Asia Oceania	46.28	70.41	102.56	96.43	86.14	83.19	84.91	80	80.59	84.18	89.69		
IEA Total	**42.19**	**68.87**	**98.2**	**87.96**	**79.25**	**78.03**	**84.48**	**75.33**	**78.77**	**84.35**	**90.71**		
SPOT PRICES[2]													
North Sea Dated	41.76	70.82	101.10	88.36	81.11	78.02	86.74	74.73	80.09	86.18	93.96	91.12	83.05
North Sea Dated M1	42.90	71.51	101.17	89.54	82.37	78.02	86.69	75.13	80.50	85.87	93.76	90.62	82.60
WTI (Cushing) M1	39.25	68.10	94.58	82.82	75.96	73.54	82.51	70.24	76.39	81.41	89.57	85.57	77.44
WTI (Houston) M1	40.71	69.01	96.19	84.33	77.74	74.69	84.01	71.83	77.91	82.97	91.01	86.47	78.61
Urals	41.21	69.00	76.58	62.46	46.77	54.63	72.79	54.26	63.31	72.91	82.13	80.00	70.16
Dubai M1	42.36	69.35	96.27	84.68	80.20	77.56	86.54	74.88	80.33	86.44	93.19	89.81	83.41
PRODUCT PRICES[2]													
Northwest Europe													
Gasoline	44.64	80.07	117.01	99.41	96.17	99.44	112.44	98.12	105.34	116.85	114.93	97.21	93.53
Diesel	49.34	78.41	142.36	139.55	113.71	96.12	119.87	96.34	105.24	122.52	131.73	122.28	114.84
Jet/Kero	45.80	77.31	139.91	130.90	114.74	95.43	120.67	94.64	106.12	124.27	131.44	123.52	117.16
Naphtha	40.18	71.58	86.51	72.63	77.95	67.47	71.72	61.81	64.42	72.14	78.59	72.52	70.58
HSFO	33.99	61.18	76.58	59.55	60.51	67.96	82.63	69.68	73.63	85.20	88.93	76.14	70.01
0.5% Fuel Oil	48.50	76.78	107.05	87.19	83.99	79.21	88.17	78.84	81.92	89.91	92.59	90.09	86.22
Mediterranean Europe													
Gasoline	45.57	80.50	119.73	103.89	100.36	98.77	112.74	98.01	105.88	115.19	117.04	97.49	95.54
Diesel	48.82	77.93	136.11	130.46	112.08	94.97	118.10	95.30	104.35	120.94	128.88	120.24	109.55
Jet/Kero	45.57	77.19	140.02	131.28	114.89	95.43	120.60	94.64	106.08	124.27	131.28	123.52	116.93
Naphtha	39.04	70.65	84.62	70.36	75.83	65.93	69.99	60.56	62.93	70.50	76.51	70.88	68.46
HSFO	34.17	60.05	73.40	56.73	56.97	65.19	81.00	64.21	74.44	82.14	86.37	73.99	64.91
US Gulf Coast													
Gasoline	47.30	86.49	123.00	103.04	105.58	103.93	117.09	101.70	112.06	120.82	117.59	96.33	87.71
Diesel	50.26	84.73	145.74	141.65	120.39	100.11	124.92	98.68	109.56	128.02	135.95	124.95	111.15
Jet/Kero	46.30	77.95	140.05	134.73	125.00	94.79	120.40	94.14	105.09	125.34	129.27	119.20	113.64
Naphtha	40.12	72.24	91.24	76.09	80.92	74.87	72.92	72.30	69.63	71.31	77.91	74.40	71.31
HSFO	34.71	59.90	76.96	55.48	57.10	64.07	78.65	65.53	72.69	79.81	82.98	74.51	70.92
0.5% Fuel Oil	49.88	79.69	112.92	92.69	90.54	82.18	93.20	80.06	84.63	94.78	99.55	93.96	87.05
Singapore													
Gasoline	45.28	78.49	110.86	89.89	95.15	89.57	99.68	87.43	93.13	101.68	104.47	93.71	92.36
Diesel	49.60	77.80	135.47	126.25	108.44	93.09	115.23	92.31	101.79	119.07	125.32	117.46	106.48
Jet/Kero	45.06	75.29	126.90	118.30	106.38	91.57	112.47	90.06	98.85	116.28	122.77	113.58	106.63
Naphtha	40.94	71.02	83.79	70.92	74.21	63.26	69.18	57.01	62.43	70.65	74.73	70.80	69.57
HSFO	38.33	63.20	77.65	58.60	62.36	68.53	80.28	66.28	74.54	83.93	82.46	72.99	69.51
0.5% Fuel Oil	52.85	80.81	116.78	97.77	90.95	86.97	94.06	87.25	86.94	95.78	99.72	100.04	99.03

1 IEA CIF Average Import price for Sep is an estimate.

IEA Europe includes all countries in OECD Europe except Estonia, Hungary and Slovenia.

IEA Americas includes United States and Canada.

IEA Asia Oceania includes Australia, New Zealand, Korea and Japan.

Table 14
MONTHLY AVERAGE END-USER PRICES FOR PETROLEUM PRODUCTS

November 2023

	NATIONAL CURRENCY [1]						US DOLLARS					
	Total Price	% change from Oct-23	% change from Nov-22	Ex-Tax Price	% change from Oct-23	% change from Nov-22	Total Price	% change from Oct-23	% change from Nov-22	Ex-Tax Price	% change from Oct-23	% change from Nov-22
GASOLINE [2] (per litre)												
France	1.838	- 1.6	6.4	0.841	-2.8	-8.0	1.988	0.8	12.8	0.910	-0.4	-2.5
Germany	1.830	- 2.4	- 2.5	0.815	-4.5	-11.6	1.979	-0.0	3.3	0.881	-2.1	-6.3
Italy	1.828	- 5.2	8.3	0.770	-9.6	-15.0	1.977	-2.9	14.8	0.833	-7.4	-9.9
Spain	1.613	- 4.8	- 8.5	0.860	-7.2	-22.4	1.744	-2.5	-3.0	0.930	-5.0	-17.7
United Kingdom	1.511	- 2.6	- 7.7	0.729	-4.5	-12.6	1.878	-0.6	-2.3	0.906	-2.4	-7.5
Japan	173.7	- 1.0	3.5	101.3	-1.6	5.6	1.159	-1.2	-1.6	0.676	-1.8	0.4
Canada	1.530	- 3.7	- 7.3	1.035	-4.9	-11.2	1.116	-3.7	-9.1	0.755	-4.9	-13.0
United States	0.877	- 8.1	- 10.0	0.743	-9.4	-11.8	0.877	-8.1	-10.0	0.743	-9.4	-11.8
AUTOMOTIVE DIESEL FOR NON COMMERCIAL USE (per litre)												
France	1.810	- 3.6	- 2.1	0.899	-6.0	-18.2	1.958	-1.3	3.8	0.972	-3.7	-13.3
Germany	1.762	- 3.3	- 10.2	0.936	-5.2	-20.6	1.906	-1.0	-4.8	1.012	-2.9	-15.9
Italy	1.813	- 4.6	- 0.2	0.869	-7.6	-22.5	1.961	-2.3	5.8	0.940	-5.3	-17.9
Spain	1.596	- 4.1	- 16.0	0.940	-5.7	-28.6	1.726	-1.8	-11.0	1.017	-3.4	-24.3
United Kingdom	1.590	- 2.0	- 15.4	0.795	-3.3	-23.3	1.976	0.1	-10.5	0.988	-1.2	-18.8
Japan	153.3	- 1.2	3.6	107.4	-1.6	4.8	1.023	-1.4	-1.6	0.717	-1.8	-0.4
Canada	1.855	- 1.1	- 16.1	1.367	-1.4	-20.4	1.353	-1.2	-17.7	0.997	-1.5	-21.9
United States	1.124	- 5.6	- 19.0	0.969	-6.5	-21.5	1.124	-5.6	-19.0	0.969	-6.5	-21.5
DOMESTIC HEATING OIL (per litre)												
France	1.295	- 4.4	- 12.7	0.923	-5.1	-14.5	1.401	-2.1	-7.5	0.998	-2.8	-9.4
Germany	1.153	- 4.2	- 20.2	0.827	-4.9	-28.3	1.246	-1.9	-15.5	0.894	-2.6	-24.0
Italy	1.580	- 5.0	- 10.9	0.892	-7.1	-15.1	1.708	-2.7	-5.6	0.964	-4.9	-10.0
Spain	1.080	- 6.5	- 18.8	0.796	-7.2	-20.7	1.168	-4.2	-14.0	0.861	-5.0	-15.9
United Kingdom	0.795	- 8.2	- 26.9	0.655	-9.3	-29.8	0.988	-6.2	-22.6	0.815	-7.4	-25.7
Japan [3]	115.8	- 1.8	4.3	102.5	-1.8	4.4	0.773	-2.0	-0.9	0.684	-2.0	-0.8
Canada	1.756	- 6.4	- 19.3	1.554	-0.6	-19.9	1.280	-6.5	-20.9	1.133	-0.6	-21.5
United States	-	-	-	-	-	-	-	-	-	-	-	-
LOW SULPHUR FUEL OIL FOR INDUSTRY [4] (per kg)												
France	0.696	- 5.8	- 5.4	0.556	-7.1	-6.6	0.752	-3.5	0.3	0.602	-4.8	-1.0
Germany	-	-	-	-	-	-	-	-	-	-	-	-
Italy	0.654	- 6.1	- 7.0	0.622	-6.4	-7.3	0.707	-3.8	-1.4	0.673	-4.1	-1.8
Spain	0.657	- 3.1	- 3.9	0.640	-3.1	-4.0	0.710	-0.7	1.9	0.692	-0.8	1.7
United Kingdom	-	-	-	-	-	-	-	-	-	-	-	-
Japan	-	-	-	-	-	-	-	-	-	-	-	-
Canada	-	-	-	-	-	-	-	-	-	-	-	-
United States	-	-	-	-	-	-	-	-	-	-	-	-

1 Prices for France, Germany, Italy and Spain are in Euros; UK in British Pounds, Japan in Yen, Canada in Canadian Dollars
2 Unleaded premium (95 RON) for France, Germany, Italy, Spain, UK; regular unleaded for Canada, Japan and the United States.
3 Kerosene for Japan.
4 VAT excluded from prices for low sulphur fuel oil when refunded to industry.

Table 15
IEA Global Indicator Refining Margins

$/bbl	2020	2021	2022	4Q22	1Q23	2Q23	3Q23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23
NW Europe													
Light sweet hydroskimming	1.11	2.54	10.05	10.81	8.41	4.42	11.90	6.61	8.24	14.96	12.36	4.76	7.43
Light sweet cracking	2.07	3.51	16.22	18.77	14.08	7.07	15.37	8.95	10.82	18.58	16.57	8.95	11.65
Light sweet cracking + Petchem	3.23	6.55	18.44	19.59	14.69	7.03	14.72	7.93	9.99	17.99	16.02	9.11	12.15
Medium sour cracking*	4.30	6.11	39.13	38.86	19.33	11.87	21.64	13.75	16.00	25.35	23.38	14.23	18.81
Mediumsour cracking + Petchem*	5.44	9.07	41.28	39.67	19.94	11.82	20.98	12.73	15.18	24.76	22.84	14.40	19.30
Mediterranean													
Light sweet hydroskimming	2.36	2.90	9.08	10.84	8.45	5.24	12.37	7.59	9.37	15.20	12.41	4.18	7.22
Light sweet cracking	3.34	4.97	16.82	19.14	15.80	9.42	18.58	11.63	14.56	21.71	19.31	10.03	12.47
Medium sour cracking	5.70	5.68	21.65	24.36	21.78	12.02	20.47	14.25	16.04	22.86	22.39	12.56	14.53
US Gulf Coast													
Light sweet cracking	4.28	11.04	26.64	25.10	25.53	18.83	26.07	19.72	23.51	30.40	23.53	12.40	11.73
Medium sour cracking	6.61	15.79	35.69	35.01	33.40	23.21	31.06	23.71	26.58	35.19	30.55	20.14	17.96
Heavy sour coking	9.73	19.98	45.92	49.73	44.90	28.64	38.57	27.74	32.59	43.60	38.46	27.26	27.18
US Midwest													
Light sweet cracking	3.74	12.33	29.90	30.81	25.23	22.00	20.43	22.53	17.66	25.99	16.66	10.18	16.07
Heavy sour coking	13.26	26.02	50.61	55.59	46.84	36.17	36.30	34.61	31.77	42.07	33.98	27.36	33.08
Singapore													
Light sweet cracking	0.20	3.10	11.46	8.75	9.94	3.19	8.94	4.16	5.99	11.93	8.89	4.49	7.72
Light sweet cracking + Petchem	2.03	4.82	12.94	10.05	10.83	4.45	9.44	5.37	6.73	12.34	9.24	5.23	8.58
Medium sour cracking	1.80	3.92	12.81	10.83	11.35	5.04	11.65	5.33	7.91	14.77	12.31	6.67	7.18
Medium sour cracking + Petchem	3.61	5.61	14.27	12.11	12.23	6.29	12.14	6.53	8.63	15.17	12.65	7.40	8.03

Source: IEA, Argus Media Ltd prices.

Methodology notes are avaialble at https://www.iea.org/data-and-statistics/data-product/oil-market-report-omr#documentation

*From 1 December 2022, the basis has changed from Urals NWE to Argus Brent Sour

Table 16
REFINED PRODUCT YIELDS BASED ON TOTAL INPUT (% VOLUME)[1]

	Jul-23	Aug-23	Sep-23	Sep-22	Sep 23 vs Previous Month	Sep 23 vs Previous Year	Sep 23 vs 5 Year Average	5 Year Average
OECD Americas								
Naphtha	1.0	1.0	1.0	0.9	0.0	0.1	-0.3	1.3
Motor gasoline	44.3	43.9	44.4	44.7	0.5	-0.3	-1.4	45.8
Jet/kerosene	9.6	9.7	9.3	8.7	-0.5	0.6	1.1	8.2
Gasoil/diesel oil	27.7	27.9	27.0	29.0	-0.9	-2.0	-1.4	28.4
Residual fuel oil	2.8	2.9	3.1	3.3	0.2	-0.2	0.0	3.1
Petroleum coke	4.3	4.2	4.1	4.2	0.0	0.0	-0.2	4.3
Other products	14.2	14.3	12.4	13.0	-1.9	-0.6	-0.3	12.7
OECD Europe								
Naphtha	8.2	8.6	8.5	7.8	0.0	0.8	0.3	8.2
Motor gasoline	22.2	21.8	21.1	20.4	-0.7	0.8	0.2	20.9
Jet/kerosene	9.3	9.8	9.1	8.6	-0.7	0.5	1.3	7.8
Gasoil/diesel oil	38.2	37.9	38.6	39.3	0.7	-0.6	-1.5	40.1
Residual fuel oil	7.2	8.1	8.0	8.9	-0.1	-0.9	-0.3	8.3
Petroleum coke	1.4	1.5	1.5	1.7	0.0	-0.2	0.0	1.5
Other products	16.2	15.4	15.3	15.8	0.0	-0.5	-0.3	15.7
OECD Asia Oceania								
Naphtha	16.4	15.7	16.2	16.3	0.5	-0.1	0.0	16.2
Motor gasoline	21.6	22.6	22.1	20.9	-0.6	1.2	0.1	21.9
Jet/kerosene	13.9	14.6	14.6	13.1	-0.1	1.5	1.4	13.2
Gasoil/diesel oil	29.9	29.2	29.3	30.6	0.2	-1.3	-1.3	30.6
Residual fuel oil	8.1	7.7	7.7	9.0	0.0	-1.3	0.5	7.2
Petroleum coke	0.4	0.2	0.3	0.4	0.1	-0.1	-0.1	0.4
Other products	11.9	11.8	11.9	11.8	0.1	0.0	-0.7	12.5
OECD Total								
Naphtha	5.7	5.8	5.9	5.7	0.1	0.2	-0.2	6.1
Motor gasoline	33.6	33.4	33.3	32.9	-0.1	0.4	-0.3	33.6
Jet/kerosene	10.2	10.6	10.1	9.4	-0.4	0.7	1.2	8.9
Gasoil/diesel oil	31.4	31.3	31.1	32.5	-0.2	-1.4	-1.5	32.6
Residual fuel oil	5.1	5.3	5.4	6.1	0.1	-0.6	-0.1	5.5
Petroleum coke	2.8	2.7	2.7	2.7	0.0	-0.1	0.0	2.7
Other products	14.5	14.2	13.2	13.7	-1.0	-0.4	-0.4	13.6

1 Due to processing gains and losses, yields in % will not always add up to 100%

Table 17
WORLD BIOFUELS PRODUCTION
(thousand barrels per day)

	2022	2023	2024	1Q23	2Q23	3Q23	Sep 23	Oct 23	Nov 23
ETHANOL									
OECD Americas	**1031**	**1037**	**1017**	**1035**	**1039**	**1050**	**1044**	**1026**	**1026**
United States	1002	1003	982	1000	1005	1016	1010	992	992
Other [1]	29	34	35	34	34	34			
OECD Europe	**107**	**107**	**110**	**98**	**108**	**114**	**113**	**109**	**109**
France	20	20	22	18	22	23	21	16	16
Germany	13	13	13	15	17	20	19	2	2
Spain	10	10	10	8	8	9	11	15	15
United Kingdom	9	9	9	7	7	7	7	16	16
Other [1]	54	55	55	51	53	55			
OECD Asia Oceania	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**5**	**5**
Australia	4	4	4	4	4	4	4	4	4
Other [1]	0	1	1	0	0	0			
Total OECD Ethanol	**1142**	**1149**	**1131**	**1137**	**1151**	**1168**	**1162**	**1140**	**1140**
Total Non-OECD Ethanol	**763**	**852**	**872**	**399**	**935**	**1248**	**1221**	**1065**	**845**
Brazil	528	594	603	141	677	991	963	807	588
China [1]	81	136	146	136	136	136			
Argentina [1]	21	22	23	22	22	22			
Other	133	100	100	100	100	100	258	258	258
TOTAL ETHANOL	**1904**	**2001**	**2004**	**1536**	**2086**	**2417**	**2383**	**2205**	**1985**
BIODIESEL									
OECD Americas	**209**	**275**	**308**	**254**	**299**	**284**	**250**	**264**	**264**
United States	202	261	291	243	288	273	239	239	239
Other [1]	6	15	18	11	11	11			
OECD Europe	**307**	**313**	**323**	**297**	**301**	**306**	**313**	**350**	**350**
France	48	48	48	46	52	52	56	42	42
Germany	64	63	62	60	58	61	62	73	73
Italy [1]	25	25	25	22	26	29			
Spain	31	32	35	30	30	30	30	38	38
Other	139	145	153	140	134	133	135	173	173
OECD Asia Oceania	**14**	**13**	**13**	**9**	**16**	**17**	**15**	**12**	**12**
Australia	0	0	0	0	0	0	0	0	0
Other [1]	14	13	13	9	16	17			
Total OECD Biodiesel	**530**	**602**	**644**	**560**	**615**	**607**	**578**	**627**	**627**
Total Non-OECD Biodiesel	**513**	**580**	**630**	**580**	**580**	**580**	**580**	**580**	**580**
Brazil	108	128	156	102	130	144	142	139	131
Argentina [1]	42	40	40	40	40	40			
Other [1]	363	412	434	438	410	396			
TOTAL BIODIESEL	**1043**	**1182**	**1275**	**1139**	**1195**	**1187**	**1158**	**1206**	**1206**
GLOBAL BIOFUELS	**2947**	**3183**	**3278**	**2675**	**3280**	**3603**	**3541**	**3411**	**3192**

1 monthly data not available.

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For information on the data sources, definitions, technical terms and general approach used in preparing the Oil Market Report (OMR), Market Report Series_Oil and Annual Statistical Supplement (current issue of the Statistical Supplement dated 11 August 2023), readers are referred to the Users' Guide at https://www.iea.org/articles/oil-market-report-glossary. It should be noted that the spot crude and product price assessments are based on daily Argus prices, converted when appropriate to US$ per barrel according to the Argus specification of products