International Energy Agency

Oil Market Report

15 February 2023

- Following a modest year-on-year contraction in 4Q22, global oil demand is set to rise by 2 mb/d in 2023 to 101.9 mb/d. The Asia-Pacific region (+1.6 mb/d), fuelled by a resurgent China (+900 kb/d), dominates the growth outlook. The reopening of borders will boost air traffic. Jet/kerosene demand is expected to increase by 1.1 mb/d to 7.2 mb/d, 90% of 2019 levels.

- World oil supply held largely steady in January, at around 100.8 mb/d. The pause comes after a sharp 1.2 mb/d decline at the end of 2022 led by the US and Saudi Arabia. We expect global output to grow 1.2 mb/d in 2023, driven by non-OPEC+. Supply from OPEC+ is projected to contract with Russia pressured by sanctions.

- Global refinery throughputs fell 730 kb/d in January, with US activity still recovering from the outages during the Arctic freeze. A further decline is expected in February on scheduled maintenance. Despite mild weather in Europe and a seasonal slowdown in road demand, product cracks rallied on supply concerns in the US and ahead of the EU embargo on Russian products coming into force.

- Russian oil exports rose to 8.2 mb/d in January ahead of the EU embargo and G7 price cap on refined products taking effect. Crude oil exports increased by nearly 300 kb/d m-o-m, despite a further 450 kb/d decline in shipments to the EU. Product loadings held steady at around 3.1 mb/d. Export revenues are estimated at $13 bn, marginally higher than in December but down 36% on a year ago.

- Global observed oil inventories tumbled by 69.8 mb m-o-m in December, but were 40.5 mb higher than a year ago and 126 mb above the low reached in March 2022. OECD industry stocks fell by 18.1 mb in December to 2 767 mb, 95.7 mb below the five-year average. Preliminary data for the US, Europe and Japan show a build of 28 mb in January, led by US crude and gasoline stocks.

- North Sea Dated rose by $2.50/bbl m-o-m to $82.86/bbl in January, its first monthly increase since October, as economic sentiment marginally improved following China's reopening. Forward curves and physical differentials were largely stable, except for in the US where refinery outages propelled gasoline margins higher, while at the same time weighing on WTI prices. Freight rates fell across the board.

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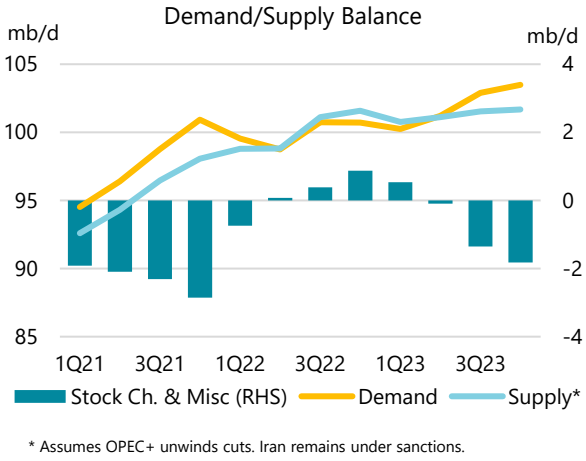
One year on

Nearly a year on from Russia's invasion of Ukraine, global oil markets are trading in relative calm. Oil prices are back to pre-war levels with the exception of diesel, though even these have drifted much lower from last summer's historical highs. World oil supply looks set to exceed demand through the first half of 2023, but the balance could quickly shift to deficit as demand recovers and some Russian output is shut in.

Russian oil production and exports have held up relatively well despite sanctions. The country has managed to reroute shipments of crude to Asia and the G7 price cap on crude appears to be helping to keep the barrels flowing. In January, output was down only 160 kb/d from pre-war levels, with a lofty 8.2 mb/d of oil shipped to markets. But in a sign that Moscow may be struggling to place all of its barrels, Deputy Prime Minister Alexander Novak said in early February that Russia would curb output by 500 kb/d in March rather than sell to countries that comply with the G7 price caps.



* Assumes OPEC+ unwinds cuts. Iran remains under sanctions.

The cut may be an attempt to shore up oil prices. In January, Moscow was forced to sell exports at a large discount. Their 2023 budget is based on a Urals price of $70.10/bbl, but the grade's export price averaged just $49.48/bbl in January versus $82/bbl for North Sea Dated. As a result, Russia's fiscal revenues from oil operations plunged 48% y-o-y in January to 310 billion roubles (or $4.2 bn), while export revenues dropped 36% to $13 billion.

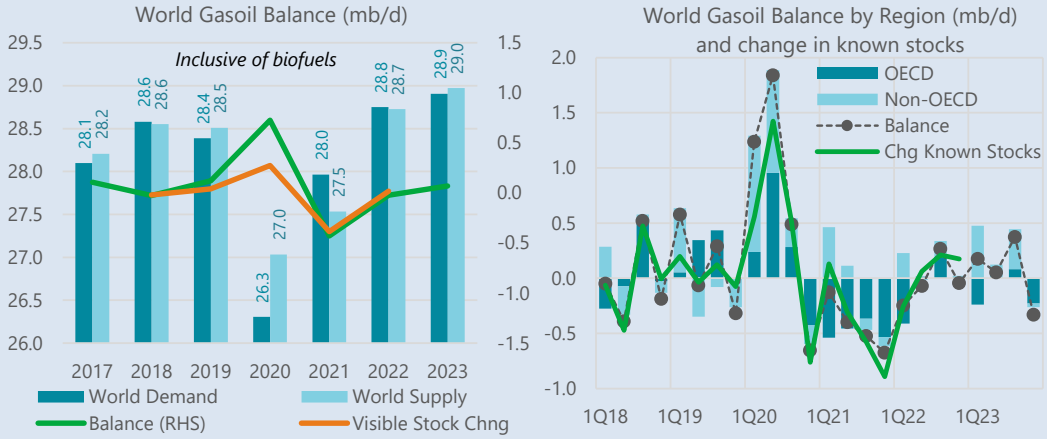
With Russian oil production in decline and limited gains expected from the rest of the OPEC+ bloc, non-OPEC+ producers will lead world supply growth in 2023. For the year as a whole, global oil supply is forecast to expand by 1.2 mb/d, led by the United States, Brazil, Norway, Canada and Guyana – all set to pump at record rates. OPEC kingpin Saudi Arabia, along with the UAE, will also produce near all-time highs, leaving a thin spare capacity cushion of roughly 3.4 mb/d.

At the same time, world oil demand growth is picking up after a marked slowdown in the second half of 2022 and a year-on-year contraction in the fourth quarter. China accounts for nearly half the 2 mb/d projected increase this year, with neighbouring countries also set to benefit after Beijing ditched its zero-Covid policies. A pronounced uptick in air traffic in recent weeks emphasises the central role of jet fuel deliveries in 2023 growth – expected to soar by 1.1 mb/d to reach 7.2 mb/d, around 90% of 2019 levels. Total demand will hit a record 101.9 mb/d, 1.4 mb/d more than the 2019 average.

The impact on Russia's product exports following the EU embargo and price cap that came into effect on 5 February will be a key factor when it comes to meeting that demand growth. So will Beijing's stance on domestic refinery activity and product exports amid its reopening. New refineries in Africa and the Middle East as well as China are expected to step in to cater for the growth in refined product demand. If the price cap on products is half as successful as the crude cap, product markets may well weather the storm – but more crude supplies would be required to prevent renewed stock draws later in the year.

Gasoil/diesel markets after the European import ban on seaborne oil from Russia

Embargoes on Russian crude and refined product imports and the EU restrictions on maritime services for transporting Russian oil to third countries (unless sold below G7 price caps) are impacting global oil flows and supply. Russian exports play a crucial role in balancing world product markets, particularly gasoil, and Europe has, up until now, always been central to its trade flows. An examination of the global gasoil balance shows the market could accommodate a 50% cut in Russian gasoil exports but not a complete rupture due to global refinery capacity limits.



The EU embargo and Maritime Services Ban on Russian oil products came into effect on 5 February 2023. Flows from Russia to the EU must find new destinations while Europe seeks alternatives. Europe imports 1.1 mb/d of gasoil, of which ~600 kb/d from Russia (60% of the country's total gasoil exports), accounting for 20-25% of world gasoil trade (Asia-Oceania 25%, Americas 20% and Africa 18%).

After 2020's pandemic-driven stock bulge, reduced refinery activity due to closures and weak margins tightened the gasoil supply-demand balance in 2021 and 2022. In 2022, combined OECD industry and government stocks fell to their lowest since 2Q08, pushing prices to record premiums versus crude. World gasoil balance tensions have recently eased with slower gasoil demand growth, new refineries coming online and stronger gasoil cracks supporting non-Russian yields, particularly in China.

A strong recovery in refinery margins and weak economic growth starting 2Q22 have progressively returned the gasoil market to a relative balance. Available data show current gasoil stocks (OECD plus visible non-OECD stocks) are near those of end-2019 after a recent build. Gasoil's price premiums to crude have narrowed sharply since October (notably after French refineries came back-on-line) but remain high versus historical values despite EU embargoes having yet to impact Russian gasoil exports.

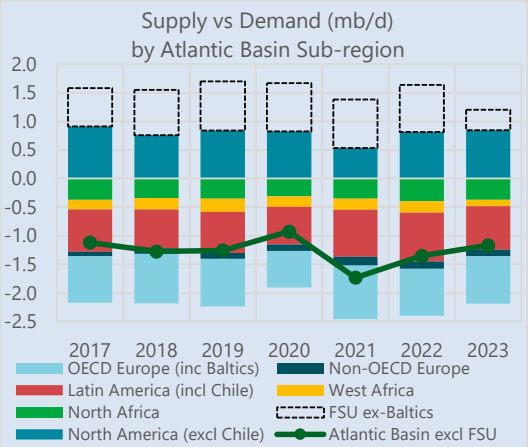
Global gasoil demand growth eases from 1.6 mb/d in 2021 to 0.7 mb/d in 2022 and to 0.1 mb/d in 2023, curtailed by weaker economic growth and high prices. OECD demand in 2023 falls slightly as high energy prices and interest rates slow industrial activity and lower gas prices reduce gas-to-oil switching. Non-OECD gasoil use rises (+0.2 mb/d), notably in China and India, while it stagnates or falls elsewhere.

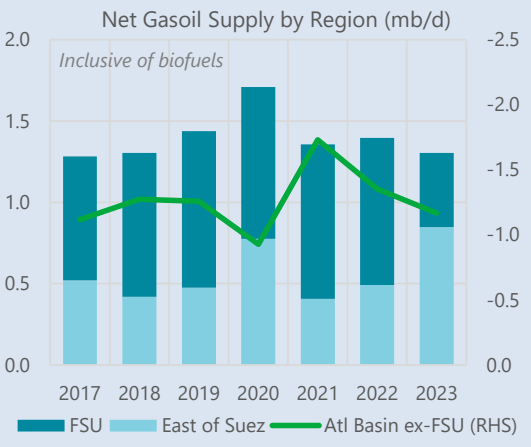
Going forward, world refinery capacity is expected to rise by a net 1.6 mb/d from 4Q22 to 4Q23. Capacity in crude exporters gains over 1.4 mb/d but that in consumer/importing countries rises only ~0.2 mb/d. As runs in exporting countries rise, this will cut into their available crude for exports, raising supply tensions for importing countries, particularly those embargoing Russian oil.

We assume, from 5 February, that Russia will struggle to continue to export typical volumes of refined products, leading to lower runs. World throughputs rise by 1.8 mb/d in 2023, following a 2.2 mb/d increase in 2022. Russian crude runs contract (-0.6 mb/d) while they increase in the Atlantic Basin

ex-Russia (+0.7 mb/d) and in East of Suez (+1.6 mb/d) boosted by new refinery projects massed in the Middle East and China. The IEA forecasts world throughputs to slightly exceed refined product demand, resulting in a narrow build in overall product stocks.

Higher global runs in 2023 only lift gasoil supply slightly (+0.1 mb/d, +0.2 mb/d with biodiesel and renewable diesel). As air traffic recovers, boosting jet's share of demand, refinery yields must shift in favour of jet-kerosene. Despite Russia's anticipated struggle to place diesel exports and the resulting need to cut runs and yields (-5.5% points y-o-y to their level of 2018), the resulting ~25% y-o-y fall in production to 1.5 mb/d is offset by higher output in China where runs and yields soar.





Russian gasoil flows fall from ~0.9 mb/d in January 2023 to ~0.6 mb/d in 1Q23 and to ~0.4 mb/d in 2H23 (~1% of global gasoil demand). The resulting world balance still limits a rebuild of OECD stocks in 2023, and supply can't match demand if the remaining Russian gasoil exports are lost. The Atlantic Basin deficit will be met by a mix of exports from East of Suez, notably the Middle East and India, while Russian cargos reroute to new destinations. Gasoil on water builds at the expense of on-land stocks.

Already, since December, some 250 kb/d of Russian gasoil exports to Western Europe have shifted to North Africa (~130 kb/d), the Middle East (~70 kb/d) and West Africa (~30 kb/d), equalling over half of expected Russian gasoil exports in 2Q-4Q23. At the same time, Europe has increased imports from the Middle East (~+200 kb/d) and East Asia (~+90 kb/d).

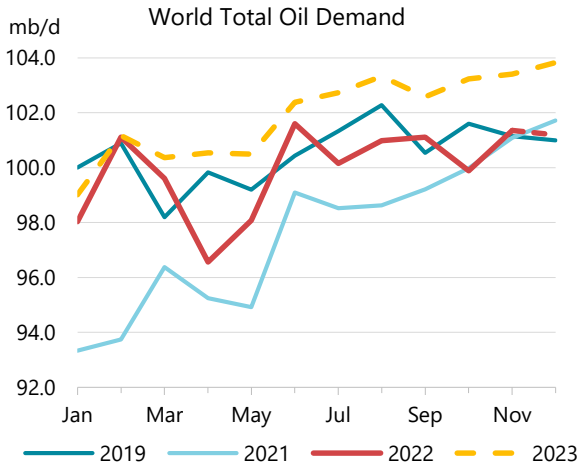
Russia could struggle to export more gasoil to non-European destinations under the European sanctions in place since 5 February. Higher exports to Africa and Latin America may be limited by the dominance of European or US linked companies in product retailing. If remaining Russian gasoil exports are lost or are locked up on the water, prices would rise to clear the market. On the other hand, if demand for Russian volumes increases, supply flexibility exists if shipping capacity is available.

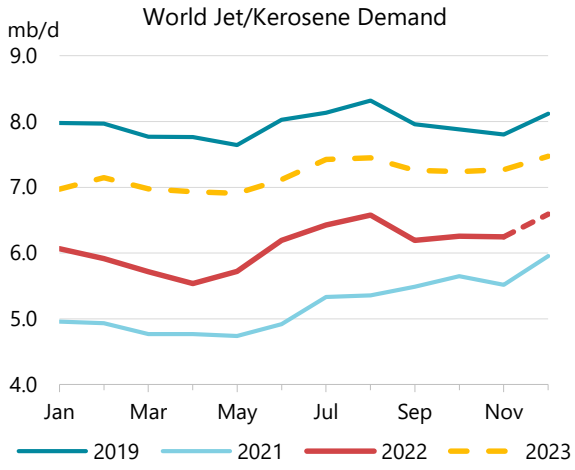
Demand

Overview

World oil demand will climb by 2.0 mb/d this year to reach 101.9 mb/d. The Asia-Pacific region (+1.6 mb/d), fuelled by a resurgent China (+900 kb/d), dominates the growth outlook. A pronounced uptick in air traffic during January emphasises the central role of jet/kerosene deliveries in 2023 growth - these will soar by 1.1 mb/d worldwide to reach 7.2 mb/d, 90% of 2019 levels.

Following Beijing's late-2022 about-turn on its stringent anti-Covid restrictions, we expect Chinese oil demand to quickly pick up steam and comfortably exceed 2021 levels by the end of the year (see *China reopening sets stage for oil demand recovery*). High frequency indicators for activity over the Chinese New Year period show a surge in domestic flights and other long-distance travel, while purchasing managers' indices (PMIs) point to improving economic conditions.





January saw a marked upturn in economic sentiment, as China's reopening will give a welcome boost to the listless world economy. This prompted the IMF to raise its growth outlook for the first time in a year. The most immediate improvement concerns non-OECD countries, as developing Asian economies are buoyed by the rebound in regional tourism and trade. However, major OECD exporters such as Korea and Germany are also set to leverage the upswing in global growth. European prospects had already improved markedly in the wake of the striking collapse in the region's natural gas prices, deflating anxiety about a winter energy crisis. A descent into recession was also avoided in 4Q22, as the eurozone steered clear of a GDP contraction. Improving business confidence and PMI readings are a testament to the bloc's budding economic revival.

By contrast, US data readings point to a loss of economic momentum, despite a labour market that remains extremely tight. Last year's rate hikes, besides cooling inflation, have begun to slow economic growth and consumer demand, with most economic forecasters still seeing a US recession on the cards in 2023. The diminishing US prospects and a more dovish Federal Reserve are also weighing on the greenback, with the US Dollar Index 10 percent below its September peak.

Despite these improvements, the OECD economic growth outlook remains lacklustre and consensus 2023 GDP forecasts peg the US and the eurozone at 0.5% and 0.2%, respectively.

Global Demand by Region (thousand barrels per day)								
	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2020	2021	2022	2023	2022	2023	2022	2023
Africa	3 766	3 994	4 189	4 252	195	62	4.9	1.5
Americas	27 895	30 252	31 179	31 390	927	212	3.1	0.7
Asia/Pacific	34 085	36 189	36 292	37 879	102	1 587	0.3	4.4
Europe	13 136	13 899	14 302	14 380	403	79	2.9	0.6
FSU	4 559	4 855	4 901	4 782	45	- 118	0.9	-2.4
Middle East	8 074	8 484	9 099	9 238	615	139	7.2	1.5
World	**91 515**	**97 673**	**99 961**	**101 922**	**2 287**	**1 961**	**2.3**	**2.0**
OECD	42 028	44 825	45 999	46 389	1 173	390	2.6	0.8
Non-OECD	49 487	52 848	53 962	55 533	1 114	1 571	2.1	2.9

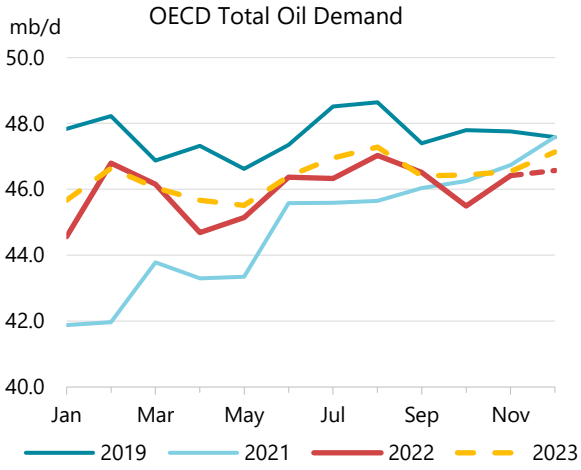
Growth in gasoil use slowed to a crawl in 4Q22 (+150 kb/d), though avoiding outright contraction, based on the latest available data. Increasingly challenging conditions for construction and manufacturing may drive a slight decline in 1Q23 (-170 y-o-y), but this is now expected to be less severe than previously feared. Lukewarm growth should resume from 2Q23 onwards for overall annual gains of 130 kb/d. Tumbling natural gas prices minimised the incentives for industrial consumers to switch to oil products, especially heating oil. We expect average switching requirements to fall by about 50 kb/d y-o-y in 2023. The mild weather conditions also substantially reduced typical seasonal heating demand.

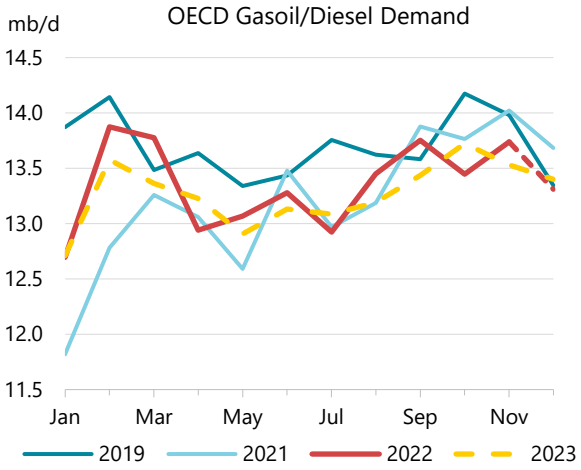
The revival in jet/kerosene demand continued to build impetus, with global commercial flight counts consistently surpassing 2019 levels for the first time in early February, per *FlightRadar24* data (however, fuel use has yet to catch up, mainly because of efficiency gains). Progress has been rapid over the last two months. Air traffic was more than 10% lower than 2019 in mid-December. Roughly half of the earlier 10 000 flight/day gap was closed by the rebound in the domestic Chinese market. Counts remain most reduced for international routes involving Asia (particularly China) and the region offers scope for further gains. Worldwide growth in the use of jet/kerosene is expected to accelerate to 1.1 mb/d in 2023 (from 920 kb/d last year). With the exception of Russia, every major market will see substantial expansion, though 60% of this will take place in Asia-Pacific.

Global Demand by Product (thousand barrels per day)								
	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2020	2021	2022	2023	2022	2023	2022	2023
LPG & Ethane	13 128	13 841	14 281	14 558	440	277	3.2	1.9
Naphtha	6 434	6 982	6 828	7 061	- 154	233	-2.2	3.4
Motor Gasoline	23 645	25 643	26 048	26 305	404	257	1.6	1.0
Jet Fuel & Kerosene	4 708	5 201	6 122	7 181	922	1 059	17.7	17.3
Gas/Diesel Oil	26 119	27 715	28 450	28 576	735	126	2.7	0.4
Residual Fuel Oil	5 624	6 160	6 463	6 622	303	159	4.9	2.5
Other Products	11 857	12 131	11 769	11 619	- 363	- 150	-3.0	-1.3
Total Products	**91 515**	**97 673**	**99 961**	**101 922**	**2 287**	**1 961**	**2.3**	**2.0**

OECD

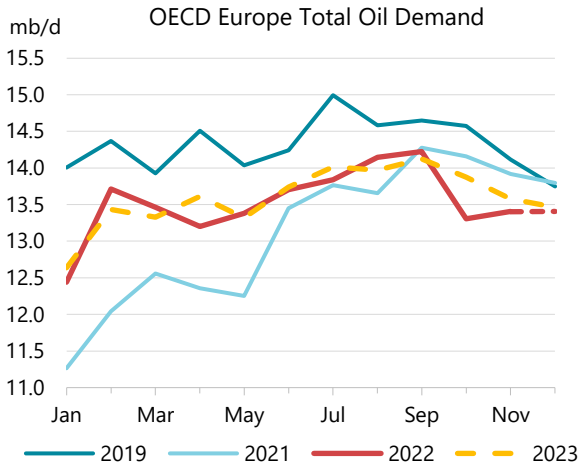
OECD oil demand is set to rise by 390 kb/d during 2023, well below last year's 1.2 mb/d annual increase. On a product level, growth will be almost entirely concentrated in jet/kerosene (+410 kb/d y-o-y), counterbalancing declines in gasoil (-80 kb/d) and naphtha (-10 kb/d) amid lacklustre manufacturing and petrochemical activity. At the same time, improving vehicle efficiency and EV sales will continue to weigh on gasoline use (-150 kb/d).

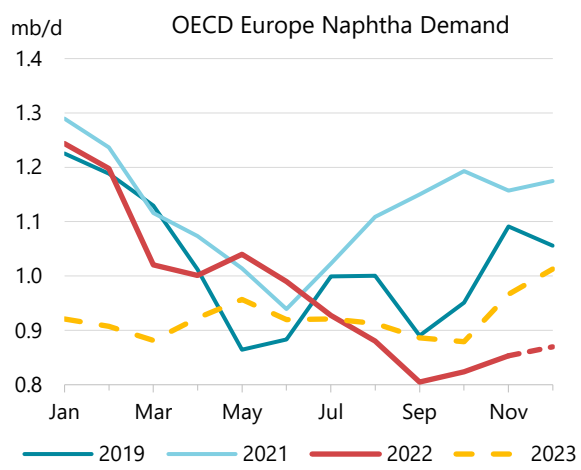




Asia, the region most leveraged to China's anticipated economic rebound, will account for about half of this year's increase (190 kb/d), followed by the Americas (130 kb/d) and Europe (70 kb/d). The return to y-o-y growth will come on the back of a 4Q22 contraction of 710 kb/d.

Oil deliveries in November for **OECD Europe** fell 510 kb/d short of year-earlier levels, pointing to an acute contraction in the fourth quarter of 580 kb/d. Illustrating the adverse macro-economic climate's impact on industrial and petrochemical activity, gasoil (-380 kb/d y-o-y) and naphtha (-330 kb/d) were the two products that saw the largest 4Q22 declines.

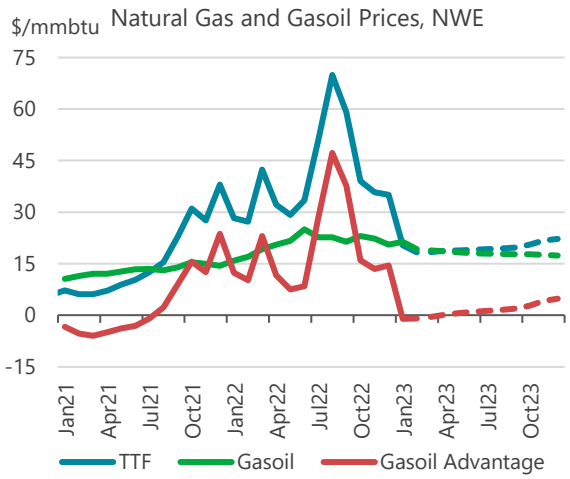


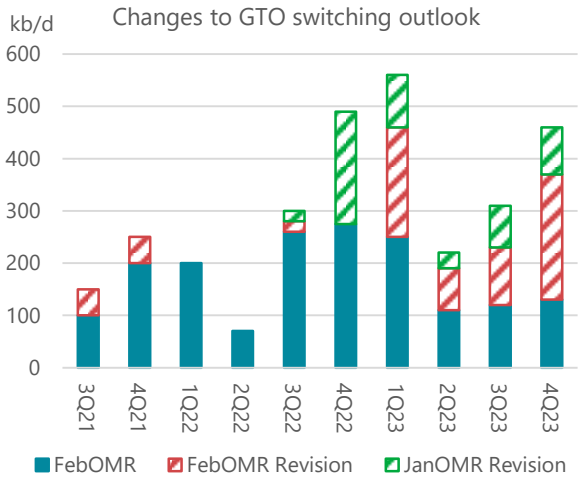


Gasoil (-80 kb/d) and naphtha (-50 kb/d) remain as the main drags on growth this year, resulting in lacklustre overall European demand gains of 70 kb/d. This is 60 kb/d lower than in last month's *Report,* as reduced gas-to-oil switching, ongoing fuel efficiencies and the continuing petrochemical malaise combine to counteract an improving macro-economic climate.

Europe's economic outlook has recovered markedly this winter, aided by warmer-than-average temperatures that accelerated the dramatic collapse in natural gas prices. The eurozone's GDP expanded by 0.1% during 4Q22, increasing the likelihood that the region may avoid a recession this year. Economic sentiment is improving, with Germany's *Ifo* business climate index climbing to a seven-month high in January. China's reopening has raised hopes of boosts to external demand, particularly for Germany, Europe's main exporter to China by far. Massive fiscal stimulus to households and businesses should also buttress economic activity.

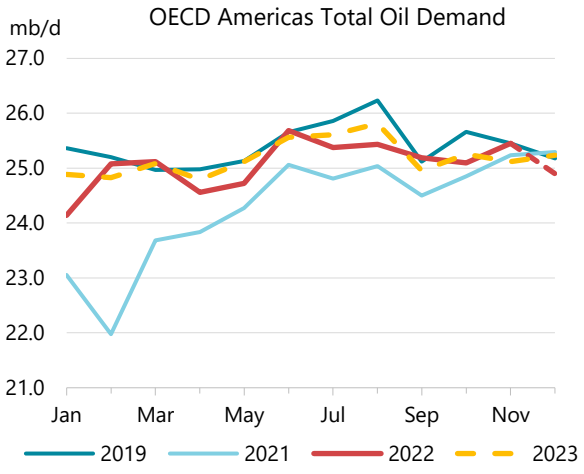
However, the upward adjustment to demand due to this improved economic outlook is counterbalanced by substantially lower anticipated gas-to-oil switching, now that crumbling natural gas prices have almost entirely eroded oil's price advantage. We currently forecast a total of 150 kb/d of oil used in switching this year across non-road gasoil, fuel oil and refinery gas – about half of last month's projection.

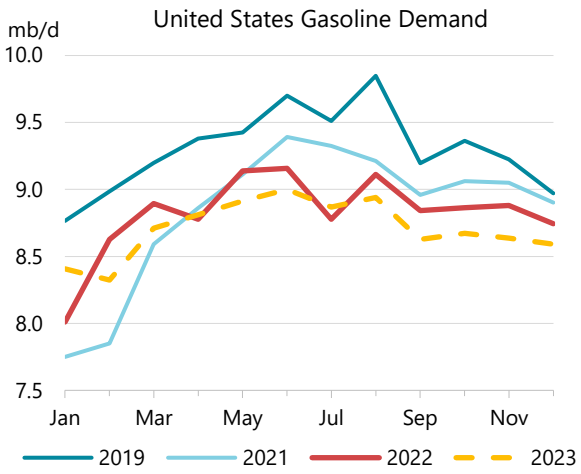




Comprising more gradual headwinds to European oil demand, improved fuel efficiency and thriving electric vehicle sales continue to weigh on road fuels this year (reducing growth by 100 kb/d y-o-y for diesel and -80 kb/d y-o-y for gasoline). Moreover, the European petrochemical sector remains in a protracted slump, as extremely soft polymer demand lowers stream cracker margins. European naphtha demand came in at seasonally-adjusted multi-decade lows in November. We do not anticipate a return to growth until the second half of this year, resulting in a second year of demand decline (-50 kb/d y-o-y).

Unlike Europe and Asia, the **OECD Americas** probably avoided negative y-o-y growth during 4Q22. This year, the region will record a 130 kb/d annual increase with Canada (+60 kb/d) and Mexico (+50 kb/d) set for steady increases but narrower gains are forecast in the US (+20 kb/d).





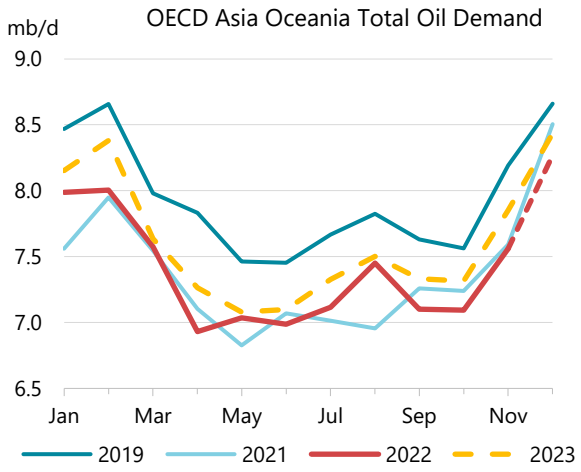
US November demand for gasoil (-40 kb/d m-o-m) and gasoline (+20 kb/d m-o-m) came in higher than implied by preliminary weekly EIA data and well ahead of typical seasonal weakness. This relative improvement is likely to persist in the short-term, helped by lower pump prices. US gasoline prices fell below one dollar per litre in December, according to data from *GlobalPetrolPrices*,

reaching their lowest level in one-and-a-half years. Accordingly, we have increased our estimate for fourth-quarter US oil demand by 200 kb/d versus last month's *Report*, to -120 kb/d y-o-y.

However, we expect this momentum to dissipate during 2023, as recent data readings - although somewhat mixed - point to a gradual slowing in economic progress. While the labour market remains historically tight (the unemployment rate of 3.4% is at a 50-year low), the pace of hiring has slowed, with layoffs spreading beyond the technology and finance sectors. In a similar development, there were signs that rising interest rates are starting to weigh on the broader economy – beyond housing – as retail sales and consumer spending fell by 1.1% and 0.2% m-o-m in December. Meanwhile, existing-home sales recorded their 11th consecutive monthly decline in December, wrapping up their weakest year since 2014. Economists see a drastic deceleration in US economic activity, with a recession on the cards this year. The median consensus estimate of 2023 GDP growth is 0.5%. By comparison, the US economy concluded 2022 at a resilient 2.9% annualised pace in the fourth quarter.

We see flattish 2023 US demand growth of 20 kb/d y-o-y, at 20.5 mb/d, as robust gains in jet/kerosene (+110 kb/d y-o-y) are counterbalanced by lower gasoline consumption (-110 kb/d y-o-y). Jet/kerosene demand is set to average 96% of its 2019 level during 2023 – one of the fullest post-pandemic recoveries among major economies.

OECD Asia Oceania's oil demand is expected to increase by 190 kb/d y-o-y in 2023. This is 10 kb/d more than in last month's *Report*, consolidating Asia's status as the OECD region with the firmest demand outlook. On a product level, the most significant contribution by far comes from jet/kerosene (+130 kb/d y-o-y).



Japan's oil demand climbed by 230 kb/d in November (-60 kb/d y-o-y). Demand is set to contract by 110 kb/d during 4Q22 before returning to growth during 2023 (+60 kb/d y-o-y), as macro-economic conditions become less challenging. In the face of falling inflation across the globe, Japan's consumer prices rose to 4% in December, a 41-year high. Energy prices (+15.2%) were the main driver, exacerbated by the weak yen. Domestic demand remained soft, with stagnant wage growth (November saw the biggest real-wage decline in eight years) undermining the Bank of Japan's (BOJ) reflationary efforts. Accordingly, the BOJ defied market pressure to pivot away from its ultra-accommodative stance, keeping its short-term interest rate at minus 0.1% and purchasing an unprecedented amount of government bonds in January as part of its yield curve control policy.

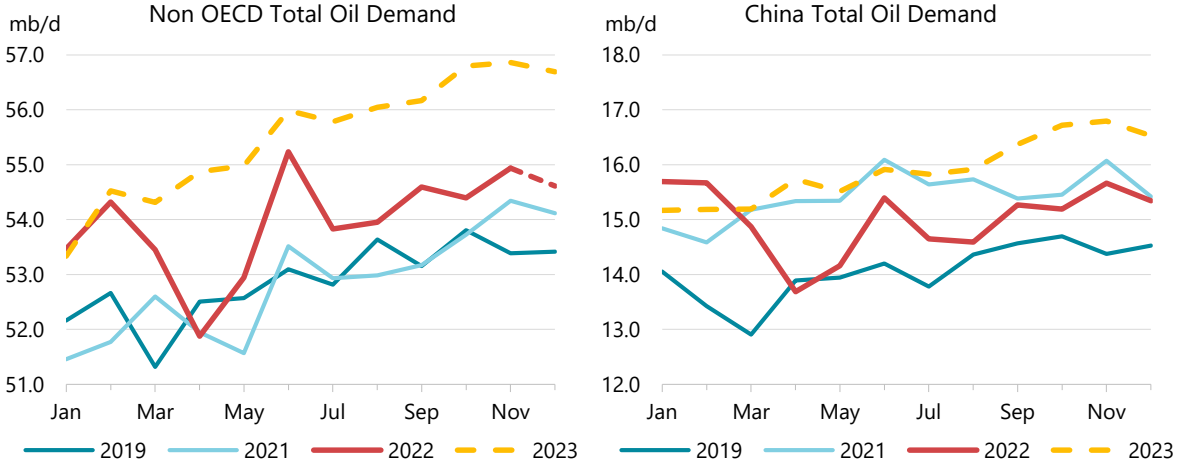
January brought extremely cold weather and heavy snowfall. These prompted cancellations of flights and train services and sent electricity demand to all-time highs. We have accordingly increased our 1Q23 heating fuels consumption estimate by about 70 kb/d, while lowering gasoline consumption by around 10 kb/d.

Korean oil deliveries increased by +310 kb/d m-o-m in December, led by gasoil (+80 kb/d) and gasoline (+70 kb/d), but fell by 120 kb/d y-o-y. This caps 2022 as a year of negligible demand growth. December also saw the end of the truckers' strike that had played havoc with supply chains and

pressured road fuel demand. The country's economy ended 2022 on a subdued note, as GDP contracted during 4Q22 for the first time in two-and-a-half years, largely due to slumping exports. While the country may not be able to ward off a first-quarter descent into recession, Korea's outlook has improved in the wake of China's abandonment of Covid restrictions. We see 2023 consumption growth at 80 kb/d y-o-y.

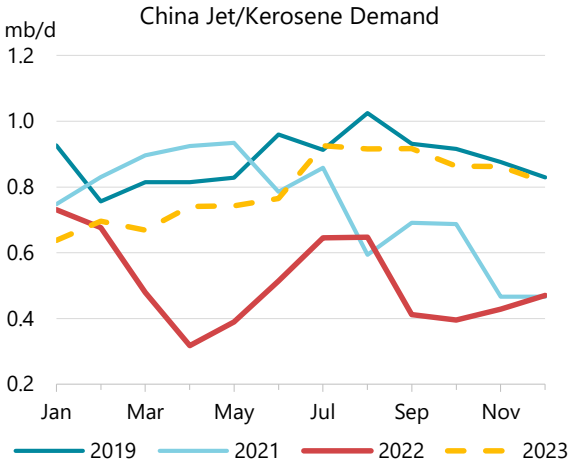
Non-OECD

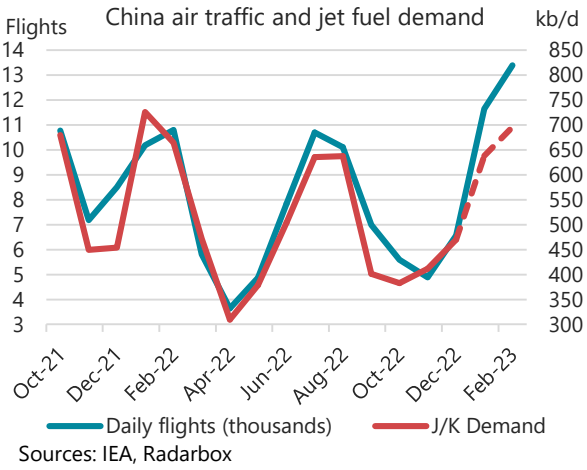
With a forecast rise of 1.6 mb/d (to reach 55.5 mb/d), non-OECD countries are set to dominate global 2023 gains in oil use as China returns to growth. Jet/kerosene (650 kb/d) will be the chief contributor as flight numbers continue to rebound. Asian countries will account for the vast majority (1.4 mb/d) of 2023's demand uplift, with China alone (+900 kb/d) registering more than half of the total. Recently reported data indicate an increase of 590 kb/d in 4Q22 and we expect a steady gain of 320 kb/d in 1Q23 before accelerating in line with a reopening China, to hit 2.1 mb/d by 4Q23.



China is set to post demand gains of 900 kb/d this year, rebounding from its biggest fall ever in 2022 (-420 kb/d) (see *China reopening sets stage for oil demand recovery*). We expect a slight y-o-y contraction in 1Q23 (-220 kb/d) and strong growth (+1.3 mb/d) compared to the lockdown-affected period of 2022 in the final three quarters of the year. The swiftness of the comeback in some sectors (especially air travel) underpins a 40 kb/d increase in our forecast compared with last month's *Report*.

Prompt indicators for January suggest a sharp uptick in Chinese activity and mobility. This comes on the heels of a dramatic relaxation of government public health restrictions across the country and coincides with the seasonal rush in long-distance travel associated with the Lunar New Year. Air traffic surged in January, averaging almost 12 000 flights/day (compared to around 3 000 flights/day in early December). Interprovincial mobility based on *Baidu* data rose by 47% y-o-y in January and was 41% in excess of 2019 levels. Nevertheless, international flight counts remain low and offer considerable potential for further gains. Jet/kerosene demand is set to jump by 240 kb/d quarter-on-quarter in 1Q23 and to lead gains (+290 kb/d) across 2023.

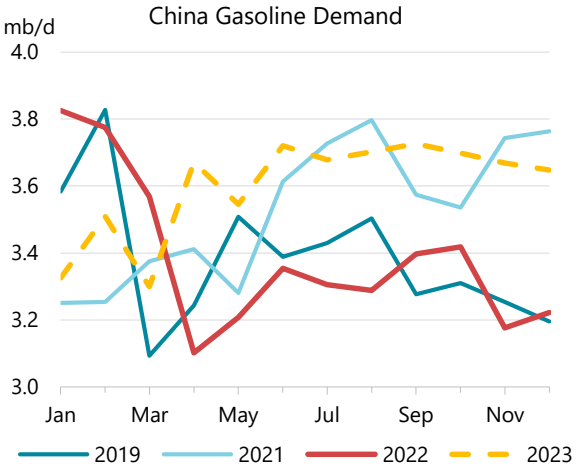




Sources: IEA, Radarbox

Other data point to rising activity in China's cities. *Baidu* congestion indices for major urban centres were essentially flat y-o-y in January, having shown a 40% contraction in December. According to *MetroDB.com* figures, passenger counts on the Shanghai metro system and in several other major cities surpassed average 2019 levels in early February. This rising tide of mobility is reflected in a 4.9-point jump in the *Caixin China Services PMI*, returning to expansion at 52.9. The equivalent manufacturing PMI shows a more modest change, with the index rising from 49 in December to 49.2 in January (remaining in contraction territory for its sixth successive month). Gasoline demand is set to increase by 100 kb/d quarter-on-quarter in 1Q23, while gasoil will fall by 360 kb/d.

Sources: IEA, Oxford University BSG



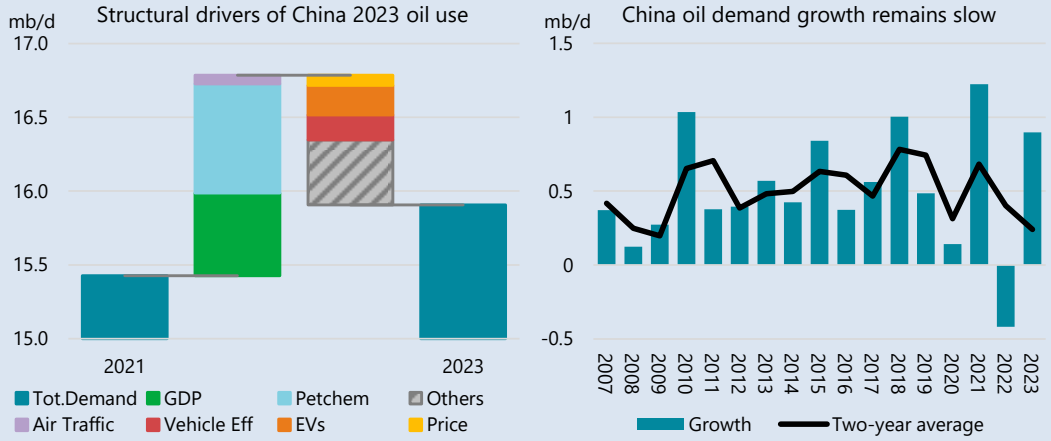
Despite optimism about the prospects for a consumption-led recovery, significant uncertainties remain for China's economy, especially around the construction sector. In December, a combination of widespread Covid-19 infections, the staff shortages these provoked and the impact on construction of cold weather in North China undermined oil use. Apparent oil demand fell by 320 kb/d m-o-m and 70 kb/d y-o-y. Gasoil use, closely connected to construction, slowed by -170 kb/d m-o-m.

Singapore (+100 kb/d) and **Hong Kong** (+90 kb/d) are both projected to benefit in 2023 as the Chinese economy gathers momentum. These gains are set to be relatively evenly split between maritime bunkers and jet fuel, as both maritime shipping and Asian air traffic reclaim lost ground.

China reopening sets stage for oil demand recovery

Following the relaxation of anti-Covid lockdown measures in China, the country is set to resume its established role as the primary engine of world oil demand growth. An increase of 900 kb/d this year will account for 45% of global gains. The 6% annual increase comfortably outpaces a relatively lacklustre GDP outlook (our forecast assumes 4.5% growth in 2023). However, much of this simply reflects exceptional constraints on mobility in 2022, when usage fell by 2.7% despite a 3% hike in GDP.

Since it is impossible to observe unconstrained oil demand for China in 2022, comparing 2023 with 2021 makes it much easier to understand the major drivers of growth. Consumption is expected to increase by a comparatively modest 480 kb/d from 2021 to 2023, which would comprise the weakest two-year gain since 2007-09 (+400 kb/d).



Total GDP gains across 2022 and 2023, imply an underlying increase of 560 kb/d in oil use over the two years (based on an average GDP elasticity of about 0.5 and excluding petrochemicals and jet fuel). Substantial ongoing expansions in China's olefins and aromatics capacity indicate a structural 2021-23 increase of 740 kb/d in naphtha and LPG/ethane use. Because air travel was already subdued relative to the rest of the Chinese economy in 2021, we expect large gains in jet/kerosene. After a sharp reduction in 2022 (-230 kb/d) the strong rebound (290 kb/d) which is already underway in 2023 will see jet/kerosene demand move 60 kb/d ahead of 2021 to reach 90% of 2019 levels.

Other structural factors will limit the extent of any rise. Notably, efficiency improvements in the road vehicle fleet and new EV sales imply the loss of 170 kb/d and 200 kb/d of demand growth, respectively. China's EV uptake has been far more rapid than in any other large country. In addition, the difference between forward Brent prices for 2023 ($84/bbl) used in our forecast and 2021 prices ($69/bbl) suggests an approximately 70 kb/d drag on demand, based on a price elasticity of about 0.02.

Together, these factors imply a theoretical total 2021-23 increase of 920 kb/d or, following 2022's exceptional 420 kb/d drop in use, a 2023 y-o-y rise of 1.3 mb/d. While growth will reach these levels by year-end, the gap (440 kb/d) between this and our forecast for annual oil demand reflects various other bearish factors apparent in countries that exited lockdowns during 2021. These are difficult to quantify precisely. Notwithstanding the sharp rise in some activity measures, it will take several months to fully reopen the country, and some re-imposition of restrictions may be required. Furthermore, there will be lasting damage to some sectors and wider behavioural changes that will take longer to normalise.

Although the pace of its growth is slowing, **Indian** oil demand continues to rise. Forecast y-o-y gains of 150 kb/d in 1Q23 are well below the 390 kb/d averaged in 2022, but will still be the fastest of any country. Average 2023 oil use is projected to reach 5.3 mb/d, up by 190 kb/d. January data showed that gasoil (+190 kb/d) and gasoline deliveries (+100 kb/d) grew strongly y-o-y despite cold weather, with the *S&P Global India Manufacturing PMI* indicating a robust expansion (55.4) in January despite easing slightly from its December peak (57.8). In contrast, declines in naphtha (-60 kb/d y-o-y) and LPG (-20 kb/d) are more reflective of the parlous state of the global petrochemical industry than India's economy. Naphtha demand dropped by an average of 50 kb/d y-o-y in 4Q22.

Non-OECD: Demand by Product

(thousand barrels per day)

	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2020	2021	2022	2023	2022	2023	2022	2023
LPG & Ethane	7 778	8 280	8 554	8 749	275	195	3.3%	2.3%
Naphtha	3 311	3 654	3 786	4 033	132	247	3.6%	6.5%
Motor Gasoline	10 985	12 020	12 207	12 618	187	410	1.6%	3.4%
Jet Fuel & Kerosene	2 112	2 171	2 340	2 987	169	647	7.8%	27.6%
Gas/Diesel Oil	13 471	14 509	15 101	15 305	592	204	4.1%	1.4%
Residual Fuel Oil	4 108	4 401	4 580	4 679	179	99	4.1%	2.2%
Other Products	7 721	7 813	7 392	7 161	- 420	- 231	-5.4%	-3.1%
Total Products	**49 487**	**52 848**	**53 962**	**55 533**	**1 114**	**1 571**	**2.1%**	**2.9%**

Demand growth eased in the **Middle East** during 4Q22, but remained substantial at 560 kb/d y-o-y (compared to 730 kb/d in 3Q22). This resulted from gains in every major product category, with notable increases in direct crude oil use in power generation (+200 kb/d), gasoil (+120 kb/d), jet/kerosene (+100 kb/d), gasoline (+70 kb/d) and fuel oil (+50 kb/d) on a combination of exceptional and fundamental drivers. In particular, oil use in power generation remained unseasonably high in Saudi Arabia and Iraq in November. In 2023, we expect more structural components to return to the fore, with jet/kerosene (+70 kb/d) and fuel oil (+20 kb/d) use propelled higher by the development of aviation and shipping hubs and gasoline (+40 kb/d), benefitting from strong domestic demand. The **UAE** (+70 kb/d) will see the fastest uptick in the region and of any country outside of Asia-Pacific. Flights from Abu Dhabi and Dubai's major airports exceeded 2019 levels in January.

Brazil represents another significant source of growth outside of Asia. In 2023, we expect overall demand to increase by 70 kb/d, with roughly half of this from gasoil. As a major commodity exporter to China (28% of total exports), the country's economy is expected to get a boost from its reopening. Prices for iron ore and soybeans exports, of which Brazilian farmers are currently harvesting a bumper crop, have been rising steadily in recent months, supporting key gasoil-consuming sectors.

Non-OECD: Demand by Region

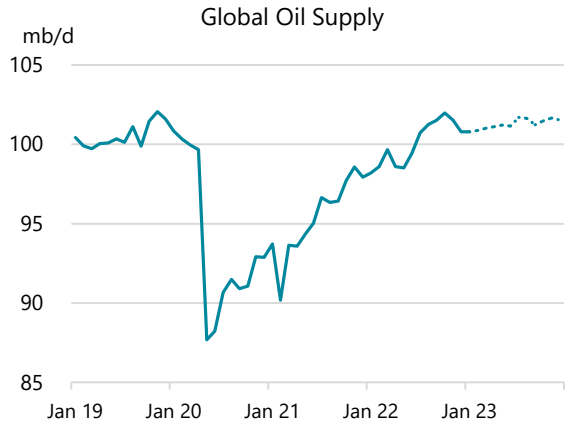
(thousand barrels per day)

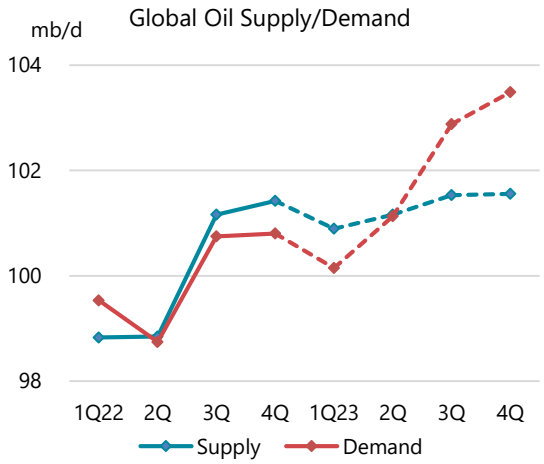
	Demand				Annual Chg (kb/d)		Annual Chg (%)	
	2020	2021	2022	2023	2022	2023	2022	2023
Africa	3 766	3 994	4 189	4 252	195	62	4.9	1.5
Asia	26 918	28 807	28 868	30 269	60	1 401	0.2	4.9
FSU	4 559	4 855	4 901	4 782	45	- 118	0.9	-2.4
Latin America	5 447	5 937	6 120	6 200	183	81	3.1	1.3
Middle East	8 074	8 484	9 099	9 238	615	139	7.2	1.5
Non-OECD Europe	723	770	786	791	15	5	2.0	0.7
Total Products	**49 487**	**52 848**	**53 962**	**55 533**	**1 114**	**1 571**	**2.1**	**2.9**

Supply

Overview

Global oil supply stalled in January, creeping up just 10 kb/d m-o-m to 100.8 mb/d. The January pause followed a steep 1.2 mb/d loss at the tail end of 2022 led by the US and Saudi Arabia – reversing growth that spurred a post-pandemic peak in October. In January, OPEC+ volumes fell by 130 kb/d but were offset by gains of 140 kb/d from producers outside the bloc (non-OPEC+).





Nearly a year on since Russia invaded Ukraine, the start of 2023 could prove to be a period of heightened uncertainty for the country's oil production. In January, total oil output (including condensates and NGLs) held up relatively well despite the EU ban on crude imports. Moscow, for now, has successfully re-routed shipments of crude to Asia and the G7 price cap on crude oil appears to be helping to keep the barrels flowing. But in a sign that Moscow may be struggling to place some of its barrels, Deputy Prime Minister Alexander Novak announced on 10 February that Russia would cut output by 500 kb/d in March.

Despite the forecast decline primarily due to Russian losses, global oil production should still outpace demand in 1Q23 and match it in the second quarter. A substantial deficit could emerge in 2H23 as China's reopening drives demand higher. For its part, an OPEC+ ministerial panel met on 1 February and agreed to maintain the sharply reduced supply ceiling that went into effect in November 2022 and runs through 2023. The OPEC+ Joint Ministerial Monitoring Committee meets again on 3 April to review policy. The next full ministerial session is scheduled for 4 June.

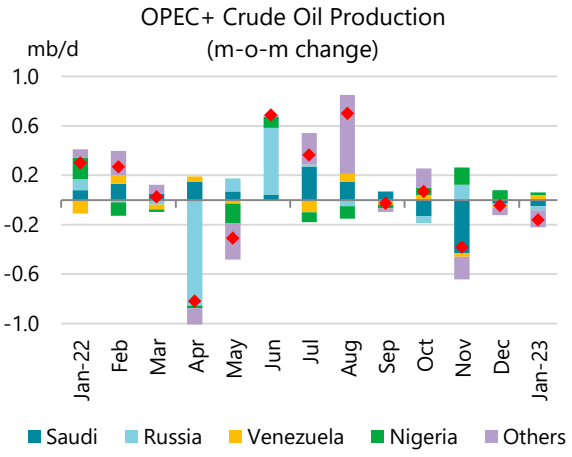
For the year as a whole, we expect world oil production to expand by 1.2 mb/d, driven by non-OPEC+ – namely the US along with Brazil, Norway, Canada and Guyana. That's a marked slowdown from massive growth in 2022 of 4.7 mb/d, fuelled by OPEC+ as it phased out its record 2020 supply cut. An overall non-OPEC+ increase of 1.8 mb/d will be tempered by an OPEC+ decline of 590 kb/d with Russia pressured by sanctions. Output from the bloc, excluding Russia, could rise by 460 kb/d – as Libya stabilises and Nigeria recovers.

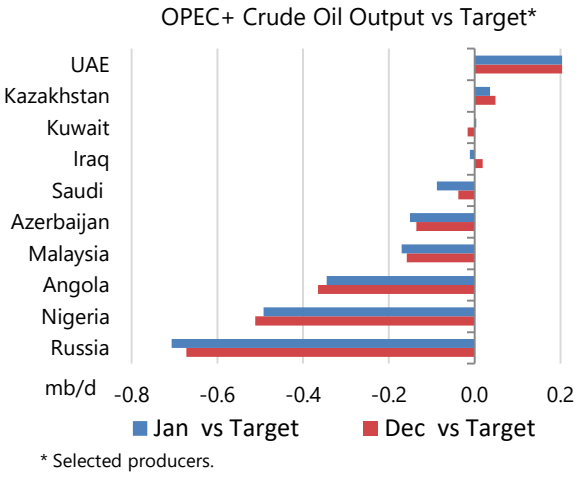
World Oil Production by Region (OPEC+ based on current agreement) (million barrels per day)											
	2021	**1Q22**	**2Q22**	**3Q22**	**4Q22**	**2022**	**1Q23**	**2Q23**	**3Q23**	**4Q23**	**2023**
Africa	7.4	7.4	7.0	7.0	7.2	7.2	7.3	7.4	7.4	7.3	7.3
Latin America	5.9	6.2	6.2	6.5	6.6	6.4	6.7	6.9	7.0	7.1	6.9
North America	24.4	25.0	25.4	26.2	26.4	25.8	26.4	26.8	27.1	27.3	26.9
China	4.1	4.2	4.2	4.1	4.1	4.2	4.3	4.2	4.2	4.2	4.2
Other Asia	3.4	3.3	3.2	3.1	3.2	3.2	3.1	3.1	3.1	3.1	3.1
Europe	3.5	3.4	3.1	3.2	3.3	3.3	3.4	3.3	3.3	3.4	3.4
FSU	13.8	14.4	13.4	13.7	14.1	13.9	13.8	12.8	12.6	12.7	13.0
Middle East	27.9	30.1	30.8	31.8	31.3	31.0	30.9	31.0	31.0	31.0	31.0
Total Oil Production	**90.3**	**94.0**	**93.4**	**95.5**	**96.2**	**94.8**	**95.9**	**95.6**	**95.7**	**96.1**	**95.8**
Processing Gains	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Global Biofuels	2.8	2.5	3.1	3.3	2.8	3.0	2.6	3.2	3.5	3.1	3.1
Total Supply	**95.4**	**98.8**	**98.8**	**101.2**	**101.4**	**100.1**	**100.9**	**101.2**	**101.5**	**101.6**	**101.3**
OPEC Crude	*26.4*	*28.5*	*28.7*	*29.6*	*29.4*	*29.0*	*29.1*	*29.3*	*29.3*	*29.3*	*29.3*
*OPEC NGLs**	*5.1*	*5.3*	*5.4*	*5.4*	*5.3*	*5.3*	*5.4*	*5.4*	*5.4*	*5.4*	*5.4*
Non-OPEC OPEC+	*17.4*	*18.2*	*17.2*	*17.5*	*18.0*	*17.7*	*17.6*	*16.7*	*16.5*	*16.6*	*16.9*
Total OPEC+	*49.0*	*52.0*	*51.3*	*52.5*	*52.6*	*52.1*	*52.1*	*51.4*	*51.2*	*51.3*	*51.5*
Demand	97.7	99.5	98.7	100.7	100.8	100.0	100.1	101.1	102.9	103.5	101.9
Balance	-2.3	-0.7	0.1	0.4	0.6	0.1	0.7	0.0	-1.3	-1.9	-0.6

* 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 oil supply

OPEC+ crude oil production from all 23 countries fell 160 kb/d to 44.29 mb/d in January, with the Middle East leading declines. Output from OPEC countries decreased by 40 kb/d to 29.06 mb/d, while volumes from non-OPEC nations sank by 120 kb/d to 15.23 mb/d.





* Selected producers.

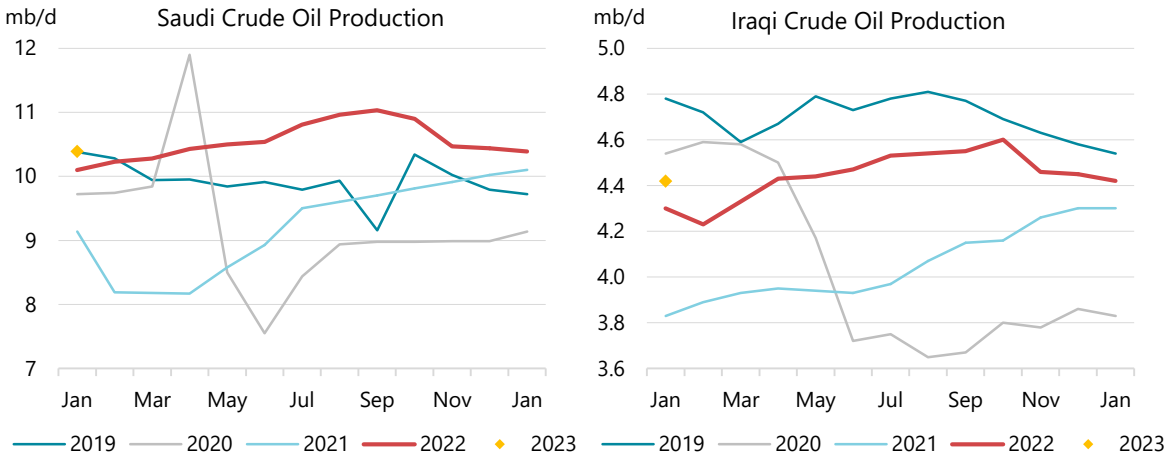
Production from the 19 members bound by quotas dropped by 170 kb/d to 38.18 mb/d in January – widening the gap between the coalition's supply and official targets to 1.9 mb/d versus 1.8 mb/d in December. Russia, because of sanctions, trails the farthest below quotas, while Nigeria, Angola and Malaysia are lagging due to capacity constraints and operational issues.

We anticipate further declines in OPEC+ crude supply this month, led by Russia as the EU embargo on its products takes effect. Output in Angola, Iraq and Kazakhstan is expected to decline due to maintenance.

OPEC+ Crude Oil Production[1] (million barrels per day)	Dec 2022 Supply	Jan 2023 Supply	Jan Prod vs Target	Jan 2023 Target	Sustainable Capacity[2]	Eff Spare Cap vs Jan[3]
Algeria	1.01	1.01	0.00	1.01	1.0	0.0
Angola	1.09	1.11	-0.35	1.46	1.2	0.1
Congo	0.26	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	0.19	0.19	0.01	0.18	0.2	0.0
Iraq	4.45	4.42	-0.01	4.43	4.7	0.3
Kuwait	2.66	2.68	0.00	2.68	2.8	0.1
Nigeria	1.23	1.25	-0.49	1.74	1.4	0.1
Saudi Arabia	10.44	10.39	-0.09	10.48	12.2	1.8
UAE	3.23	3.23	0.21	3.02	4.1	0.9
Total OPEC-10	**24.61**	**24.59**	**-0.83**	**25.42**	**28.0**	**3.4**
Iran[4]	2.66	2.63			3.8	
Libya[4]	1.17	1.14			1.2	0.1
Venezuela[4]	0.66	0.70			0.8	0.1
Total OPEC	**29.10**	**29.06**			**33.7**	**3.5**
Azerbaijan	0.55	0.53	-0.15	0.68	0.6	0.0
Kazakhstan	1.68	1.66	0.04	1.63	1.7	0.0
Mexico[5]	1.62	1.64		1.75	1.7	0.0
Oman	0.84	0.84	0.00	0.84	0.9	0.0
Russia	9.81	9.77	-0.71	10.48	10.2	
Others[6]	0.86	0.78	-0.28	1.06	0.9	0.2
Total Non-OPEC	**15.35**	**15.23**	**-1.10**	**16.44**	**15.9**	**0.2**
OPEC+ 19 in cut deal[4]	**38.34**	**38.18**	**-1.93**	**40.10**	**42.2**	**3.6**
Total OPEC+	**44.45**	**44.29**			**49.6**	**3.8**

1 Excludes condensates.
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.

Saudi output fell 50 kb/d in January to 10.39 mb/d, 90 kb/d below its quota, as crude shipments to world markets eased. In neighbouring **Bahrain**, crude oil production declined by 60 kb/d to 140 kb/d. Crude oil supply in the **UAE** held steady at 3.23 mb/d, 210 kb/d above its OPEC+ target. **Kuwaiti** production edged up to 2.68 mb/d, in line with its quota.



Iraqi production inched down 30 kb/d in January to 4.42 mb/d. Supply could decline further this month due to scheduled 10-day maintenance at the 400 kb/d West Qurna-2 oil field in the south, operated by Russia's Lukoil. The impact on northern supply following massive earthquakes in the region appears to be negligible, with shipments of roughly 440 kb/d along the Iraq-Turkiye pipeline only briefly suspended.

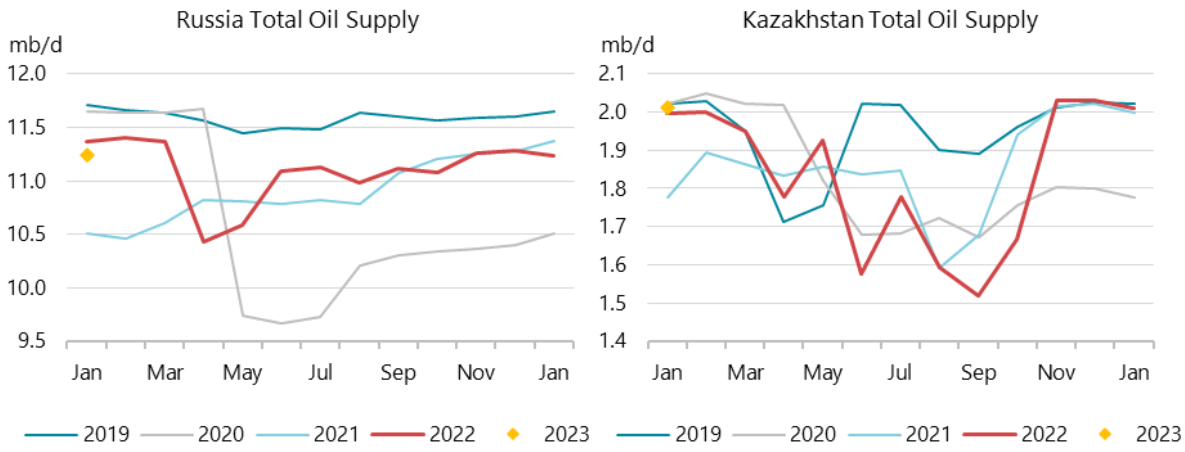
Baghdad meanwhile says sanctions are preventing it from paying Russian companies that are developing its oil fields. To that end, it plans to discuss with Washington how to compensate them. The goal is to "protect Iraqi banks and central banks from sanctions", Iraqi Foreign Minister Fuad Hussein was quoted as saying. Lukoil has invested heavily to boost output at West Qurna-2, while Gazprom Neft and Rosneft unit Bashneft are also at work in the country. Elsewhere in the upstream, foreign staff at TotalEnergies returned to Iraq after disputes with Baghdad over a $27 billion energy project triggered their departure. Both sides are working now to finalise the long-delayed deal, signed in 2021.

Crude oil output in **Iran,** exempt from the OPEC+ supply pact, eased to 2.63 mb/d in January. Tehran is sustaining higher oil sales to China, with exports running at around 1 mb/d since October, up roughly 100 kb/d from the 3Q22 average. Talks to revive the 2015 Iran nuclear deal, which would ease sanctions, have been on ice since September and there is little prospect of them restarting any time soon. Iran could be a source of significant supplies if sanctions were to be eased (our base case assumes sanctions are not lifted), with 1.2-1.3 mb/d of crude oil gradually restored in about six to eight months.

Russian crude production eased by just 30 kb/d in January to 9.77 mb/d despite the EU crude oil import ban taking effect on 5 December 2022. Robust exports supported output of crude oil, condensates and NGLs which was down only 160 kb/d below pre-invasion levels at around 11.2 mb/d. Russian oil supply has held up better than expected following its invasion of Ukraine, as measures have been put in place to facilitate the re-routing of crude oil exports to new destinations, mostly in Asia. The higher export levels underpinned our 300 kb/d upward revision of Russian output for this year.

By the end of 1Q23, we forecast that around 1 mb/d will be shut in versus pre-invasion levels, which would reduce average oil production to 10 mb/d in 2023, down 1.1 mb/d y-o-y. But it is still unclear how the EU embargo and price cap on oil products that took effect earlier this month will impact trade flows. Our expectation is that some Russian oil will have to be shut in as a result.

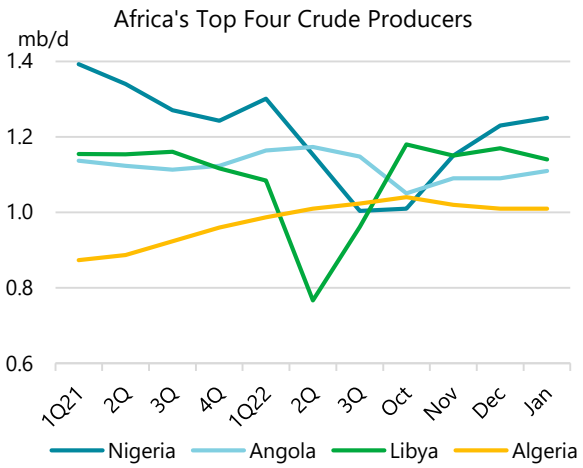
For its part, Moscow has signalled a 500 kb/d shut-in for March. "As of today, we are fully selling the entire volume of oil produced, however, as stated earlier, we will not sell oil to those who directly or indirectly adhere to the principles of the 'price cap'" Deputy Prime Minister Alexander Novak said in a statement on 10 February.



Kazakh crude oil production dipped 10 kb/d in January to 1.66 mb/d. Output is expected to decline this month due to reported maintenance at the Tengiz oil field. The central Asian country was set to

ship oil to Germany via Russia's Druzhba pipeline in February after Moscow approved the deliveries. Shipments were supposed to commence in January at 20,000 tonnes, but talks over the final details delayed the start of flows. Kazakhstan requested 1.2 million tonnes of capacity (24 kb/d) for all of 2023. The Druzhba pipeline is exempt from sanctions, but German refineries in Leuna and Schwedt, connected to the pipeline, have halted Russian crude purchases since the end of 2022. Russia reportedly agreed to the deal in part to sustain minimum flow levels to ensure optimal operations.

Combined crude oil output from African members of OPEC+ was steady in January as Nigeria's recovery stretched into a fourth month. **Nigerian** crude oil edged up 20 kb/d to 1.25 mb/d, the highest level since last March, as export streams such as Forcados and Brass River pumped more and the Erha field ramped up. Sabotage and chronic underinvestment sank Nigerian supply to 40-year lows in 2022, but this year could see a modest rebound as output recovers.

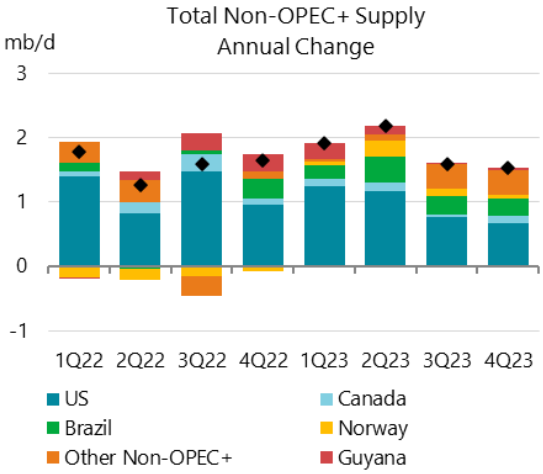


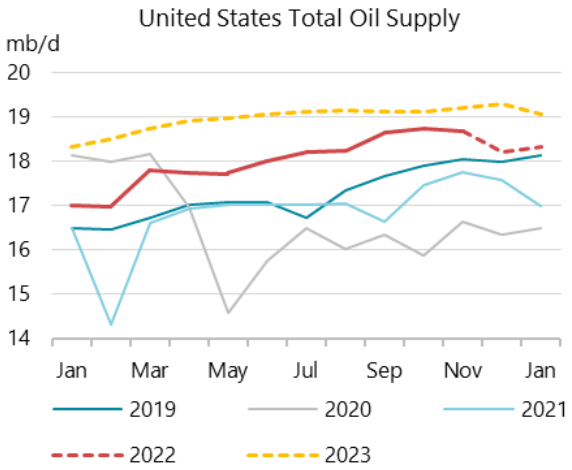
Crude supply in **Angola** crept up 20 kb/d to 1.11 mb/d in January, but a hefty decline is expected this month due to scheduled 35-day maintenance at the Dalia floating production storage and offloading vessel (FPSO) that currently produces 120 kb/d. **Libyan** crude oil output eased 30 kb/d to 1.14 mb/d. Output from the North African producer has been relatively stable as the Tripoli-Benghazi pact of last July that ended an oil blockade remains in place.

Output in **Venezuela** rose by 40 kb/d in January to 700 kb/d. Production was expected to increase after the US eased sanctions on Caracas at the end of November, allowing Chevron to restart operations at its joint ventures. The US company resumed work at the Boscan field in December, after it received a license from the US Office of Foreign Assets Control and signed commercial agreements with Petroleos de Venezuela. Already in January, the field was pumping 40 kb/d after it had slowed to a trickle in 2H22.

Non-OPEC+ oil supply

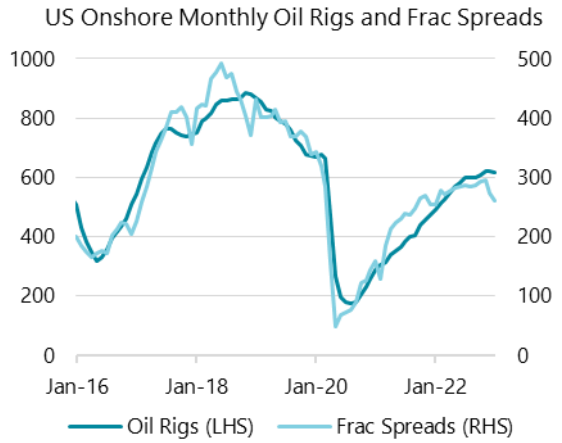
Output from non-OPEC+ countries rose by 150 kb/d m-o-m in January to 48.4 mb/d as Canada and the US recovered from severe winter weather, while seasonal effects in biofuels and China nearly netted each other out. Growth over 2023 is forecast at 1.8 mb/d, boosting production to an average of 49.8 mb/d. Supply will grind higher through most of 2023 to reach 50.3 mb/d by the end of the year. The US and Brazil will account for nearly 70% of the gains, with Norway, Canada and Guyana also contributing materially. Production from the US (19 mb/d), Canada (5.9 mb/d), Brazil (3.4 mb/d), Guyana (380 kb/d) and global biofuels (3.1 mb/d) will all reach record volumes.



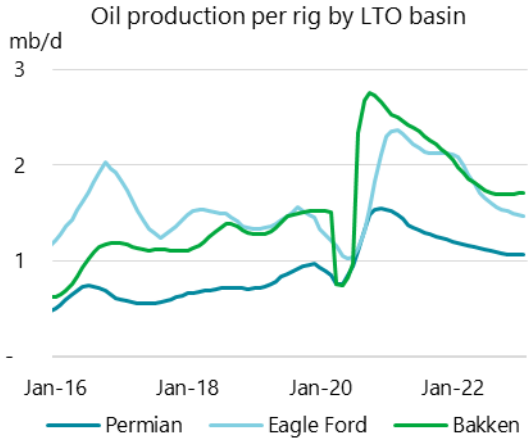


Total oil supply in the **US** increased by 1.2 mb/d in 2022 and is forecast to rise by 960 kb/d this year to average 19 mb/d. In November, the latest month for which official data from the US Energy Information Administration (EIA) are available, total oil supply fell by 80 kb/d, with NGLs accounting for 50 kb/d of the drop. Crude eased by 30 kb/d while non-conventional (other hydrocarbons/oxygenates except ethanol) supplies increased by 10 kb/d.

January clawed back some of December's 440 kb/d losses, rising by 70 kb/d to 18.3 mb/d. The gains were concentrated in the lower 48 (130 kb/d), with many basins recovering from outages due to the Arctic blast. The Gulf of Mexico (GoM) also posted an increase of 40 kb/d m-o-m to 1.83 mb/d. NGLs, on the other hand, posted their third consecutive month of declines – dipping 80 kb/d on the month and down 290 kb/d since reaching a high of 6.1 mb/d in October.



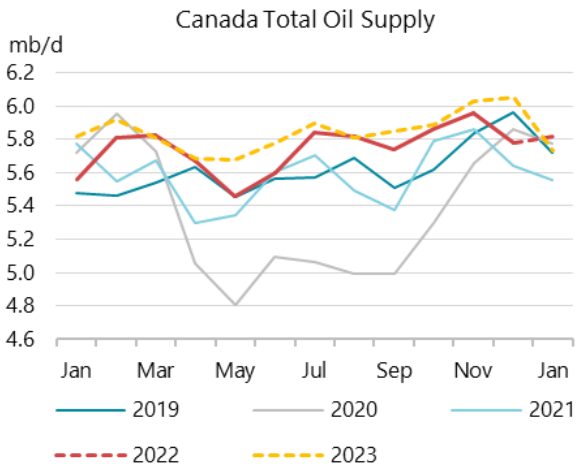
Sources: Primary Vision, Baker Hughes

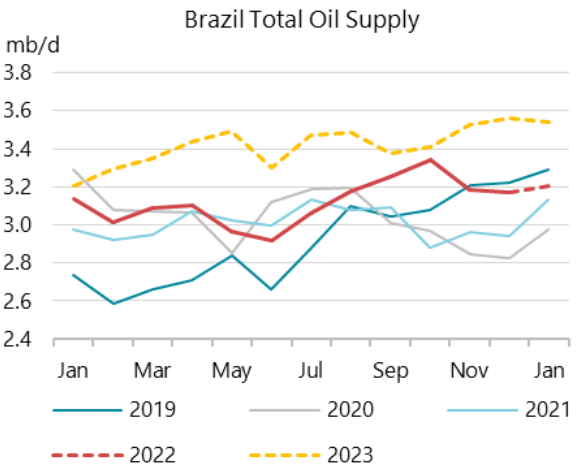


Source: EIA, IEA Calcs

While barrels from the lower 48 increased, continued harsh winter weather affected the midcontinent towards the end of the month and into February. However, the impact on operations is expected to be minimal compared to the effects of the December storms. For the remainder of the year, we expect 220 kb/d of new production to come online in GoM. This will more than offset underlying base declines, leading to annual growth of 120 kb/d to 1.86 mb/d. NGL supplies are forecast to recover and overtake previous record highs by April as light tight oil (LTO) volumes grow. LTO is forecast to expand by 610 kb/d this year, down from growth of 650 kb/d in 2022 as frack spreads remain tight and productivity flattens.

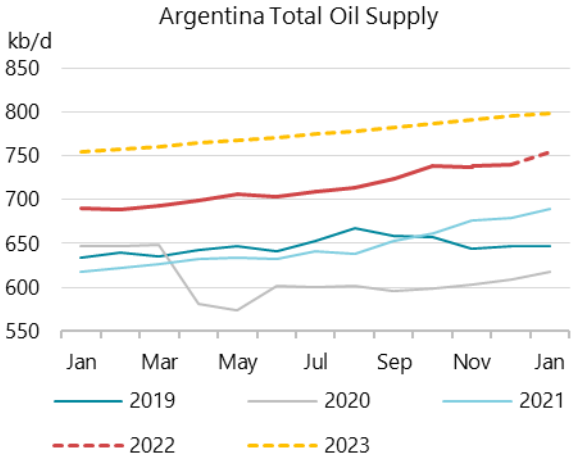
In December, **Canadian** supply fell 180 kb/d m-o-m to 5.78 mb/d as bitumen and upgrader output decreased, according to data from Alberta Energy Regulator and Canada Newfoundland and Labrador Offshore Petroleum Board. January production increased by 30 kb/d as NGLs and the Atlantic offshore recovered. Annual growth in 2023 is expected to be 110 kb/d, bringing total volumes to 5.85 mb/d.





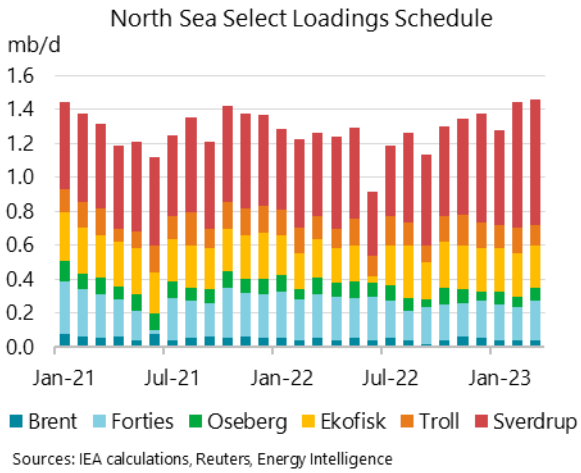
Brazilian output was relatively unchanged in December, according to data from the Agencia Nacional do Petroleo (ANP). January production increased by 40 kb/d with the newly commissioned P-71 FPSO contributing 10 kb/d of growth. Last year, Brazil produced a record 3.1 mb/d, up 120 kb/d y-o-y. Supply is expected to rise by 290 kb/d in 2023 to average 3.4 mb/d as five additional FPSOs are slated to start up.

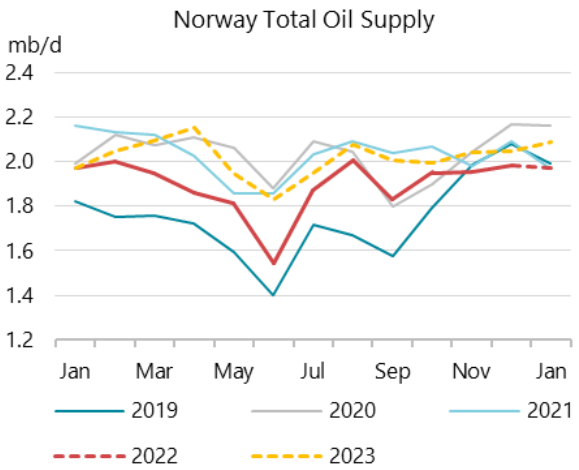
Colombian volumes are forecast to dip by 20 kb/d m-o-m to 750 kb/d in February due a blockade in producing areas over the perception of failed provincial government promises. Additionally, the state oil firm's CEO announced his resignation effective end of March as recently elected president Gustavo Petro explores reductions in hydrocarbon production and freezing new exploration contracts. Colombian production is expected to hold steady this year at around 760 kb/d.



Meanwhile, **Argentinean** supply was flat in December at 740 kb/d, according to official government data. In January, production increased by 20 kb/d to 760 kb/d as Argentinean LTO continued to grow with robust activity in the Vaca Muerta. The provincial government has launched an auction for the Cerro Hamaca concession in the northeast. The block, which was previously developed by state-backed YPF, currently produces a negligible amount of oil, but has access to the black oil window of the play. Additionally, YPF has announced plans to drill an exploration well on the eastern edge of the Neuquén basin and plans to break ground on a 380 kb/d pipeline and export facility on the Atlantic coast later this year. The new pipeline, along with the Oleoductos del Valle mainline expansion and the Trans Andean Pipeline (scheduled to come into service this quarter) will substantially expand takeaway capacity.

North Sea loadings (as measured by BFOE plus Troll and Johan Sverdrup) are scheduled at 1.46 mb/d in March, up 20 kb/d m-o-m as gains in Forties offset small changes in Troll and Ekofisk volumes. March loadings are up 200 kb/d from a year ago as the heavier Johan Sverdrup schedule and slight increases in Ekofisk make up for decreases in the other grades. **UK** supply fell by 70 kb/d m-o-m in December to 780 kb/d after two months of gains following fall maintenance. Production is projected to recover slightly in January to 810 kb/d and to average the same for the year despite late summer maintenance.





Sources: IEA calculations, Reuters, Energy Intelligence

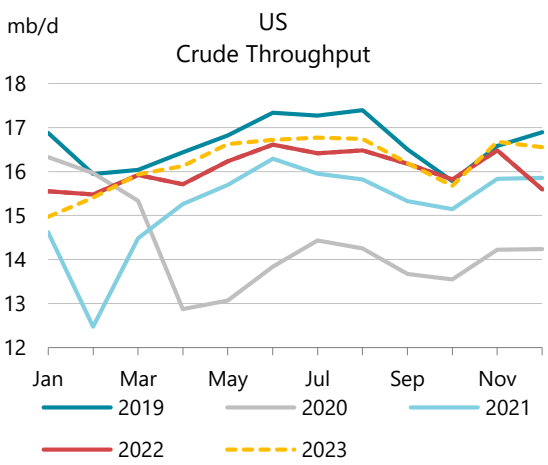
Data from the **Norwegian** Petroleum Directorate (NPD) show production in December rose by 30 kb/d m-o-m to 1.98 mb/d. January volumes were largely unchanged as electrical issues slowed the ramp up of output from Johan Sverdrup Phase 2. Johan Sverdrup Phase 1 reportedly had electrical difficulties in early February. These two issues are seen as unrelated and not systemic problems with the field. Supply in 2023 is forecast to grow by 120 kb/d to average 2 mb/d.

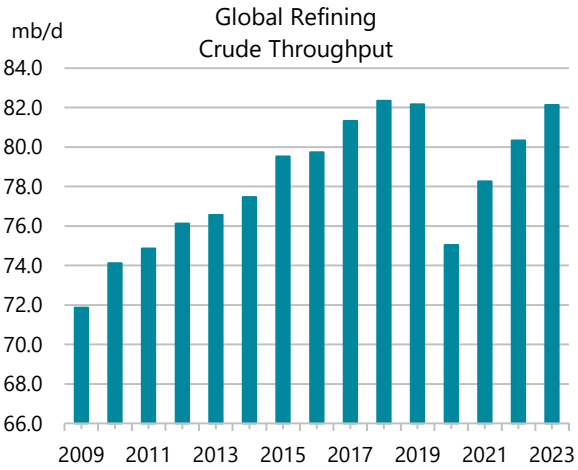
Elsewhere, volumes in **Ghana** rose by 10 kb/d m-o-m in December to 180 kb/d. Output has been revised up by 10 kb/d annually in 2023 to 180 kb/d as six new wells are set to come online midway through the year at the Jubilee and Jubilee South East projects. The three Jubilee South East wells will target previously undeveloped reserves.

Refining

Overview

After a brief period of relatively well-supplied product markets at the end of last year, the arctic freeze in the US and the resulting nervous reaction in product differentials and margins was a chilling reminder of the downside risk to refining activity. The start of the calendar year usually sees a seasonal slowdown in overall oil demand that was aggravated this year by warmer weather in Europe and lower natural gas prices. Nevertheless, the 730 kb/d m-o-m fall in refinery throughputs in January, most of which was in the US, led to sharp gains in product cracks and refinery margins.





Global Refinery Crude Throughput[1]

(million barrels per day)

	2019	2020	2021	Nov-22	Dec-22	4Q22	2022	Jan-23	Feb-23	1Q23	2Q23	3Q23	4Q23	2023
Americas	**19.1**	**16.6**	**17.8**	19.1	18.3	18.6	**18.7**	17.6	18.1	18.1	19.2	19.4	19.1	**18.9**
Europe	**12.2**	**10.7**	**11.0**	11.4	11.6	11.3	**11.4**	11.5	11.2	11.3	11.5	11.6	11.2	**11.4**
Asia Oceania	**6.8**	**5.9**	**5.8**	6.0	6.2	6.0	**6.0**	6.2	6.1	6.1	5.4	5.9	5.9	**5.8**
Total OECD	**38.1**	**33.2**	**34.5**	36.5	36.1	35.9	**36.1**	35.4	35.4	35.5	36.1	36.9	36.3	**36.2**
FSU	**6.8**	**6.4**	**6.7**	6.6	6.7	6.6	**6.4**	6.7	6.3	6.3	5.7	5.8	5.6	**5.8**
Non-OECD Europe	**0.5**	**0.4**	**0.4**	0.5	0.5	0.6	**0.5**	0.5	0.5	0.5	0.5	0.6	0.6	**0.5**
China	**13.4**	**13.7**	**14.4**	14.7	14.4	14.4	**13.7**	14.3	14.2	14.2	14.4	14.7	14.8	**14.5**
Other Asia	**10.3**	**9.3**	**9.6**	9.8	10.4	10.1	**10.3**	10.6	10.7	10.6	10.5	10.5	10.8	**10.6**
Latin America	**3.2**	**3.0**	**3.2**	3.5	3.6	3.5	**3.4**	3.5	3.5	3.5	3.6	3.6	3.6	**3.6**
Middle East	**7.8**	**7.1**	**7.6**	8.3	8.5	8.3	**8.1**	8.4	8.2	8.4	8.6	8.8	9.1	**8.7**
Africa	**2.0**	**1.9**	**1.9**	1.7	1.8	1.7	**1.8**	1.9	2.0	1.9	1.9	2.4	2.4	**2.2**
Total Non-OECD	**44.1**	**41.9**	**43.8**	45.1	46.0	45.2	**44.2**	46.0	45.4	45.5	45.3	46.2	46.8	**46.0**
Total	**82.2**	**75.0**	**78.3**	81.7	82.1	81.1	**80.3**	81.4	80.8	81.0	81.4	83.1	83.0	**82.1**
Year-on-year change	***-0.2***	***-7.1***	***3.2***	*0.0*	*1.1*	*0.7*	***2.1***	*0.8*	*0.6*	*1.1*	*2.0*	*2.2*	*1.9*	***1.8***

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

US refinery throughputs fell 1.5 mb/d from their post-pandemic peak of 16.4 mb/d in November and are not expected to reach that level again before April-May. Chinese runs have also moderated since the spike in November. For now, the seasonal slowdown in demand is keeping a lid on product prices and differentials. The EU embargo on Russian oil product imports that came into force on 5 February is expected to cut Russian export volumes even if some reallocation of trade flows has already started.

With new capacity set to come online this year in the Atlantic Basin and the Middle East, global refinery throughputs are forecast to increase by 1.8 mb/d y-o-y. Most of the net increase comes from the East of Suez as Russian run-cuts offset gains elsewhere in the Atlantic Basin. If all refinery start-ups materialise as expected, there should be sufficient capacity to meet refined product demand this year, even with the expectations of lower Russian product exports. However, with the OPEC+ cuts maintained in our forecast, crude oil supply falls well below refinery demand in the second half of the year. Large crude oil stock draws in 3Q23-4Q23 could put downward pressure on margins and refinery activity, resulting in significant product deficits, particularly in the last quarter of the year.

Product cracks and refinery margins

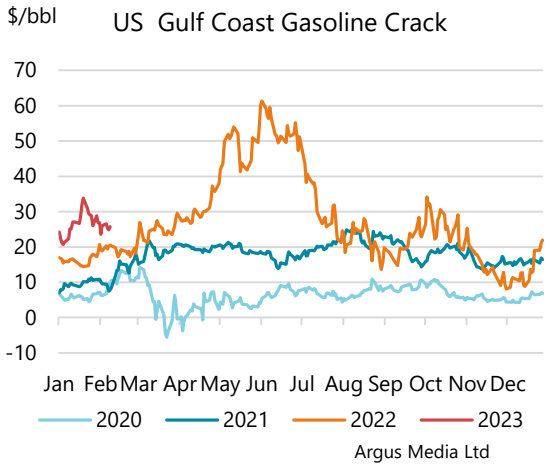
Modest gains of around $2-3/bbl in benchmark crude prices in January did not negatively impact product cracks. Instead, sharply lower US refining activity reverberated across the markets, pushing refining margins upward.

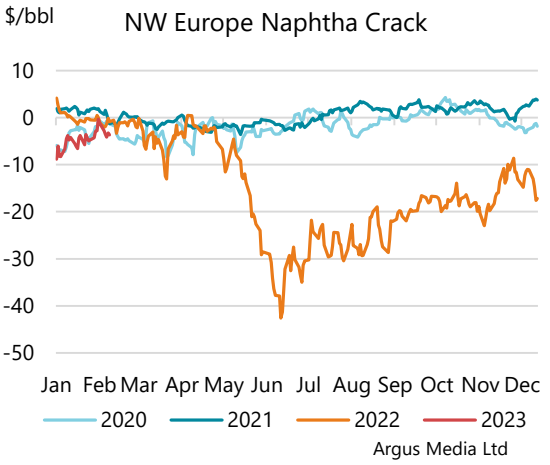
Product Prices and Differentials ($/bbl)

	Prices			Differentials				Week Starting				
	Nov	Dec	Jan	Nov	Dec	Jan	Dec-Jan chg	09-Jan	16-Jan	23-Jan	30-Jan	06-Feb
Northwest Europe				to North Sea Dated								
Gasoline	102.07	84.51	97.41	10.97	4.16	14.54	10.39	12.47	15.24	17.35	15.62	13.74
Diesel	134.75	120.56	124.73	43.66	40.20	41.87	1.67	41.63	43.20	44.04	34.74	26.85
Jet/Kero	132.07	121.11	128.40	40.97	40.75	45.54	4.79	42.82	47.51	50.66	40.15	29.93
Naphtha	75.15	66.76	77.51	-15.94	-13.60	-5.35	8.25	-4.79	-5.26	-4.70	-2.35	-3.49
HSFO	61.74	56.80	60.32	-29.36	-23.56	-22.54	1.02	-22.60	-22.80	-23.96	-21.97	-22.09
0.5% Fuel Oil	88.73	77.95	85.56	-2.37	-2.41	2.70	5.11	0.61	2.75	4.92	6.88	3.48
US Gulf Coast				to WTI Houston								
Gasoline	102.36	90.55	106.15	16.09	13.35	26.57	13.22	24.16	28.74	30.47	26.46	25.66
Diesel	141.16	124.37	133.56	54.89	47.16	53.97	6.81	54.92	55.56	56.74	43.86	36.91
Jet/Kero	133.22	122.36	148.09	46.94	45.15	68.51	23.35	68.84	73.88	74.71	43.78	38.38
Naphtha	76.50	70.75	84.75	-9.78	-6.46	5.17	11.63	4.17	8.02	9.13	3.32	1.11
HSFO	59.87	54.18	55.23	-26.40	-23.03	-24.35	-1.32	-24.27	-24.33	-25.06	-23.82	-21.65
0.5% Fuel Oil	94.68	82.69	91.63	8.41	5.48	12.04	6.56	11.91	11.98	13.75	14.73	14.86
Singapore				to Dubai								
Gasoline	93.11	85.09	95.49	4.75	6.61	13.86	7.26	11.91	15.85	18.11	14.58	13.90
Diesel	127.61	113.75	116.12	39.25	35.27	34.50	-0.77	34.06	35.89	37.17	31.84	24.89
Jet/Kero	121.01	110.22	115.07	32.65	31.74	33.44	1.70	32.04	34.77	36.96	31.91	25.49
Naphtha	74.22	66.34	72.52	-14.14	-12.14	-9.11	3.03	-8.17	-8.45	-9.02	-7.62	-7.25
HSFO	61.74	56.28	58.90	-26.62	-22.20	-22.72	-0.52	-22.98	-22.88	-22.05	-23.15	-22.70
0.5% Fuel Oil	99.25	88.14	92.84	10.89	9.66	11.21	1.56	7.96	12.43	16.83	16.38	14.15

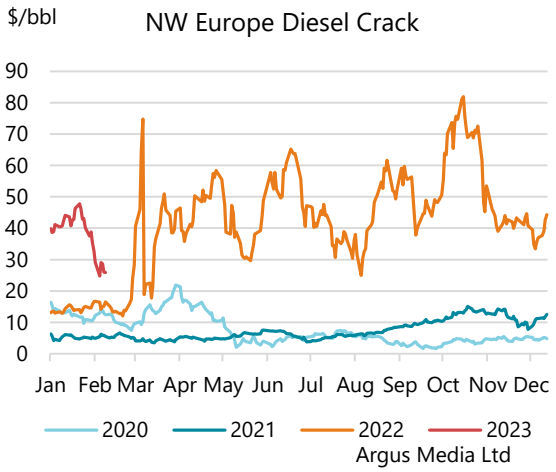
Light distillate cracks have diverging seasonal trends in winter. Gasoline cracks tend to fall as driving demand slows, while naphtha usually gets a boost from seasonally higher propane prices. However, US refinery disruptions resulted in gasoline cracks doubling in January in the US Gulf Coast and Singapore, to $27/bbl and $14/bbl, respectively, and tripling in Europe to $15/bbl. After the initial spike, cracks trended lower towards the end of the month as affected refineries started coming back online.

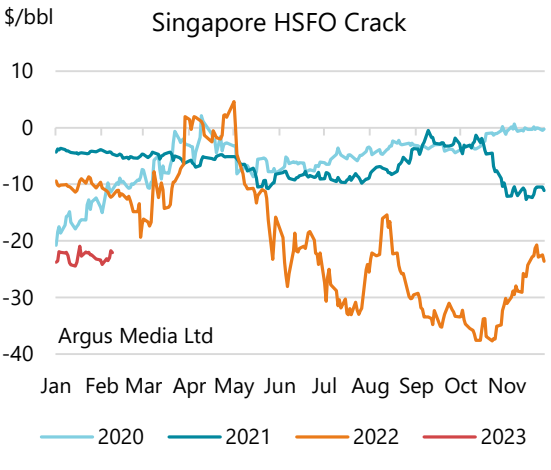
It was mostly seasonal factors which helped naphtha cracks higher m-o-m, with no noticeable improvement in petrochemical demand. In addition to support from higher prices for alternative feedstocks, European cracks were boosted by the premium commanded by non-Russian origin barrels. Europe used to source more than half of its naphtha imports from Russia, which are now banned under the EU embargo that came into force 5 February. European naphtha cracks improved to -$5/bbl in January, their highest since April 2022.





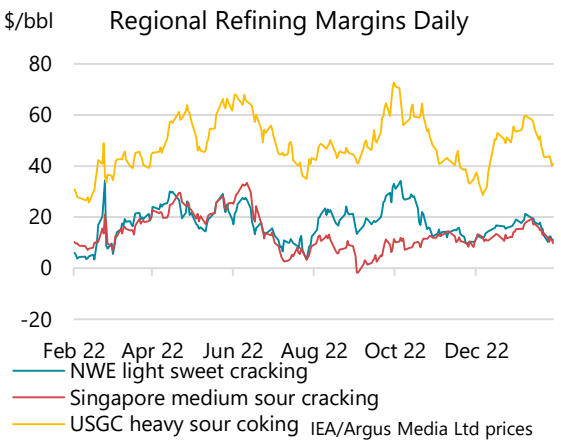
Diesel cracks saw more modest increases on both sides of the Atlantic, as the main pricing point, Europe, was relatively well-supplied with record import flows prior to the start of the Russian embargo. In Singapore, diesel cracks retreated slightly, as the 4Q22 Chinese export boost was still weighing on the market, even with lower actual outflows during January. US Gulf Coast jet cracks surged to record highs of $68/bbl due to refinery outages and fundamentally strong demand, despite weather-related disruptions to air traffic. In Europe and Singapore, jet cracks were up by a comparatively small amount.

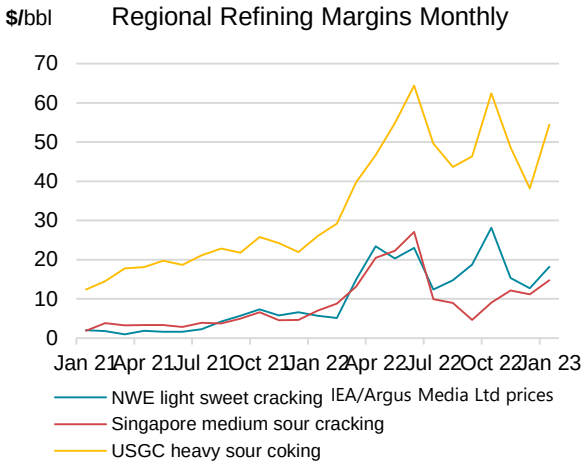




High sulphur fuel oil cracks were relatively stable m-o-m, but 0.5% sulphur fuel oil cracks improved on the back of higher distillate cracks. In Europe, they returned to positive territory, averaging $2.70/bbl.

Rising product cracks led to gains in all observed refinery margins in January, with particularly strong increases in the US. However, margins remained well below October 2022 levels, with only the US refinery disruptions affecting the markets. In October, the impact of seasonal maintenance was aggravated by European refinery strikes and seasonally robust demand.





IEA Global Indicator Refining Margins

	Monthly Average				Change	Average for week starting:				
$/bbl	**Oct 22**	**Nov 22**	**Dec 22**	**Jan 23**	**Dec - Jan**	**09 Jan**	**16 Jan**	**23 Jan**	**30 Jan**	**06 Feb**
NW Europe										
Light sweet hydroskimming	18.20	8.00	6.12	11.21	5.09	10.17	11.91	12.80	10.44	7.19
Light sweet cracking	28.10	15.32	12.75	18.20	5.45	17.45	19.12	20.05	15.84	11.51
Light sweet cracking + Petchem	27.95	16.36	14.38	18.44	4.06	17.43	19.31	20.31	16.32	12.03
Medium sour cracking*	51.37	43.03	21.16	24.48	3.31	23.31	25.74	26.41	20.52	15.28
US Gulf Coast										
Light sweet cracking	33.60	22.71	18.86	29.74	10.88	28.73	31.81	33.11	24.93	21.98
Medium sour cracking	43.51	32.36	29.05	40.17	11.13	39.48	42.20	43.30	33.66	29.56
Heavy sour coking	62.38	48.59	38.16	54.39	16.22	52.82	57.18	58.20	47.89	42.22
Singapore										
Light sweet cracking	9.10	8.27	8.92	13.13	4.21	11.85	14.53	16.83	14.03	10.49
Light sweet cracking + Petchem	10.28	9.18	10.77	13.84	3.07	12.67	14.87	17.16	14.51	11.31
Medium sour cracking	9.01	12.17	11.19	14.78	3.59	13.67	16.23	17.96	14.54	10.99
Medium sour cracking + Petchem	10.17	13.07	13.01	15.48	2.47	14.48	16.57	18.28	15.01	11.80

Note: Mediterranean and US Midcontinent margins are available in Table 15 of this *Report*.
Source: IEA/Argus Media Ltd prices.
Methodology notes are avaialble at https://www.iea.org/topics/oil-market-report#methodology
*From 1December, the basis has changed from Urals NWE to Argus Brent Sour

Regional refining developments

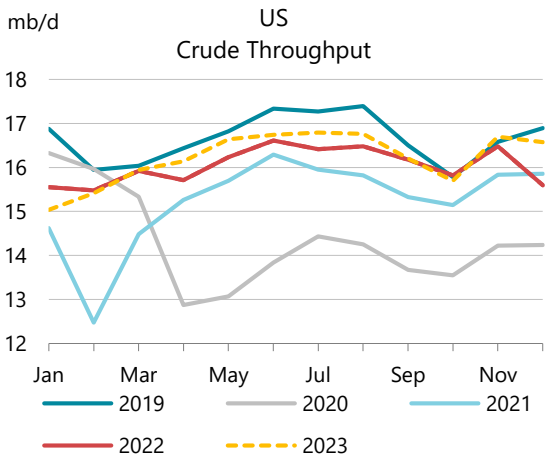
The recovery in **US** refinery throughputs after the arctic freeze in December-January has been slower than expected as some refiners likely brought forward maintenance scheduled for February-March. By the end of January, PADD 3 runs had only reached 8.2 mb/d, still down 500 kb/d from the weeks preceding the freeze. PADD 2 runs were back to their normal levels. Thus, January runs were down 560 kb/d m-o-m and 510 kb/d year-on-year (y-o-y), averaging under 15 mb/d for the first time since March 2021. US refining activity slows most in the first quarter as seasonally lower demand incentivises refiners to conduct maintenance prior to the pick-up of the driving season in the second quarter. We forecast runs ramping up by 1 mb/d in 2Q23, to 16.4 mb/d, the highest since 3Q19. ExxonMobil's 270 kb/d expansion of the Beaumont refinery is expected to start up by the end of 1Q23. Nevertheless, throughputs will remain almost 1 mb/d below the peak rate seen in 3Q18, with 1.5 mb/d of refining capacity shut since then.

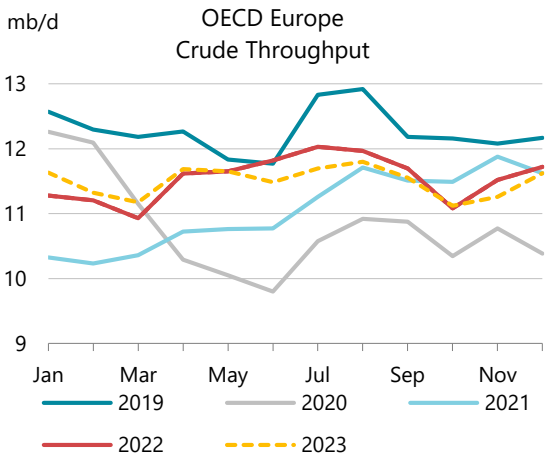
Refinery Crude Throughput and Utilisation in OECD Countries
(million barrels per day)

	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Change from Nov 22	Change from Dec 21	Utilisation rate Dec 22	Utilisation rate Dec 21
US[1]	16.32	16.38	16.07	15.72	16.38	15.50	-0.89	-0.26	88%	88%
Canada	1.85	1.79	1.73	1.65	1.65	1.80	0.15	-0.02	95%	96%
Chile	0.11	0.15	0.17	0.19	0.16	0.18	0.02	-0.01	78%	83%
Mexico	0.83	0.81	0.79	0.81	0.92	0.84	-0.08	0.08	51%	46%
OECD Americas[1]	**19.11**	**19.14**	**18.77**	**18.37**	**19.11**	**18.31**	**-0.80**	**-0.21**	**86%**	**86%**
France	0.98	1.03	0.88	0.45	0.89	0.99	0.10	0.21	87%	69%
Germany	1.86	1.76	1.88	1.88	1.90	1.83	-0.07	-0.06	91%	94%
Italy	1.42	1.41	1.40	1.33	1.27	1.28	0.01	0.04	74%	72%
Netherlands	1.02	1.02	1.04	1.05	0.93	0.90	-0.04	-0.06	74%	79%
Spain	1.34	1.30	1.28	1.11	1.17	1.32	0.15	0.09	94%	87%
United Kingdom	0.96	1.05	1.04	1.05	0.99	1.04	0.05	0.01	87%	86%
Other OECD Europe[2]	4.35	4.30	4.08	4.11	4.26	4.26	-0.01	-0.13	84%	91%
OECD Europe	**11.93**	**11.87**	**11.60**	**10.98**	**11.42**	**11.62**	**0.20**	**0.10**	**84%**	**84%**
Japan	2.57	2.91	2.72	2.60	2.74	2.85	0.11	-0.09	86%	85%
Korea	2.98	3.04	2.87	2.67	2.80	2.84	0.04	0.03	80%	80%
Other Asia Oceania[3]	0.47	0.45	0.49	0.46	0.48	0.48	0.00	-0.09	91%	88%
OECD Asia Oceania	**6.02**	**6.40**	**6.07**	**5.73**	**6.01**	**6.16**	**0.15**	**-0.15**	**84%**	**83%**
OECD Total	**37.06**	**37.41**	**36.44**	**35.08**	**36.54**	**36.09**	**-0.45**	**-0.26**	**85%**	**85%**

1 US includes US50, OECD Americas include Chile and US territories
2 Includes Lithuania
3 Includes Israel

Mexican refinery throughput data for November were revised up by 40 kb/d, with runs crossing the 900 kb/d mark for the first time since May 2017. However, runs fell again in December by 80 kb/d to 835 kb/d. In 2022, **Canadian** throughputs increased by only 30 kb/d y-o-y, remaining below pre-Covid levels. This year, runs are forecast to increase by another 40 kb/d, almost back to their pre-pandemic mark.



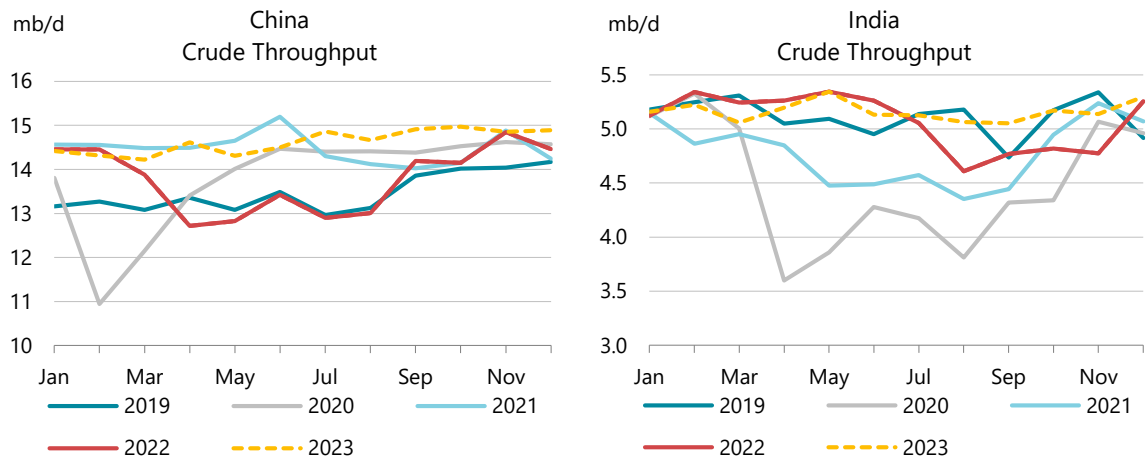


European runs increased 200 kb/d m-o-m in December, to 11.6 mb/d, up by 100 kb/d y-o-y. Throughputs in **France** recovered to normal seasonal levels. In **Türkiye**, runs fell to 660 kb/d, their lowest since March 2021, on refinery maintenance. Crude oil flows through the Druzhba pipeline slumped to 400 kb/d in January, only half of pre-war levels. Deliveries to **Germany** fully stopped, and only Kazakh crude is expected to flow starting from February. PKN Orlen, the operator of the two Polish refineries, has said it is reducing Russian crude oil purchases to under 60 kb/d, from 120 kb/d in recent months.

In OECD Asia, throughputs in December were up by a relatively modest 150 kb/d, as runs in **Japan** fell below year-earlier levels. Nevertheless, the average utilisation rate in Japan hit almost 86%, the highest since the start of the Covid pandemic, as permanent shutdowns have reduced the available capacity.

No new data were reported for **Chinese** throughputs since our previous *Report,* and the next update will only be available in our April issue. We expect January-February throughputs to remain relatively unchanged from December's 14.3 mb/d. Net exports of clean transport fuels (diesel, gasoline and jet fuel) in December hit 1.6 mb/d, the highest since February 2020. Net diesel exports, at 675 kb/d, were at a record high. Tanker tracking data show a slowdown in crude oil imports and product exports in January.

Meanwhile, Chinese authorities are tightening their control of the downstream oil sector, including refiners, marketers and storage operators. Tax avoidance, illicit fuel blending operations and potential breach of the terms and conditions of crude oil import quotas are to be investigated. Additionally, the Shandong government is conducting an audit of refiners on the subject of illegal crude oil trade. Crude oil purchased under import quotas is not allowed to be resold, but this has been a widespread practice, particularly in this province.

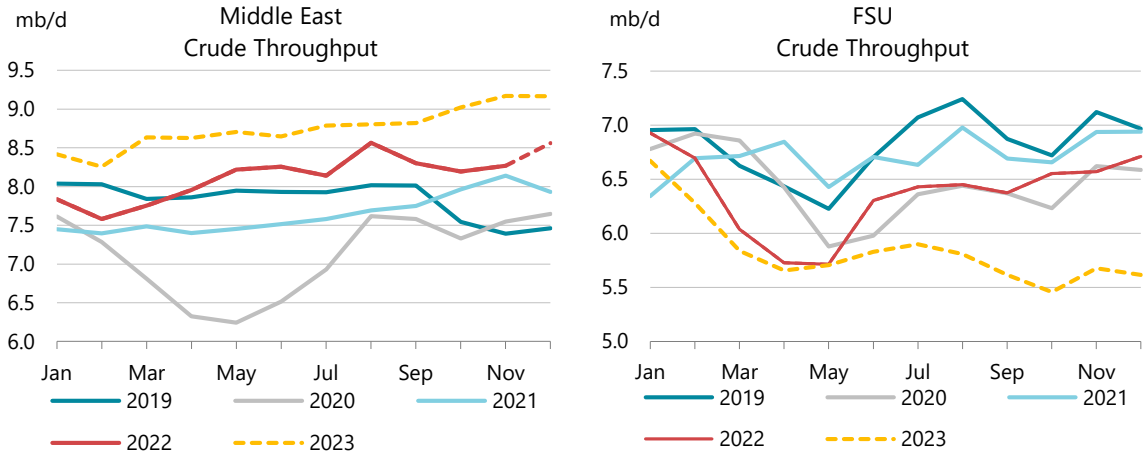


Indian refinery throughputs recovered in December after a period of particularly heavy maintenance that started in August. Runs were up 480 kb/d m-o-m to 5.2 mb/d as the 400 kb/d Nayara refinery returned from a full shutdown. For 2022 as a whole, Indian refining activity was up 290 kb/d but remained below the peak 2018 level. This year, the gap is expected to close as runs are forecast to add another 95 kb/d. Meanwhile, the government hiked export duties on diesel to almost $12/bbl, amounting to a third of January average diesel cracks in Singapore. The government also allocated $610 million to increase strategic petroleum reserves. This could cover purchases of about 10 mb of Russian crude oil, taking into account recent levels of reported discounts and the associated freight rates, or around 7 mb of non-sanctioned crude oil.

In **Thailand** and **Chinese Taipei**, throughputs in November fell to their lowest levels in two and three years, respectively, due to refinery maintenance. ExxonMobil announced the sale of its Thailand branch, which owns the 175 kb/d Sriracha refinery and a retail network, to Bangchak, the operator of the 120 kb/d Bangkok refinery.

In the Middle East, November estimates were up m-o-m as intake in **Bahrain** recovered. **Iraqi** refining activity fell sharply m-o-m to 615 kb/d, and the start-up of the 140 kb/d Karbala refinery is reportedly pushed back to the second half of the year from planned March launch. **Saudi Arabia**'s

400 kb/d Jazan refinery may finally ramp up to full capacity this year as the operator is finalising the status of the plant's hydrogen and power complex.



Russian throughputs were unchanged m-o-m in January, at 5.7 mb/d, down 170 kb/d y-o-y. From February onwards, the EU ban on product imports and the lack of sufficient clean tanker capacity for trading outside the price cap mechanisms may drive cuts in refining activity. We forecast a cumulative 740 kb/d drop in February and March, with runs stabilising afterwards between 4.6 mb/d and 4.9 mb/d. Overall, 2023 average throughputs are expected to fall 550 kb/d y-o-y, after a 175 kb/d fall in 2022.

A possible floor for Russian refining activity is the need to supply the domestic gasoline market, where demand is expected to remain flat y-o-y. However, we think this constraint is manageable as Russia is a net gasoline exporter and has room for diverting naphtha molecules to the gasoline pool. In 2022, gasoline yields averaged at just 18%, up 1 percentage point from 2021, compared to 11% for naphtha yields (down 1 percentage point y-o-y). In 2022 Russia exported some 10% of its gasoline production and 75% of its naphtha output. Almost half of the diesel and 75% of fuel oil output are also usually exported. Therefore, these outflows are likely to be the main driver of refining activity, rather than domestic factors. The price cap for Russian exports was set at $100/bbl for high-value products such as diesel and gasoline and $45/bbl for lower-value products such as fuel oil and naphtha. Implied cracks based on the crude price cap ($60/bbl) are largely in line with recent values of Northwest Europe cracks for diesel and fuel oil but stronger for gasoline and weaker for naphtha.

Russian oil exports approach all-time high ahead of EU oil product embargo

Russian oil exports in January rose by nearly 300 kb/d, to 8.2 mb/d, near the all-time high of February 2020, as crude oil loadings rebounded from December's low. Product exports held largely steady at around 3.1 mb/d ahead of the EU embargo on Russian products, which came into effect in early February. Estimated export revenues inched up by $0.2 bn to $13 bn, but were 36% lower y-o-y.

Exports to the EU fell to 1.3 mb/d, compared with pre-war levels of 3.9 mb/d. Crude shipments slipped to 0.6 mb/d as seaborne volumes dried up with the exception of those destined for Bulgaria, while pipeline flows dropped to 400 kb/d as Germany voluntarily suspended offtake through the Druzhba. Crude shipments to China rose by 300 kb/d m-o-m to 2.1 mb/d, the highest on record. Exports to Türkiye rebounded from December's low of 40 kb/d to 180 kb/d – still significantly lower than the ~350 kb/d

shipped over the August through October period. While loadings to other destinations were stable overall, new flows to countries such as Ghana (20 kb/d) and Indonesia (25 kb/d) emerged.

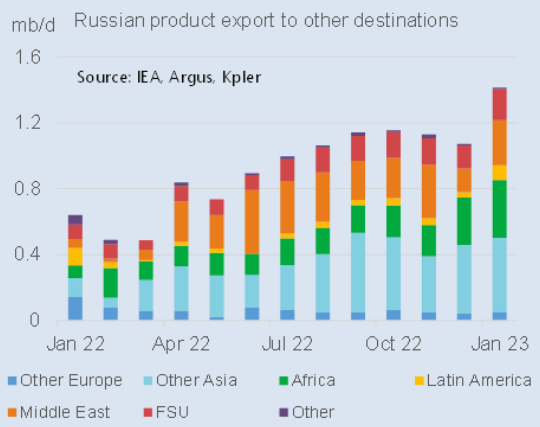
Russian Oil Exports (mb/d)

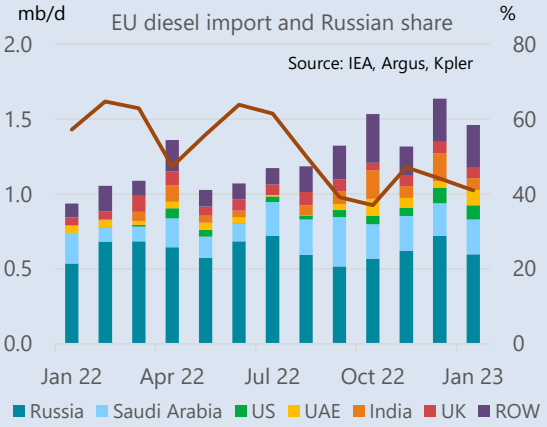
	2021 avg	2022 avg	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
EU crude oil	2.1	1.8	1.6	1.9	1.5	1.5	1.0	1.0	0.6
EU products	1.2	1.2	1.1	1.0	1.0	1.0	1.3	1.2	0.7
UK+US	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Türkiye	0.2	0.4	0.4	0.6	0.6	0.6	0.5	0.4	0.5
China	1.6	1.9	1.8	2.0	2.0	2.0	2.0	1.9	2.3
India	0.1	0.9	1.2	1.0	1.1	1.2	1.5	1.7	1.6
OECD Asia	0.5	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0
Other	1.1	1.2	1.3	1.2	1.4	1.5	1.5	1.4	1.8
Unknow n	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.7
Total exports	**7.4**	**7.8**	**7.3**	**7.8**	**7.6**	**7.9**	**8.0**	**7.9**	**8.2**
Memo									
Pipeline to EU	0.3	0.8	0.8	0.8	0.8	0.7	0.6	0.8	0.4
Pipeline to China	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Crude Oil	*4.6*	*5.0*	4.8	5.1	4.9	5.1	4.9	*4.8*	*5.1*
Oil Products	*2.8*	*2.8*	2.5	2.7	2.8	2.9	3.1	*3.1*	*3.1*
Estimated export revenues, $bn	*14.6*	*18.1*	*18.7*	*17.8*	*14.9*	*16.8*	*15.6*	*12.8*	*13.0*

Sources: IEA, *Argus, Kpler* .

Note: Recent months volumes and revenues are estimates and subject to change.

Product exports were largely unchanged from the previous month, though loadings to the EU dropped from 1.2 mb/d to 740 kb/d. The biggest decline came from diesel, which fell from 750 kb/d in December to 470 kb/d. Product exports to Türkiye and India were held steady at around 330 kb/d and 210 kb/d, respectively, but were 210 kb/d and 90 kb/d higher compared with a year ago. Product flows to other destinations rose by 400 kb/d to 1.4 mb/d, with the main increase to the Middle East and Latin America.



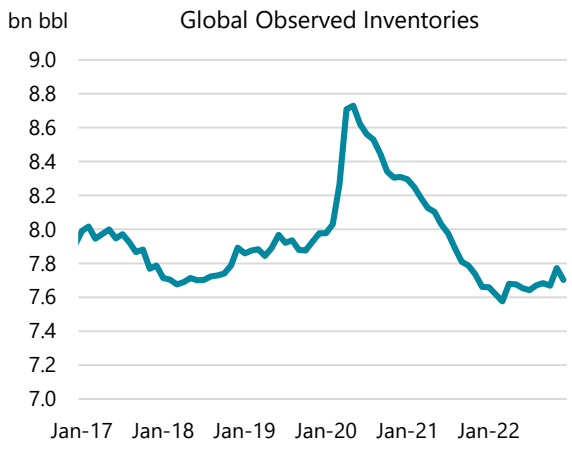


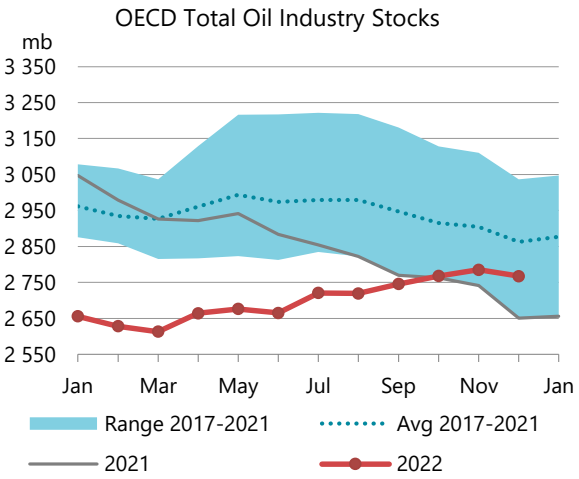
Further reallocation of product trade flows is expected in the coming months, as the EU embargo and G7 price cap take full effect. EU countries have increased diesel imports from non-Russian sources y-o-y, most notably the US (+90 kb/d), China (+70 kb/d) and India (+70 kb/d). While EU arrivals of Russian diesel to the EU were still substantial in January, their share in total EU imports fell to 41%. From this month onwards, however, another 740 kb/d of Russian products previously going to Europe will have to be reshuffled unless refinery output is adjusted to cut overall export levels.

Stocks

Overview

Global observed inventories tumbled by 69.8 mb in December, partly reversing a build of more than 100 mb in the previous month. OECD total stocks fell by 34.4 mb, while non-OECD inventories decreased by 3 mb. Oil on water plunged by 32.4 mb. Observed oil stocks at the end of 2022 were 40.5 mb higher than a year ago and 126 mb above the low reached in March 2022.





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

OECD industry stocks fell by 18.1 mb in December, with declines in all three regions. It was the largest drop since IEA collective actions started in March 2022, even though a further 16.3 mb of government stocks were released. Total OECD inventories, including government stocks, fell to 3 977 mb, their lowest since April 2004.

Industry inventories of crude oil, NGL and feedstock rose counter-seasonally by 13.4 mb, thanks to the Strategic Petroleum Reserve (SPR) release and weak refinery intake (-260 kb/d y-o-y). Oil product stocks plunged by a hefty 31.5 mb, far outpacing the normal seasonal draw. Other products fell by 26.5 mb in line with the seasonal draw, but gasoline and middle distillates led the difference from the five-year average. Gasoline stocks rose by a marginal 1.7 mb in the restocking season, while middle distillates fell counter-seasonally by 6.4 mb. In OECD Europe, middle distillates stocks increased by 7.1 mb, mainly in diesel, narrowing the difference to the five-year average to 26.6 mb. OECD commercial total oil stocks stood at 2 767 mb and covered 60 days of forward demand, 0.2 days less than a month earlier and 3.9 days below the historical average.

Preliminary data for the US, Europe and Japan show a significant increase of 27.9 mb in January. Crude oil, NGL and feedstock inventories climbed 14.2 mb, driven by the US (+27.8 mb). Oil product stocks built by 13.7 mb, as an increase in Europe (+17 mb) was partly offset by declines in the US (-1.5 mb) and Japan (-1.8 mb). The build was led by gasoline (+19.7 mb) due to the seasonal restocking in the US (+14.3 mb), followed by middle distillate (+11.3). European middle distillates stocks rose by 10.8 mb ahead of the petroleum product import ban from Russia. Fuel oil inventories were up by 2.8 mb, while other products declined by 20.2 mb, in line with the seasonal pattern.

Preliminary OECD Industry Stock Change in December 2022 and Fourth Quarter 2022												
	December 2022 (preliminary)								Fourth Quarter 2022			
	(million barrels)				(million barrels per day)				(million barrels per day)			
	Am	Europe	As.Ocean	Total	Am	Europe	As.Ocean	Total	Am	Europe	As.Ocean	Total
Crude Oil	**11.4**	**-6.2**	**6.4**	**11.5**	**0.4**	**-0.2**	**0.2**	**0.4**	**0.1**	**0.0**	**0.1**	**0.1**
Gasoline	5.5	-2.4	-1.4	1.7	0.2	-0.1	0.0	0.1	0.2	0.0	0.0	0.2
Middle Distillates	-3.1	7.1	-10.3	-6.4	-0.1	0.2	-0.3	-0.2	0.1	0.1	0.0	0.2
Residual Fuel Oil	0.8	1.0	-2.0	-0.2	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.1
Other Products	-22.2	-0.3	-4.0	-26.5	-0.7	0.0	-0.1	-0.9	-0.3	-0.1	0.0	-0.4
Total Products	**-19.0**	**5.3**	**-17.8**	**-31.5**	**-0.6**	**0.2**	**-0.6**	**-1.0**	**0.0**	**0.1**	**0.0**	**0.1**
Other Oils[1]	2.7	-1.6	0.7	1.9	0.1	-0.1	0.0	0.1	0.1	0.0	0.0	0.1
Total Oil	**-4.8**	**-2.5**	**-10.7**	**-18.1**	**-0.2**	**-0.1**	**-0.3**	**-0.6**	**0.1**	**0.1**	**0.0**	**0.2**

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

OECD industry stocks have been revised down by 10 mb for October and up by 6.5 mb for November since last month's *Report* following the receipt of more complete data. The largest upward adjustment in November came from crude oil (+6.7 mb), followed by NGL and feedstocks (+2.4 mb). These were up in Japan (+8.1 mb) and OECD Europe (+5 mb) but lower in OECD Americas (-4 mb). Oil products were revised down by 2.6 mb in total, led by middle distillates (-2.5 mb) and motor gasoline (-0.9 mb).

OECD Industry Stock Revisions versus January 2023 Oil Market Report								
(million barrels)								
	Americas		**Europe**		**Asia Oceania**		**OECD**	
	Oct-22	Nov-22	Oct-22	Nov-22	Oct-22	Nov-22	Oct-22	Nov-22
Crude Oil	**-8.9**	**-5.5**	**-0.3**	**4.1**	**0.0**	**8.1**	**-9.1**	**6.7**
Gasoline	0.0	-2.1	0.0	1.6	0.0	-0.4	0.0	-0.9
Middle Distillates	0.0	-1.9	-0.9	-0.6	0.0	0.0	-0.9	-2.5
Residual Fuel Oil	0.0	0.7	0.0	0.2	0.0	0.0	0.0	1.0
Other Products	0.0	1.1	0.0	-1.0	0.0	-0.2	0.0	-0.1
Total Products	**0.0**	**-2.2**	**-0.9**	**0.3**	**0.0**	**-0.6**	**-0.9**	**-2.6**
Other Oils[1]	0.0	1.5	0.0	0.8	0.0	0.0	0.0	2.4
Total Oil	**-8.9**	**-6.2**	**-1.2**	**5.3**	**0.0**	**7.5**	**-10.0**	**6.5**

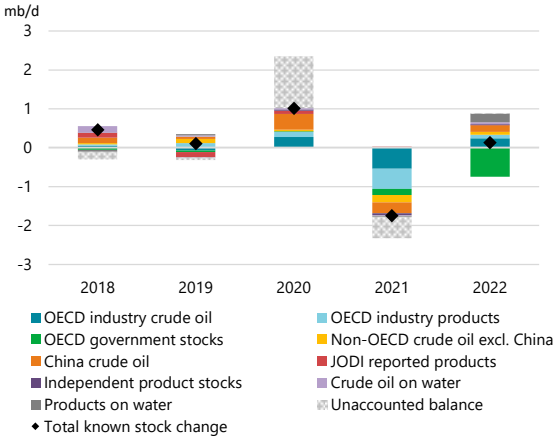
[1] Other oils includes NGLs, feedstocks and other hydrocarbons.

Implied balance

While 2022 started off with steep stock draws, our global oil balance indicates an average stock build of 110 kb/d for the year. Observed inventory changes (+130 kb/d) are in line with our estimates. OECD government stocks drew by 750 kb/d on average, supporting builds in OECD industry inventories (+330 kb/d) and non-OECD stocks (+270 kb/d). For 4Q22, the supply-demand balance was +620 kb/d compared with a marginal observed stock change of +20 kb/d. The mismatch might come from stock changes in non-OECD countries with poor coverage, especially for product inventories. In the quarter, OECD industry stocks rose by 230 kb/d, with builds mainly in crude oil. Government reserves fell by 390 kb/d primarily due to releases from

Stock changes by key components

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



the US. Non-OECD crude stocks rose by 370 kb/d as China built by 350 kb/d. Oil on water showed huge monthly swings but built by only 60 kb/d over the three-month period.

IEA Global oil balance (implied stock change) (mb/d)

	2019	2020	2021	1Q22	2Q22	3Q22	Oct-22	Nov-22	Dec-22	4Q22	2022	Jan-23
Global oil balance	**0.03**	**2.35**	**-2.29**	**-0.70**	**0.10**	**0.42**	**2.09**	**0.16**	**-0.40**	**0.62**	**0.11**	**1.78**
Observed stock changes												
OECD industry stocks	**0.05**	**0.41**	**-1.06**	-0.36	0.57	0.87	0.71	0.58	-0.58	0.23	**0.33**	0.90
OECD government stocks	**-0.04**	**0.02**	**-0.16**	-0.46	-1.08	-1.06	-0.62	0.00	-0.53	-0.39	**-0.75**	-0.02
Non-OECD crude stocks*	**0.17**	**0.44**	**-0.47**	0.40	0.80	-0.56	-0.19	1.40	-0.08	0.37	**0.25**	0.41
Selected non-OECD product stocks**	**-0.14**	**0.12**	**-0.03**	0.12	0.07	0.16	-0.34	-0.40	-0.01	-0.25	**0.02**	0.04
Oil on water	**0.07**	**0.02**	**-0.04**	-0.50	0.49	1.02	-0.16	1.43	-1.05	0.06	**0.27**	
Total observed stock changes	**0.10**	**1.01**	**-1.75**	-0.81	0.85	0.42	-0.60	3.01	-2.25	0.02	**0.13**	
Unaccounted for balance	**-0.06**	**1.34**	**-0.54**	0.10	-0.75	-0.01	2.69	-2.85	1.85	0.60	**-0.01**	

*Crude stock change data from *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 November 2022, plus Fujairah and Singapore inventories.

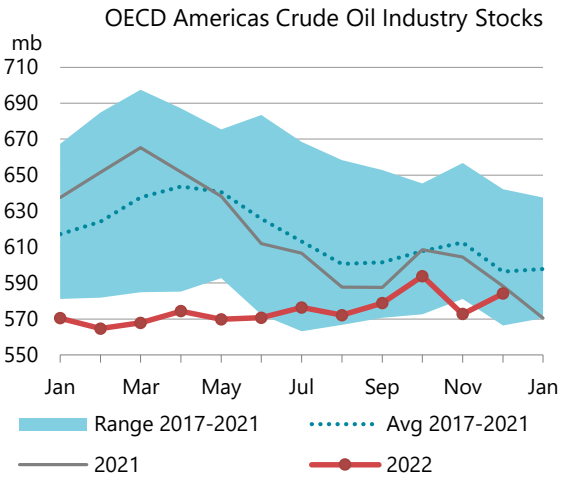
Sources: IEA, EIA, PAJ, *Euroilstock* , *Kayrros* , *JODI*, *Kpler* , *FEDCom/S&P Global Platts and Enterprise Singapore* .

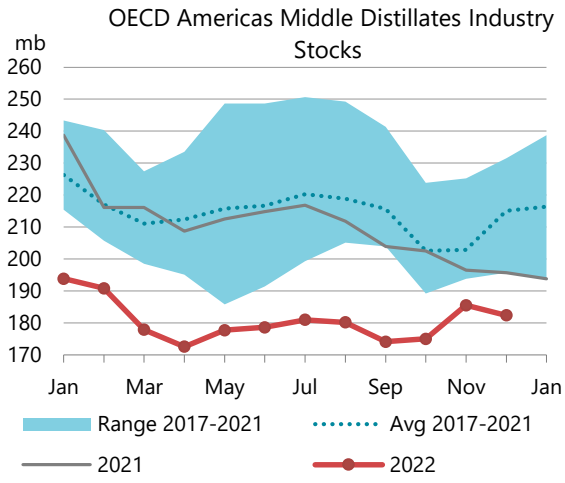
Recent OECD industry stock changes

OECD Americas

Commercial stocks in OECD Americas fell by 4.8 mb in December, versus a typical 19.1 mb decline. At 1 479 mb, they remained 49.9 mb below the five-year average but showed y-o-y growth for the first time in a year. Crude oil stocks posted counter-seasonal builds of 11.4 mb while NGL and feedstock inventories rose by 2.7 mb. Low US refinery runs due to winter storm Elliot at end-December and the US SPR release (15.1 mb) contributed to the increases. OECD America's refinery intake was 210 kb/d lower than a year before.

Due to sluggish US refinery activity, product stocks lost 19 mb, compared with a typical 3 mb build. Gasoline stocks increased (+5.5 mb) but less than the normal build, while middle distillate stocks drew counter-seasonally (-3.1 mb versus +12.2 mb). Fuel oil inventories edged up by 0.8 mb. Other product inventories declined by a hefty 22.2 mb, in line with the seasonal norm.





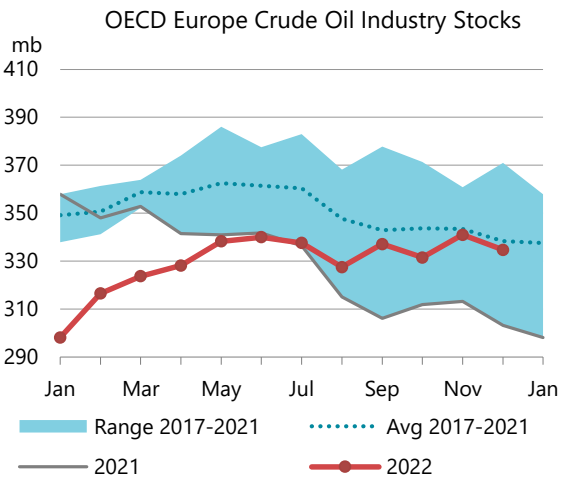
Weekly data from the US Energy Information Administration (EIA) show a significant increase in total oil stocks of 26.4 mb in January. Crude oil inventories rose by 28.4 mb as refineries recovered slowly from the Arctic blast, resulting in a 510 kb/d drop in throughputs compared with a year ago. However, product stocks fell by 1.5 mb, when they typically decline by 9.1 mb, due to weak demand. Gasoline,

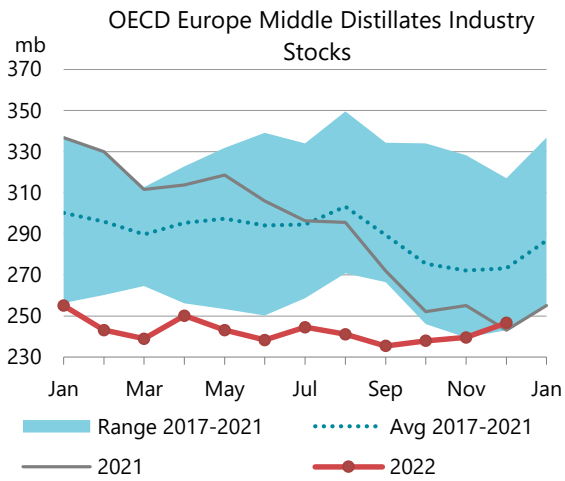
middle distillates and fuel oil inventories rose by 14.3 mb, 2.9 mb and 2.4 mb, respectively, largely in line with their five-year averages. A 21.1 mb decline in other product stocks was smaller than the seasonal trend (-27.5 mb).

OECD Europe

Industry stocks in OECD Europe for December were down by 2.5 mb. At 925.6 mb, these were 25.5 mb below the five-year average. Crude oil stocks drew by 6.2 mb, in line with the seasonal trends. Italy led the decline with 3.7 mb of draws due to low crude imports, especially from Russia, according to *Kpler*. NGL and feedstock inventories fell by 1.6 mb.

Product stocks rose by 5.3 mb. Gasoline stocks decreased by 2.4 mb to their lowest since September 2021. The decline was led by France (-2.1 mb), where gasoline inventories dropped to an eight-year low. Middle distillate inventories built by a large 7.1 mb to the highest since April 2022, with notable increases in Germany (+2.8 mb) and the Netherlands (+2.3 mb). Regional middle distillates stocks were still 26.6 mb lower than the five-year average, ahead of the embargo on Russian product imports coming into effect in February 2023. Fuel oil stocks rose by 1 mb, while other products inched down by 0.3 mb. European refinery intake was estimated at 200 kb/d higher m-o-m and up 100 kb/d on a year ago, contributing to the builds in product stocks and lower crude holdings.



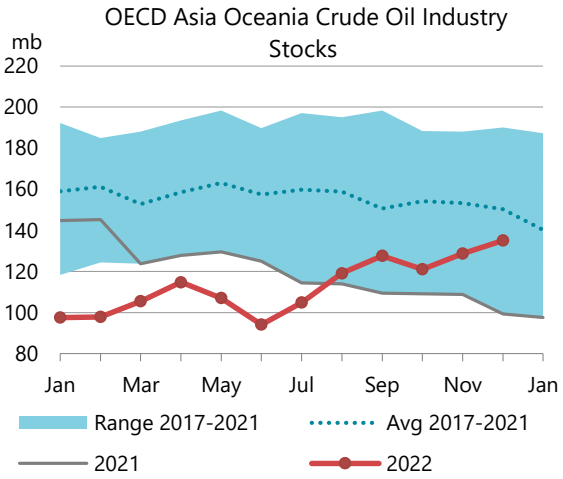


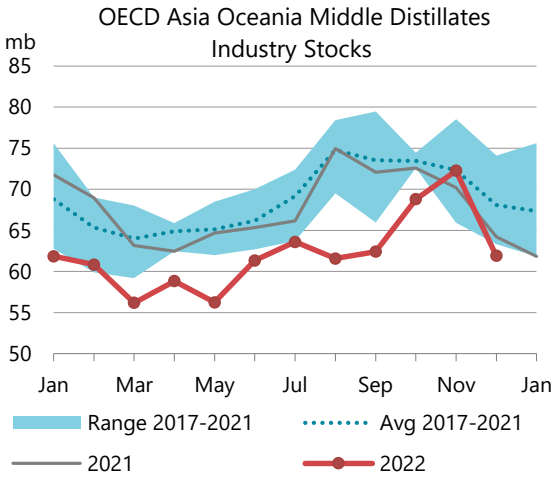
Preliminary data from *Euroilstock* for 16 countries in Europe show that total oil stocks built by 8.5 mb in January. Crude oil stocks fell by 8.5 mb, led by France (-3.3 mb) and the Netherlands (-2.2 mb). Total product inventories rose by 17 mb. The most significant increase came from middle distillates (+10.8 mb), notably in France (+6 mb). Gasoline stocks and fuel stocks were also up, by 4.7 mb and 1.3 mb, respectively. Naphtha inventories edged up by 0.3 mb.

OECD Asia Oceania

Industry stocks in OECD Asia Oceania declined by 10.7 mb in December, in line with the seasonal norm (-14.3 mb). Total inventories fell to 362.5 mb, 20.2 mb below the five-year average. Crude stocks built by 6.4 mb, led by Japan (+4.2 mb), to their highest level since February 2021. NGL and feedstock inventories edged up by 0.7 mb. A decline of 150 kb/d y-o-y in regional refinery runs partially explain the movement.

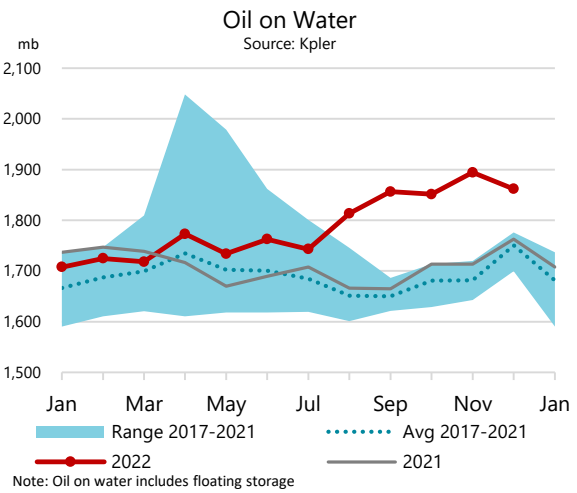
A 17.8 mb stock draw in petroleum products was significantly larger than the seasonal trend (-9.1 mb). Middle distillate inventories posted the biggest decline (-10.3 mb). After having recovered to their five-year average in November, regional middle distillates stocks fell below the range again in December. Gasoline stocks decreased by 1.4 mb. Fuel oil inventories also fell by 2 mb, mainly in Korea (-2.1 mb). Other product stocks were down by 4 mb, in line with the five-year average.

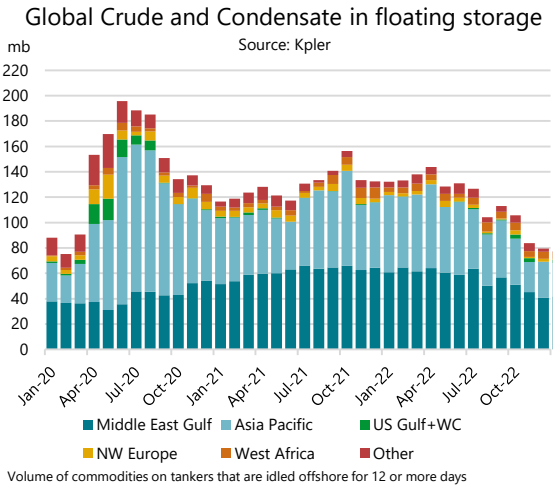




Preliminary data for January from the *Petroleum Association of Japan* show a larger-than-normal draw of 7 mb. Crude stocks fell by 5.2 mb as refinery activity rose above year-earlier levels. Product inventories fell by 1.8 mb, largely in line with their seasonal trend. The largest drop came from middle distillates (-2.3 mb), mostly kerosene (-2.2 mb), followed by fuel oils (-0.9 mb), while gasoline stocks rose by 0.7 mb. Other product inventories inched up by 0.6 mb. Higher demand for heating fuels due to the cold snap at the end of the month was mostly offset by increased imports and refinery output.

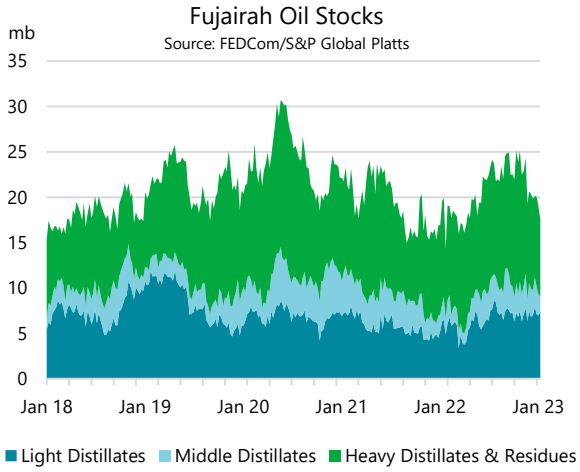
Other stock developments

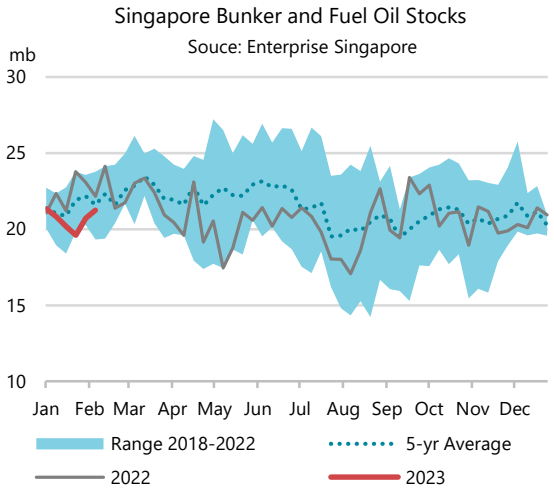




Oil on water, including floating storage, plunged by 32.4 mb in December to 1 862 mb, according to tanker tracking data from *Kpler*. Crude oil fell by a hefty 52 mb as more oils arrived at destinations than were exported in the month, although global exports rose m-o-m and Russian volumes increased due to longer voyages to buyers. Product volumes rose by 19.5 mb, mainly thanks to diesel (+6.8 mb) as European countries tried to fill storage tanks before the Russian oil product embargo came into effect.

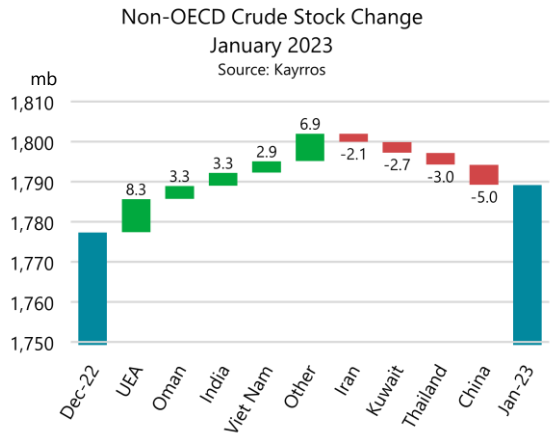
Crude and condensate held in floating storage for more than 12 days fell for a third consecutive month in December, by 4.4 mb to 79.5 mb. Iranian oil held in idled vessels declined by a further 3.2 mb, to 40.3 mb. Crude oil held off the US coast (-3.2 mb) all came onshore, while volumes increased slightly in Asia as some vessels loading oils from Sakhalin, Brazil and Colombia idled offshore. Oil products held in offshore storage also declined, by 5.8 mb to 59 mb. Half the drop came from West Africa (-3.6 mb).

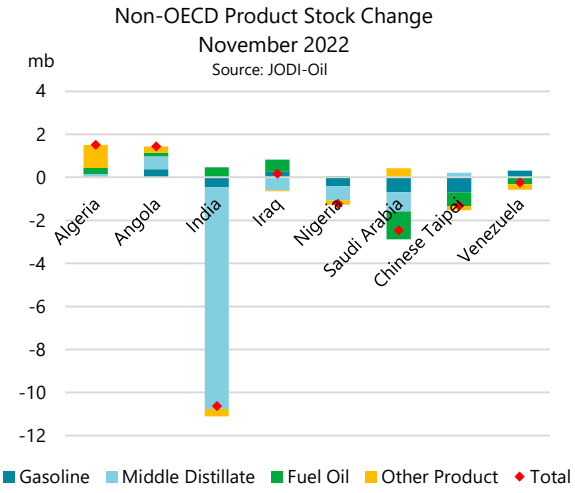




In Fujairah, an independent oil trading and storage hub, product inventories were 1.6 mb lower than a month earlier in January, according to *FEDCom and S&P Global Platts* data. Inventories were at a nine-month low and 2 mb less than the five-year average. Middle distillates fell by 0.9 mb to 2.2 mb. Residual fuels also decreased, by 0.8 mb to their lowest level since October 2021. Light distillates were unchanged from the previous month.

Independent product stocks in Singapore increased by 2.5 mb to 46.6 mb in January, the highest in a year, according to data from *Enterprise Singapore*. Light distillates led the build, rising 2 mb. Middle distillates increased by 1.1 mb, but remained 1.9 mb below their five-year average. Bunker and fuel oils edged down by 0.6 mb as fuel oil exports reached a three-month-high, according to *Kpler*.





Non-OECD observed crude inventories in floating-roof storage tanks rose by 11.8 mb in January, according to satellite data from *Kayrros*. The largest increase came from the UAE (+8.3 mb), but stocks at Zirku, Das and Jebel Dhanna terminals might be partially cleared after rapid exports at the

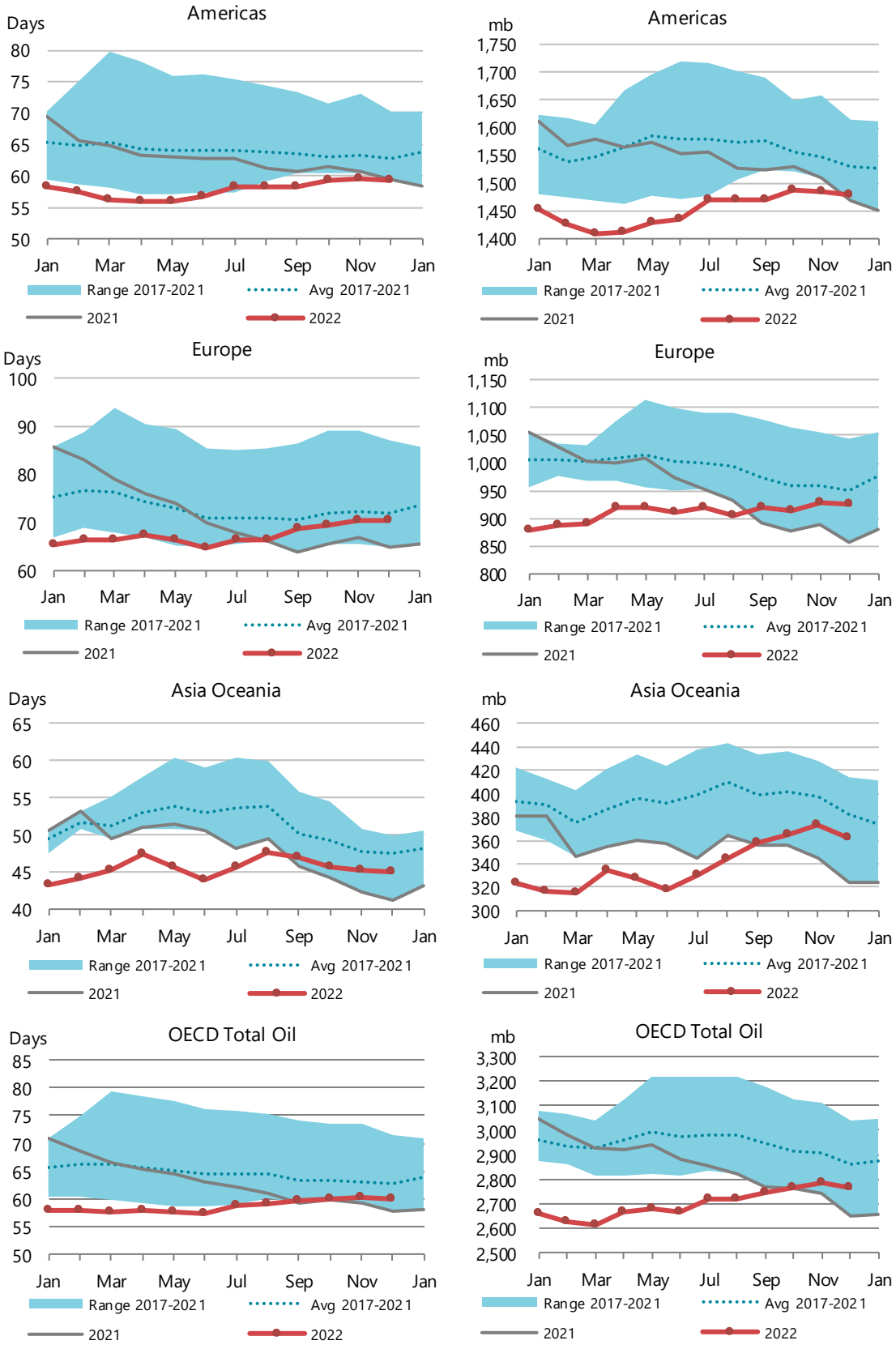
beginning of February. Oman's OQ announced they received the first shipment at Ras Markaz Crude Oil Storage and Export Terminal, which is connected to the new Duqm refinery. Data from *Kpler* show 2 mb of crude oil was delivered from Kuwait to the terminal. Indian crude inventories rose by 3.3 mb as imports from Russia and the US increased. In China, crude stocks fell by 5 mb, as imports slumped to their lowest since September 2022, according to *Kpler*.

In November, oil product stocks plunged by 13.9 mb in 12 non-OECD economies reporting to the *JODI-Oil* database, led by a large decline in middle distillate stocks in India (-10.3 mb). Indian diesel demand rose by 250 kb/d m-o-m, while diesel production fell by 60 kb/d. Product inventories fell in Saudi Arabia (-2.5 mb), as refinery outputs edged down for a third consecutive month. Products also decreased in Chinese Taipei (-1.3 mb) as refinery maintenance curbed product output. The declines were partially offset by builds in Algeria (+1.5 mb) and Angola (+1.4 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

North Sea Dated rose by $2.50/bbl m-o-m to $82.86/bbl in January, its first monthly increase since October, as the risk-averse climate of recent months subsided on optimism that China's reopening would bolster global growth. Adding to the more upbeat mood was a distinct improvement in Europe's economic outlook, buttressed by the spectacular slump in natural gas prices. A lower US dollar provided an additional tailwind for crude prices.

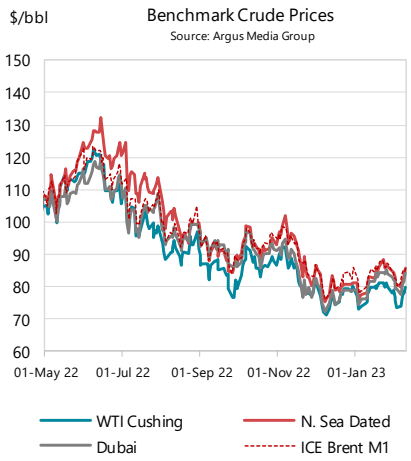
Prices oscillated over the month, trading as low as $75/bbl before climbing above $88/bbl. Towards month-end this recovery faded, as Russian exports rebounded and US crude inventories built strongly, according to weekly EIA data. The approach of a heavy refinery maintenance season added to the prospect of a well-supplied physical crude oil market.

Forward curves and physical differentials were largely stable. The most pronounced moves were in the US, where refinery outages propelled gasoline margins higher while at the same time weighing on WTI prices.

Crude Prices and Differentials ($/bbl)

	Month			Week of	Last	Chng Jan-23	
	Jan 2022	Dec 2022	Jan 2023	30 Jan	10 Feb	m-o-m	y-o-y
Crude Futures (M1)							
NYMEX WTI	82.98	76.52	78.16	76.49	79.72	1.65	-4.82
ICE Brent	85.57	81.34	83.91	82.87	86.39	2.57	-1.67
Crude Marker Grades							
North Sea Dated	87.10	80.36	82.86	82.59	85.60	2.50	-4.24
WTI (Cushing)	83.13	76.50	78.11	76.49	79.72	1.61	-5.01
Dubai (London close)	84.22	77.08	80.67	81.02	84.28	3.60	-3.55
Differential to North Sea Dated							
WTI (Cushing)	-3.98	-3.86	-4.75	-6.10	-5.88	-0.89	-0.78
Dubai (London close)	-2.88	-3.28	-2.19	-1.57	-1.32	1.09	0.69
Differential to ICE Brent							
North Sea Dated	1.53	-0.98	-1.04	-0.28	-0.79	-0.06	-2.57
NYMEX WTI	-2.59	-4.82	-5.74	-6.38	-6.67	-0.92	-3.15

Sources: Argus Media group, ICE, NYMEX (NYMEX WTI = NYMEX Light Sweet Crude)



Oil's more positive demand outlook was led by China. The country's abrupt reversal of almost all public-health restrictions in December boosted hopes for a consumer-driven recovery in economic activity as pent-up demand is set to unleash. While this rebound is not expected to materialise fully until 2Q23 - after the current Omicron wave sweeping the country has abated - oil markets took heart from real-time mobility data that pointed to upturns in domestic air travel and commuter traffic.

Concurrently, macro-economic data remained gloomy, weighed down by the aftermath of the lockdowns, weaker exports as trade-partner activity slows, and the deflating property bubble. The Caixin manufacturing PMI stayed in contraction territory for the sixth straight month. Additionally, 2022 GDP growth came in at 3%, the second-lowest in almost 50 years and attesting to the severity of zero-Covid for consumers and businesses alike. Consensus estimates are for a pick-up in 2023 GDP growth to around 5%, aided by monetary easing and fiscal stimulus targeting infrastructure investment.

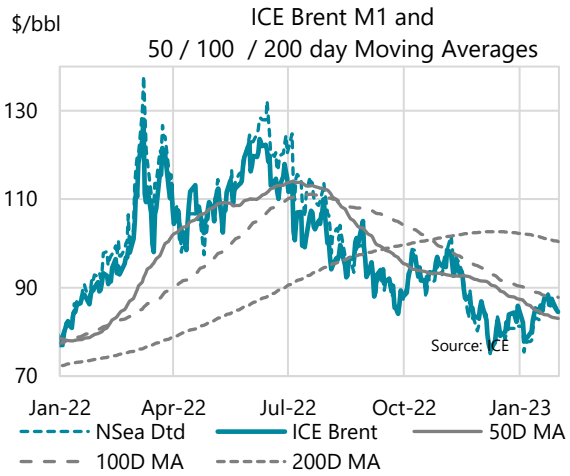
Europe's outlook brightened in tandem with China's, buoyed by the prospect of increased global demand and trade. At least as important was the ongoing collapse of natural gas prices, as the worst-case scenario of a winter energy crisis that would undoubtedly have tilted the region into recession has for now been avoided. Higher PMIs echoed the more confident mood. Falling energy prices also contributed to lower inflation readings in the eurozone and other major economies. Combined with an easing of supply chain bottlenecks, this lifted hopes that the European Central Bank may be approaching the end of its hiking cycle.

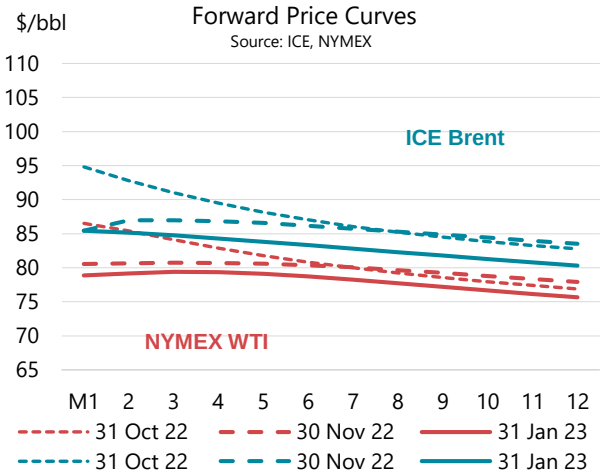
In a marked divergence from last year, Europe's and China's brighter economic prospects were counterbalanced by a more challenging US outlook. Recent data readings indicated slowdowns in wage growth, household spending and inflation. While this suggests that the Federal Reserve's efforts to cool demand may be bearing fruit, the announcement on 3 February of over 500 000 new jobs (nonfarm payrolls) reinforced the message that more needed to be done, making a dip into a mid-year recession a distinct possibility. The loss of economic momentum and the slower pace of rate hikes has taken its toll on the greenback - the US Dollar Index fell to its lowest level since June, more than ten percent below its September peak.

Futures markets

Compared to the start of the year, front-month WTI and Brent futures ended January about two percent lower. Initially, China-driven demand optimism propelled oil prices higher, but this subsequently reversed due to resilient Russian exports and US inventory builds. Oil's performance contrasted with other high-beta commodities geared to Chinese demand, such as copper and iron ore, which gained about 10% in January.

Oil's short-lived price recovery was echoed by an improving technical price picture. The front-month Brent future took out its 50-day moving average mid-month but was unable to conquer the 100-day resistance level. Prices ended January $1/bbl above the 50-day measure and $3/bbl and $16/bbl below the 100- and 200-day levels, respectively.



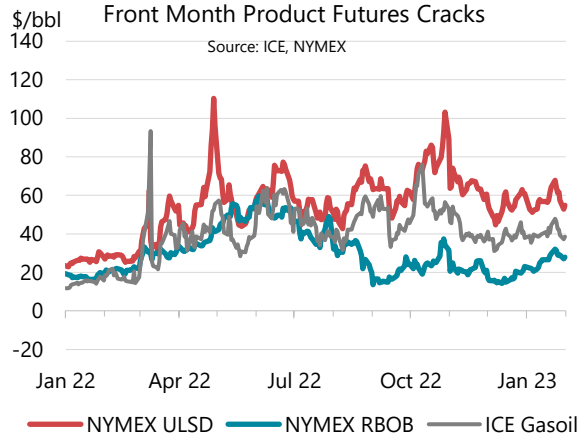


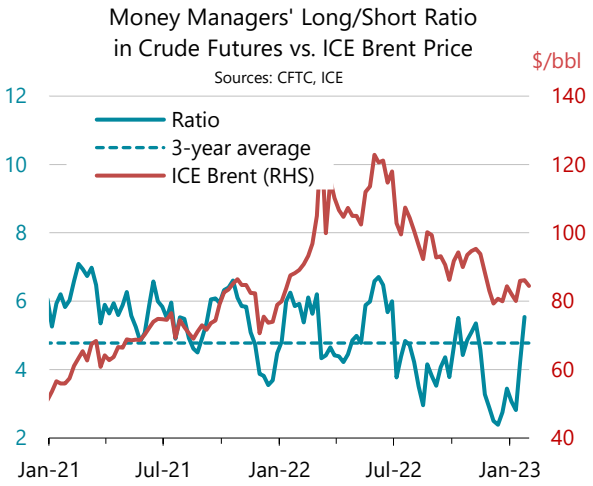
Product margins were supported by gasoline, as the NYMEX RBOB front-month cracks against WTI firmed by $9/bbl to $26/bbl m-o-m. US refinery runs were slow to recover from the Christmas cold snap, which caused utilisation to fall by more than ten points during the last week of 2022, according to weekly EIA data. Upcoming maintenance is likely to strain product balances further, with US motor gasoline inventories near ten-year seasonally adjusted lows.

Besides gasoline strength, relative weakness in WTI also contributed to the firmness in cracks, as US crude stocks built amid planned and unplanned refinery outages. Commercial oil inventories climbed by 32 mb to 453 mb, while Cushing inventories rose by a bumper 13 mb to 38 mb.

Easing domestic balances also pressured the Atlantic arbitrage, widening the WTI-Brent discount by about one dollar to -$6/bbl. The different shapes of their respective forward curves (WTI trades in a contango until May, while the entire Brent curve is in backwardation) also weighed on the spread, as the WTI contango incentivises storage as an alternative to exports.

In this regard, WTI and Brent forward curves were little changed during January, with forward prices shifting upward more or less in parallel with front-month prices.





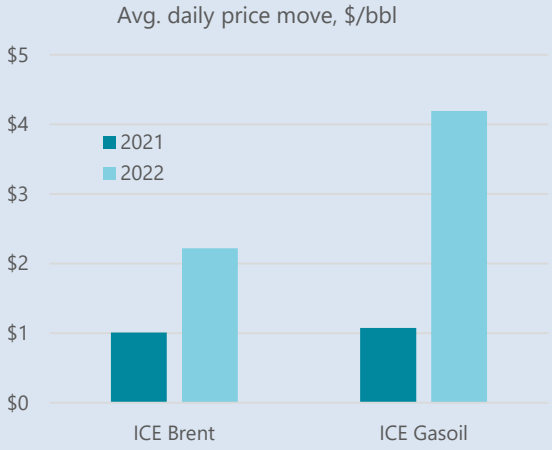
Investor positioning in oil futures increased sharply as speculative flows returned to the oil market, buoyed by the overall risk-on sentiment. The ratio of long to short crude futures holdings by money managers rallied by almost two points to 5.5, surpassing the 4.8 long term average. The increase was entirely due to Brent, where money manager net long holdings soared by 108 mb to 252 mb – their highest since the invasion, reinforcing the backwardation at the front-end of the Brent curve. Conversely, WTI's net longs were little changed. Combined net managed money holdings in the refined products futures also rose, by 40 mb to 153 mb. The increase was more or less evenly distributed across ICE Gasoil, NYMEX ULSD and NYMEX RBOB.

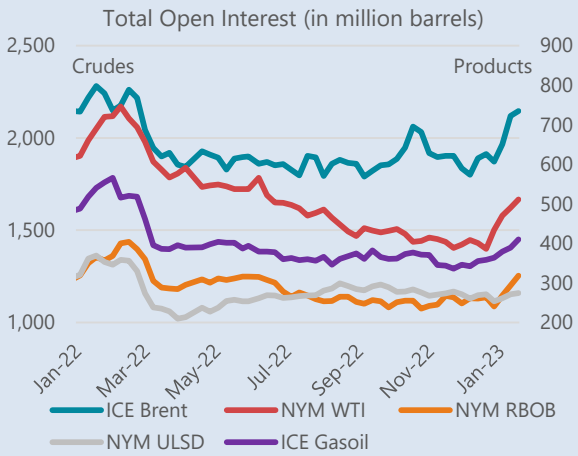
Exchange liquidity recovered in parallel, as total open interest in the five main ICE and NYMEX futures rose by about 15 percent during January to 4 800 mb. Volumes remain about 20% below February levels, with the exception of ICE Brent, where open interest has now almost recovered to its pre-invasion level.

ICE Brent resilient amid slump in exchange liquidity

Last year's Ukraine invasion brought unprecedented price turbulence to the global oil market. Volatility for crude effectively doubled during 2022: the front-month ICE Brent futures contract swung by $2.20/day on average during 2022, versus $1/bbl in 2021. The phenomenon was even more pronounced for refined products, particularly middle distillates, amplified by anxiety about tight European diesel balances. The average daily price moves for the ICE Gasoil futures contract almost quadrupled, to $4.20/bbl last year, against $1.10/bbl during 2021.

Exchange liquidity, or the ease with which a future can be traded without affecting its market price, has been a key casualty of the price turmoil. Exchanges were compelled to raise their margin[1] rates in response to the volatility spike that heightened risks for counterparty solvency. As this lifted the capital demands for holding open positions - exacerbated by higher interest rates - some market participants with limited financial backing had to curtail their trading volumes or cease trading altogether. As a result, liquidity indicators such as open interest and daily trading volumes on the ICE and NYMEX exchanges collapsed post-invasion. They were near their lowest in seven years in January, about 15-20% below pre-invasion levels on average. In this regard, there is considerable variation between the different oil contracts. Open interest in ICE Brent has almost regained its pre-invasion level, compared to declines of around 20% since February in NYMEX WTI, ULSD, RBOB and ICE Gasoil.

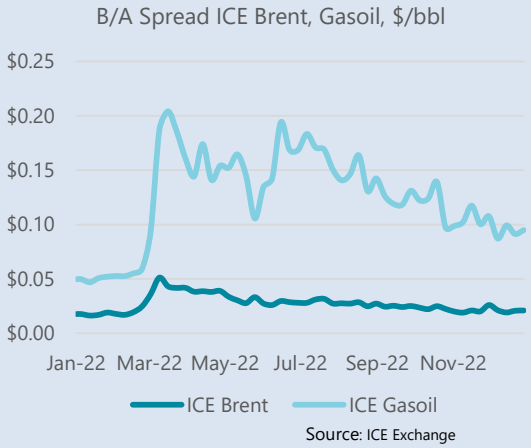




Exchange liquidity diminishes as transaction costs increase, but falling liquidity also contributes to higher volatility and thus increases costs. Markets then run the risk of entering a vicious circle where elevated expenses curtail trading volumes and liquidity even further, resulting in yet higher trading costs. That cycle may be extended as higher margin calls on exchanges weaken the financial balances of smaller operators that in turn force their backers to call for reduced credit exposure.

Indirectly, higher transaction costs may bring negative externalities to the wider economy, by impeding markets in their roles of providing transparent price benchmarks and of facilitating price risk transfer between parties (hedging).

The main component of trading costs is the bid-ask spread. This is the difference between the highest price that a buyer is prepared to pay (bid) and the lowest price a seller is willing to sell (ask) at any given moment. For example, if the Brent future is bid at $80.01/bbl and offered at $80.03/bbl, the bid-ask spread is $0.02/bbl. If a trader were to buy and then immediately sell a



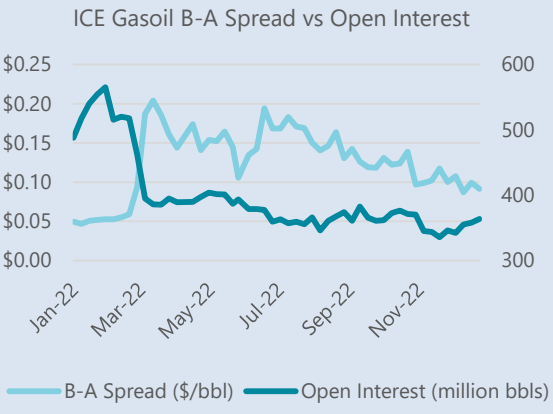
Source: ICE Exchange

[1] Centrally and non-centrally cleared markets collect collateral (cash and non-cash), or a margin, from participants to protect against the risk that market price changes might result in a counterparty default. There are two main types of margins: the initial margin (when taking a position) and the variation margin. Margins are collated by central clearing parties (exchanges) at least once daily basis.

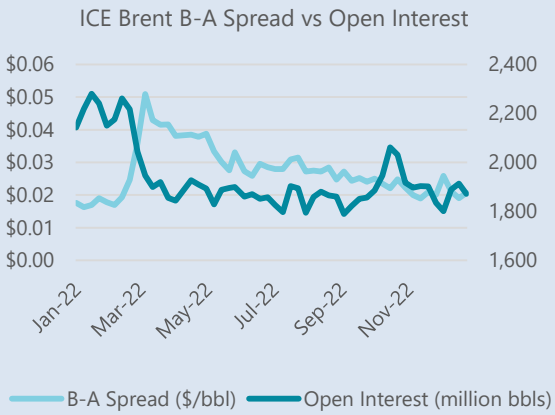
Brent futures contract, he would lose $20 (2 cents per barrel, with the futures contract size being 1,000 barrels).

As a rule, bid-ask spreads are closely related to both liquidity and volatility. A tight bid-ask spread is a feature of highly liquid, heavily traded markets where large orders can be easily absorbed without impacting pricing. Conversely, a wide bid-ask spread indicates a less liquid market, where the mere act of trading can move prices significantly.

In this regard, wider bid-ask spreads[2] accompanied last year's volatility spike and liquidity plunge for the ICE[3] flagship Brent and Gasoil contracts, with the latter the most affected by far.



Source: ICE Exchange

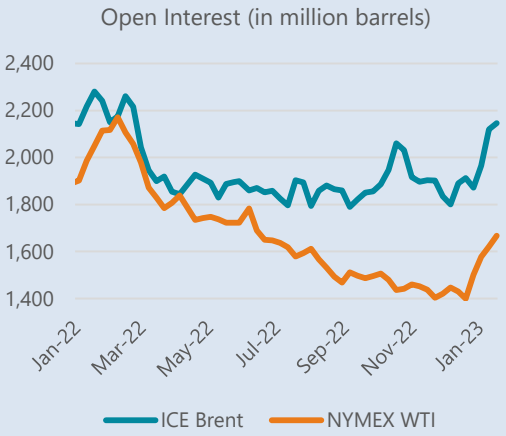


Source: ICE Exchange

The ICE Gasoil bid-ask spread quadrupled from $0.05/bbl to $0.20/bbl in February 2022, more or less in line with the contract's volatility surge. Subsequently, the spread declined over the course of the year, but remains about $0.10/bbl - twice its pre-invasion level, with open interest also still well below year-ago levels. This echoes ongoing anxiety about European diesel balances, reflecting gasoil's status as the tightest segment of the global oil market.

In contrast, ICE Brent was much more subdued. Bid-ask spreads rose from $0.02/bbl to only $0.05/bbl in the immediate aftermath of the invasion, but have since reverted to their long-term average, ending 2022 at their pre-war level of around $0.02/bbl. This confirms open interest data, which showed liquidity in ICE Brent holding up much better than other futures contracts.

In all probability, trading in ICE Brent benefitted in 2022 from the predominance of global geopolitical and macro factors (Russian sanctions, OPEC cuts, China lockdowns, the prospect of a global recession). The contract's "global" character



[2] The bid-ask spread for a given day is a simple average of the b/a's quoted during the trading day for the front-month futures contract. In his regard, "front-month" is defined as the most actively traded future maturity.
[3] The IEA wishes to thank the ICE Exchange for its cooperation and its kind provision of price data.

made it the venue of choice for both hedgers and investors. A case in point is that ICE Brent's open interest, unlike all other contracts, spiked-up in the autumn as OPEC cut production and the EU crude embargo approached.

ICE Brent's resilience is also apparent when compared to its main competitor - NYMEX WTI - where pricing is more tied to US domestic balances. WTI's volumes have fallen much more sharply than ICE Brent's. While about equal at the start of 2022, WTI's open interest ended the year some 25% below Brent's - a near-record gap.

Prompt Month Oil Futures Prices
(monthly and weekly averages, $/bbl)

				Jan 2023		Week Commencing:					Last
	Nov 2022	Dec 2022	Jan 2023	m-o-m Chg	y-o-y Chg	02 Jan	09 Jan	16 Jan	23 Jan	30 Jan	10 Feb
NYMEX											
Light Sweet Crude Oil (WTI) 1st contract	84.30	76.55	78.26	1.71	(4.45)	74.30	77.24	80.63	80.52	76.49	79.21
Light Sweet Crude Oil (WTI) 12th contract	77.48	74.28	75.54	1.26	1.26	72.98	75.14	76.90	77.08	73.73	75.44
RBOB	106.45	93.57	104.34	10.78	3.45	95.89	101.33	108.26	110.37	103.06	105.16
ULSD	150.06	131.19	135.56	4.36	26.00	126.37	133.26	140.25	142.81	125.30	120.31
ULSD ($/mmbtu)	27.03	23.63	24.42	0.79	4.68	22.77	24.01	25.26	25.73	22.57	21.67
NYMEX Natural Gas ($/mmbtu)	6.43	5.77	3.42	(2.35)	(0.83)	3.90	3.67	3.34	3.17	2.54	2.51
ICE											
Brent 1st contract	90.95	81.55	83.92	2.37	(1.29)	79.30	82.35	85.83	86.86	82.98	85.92
Brent 12th; contract	82.83	78.62	79.96	1.34	2.26	77.45	79.25	81.62	81.62	78.35	79.18
Gasoil	130.72	119	123	4.30	23.12	114.82	119.98	127.28	130.44	116.65	111.41
Prompt Month Differentials											
NYMEX WTI - ICE Brent	(6.65)	(5.00)	(5.66)	(0.66)	(3.16)	(5.00)	(5.11)	(5.20)	(6.34)	(6.49)	(6.71)
NYMEX WTI 1st vs. 12th	6.82	2.27	2.72	0.45	(5.71)	1.32	2.10	3.73	3.44	2.76	3.77
ICE Brent 1st - 12th	8.12	2.93	3.96	1.03	(3.55)	1.85	3.10	4.21	5.24	4.63	6.74
NYMEX ULSD - WTI	65.76	54.64	57.30	2.65	30.45	52.07	56.02	59.62	62.29	48.81	41.10
NYMEX RBOB - WTI	22.15	17.02	26.08	9.07	7.90	21.59	24.09	27.63	29.85	26.57	25.95
NYMEX 3-2-1 Crack (RBOB)	36.69	29.56	36.49	6.93	15.42	31.75	34.73	38.29	40.66	33.98	31.00
NYMEX ULSD - Natural Gas ($/mmbtu)	20.60	17.87	21.00	3.13	5.52	18.87	20.34	21.93	22.56	20.03	19.16
ICE Gasoil - ICE Brent	39.77	37.61	39.54	1.93	24.41	35.52	37.63	41.45	43.58	33.67	25.49

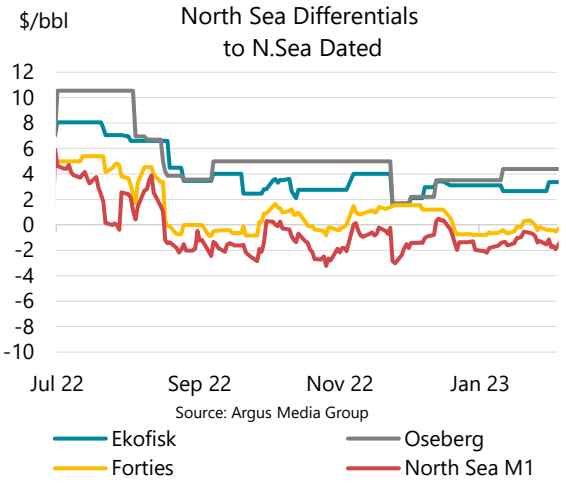
Source: ICE, NYMEX.

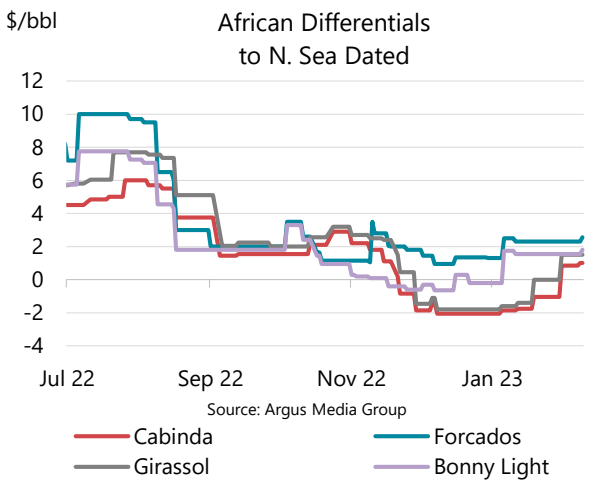
Spot crude oil prices

Benchmark physical prices rose in January, with North Sea Dated up by $2.50/bbl to $82.86/bbl. Dubai added $3.33/bbl, while WTI Cushing lagged both benchmarks, climbing by $1.61/bbl to $78.11/bbl.

Dated neared $90/bbl mid-month, as lower freight rates, increased Chinese demand and stronger refining margins boosted trading. However, gains partly evaporated in January's closing week amid indications of a larger surplus than anticipated in the crude market. Unexpected refinery outages along the US Gulf Coast pushed additional crude into already high inventories (notably at Cushing). At the same time, robust Russian exports crimped the appetite of its main buyers - China and India.

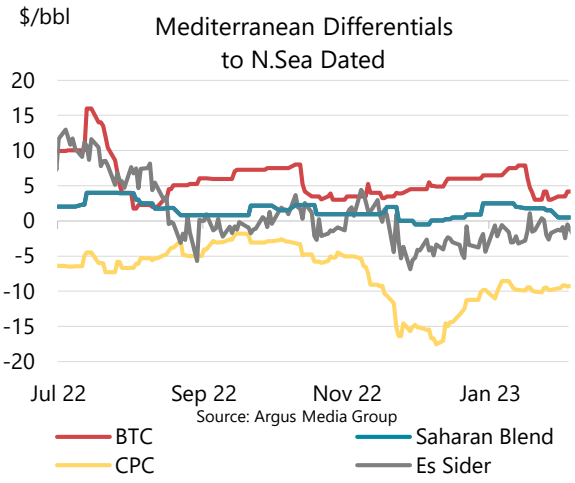
In January, physical crude prices failed to keep up pace with futures, widening the North Sea Dated discount to ICE Brent for the second straight month to about -$1/bbl, indicative of an oversupplied Atlantic Basin. At the same time, spreads for the North Sea grades fell with the exception of Oseberg, which rose $1.19/bbl to a $4.14/bbl premium to Dated. Atlantic Basin sweet grades found a measure of support from robust gasoline margins. However, this was outweighed by excess supply from the US, West Africa and the Mediterranean that pressured sweet differentials. Forties fell to a discount against Dated (down $0.96/bbl to -$0.34/bbl), while Statfjord (-$0.07/bbl to $1.42/bbl) and Ekofisk (-$0.05/bbl to $2.81/bb) saw moderate declines.

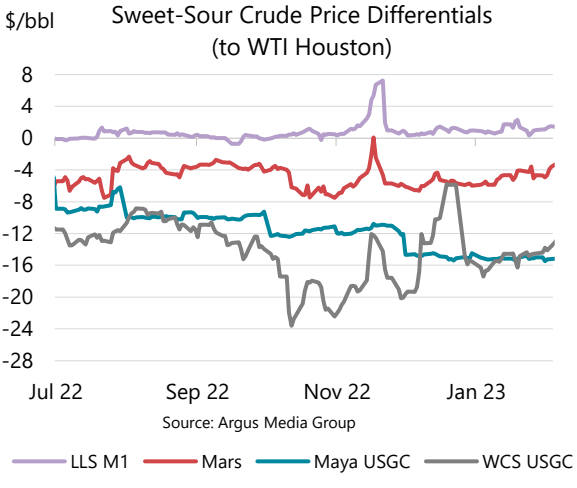




West African crude grades firmed as lower freight rates, a flatter price structure and stronger refining margins sent plentiful supplies of sweet crude to Europe. The Bonny Light differential to North Sea was up $1.62/bbl to $1.33/bbl, while Brass River added $0.87/bbl. Both Forcados and Qua Iboa rose ($0.94/bbl to $2.19/bbl and $0.46/bbl to $1.49/bbl, respectively). After lingering at a discount from December through the start of January. Angolan crude grades became more resilient towards month-end as increased Chinese spot buying pushed prices markedly higher. Girassol closed January at -$0.81/bbl before climbing to a $1.50/bbl premium in early February. Similarly, Cabinda shifted from a -$1.41/bbl average discount in January to $0.85/bbl premium as of end-month.

In the Mediterranean, differentials to Dated were slightly firmer, benefitting like other grades from lower freight costs and in some cases from improved naphtha cracks. CPC Blend's discount narrowed by $4.29/bbl to -$9.63/bbl, following December's near-record low of -$17.52/bbl. Azeri/BTC was largely unchanged, falling -$0.13/bbl to a $5.43/bbl premium m-o-m. North African grades moved higher. Libya's Es Sider spread to Dated firmed by $2.09/bbl, narrowing its discount to -$0.50/bbl. Saharan Blend had a steep run-up in prices in early January, when premiums jumped $1.45/bbl to $1.89/bbl m-o-m, but subsequently fell back towards end-month to $0.50/bbl. Urals price discounts for delivery in Primorsk area versus North Sea Dated widened further by $3.04/bbl to -$40.05/bbl, well below the $60/bbl price cap and at a record low.





Middle Eastern grades marked against Dubai deteriorated overall in January, as sour crude differentials weakened amid comfortable supplies from Russia. Murban spreads slumped by $1.26/bbl to $1.82/bbl; at the same time, Qatar Al-Shaheen dropped by $0.07/bbl to parity with the

Dubai marker. However, Upper Zakum gained some support, with Chinese refiners buying substantial spot cargos after the suspension of Venezuelan sour shipments (the majority of which is sailing to China). Spreads inched down m-o-m by $0.12/bbl to a -$0.02/bbl discount but then recovered to a $0.35/bbl premium in early February. Differentials for Tapis and Minas both fell for a second month. Tapis contracted by $2.89/bbl to a $9.70/bbl premium, while Minas was down $1.17/bbl to $0.88/bbl. The ESPO Blend discount versus Dubai continued to diminish, dropping by $1.97/bbl to -$9.07/bbl. EU sanctions have deterred some Chinese buyers due to financial and logistical constraints, which has weighed on the differential.

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

				Jan 2023		Week Commencing:					Last:
	Nov 2022	Dec 2022	Jan 2023	m-o-m Chg	y-o-y Chg	02 Jan	09 Jan	16 Jan	23 Jan	30 Jan	10 Feb
Crudes											
North Sea Dated	91.10	80.36	82.86	2.50	-4.24	77.87	80.53	84.84	86.62	82.59	85.60
North Sea Mth 1	92.28	81.31	84.19	2.88	-2.95	79.83	82.01	85.84	87.60	84.19	86.76
North Sea Mth 2	91.09	81.46	84.23	2.77	-1.77	80.02	82.19	85.88	87.45	83.83	86.45
WTI (Cushing) Mth 1	84.78	76.50	78.11	1.61	-5.01	74.30	77.08	80.33	80.31	76.49	79.72
WTI (Cushing) Mth 2	84.27	76.62	78.40	1.77	-3.91	74.55	77.35	80.63	80.63	76.80	79.92
WTI (Houston) Mth 1	86.27	77.21	79.59	2.38	-5.04	75.08	78.08	82.03	82.31	78.74	82.20
Urals FOB Primorsk	62.54	43.35	42.81	-0.54	-41.90	37.92	40.34	44.82	46.46	42.89	46.60
Dubai (1st month)	86.12	77.09	80.41	3.33	-2.93	77.08	78.04	82.59	84.05	81.53	83.20
Differentials to Futures											
North Sead Dated vs. ICE Brent	0.15	-1.19	-1.06	0.13	-2.95	-1.43	-1.82	-0.99	-0.24	-0.39	-0.32
WTI (Cushing) Mth1 vs. NYMEX	0.48	-0.05	-0.15	-0.10	-0.56	0.00	-0.16	-0.30	-0.21	0.00	0.51
Differentials to Physical Markers											
WTI (Houston) versus North Sea Mth 2	-4.81	-4.25	-4.64	-0.39	-3.26	-4.95	-4.11	-3.85	-5.13	-5.09	-4.26
WTI (Houston) versus WTI (Cushing)	1.49	0.71	1.47	0.77	-0.02	0.77	1.00	1.71	2.01	2.25	2.47
Urals FOB Prim versus North Sea Dated	-28.56	-37.01	-40.05	-3.04	-37.66	-39.95	-40.19	-40.02	-40.16	-39.70	-39.00
Dubai versus ICE Brent	-4.83	-4.46	-3.51	0.96	-0.85	-2.22	-4.31	-3.24	-2.81	-1.45	-2.72
Dubai versus WTI (Cushing) Mth 2	1.85	0.47	2.02	1.55	0.98	2.54	0.69	1.96	3.42	4.72	3.28
Prompt Month Differentials											
Forw ard North Sea Mth1-Mth2	1.20	-0.14	-0.04	0.10	-1.18	-0.19	-0.18	-0.05	0.15	0.36	0.31
Forw ard WTI Cushing Mth1-Mth2	0.52	-0.12	-0.28	-0.16	-1.10	-0.24	-0.26	-0.30	-0.32	-0.31	-0.20
Forw ard Dubai Mth1-Mth2	1.70	0.62	0.58	-0.04	-0.47	0.73	0.53	39.59	0.60	0.75	0.96

Source: Argus Media group, ICE, NYMEX

On the US Gulf Coast, the opening of the transatlantic arbitrage combined with lower freight rates led to higher export demand for US crudes from Europe and Asia Pacific near the end of the month. WTI at Houston tracked the Atlantic Basin crudes higher, with a lag, widening its discount versus North Sea (month 2) by $0.39/bbl to -$4.64/bbl, peaking at -$6.18/bbl at month-end. The international market lifted WTI at Houston versus stock-heavy Cushing by $0.77/bbl m-o-m to $1.47/bbl before widening further to $2.45/bbl in early February. Differentials for other PADD 3 grades versus WTI at Houston also rose over the month. The LLS premium firmed by $0.21/bbl to $1.04/bbl, while the discount for Mars narrowed by $0.79/bbl to -$4.91/bbl in January, climbing even further in early February to -$2.67/bbl in the wake of stronger Chinese buying.

G7 price caps and Russian oil export prices

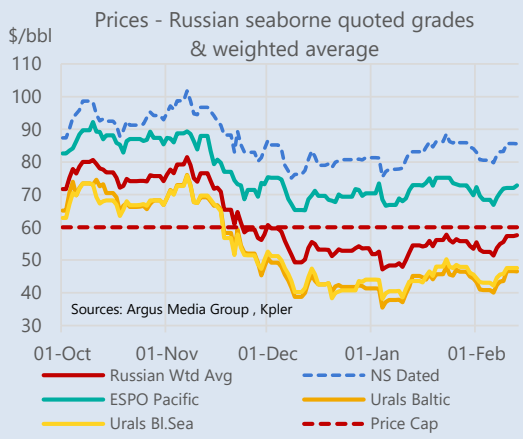
The EU's sixth sanctions package on Russia includes embargoes on seaborne imports of Russian crude from 5 December 2022 and product from 5 February 2023 and a ban on EU maritime services used for transporting Russian oil to third countries. It compliments bans by G7 coalition partners. The EU's eighth package (6 October 2022) introduced price caps on Russian crude and product purchases below which deals must sit for EU operators to now provide maritime services. It aims to limit Russia's oil revenues while keeping the flow of oil to global markets stable to limit the risk of higher prices. The EU agreed

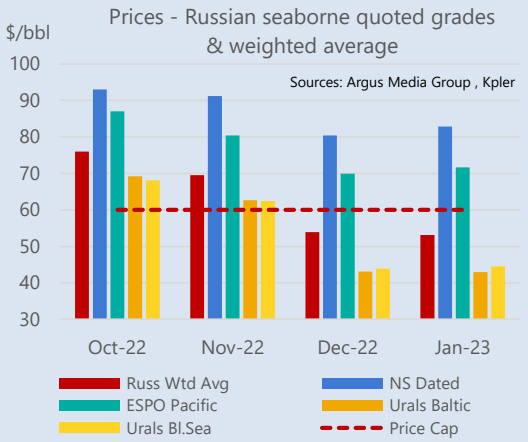
price caps of $60/bbl for crude on 3 December and on 3 February $100/bbl for “premium” products (normally priced higher than crude) and $45/bbl for “discounted” products (normally priced at a discount to crude). The price cap legal framework advises that they remain ~5% below average realized prices for Russian crude and oil products and that they be reviewed every 2 months.

Argus publishes daily assessments of free-on-board (FOB) prices for several Russian crudes amounting to 80-85% of total Russian seaborne exports: Urals loaded at the ports of Primorsk and Ust Luga (42% of exports in January), Urals at Novorossysk (11%), ESPO at Kozmino (25%), CPC Blend (3%), and Siberian Light (1%). They also publish weekly assessments of discounts to European product prices for Russian product sold FOB Black Sea or Baltic. Argus’ European product price assessments exclude Russian origin material[4]. The range of uncertainty for these discounts is quite wide (typically ~20%, but as low as 10% and as high as 30% of the discount).

The IEA calculates a weighted average price of Russian seaborne crude oil exports based on Argus’ assessments of their values and Kpler’s export volumes by grade (pipeline crude flows, exempt from sanctions). Argus does not assess all grades, but coverage amounts to over 80% of export volumes.

The Russian seaborne weighted average crude export price (FOB, excluding freight and insurance costs) was $53/bbl in January (-$29.7/bbl versus North Sea Dated at $82.9/bbl). This was $0.8/bbl lower than in December 2022. Baltic Urals averaged $43/bbl while Black Sea Urals was $44.5/bbl in January. Both averaged around $47/bbl in early February. ESPO (FOB Kozmino) was assessed at $71.70/bbl in January, easing to $70.40/bbl in the first week of February.

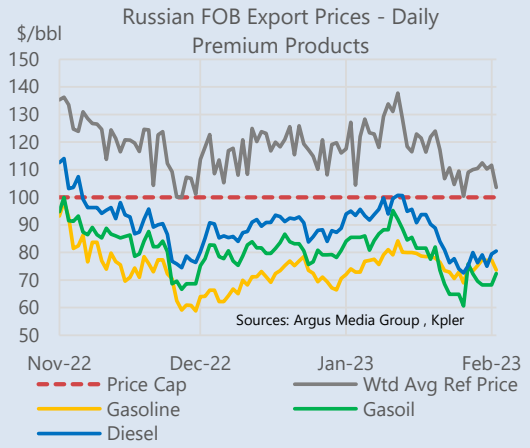


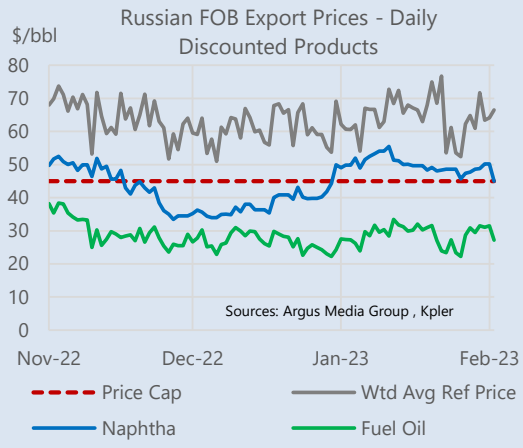


Premium products include gasoil and diesel in the Baltic and Black Sea as well as gasoline in the Baltic. Jet and VGO are not included. All premium products were below $100/bl in December and January. After a slight rise in January, prices dipped sharply below $80/bbl in February.

Discounted products include naphtha as well as 3.5% sulphur fuel oil in the Baltic and the Black Sea. Since December, the monthly average discounted product price has been below $35/bl. Products were below $40/bl from end-November to early January, but naphtha rose to ~$50/bl starting 12 January.

[4] This distinction was imposed by Argus starting July 2022 and by S&P Platts starting March 2022 for naphtha, starting June 2022 for gasoil and diesel, starting September 2022 for most other products and starting October 2022 for 3.5% S fuel and feedstocks.

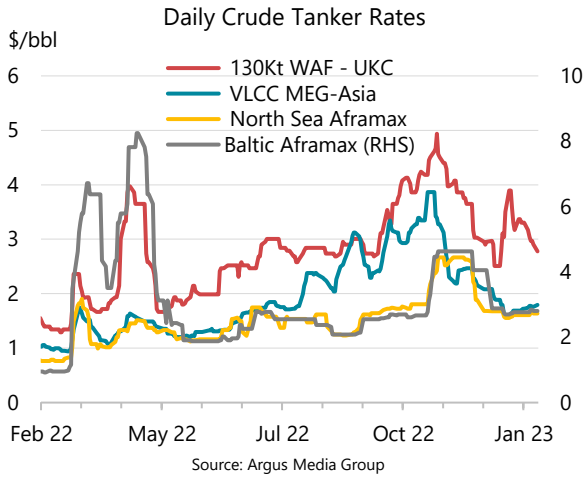


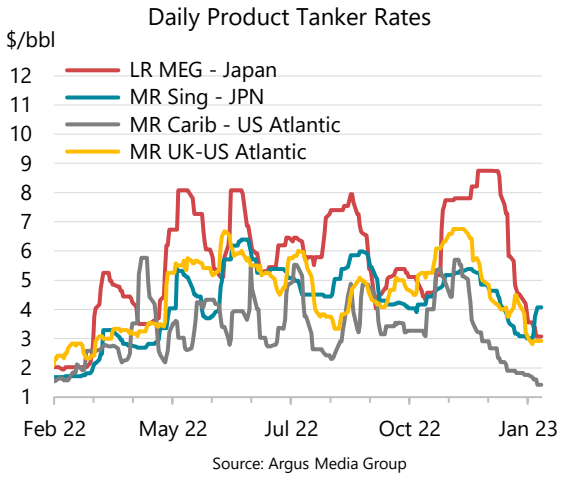


Note: Weighted average reference prices represent European product prices to which Argus' discounts are applied for Russian cargos on a product-by-product basis. It's a measure of the current discounts on Russian product prices.

Freight

Global tanker activity stagnated in January, with freight rates retreating from recent November highs. Prices for charters fell across all routes starting mid-December, with sharp declines continuing into January. Prices for long-haul VLCC charters were down by $0.55/bbl to $1.75/bbl. Rates have fallen 48% from November's highs of $3.34/bbl, driven by sluggish demand, particularly in the Middle East, as a large tonnage overhang softened rates. Suezmax rates from West Africa fell by $0.39/bbl to $3.17/bbl. Baltic Aframax rates plunged by $1.64/bbl m-o-m to $2.79/bbl after having peaked at $4.63/bbl the first week of December. North Sea Aframax rates fell by $0.75/bbl to $1.62/bbl.





Clean tanker rates slumped by 37% in January, to their lowest since April 2022. In anticipation of the 5 February EU sanctions, buying of Russian product surged and sustained clean tanker rates in recent months. However, as the deadline approached, a long tonnage list of product charters materialised. Long Range shipments (LR) from the Middle East fell by 29% in January m-o-m to an average of $5.82/bbl. Rates were in freefall throughout the month, dropping from $8.49/bbl in the first week of January to $3.07/bbl at the start of February. Medium-Range (MR) tanker rates showed similar declines across the regions as interest for product charters waned and tonnage lists grew.

Tables

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

	2019	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
OECD DEMAND																	
Americas	25.4	22.4	22.9	24.4	24.8	25.1	24.3	24.8	25.0	25.3	25.1	25.1	24.9	25.2	25.5	25.2	25.2
Europe	14.3	12.4	12.0	12.7	13.9	14.0	13.1	13.2	13.4	14.1	13.4	13.5	13.1	13.6	14.0	13.6	13.6
Asia Oceania	7.9	7.2	7.7	7.0	7.1	7.8	7.4	7.9	7.0	7.2	7.6	7.4	8.0	7.1	7.4	7.9	7.6
Total OECD	**47.7**	**42.0**	**42.6**	**44.1**	**45.8**	**46.9**	**44.8**	**45.8**	**45.4**	**46.6**	**46.2**	**46.0**	**46.1**	**45.9**	**46.9**	**46.7**	**46.4**
NON-OECD DEMAND																	
FSU	4.7	4.6	4.6	4.7	5.0	5.1	4.9	4.7	4.7	5.1	5.1	4.9	4.6	4.7	4.9	4.9	4.8
Europe	0.8	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
China	14.1	14.2	14.9	15.6	15.6	15.6	15.4	15.4	14.4	14.8	15.4	15.0	15.2	15.7	16.0	16.7	15.9
Other Asia	14.1	12.7	13.7	13.1	12.8	13.9	13.4	14.1	14.0	13.4	13.9	13.9	14.4	14.4	14.0	14.7	14.4
Americas	6.3	5.4	5.7	5.8	6.1	6.1	5.9	5.9	6.1	6.3	6.2	6.1	6.0	6.2	6.3	6.3	6.2
Middle East	8.8	8.1	8.2	8.4	8.9	8.4	8.5	8.6	9.2	9.6	9.0	9.1	8.8	9.3	9.7	9.1	9.2
Africa	4.1	3.8	4.0	3.9	3.9	4.1	4.0	4.2	4.1	4.1	4.3	4.2	4.3	4.2	4.2	4.3	4.3
Total Non-OECD	**52.9**	**49.5**	**51.9**	**52.3**	**53.0**	**54.1**	**52.8**	**53.7**	**53.3**	**54.1**	**54.6**	**54.0**	**54.0**	**55.3**	**56.0**	**56.8**	**55.5**
Total Demand[1]	**100.5**	**91.5**	**94.5**	**96.4**	**98.8**	**100.9**	**97.7**	**99.5**	**98.7**	**100.7**	**100.8**	**100.0**	**100.1**	**101.1**	**102.9**	**103.5**	**101.9**
OECD SUPPLY																	
Americas	24.8	23.9	23.5	24.4	24.4	25.3	24.4	25.0	25.4	26.2	26.4	25.8	26.4	26.8	27.1	27.3	26.9
Europe	3.4	3.6	3.6	3.1	3.4	3.4	3.4	3.3	3.0	3.1	3.2	3.2	3.3	3.2	3.2	3.3	3.3
Asia Oceania	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total OECD[2]	**28.6**	**28.0**	**27.6**	**28.0**	**28.3**	**29.2**	**28.3**	**28.8**	**28.9**	**29.7**	**30.1**	**29.4**	**30.2**	**30.5**	**30.8**	**31.1**	**30.7**
NON-OECD SUPPLY																	
FSU	14.6	13.5	13.4	13.7	13.7	14.3	13.8	14.4	13.4	13.7	14.1	13.9	13.8	12.8	12.6	12.7	13.0
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	3.9	4.0	4.1	4.1	4.1	4.0	4.1	4.2	4.2	4.1	4.1	4.2	4.3	4.2	4.2	4.2	4.2
Other Asia	3.3	3.0	3.0	2.9	2.8	2.8	2.9	2.8	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6
Americas	5.3	5.3	5.3	5.3	5.4	5.2	5.3	5.4	5.5	5.8	5.9	5.6	6.0	6.1	6.1	6.2	6.1
Middle East	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Africa	1.5	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total Non-OECD[2]	**31.8**	**30.4**	**30.2**	**30.5**	**30.5**	**30.8**	**30.5**	**31.4**	**30.5**	**30.9**	**31.4**	**31.0**	**31.2**	**30.4**	**30.2**	**30.3**	**30.5**
Processing gains[3]	2.4	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Global Biofuels	2.8	2.7	2.2	3.0	3.2	2.7	2.8	2.5	3.1	3.3	2.8	3.0	2.6	3.2	3.5	3.1	3.1
Total Non-OPEC Supply	**65.6**	**63.1**	**62.2**	**63.6**	**64.4**	**65.1**	**63.8**	**65.0**	**64.8**	**66.2**	**66.7**	**65.7**	**66.4**	**66.5**	**66.8**	**66.9**	**66.6**
OPEC[4]																	
Crude	29.6	25.7	25.4	25.6	27.0	27.8	26.4	28.5	28.7	29.6	29.4	29.0					
NGLs	5.3	5.1	5.1	5.1	5.1	5.2	5.1	5.3	5.4	5.4	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Total OPEC	**35.0**	**30.8**	**30.4**	**30.7**	**32.1**	**33.0**	**31.5**	**33.8**	**34.1**	**34.9**	**34.7**	**34.4**					
Total Supply	**100.6**	**93.9**	**92.6**	**94.3**	**96.5**	**98.1**	**95.4**	**98.8**	**98.8**	**101.2**	**101.4**	**100.1**					
STOCK CHANGES AND MISCELLANEOUS																	
Reported OECD																	
Industry	0.1	0.4	-1.2	-0.5	-1.2	-1.3	-1.1	-0.4	0.6	0.9	0.2	0.3					
Government	0.0	0.0	0.1	-0.2	-0.1	-0.3	-0.2	-0.5	-1.1	-1.1	-0.4	-0.7					
Total	**0.0**	**0.4**	**-1.2**	**-0.7**	**-1.4**	**-1.6**	**-1.2**	**-0.8**	**-0.5**	**-0.2**	**-0.2**	**-0.4**					
Floating storage/Oil in transit	0.1	0.0	-0.4	-0.5	-0.3	1.1	0.0	-0.5	0.5	1.0	0.1	0.3					
Miscellaneous to balance[5]	0.0	1.9	-0.3	-0.8	-0.7	-2.3	-1.0	0.6	0.1	-0.4	0.7	0.3					
Total Stock Ch. & Misc	**0.0**	**2.3**	**-1.9**	**-2.1**	**-2.3**	**-2.9**	**-2.3**	**-0.7**	**0.1**	**0.4**	**0.6**	**0.1**					
Memo items:																	
Call on OPEC crude & stock changes[6]	29.6	23.3	27.3	27.6	29.3	30.6	28.7	29.2	28.6	29.1	28.7	28.9	28.4	29.3	30.6	31.2	29.9

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, Hungry, Iceland, Ireland, Isreal, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Netherland, Norway, NewZealand, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Republic of Türkyie, UK, US.
- OPEC comprises of Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Neutralzone, Nigeria, Saudi Arabia, UAE, Venezuela.
- OPEC+ comprises of OPEC members throughtout time series plus Sudan, South Sudan, Russia, Oman, Mexico, Malaysia, Kazahkstan, Brunei, Bahrain, Azerbaijan.

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

	2019	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
OECD DEMAND																	
Americas	-	-	-	-	-	-	-	-	-	-	0.3	0.1	0.1	-	-	0.1	-
Europe	-	-	-	-	-	-	-	-	-	-	-0.1	-	-0.2	-	-	-0.2	-0.1
Asia Oceania	-	-	-	-	-	-	-	-	-	-	0.1	-	0.1	-	-	-	-
Total OECD	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.2**	**-**	**-**	**-**	**-**	**-0.1**	**-**
NON-OECD DEMAND																	
FSU	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	-0.1	-	0.2	0.1	-0.1	-0.1	-
Other Asia	-	-	-	-	-	-	-	-	-	-	-0.1	-	0.1	0.1	-0.1	-0.1	-
Americas	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1
Middle East	-	-	-	-	-	-	-	-	-	-	0.1	0.1	-	-	-	0.1	-
Africa	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1
Total Non-OECD	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1**	**0.1**	**0.1**	**0.5**	**0.3**	**0.1**	**0.1**	**0.2**
Total Demand	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.3**	**0.1**	**0.5**	**0.3**	**-**	**-**	**0.2**
OECD SUPPLY																	
Americas	-	-	-	-	-	-	-	-	-	-	-0.1	-	-0.1	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-0.1	-	-	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OECD	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-0.1**	**-**	**-0.2**	**-**	**-**	**-0.1**	**-0.1**
NON-OECD SUPPLY																	
FSU	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.2	0.2	0.2	0.3
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Asia	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-
Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.1	-0.1	-
Middle East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OECD	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.1**	**-**	**0.4**	**0.3**	**0.2**	**0.2**	**0.3**
Processing gains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Biofuels	-	-	-	-	-	-	-	-	-	-	-0.1	-	-	-	-	-	-
Total Non-OPEC Supply	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-0.1**	**-**	**0.3**	**0.3**	**0.2**	**0.1**	**0.2**
OPEC																	
Crude	-	-	-	-	-	-	-	-	-	-	-0.1	-					
NGLs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OPEC	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-0.1**	**-**					
Total Supply	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-0.2**	**-**					
STOCK CHANGES AND MISCELLANEOUS																	
REPORTED OECD																	
Industry	-	-	-	-	-	-	-	-	-	-							
Government	-	-	-	-	-	-	-	-	-	-							
Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**							
Floating storage/Oil in transit	-	-	-	-	-	-	-	-	-	-							
Miscellaneous to balance	-	-	-	-	-	-	-	-	-	-							
Total Stock Ch. & Misc	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**							
Memo items:																	
Call on OPEC crude & stock changes	-	-	-	-	-	-	-	-	-	-	0.4	0.1	0.2	0.1	-0.2	-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)

	2019	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
Total Demand	**100.5**	**91.5**	**94.5**	**96.4**	**98.8**	**100.9**	**97.7**	**99.5**	**98.7**	**100.7**	**100.8**	**100.0**	**100.1**	**101.1**	**102.9**	**103.5**	**101.9**
OECD SUPPLY																	
Americas[2]	22.8	21.9	21.5	22.4	22.4	23.4	22.4	23.0	23.4	24.2	24.4	23.8	24.4	24.7	25.0	25.2	24.8
Europe	3.4	3.6	3.6	3.1	3.4	3.4	3.4	3.3	3.0	3.1	3.2	3.2	3.3	3.2	3.2	3.3	3.3
Asia Oceania	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total OECD (non-OPEC+)	**26.7**	**26.0**	**25.7**	**26.0**	**26.4**	**27.3**	**26.3**	**26.8**	**26.9**	**27.7**	**28.1**	**27.4**	**28.1**	**28.4**	**28.6**	**29.0**	**28.5**
NON-OECD SUPPLY																	
FSU[3]	0.4	0.4	0.4	0.4	0.4	0.3	0.4	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	3.9	4.0	4.1	4.1	4.1	4.0	4.1	4.2	4.2	4.1	4.1	4.2	4.3	4.2	4.2	4.2	4.2
Other Asia[4]	2.5	2.3	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0
Latin America	5.3	5.3	5.3	5.3	5.4	5.2	5.3	5.4	5.5	5.8	5.9	5.6	6.0	6.1	6.1	6.2	6.1
Middle East[5]	1.8	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	1.2	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
Total Non-OECD (non-OPEC+)	**15.3**	**15.1**	**15.1**	**15.1**	**15.2**	**14.8**	**15.0**	**15.2**	**15.2**	**15.4**	**15.5**	**15.3**	**15.7**	**15.8**	**15.8**	**15.8**	**15.8**
Processing Gains	2.4	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Global Biofuels	2.8	2.7	2.2	3.0	3.2	2.7	2.8	2.5	3.1	3.3	2.8	3.0	2.6	3.2	3.5	3.1	3.1
Total Non-OPEC+	**47.2**	**45.9**	**45.1**	**46.3**	**47.1**	**47.1**	**46.4**	**46.9**	**47.6**	**48.7**	**48.8**	**48.0**	**48.8**	**49.7**	**50.3**	**50.3**	**49.8**
OPEC+ CRUDE																	
Algeria	1.0	0.9	0.9	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Angola	1.4	1.3	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Azerbaijan	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	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	2.4	2.0	2.3	2.4	2.5	2.5	2.4	2.5	2.4	2.5	2.6	2.5	2.6	2.6	2.6	2.6	2.6
Iraq	4.7	4.0	3.9	3.9	4.1	4.2	4.0	4.3	4.4	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
Kazakhstan	1.6	1.5	1.5	1.5	1.4	1.7	1.5	1.6	1.4	1.4	1.6	1.5	1.6	1.6	1.6	1.6	1.6
Kuwait	2.7	2.4	2.3	2.4	2.4	2.5	2.4	2.6	2.7	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Libya	1.1	0.4	1.2	1.2	1.2	1.1	1.1	1.1	0.8	1.0	1.2	1.0	1.2	1.2	1.2	1.2	1.2
Malaysia	0.5	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
Mexico	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7
Nigeria	1.7	1.5	1.4	1.3	1.3	1.2	1.3	1.3	1.2	1.0	1.1	1.1	1.3	1.2	1.2	1.2	1.2
Oman	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Russia	10.4	9.4	9.3	9.5	9.7	10.0	9.6	10.0	9.4	9.8	9.8	9.7	9.4	8.4	8.3	8.2	8.5
Saudi Arabia	9.9	9.2	8.5	8.6	9.6	9.9	9.2	10.2	10.5	10.9	10.6	10.6	10.4	10.5	10.5	10.5	10.5
South Sudan	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	3.2	2.9	2.7	2.7	2.8	2.9	2.8	3.1	3.3	3.4	3.3	3.3	3.2	3.2	3.2	3.2	3.2
Venezuela	0.9	0.5	0.5	0.5	0.6	0.8	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
OPEC+ Crude	**45.9**	**40.6**	**40.0**	**40.5**	**42.0**	**43.3**	**41.5**	**44.1**	**43.4**	**44.6**	**44.6**	**44.2**	**43.9**	**43.2**	**43.0**	**43.0**	**43.3**
OPEC+ NGLs & Condensate	7.4	7.2	7.4	7.4	7.3	7.5	7.4	7.7	7.8	7.7	7.9	7.8	8.1	8.1	8.1	8.1	8.1
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+	**53.4**	**47.9**	**47.5**	**48.0**	**49.4**	**51.0**	**49.0**	**52.0**	**51.3**	**52.5**	**52.6**	**52.1**	**52.1**	**51.4**	**51.2**	**51.3**	**51.5**
Total Supply Oil	**100.6**	**93.8**	**92.6**	**94.3**	**96.5**	**98.1**	**95.4**	**98.8**	**98.8**	**101.2**	**101.4**	**100.1**	**100.9**	**101.2**	**101.5**	**101.6**	**101.3**
Memo items:																	
Call on OPEC+ crude & stock changes	45.9	38.2	41.9	42.6	44.3	46.2	43.8	44.8	43.3	44.2	44.0	44.1	43.2	43.2	44.3	44.9	43.9

1 From Feb 2023, OPEC+ supply reflects latest OPEC+ deal and individual country's sustainable capacity. Libya, Iran, Venezuela held at most recent level through 2023.

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

	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
Demand (mb/d)																
Americas	22.45	22.93	24.39	24.79	25.13	24.32	24.77	24.98	25.33	25.14	25.06	24.93	25.16	25.46	25.20	25.19
Europe	12.41	11.95	12.68	13.89	13.96	13.13	13.19	13.43	14.07	13.37	13.52	13.12	13.55	14.03	13.64	13.59
Asia Oceania	7.17	7.68	7.00	7.07	7.78	7.38	7.85	6.98	7.22	7.64	7.42	8.05	7.15	7.39	7.87	7.61
Total OECD	**42.03**	**42.56**	**44.06**	**45.75**	**46.86**	**44.83**	**45.81**	**45.40**	**46.63**	**46.16**	**46.00**	**46.10**	**45.85**	**46.88**	**46.71**	**46.39**
Asia	26.92	28.62	28.67	28.34	29.59	28.81	29.52	28.43	28.23	29.29	28.87	29.60	30.08	30.02	31.36	30.27
Middle East	8.07	8.16	8.43	8.89	8.44	8.48	8.57	9.19	9.63	9.00	9.10	8.77	9.35	9.75	9.08	9.24
Americas	5.45	5.74	5.80	6.12	6.09	5.94	5.92	6.08	6.27	6.20	6.12	6.00	6.17	6.33	6.29	6.20
FSU	4.56	4.63	4.74	4.99	5.05	4.86	4.73	4.72	5.08	5.06	4.90	4.63	4.67	4.92	4.90	4.78
Africa	3.77	4.03	3.94	3.90	4.10	3.99	4.21	4.15	4.12	4.29	4.19	4.26	4.23	4.18	4.34	4.25
Europe	0.72	0.76	0.76	0.78	0.79	0.77	0.78	0.77	0.79	0.80	0.79	0.78	0.78	0.80	0.81	0.79
Total Non-OECD	**49.49**	**51.95**	**52.34**	**53.03**	**54.06**	**52.85**	**53.73**	**53.35**	**54.12**	**54.64**	**53.96**	**54.04**	**55.28**	**56.00**	**56.78**	**55.53**
World	**91.52**	**94.51**	**96.40**	**98.78**	**100.92**	**97.67**	**99.53**	**98.74**	**100.74**	**100.80**	**99.96**	**100.14**	**101.13**	**102.88**	**103.49**	**101.92**
of which:																
United States[1]	18.19	18.58	20.13	20.30	20.54	19.89	20.22	20.27	20.47	20.40	20.34	20.19	20.34	20.52	20.37	20.36
Europe 5[2]	6.91	6.67	7.06	7.66	7.81	7.31	7.42	7.60	7.87	7.48	7.59	7.38	7.58	7.81	7.56	7.58
China	14.20	14.88	15.59	15.59	15.64	15.43	15.40	14.41	14.83	15.39	15.01	15.18	15.72	16.03	16.68	15.91
Japan	3.36	3.77	3.07	3.17	3.66	3.41	3.70	3.03	3.19	3.55	3.37	3.83	3.05	3.23	3.60	3.42
India	4.58	5.04	4.49	4.52	5.02	4.77	5.25	5.15	4.94	5.27	5.15	5.41	5.32	5.13	5.52	5.35
Russia	3.42	3.50	3.59	3.77	3.75	3.66	3.65	3.60	3.94	3.85	3.76	3.50	3.51	3.73	3.64	3.60
Brazil	2.87	2.91	2.92	3.13	3.06	3.01	2.95	3.00	3.17	3.15	3.07	3.01	3.08	3.22	3.23	3.14
Saudi Arabia	3.45	3.24	3.53	3.76	3.44	3.49	3.34	3.83	3.97	3.66	3.70	3.38	3.84	4.01	3.70	3.73
Canada	2.17	2.22	2.13	2.35	2.34	2.26	2.24	2.21	2.38	2.26	2.27	2.31	2.26	2.41	2.33	2.33
Korea	2.45	2.54	2.49	2.59	2.69	2.58	2.73	2.49	2.54	2.57	2.58	2.73	2.57	2.63	2.71	2.66
Mexico	1.60	1.63	1.66	1.61	1.72	1.65	1.76	1.99	1.96	1.95	1.92	1.89	2.02	1.99	1.96	1.97
Iran	1.76	1.90	1.81	1.81	1.81	1.83	1.91	1.84	1.83	1.82	1.85	1.91	1.85	1.84	1.82	1.86
Total	**64.96**	**66.86**	**68.46**	**70.26**	**71.49**	**69.28**	**70.58**	**69.41**	**71.08**	**71.36**	**70.61**	**70.71**	**71.14**	**72.56**	**73.12**	**71.89**
% of World	71.0%	70.7%	71.0%	71.1%	70.8%	70.9%	70.9%	70.3%	70.6%	70.8%	70.6%	70.6%	70.3%	70.5%	70.7%	70.5%
Annual Change (% per annum)																
Americas	-11.6	-5.5	22.7	9.7	9.1	8.3	8.0	2.5	2.2	0.1	3.1	0.7	0.7	0.5	0.2	0.5
Europe	-13.3	-10.2	15.3	8.1	11.8	5.8	10.3	5.9	1.3	-4.2	3.0	-0.5	0.9	-0.2	2.0	0.5
Asia Oceania	-9.8	-2.6	5.6	4.4	5.5	3.0	2.3	-0.2	2.1	-1.8	0.6	2.5	2.3	2.3	2.9	2.5
Total OECD	**-11.8**	**-6.4**	**17.5**	**8.3**	**9.2**	**6.7**	**7.6**	**3.0**	**1.9**	**-1.5**	**2.6**	**0.6**	**1.0**	**0.6**	**1.2**	**0.8**
Asia	-4.3	12.1	9.6	3.8	3.2	7.0	3.2	-0.8	-0.4	-1.0	0.2	0.3	5.8	6.3	7.1	4.9
Middle East	-8.7	-1.8	12.9	5.8	4.2	5.1	5.0	9.0	8.2	6.6	7.2	2.3	1.7	1.2	0.9	1.5
Americas	-13.4	2.7	18.4	10.2	6.0	9.0	3.2	4.9	2.4	1.9	3.1	1.4	1.5	1.0	1.4	1.3
FSU	-3.5	0.0	14.5	5.5	6.8	6.5	2.1	-0.4	2.0	0.1	0.9	-2.1	-1.1	-3.2	-3.2	-2.4
Africa	-8.6	-1.3	15.1	5.7	6.1	6.1	4.2	5.2	5.5	4.6	4.9	1.2	1.9	1.6	1.2	1.5
Europe	-7.5	4.1	12.3	5.9	4.5	6.6	2.6	1.8	1.4	2.1	2.0	-0.2	1.6	0.5	0.8	0.7
Total Non-OECD	**-6.4**	**6.3**	**11.9**	**5.2**	**4.2**	**6.8**	**3.4**	**1.9**	**2.1**	**1.1**	**2.1**	**0.6**	**3.6**	**3.5**	**3.9**	**2.9**
World	**-9.0**	**0.2**	**14.4**	**6.6**	**6.5**	**6.7**	**5.3**	**2.4**	**2.0**	**-0.1**	**2.3**	**0.6**	**2.4**	**2.1**	**2.7**	**2.0**
Annual Change (mb/d)																
Americas	-2.95	-1.34	4.51	2.18	2.09	1.87	1.83	0.60	0.55	0.02	0.74	0.17	0.17	0.13	0.06	0.13
Europe	-1.90	-1.36	1.69	1.04	1.47	0.72	1.24	0.75	0.17	-0.58	0.39	-0.07	0.13	-0.03	0.27	0.07
Asia Oceania	-0.78	-0.21	0.37	0.30	0.40	0.22	0.18	-0.01	0.15	-0.14	0.04	0.20	0.16	0.16	0.23	0.19
Total OECD	**-5.63**	**-2.90**	**6.57**	**3.52**	**3.96**	**2.80**	**3.24**	**1.33**	**0.87**	**-0.71**	**1.17**	**0.30**	**0.46**	**0.26**	**0.55**	**0.39**
Asia	-1.20	3.09	2.52	1.05	0.92	1.89	0.90	-0.23	-0.11	-0.30	0.06	0.08	1.64	1.79	2.07	1.40
Middle East	-0.77	-0.15	0.96	0.48	0.34	0.41	0.41	0.76	0.73	0.56	0.61	0.20	0.16	0.12	0.08	0.14
Americas	-0.84	0.15	0.90	0.57	0.34	0.49	0.18	0.29	0.15	0.12	0.18	0.09	0.09	0.06	0.08	0.08
FSU	-0.16	0.00	0.60	0.26	0.32	0.30	0.10	-0.02	0.10	0.01	0.05	-0.10	-0.05	-0.16	-0.16	-0.12
Africa	-0.35	-0.05	0.52	0.21	0.24	0.23	0.17	0.21	0.22	0.19	0.20	0.05	0.08	0.07	0.05	0.06
Europe	-0.06	0.03	0.08	0.04	0.03	0.05	0.02	0.01	0.01	0.02	0.02	0.00	0.01	0.00	0.01	0.01
Total Non-OECD	**-3.39**	**3.07**	**5.58**	**2.61**	**2.19**	**3.36**	**1.78**	**1.01**	**1.09**	**0.59**	**1.11**	**0.32**	**1.93**	**1.88**	**2.14**	**1.57**
World	**-9.02**	**0.17**	**12.15**	**6.13**	**6.15**	**6.16**	**5.02**	**2.34**	**1.96**	**-0.12**	**2.29**	**0.61**	**2.39**	**2.13**	**2.69**	**1.96**
Revisions to Oil Demand from Last Month's Report (mb/d)																
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.07	0.07	-0.03	0.01	0.12	0.04
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	-0.14	-0.04	-0.15	0.00	-0.05	-0.21	-0.10
Asia Oceania	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.11	0.02	0.00	-0.02	0.03
Total OECD	**-**	**-**	**-**	**-**	**-**	**-**	**-0.00**	**0.00**	**-0.02**	**0.20**	**0.05**	**0.03**	**-0.01**	**-0.04**	**-0.10**	**-0.03**
Asia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.20	-0.05	0.24	0.14	-0.12	-0.29	-0.01
Middle East	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.01	0.02	0.13	0.05	0.04	0.00	-0.01	0.14	0.04
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.04	0.02	0.05	0.06	0.06	0.08	0.06
FSU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.02	0.02	0.02	0.04	0.03
Africa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.10	0.10	0.09	0.09	0.10
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Total Non-OECD	**-**	**-**	**-**	**-0.00**	**0.01**	**0.00**	**0.04**	**0.03**	**0.06**	**0.11**	**0.06**	**0.47**	**0.33**	**0.05**	**0.08**	**0.23**
World	**-**	**-**	**-**	**-0.00**	**0.01**	**0.00**	**0.04**	**0.03**	**0.04**	**0.31**	**0.11**	**0.50**	**0.32**	**0.02**	**-0.02**	**0.20**
Revisions to Oil Demand Growth from Last Month's Report (mb/d)																
World	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.03	0.04	0.30	0.10	0.46	0.29	-0.02	-0.34	0.09

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	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22 [2]	Latest month vs. Oct 22	Latest month vs. Nov 21
Americas											
LPG and ethane	3.69	3.88	3.93	4.18	3.62	3.78	3.71	3.69	3.90	0.21	0.07
Naphtha	0.25	0.21	0.25	0.22	0.21	0.20	0.20	0.19	0.21	0.02	-0.05
Motor gasoline	10.34	10.45	10.61	10.04	10.70	10.59	10.50	10.48	10.54	0.05	-0.13
Jet and kerosene	1.56	1.82	1.74	1.69	1.87	1.89	1.82	1.81	1.84	0.04	0.09
Gasoil/diesel oil	5.06	5.20	5.16	5.33	5.14	5.09	5.23	5.33	5.39	0.06	0.04
Residual fuel oil	0.55	0.58	0.59	0.59	0.54	0.61	0.67	0.53	0.55	0.02	-0.05
Other products	2.85	2.93	2.84	2.72	2.91	3.17	3.06	3.05	3.01	-0.04	0.25
Total	**24.31**	**25.06**	**25.12**	**24.77**	**24.98**	**25.33**	**25.19**	**25.09**	**25.45**	**0.36**	**0.22**
Europe											
LPG and ethane	1.10	1.03	1.09	1.11	0.95	1.09	1.05	0.90	0.98	0.09	-0.06
Naphtha	1.12	0.97	1.18	1.15	1.01	0.87	0.81	0.82	0.85	0.03	-0.30
Motor gasoline	1.93	2.04	2.02	1.88	2.08	2.17	2.12	2.02	2.08	0.06	0.05
Jet and kerosene	0.86	1.27	1.07	1.02	1.29	1.49	1.47	1.41	1.21	-0.19	0.20
Gasoil/diesel oil	6.26	6.23	6.68	6.16	6.10	6.37	6.64	6.21	6.36	0.15	-0.36
Residual fuel oil	0.76	0.82	0.76	0.79	0.84	0.85	0.85	0.81	0.80	-0.01	0.04
Other products	1.10	1.14	1.15	1.07	1.16	1.23	1.29	1.14	1.12	-0.02	-0.08
Total	**13.13**	**13.52**	**13.96**	**13.19**	**13.43**	**14.07**	**14.22**	**13.31**	**13.41**	**0.10**	**-0.51**
Asia Oceania											
LPG and ethane	0.77	0.82	0.78	0.94	0.77	0.74	0.75	0.71	0.84	0.13	0.08
Naphtha	1.95	1.86	2.06	1.93	1.78	1.90	1.78	1.73	1.88	0.16	-0.14
Motor gasoline	1.35	1.35	1.37	1.28	1.30	1.42	1.38	1.35	1.34	-0.01	0.00
Jet and kerosene	0.61	0.68	0.72	0.87	0.51	0.53	0.55	0.66	0.75	0.09	0.10
Gasoil/diesel oil	1.89	1.92	1.98	1.95	1.86	1.90	1.88	1.91	1.99	0.08	0.04
Residual fuel oil	0.45	0.48	0.48	0.52	0.45	0.47	0.46	0.45	0.50	0.05	0.02
Other products	0.36	0.31	0.39	0.36	0.31	0.25	0.30	0.28	0.26	-0.02	-0.13
Total	**7.38**	**7.42**	**7.78**	**7.85**	**6.98**	**7.22**	**7.10**	**7.09**	**7.56**	**0.47**	**-0.03**
OECD											
LPG and ethane	5.56	5.73	5.80	6.23	5.34	5.61	5.51	5.30	5.72	0.42	0.10
Naphtha	3.33	3.04	3.48	3.30	3.00	2.97	2.79	2.74	2.94	0.20	-0.49
Motor gasoline	13.62	13.84	14.00	13.20	14.08	14.18	14.00	13.85	13.95	0.10	-0.08
Jet and kerosene	3.03	3.78	3.54	3.59	3.67	3.91	3.85	3.88	3.81	-0.07	0.39
Gasoil/diesel oil	13.21	13.35	13.82	13.43	13.09	13.37	13.75	13.45	13.74	0.29	-0.28
Residual fuel oil	1.76	1.88	1.84	1.91	1.82	1.93	1.98	1.80	1.86	0.06	0.02
Other products	4.32	4.38	4.39	4.15	4.38	4.65	4.64	4.48	4.39	-0.09	0.03
Total	**44.83**	**46.00**	**46.86**	**45.81**	**45.40**	**46.63**	**46.51**	**45.49**	**46.42**	**0.92**	**-0.32**

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	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22 [2]	Latest month vs. Oct 22	Latest month vs. Nov 21
United States[3]											
LPG and ethane	2.88	3.08	3.13	3.37	2.89	2.95	2.97	2.94	3.07	0.13	0.06
Naphtha	0.19	0.14	0.18	0.15	0.14	0.13	0.13	0.12	0.14	0.03	-0.04
Motor gasoline	8.82	8.79	8.98	8.47	9.00	8.88	8.81	8.83	8.85	0.02	-0.17
Jet and kerosene	1.38	1.56	1.50	1.46	1.61	1.60	1.55	1.53	1.61	0.08	0.10
Gasoil/diesel oil	3.97	3.97	4.03	4.14	3.89	3.86	4.01	4.10	4.06	-0.04	-0.13
Residual fuel oil	0.31	0.35	0.40	0.38	0.31	0.39	0.46	0.28	0.35	0.07	-0.06
Other products	2.35	2.44	2.31	2.24	2.43	2.65	2.54	2.62	2.51	-0.11	0.27
Total	**19.89**	**20.34**	**20.54**	**20.22**	**20.27**	**20.47**	**20.47**	**20.41**	**20.59**	**0.18**	**0.02**
Japan											
LPG and ethane	0.40	0.42	0.41	0.49	0.40	0.37	0.38	0.36	0.44	0.08	0.04
Naphtha	0.70	0.62	0.76	0.63	0.56	0.62	0.56	0.64	0.66	0.03	-0.09
Motor gasoline	0.73	0.71	0.73	0.67	0.68	0.75	0.72	0.71	0.68	-0.02	-0.01
Jet and kerosene	0.37	0.38	0.46	0.58	0.25	0.24	0.26	0.32	0.41	0.08	0.01
Diesel	0.42	0.43	0.44	0.43	0.41	0.43	0.43	0.42	0.44	0.02	0.01
Other gasoil	0.32	0.33	0.35	0.37	0.30	0.30	0.30	0.31	0.34	0.03	0.01
Residual fuel oil	0.25	0.26	0.26	0.29	0.24	0.26	0.26	0.26	0.28	0.02	0.02
Other products	0.22	0.22	0.25	0.23	0.18	0.22	0.25	0.22	0.20	-0.01	-0.04
Total	**3.41**	**3.37**	**3.66**	**3.70**	**3.03**	**3.19**	**3.15**	**3.23**	**3.45**	**0.23**	**-0.06**
Germany											
LPG and ethane	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.08	0.09	0.01	-0.01
Naphtha	0.32	0.30	0.34	0.35	0.33	0.25	0.23	0.23	0.27	0.03	-0.06
Motor gasoline	0.45	0.46	0.46	0.43	0.46	0.48	0.43	0.45	0.48	0.03	0.01
Jet and kerosene	0.13	0.19	0.16	0.15	0.20	0.22	0.21	0.24	0.18	-0.07	0.01
Diesel	0.71	0.70	0.75	0.68	0.68	0.74	0.70	0.71	0.77	0.06	-0.01
Other gasoil	0.27	0.29	0.36	0.29	0.25	0.31	0.35	0.31	0.30	-0.02	-0.05
Residual fuel oil	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.00	-0.02
Other products	0.07	0.08	0.08	0.06	0.07	0.10	0.12	0.09	0.06	-0.03	-0.03
Total	**2.13**	**2.18**	**2.34**	**2.15**	**2.15**	**2.26**	**2.20**	**2.16**	**2.19**	**0.03**	**-0.16**
Italy											
LPG and ethane	0.11	0.11	0.12	0.13	0.10	0.10	0.11	0.10	0.11	0.00	0.00
Naphtha	0.09	0.08	0.10	0.10	0.07	0.06	0.07	0.07	0.07	0.00	-0.03
Motor gasoline	0.17	0.18	0.18	0.16	0.19	0.20	0.20	0.18	0.19	0.01	0.01
Jet and kerosene	0.06	0.09	0.07	0.07	0.10	0.11	0.11	0.10	0.08	-0.02	0.01
Diesel	0.48	0.49	0.51	0.48	0.49	0.50	0.53	0.49	0.52	0.03	0.02
Other gasoil	0.07	0.05	0.07	0.04	0.05	0.06	0.07	0.06	0.05	0.00	-0.01
Residual fuel oil	0.09	0.10	0.09	0.09	0.10	0.11	0.11	0.11	0.09	-0.01	-0.01
Other products	0.11	0.12	0.12	0.10	0.13	0.13	0.13	0.12	0.12	-0.01	-0.01
Total	**1.18**	**1.22**	**1.26**	**1.17**	**1.23**	**1.28**	**1.33**	**1.22**	**1.22**	**0.00**	**-0.02**
France											
LPG and ethane	0.11	0.10	0.10	0.12	0.10	0.10	0.09	0.07	0.07	0.00	-0.03
Naphtha	0.14	0.10	0.16	0.13	0.09	0.10	0.09	0.07	0.08	0.01	-0.08
Motor gasoline	0.21	0.23	0.22	0.21	0.24	0.26	0.26	0.22	0.23	0.01	0.02
Jet and kerosene	0.09	0.12	0.11	0.10	0.11	0.15	0.14	0.10	0.14	0.03	0.02
Diesel	0.73	0.73	0.75	0.71	0.75	0.75	0.82	0.74	0.73	-0.01	-0.03
Other gasoil	0.13	0.11	0.16	0.16	0.07	0.11	0.15	0.09	0.12	0.02	-0.02
Residual fuel oil	0.03	0.04	0.03	0.03	0.04	0.04	0.03	0.03	0.04	0.00	0.01
Other products	0.10	0.10	0.10	0.08	0.11	0.12	0.12	0.09	0.10	0.01	0.00
Total	**1.55**	**1.54**	**1.62**	**1.54**	**1.50**	**1.62**	**1.69**	**1.42**	**1.49**	**0.07**	**-0.11**
United Kingdom											
LPG and ethane	0.11	0.11	0.11	0.12	0.12	0.10	0.09	0.09	0.09	-0.01	-0.04
Naphtha	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Motor gasoline	0.25	0.27	0.28	0.26	0.28	0.28	0.28	0.28	0.29	0.01	0.01
Jet and kerosene	0.18	0.27	0.24	0.24	0.27	0.29	0.29	0.29	0.26	-0.03	0.04
Diesel	0.47	0.49	0.49	0.46	0.51	0.48	0.45	0.49	0.50	0.01	0.01
Other gasoil	0.13	0.10	0.12	0.11	0.09	0.12	0.11	0.08	0.07	-0.01	-0.05
Residual fuel oil	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00
Other products	0.10	0.11	0.10	0.11	0.10	0.11	0.12	0.10	0.10	0.00	-0.01
Total	**1.26**	**1.37**	**1.35**	**1.31**	**1.39**	**1.40**	**1.36**	**1.36**	**1.34**	**-0.03**	**-0.02**
Canada											
LPG and ethane	0.45	0.42	0.43	0.43	0.39	0.45	0.36	0.37	0.44	0.07	0.01
Naphtha	0.04	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.04	-0.01	0.00
Motor gasoline	0.76	0.78	0.80	0.73	0.78	0.81	0.81	0.80	0.80	0.01	0.00
Jet and kerosene	0.09	0.13	0.12	0.10	0.13	0.17	0.15	0.16	0.11	-0.04	0.00
Diesel	0.29	0.28	0.29	0.30	0.25	0.28	0.28	0.28	0.35	0.07	0.04
Other gasoil	0.28	0.27	0.28	0.30	0.27	0.26	0.27	0.26	0.29	0.02	0.00
Residual fuel oil	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04	0.02	-0.01	-0.01
Other products	0.31	0.30	0.35	0.29	0.30	0.33	0.34	0.24	0.32	0.08	-0.03
Total	**2.26**	**2.27**	**2.34**	**2.24**	**2.21**	**2.38**	**2.29**	**2.19**	**2.37**	**0.18**	**-0.01**

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)

	2021	2022	2023	3Q22	4Q22	1Q23	2Q23	3Q23	Nov 22	Dec 22	Jan 23
OPEC											
Crude Oil											
Saudi Arabia	9.15	10.56		10.93	10.60				10.47	10.44	10.39
Iran	2.42	2.53		2.54	2.63				2.67	2.66	2.63
Iraq	4.03	4.45		4.54	4.50				4.46	4.45	4.42
UAE	2.76	3.28		3.41	3.33				3.29	3.23	3.23
Kuwait	2.42	2.70		2.80	2.71				2.68	2.66	2.68
Angola	1.12	1.14		1.15	1.08				1.09	1.09	1.11
Nigeria	1.31	1.15		1.00	1.13				1.15	1.23	1.25
Libya	1.15	0.99		0.96	1.17				1.15	1.17	1.14
Algeria	0.91	1.01		1.02	1.02				1.02	1.01	1.01
Congo	0.27	0.26		0.26	0.26				0.26	0.26	0.26
Gabon	0.18	0.19		0.20	0.18				0.19	0.19	0.19
Equatorial Guinea	0.10	0.08		0.09	0.06				0.06	0.05	0.05
Venezuela	0.61	0.70		0.66	0.68				0.68	0.66	0.70
Total Crude Oil	**26.43**	**29.04**		**29.55**	**29.36**				**29.17**	**29.10**	**29.06**
of which Neutral Zone [1]	*0.25*	*0.28*		*0.31*	*0.27*				*0.24*	*0.24*	*0.26*
Total NGLs [2]	**5.12**	**5.33**	**5.39**	**5.38**	**5.34**	**5.37**	**5.38**	**5.39**	**5.33**	**5.29**	**5.36**
Total OPEC [3]	**31.55**	**34.38**		**34.93**	**34.70**				**34.50**	**34.39**	**34.42**
NON-OPEC [4]											
OECD											
Americas	24.39	25.76	26.92	26.19	26.45	26.43	26.81	27.12	26.66	26.06	26.17
United States	16.83	18.00	18.95	18.36	18.54	18.51	18.97	19.12	18.66	18.22	18.29
Mexico	1.95	2.01	2.11	2.02	2.03	2.08	2.11	2.14	2.03	2.05	2.06
Canada	5.59	5.74	5.85	5.80	5.87	5.84	5.71	5.85	5.96	5.78	5.81
Chile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Europe	3.38	3.15	3.27	3.08	3.19	3.31	3.24	3.21	3.26	3.19	3.22
UK	0.89	0.83	0.81	0.75	0.80	0.83	0.82	0.75	0.85	0.78	0.81
Norway	2.04	1.90	2.01	1.90	1.96	2.04	1.98	2.01	1.96	1.98	1.97
Others	0.45	0.43	0.45	0.42	0.43	0.44	0.44	0.45	0.46	0.44	0.44
Asia Oceania	0.51	0.48	0.47	0.43	0.49	0.46	0.46	0.46	0.47	0.50	0.46
Australia	0.44	0.41	0.40	0.37	0.42	0.40	0.40	0.39	0.42	0.43	0.39
Others	0.07	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07
Total OECD	**28.28**	**29.40**	**30.66**	**29.70**	**30.13**	**30.21**	**30.51**	**30.78**	**30.40**	**29.75**	**29.86**
NON-OECD											
Former USSR	13.77	13.90	12.97	13.67	14.09	13.77	12.82	12.62	14.27	14.30	14.22
Russia	10.87	11.09	10.04	11.07	11.21	10.84	9.87	9.74	11.26	11.29	11.24
Azerbaijan	0.70	0.67	0.66	0.66	0.67	0.65	0.66	0.66	0.67	0.67	0.65
Kazakhstan	1.85	1.82	1.95	1.63	1.91	1.97	1.97	1.90	2.03	2.03	2.01
Others	0.35	0.32	0.31	0.31	0.31	0.32	0.31	0.31	0.31	0.32	0.32
Asia	6.91	6.89	6.84	6.78	6.82	6.92	6.87	6.83	6.91	6.76	6.91
China	4.06	4.18	4.21	4.12	4.13	4.26	4.22	4.21	4.17	4.06	4.25
Malaysia	0.57	0.56	0.55	0.54	0.57	0.56	0.55	0.55	0.58	0.58	0.56
India	0.73	0.70	0.69	0.70	0.69	0.68	0.69	0.70	0.69	0.69	0.68
Indonesia	0.68	0.63	0.61	0.62	0.63	0.62	0.62	0.61	0.64	0.62	0.63
Others	0.88	0.81	0.77	0.79	0.80	0.79	0.78	0.76	0.82	0.81	0.79
Europe	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Americas	5.30	5.64	6.09	5.77	5.88	5.95	6.09	6.13	5.83	5.85	5.89
Brazil	3.00	3.12	3.41	3.16	3.23	3.28	3.41	3.45	3.18	3.17	3.21
Argentina	0.64	0.71	0.77	0.72	0.74	0.76	0.77	0.78	0.74	0.74	0.76
Colombia	0.74	0.76	0.76	0.76	0.77	0.77	0.77	0.76	0.77	0.77	0.77
Ecuador	0.48	0.47	0.47	0.47	0.46	0.47	0.47	0.47	0.47	0.48	0.47
Others	0.43	0.58	0.68	0.66	0.67	0.67	0.67	0.67	0.67	0.68	0.68
Middle East	3.08	3.20	3.22	3.25	3.21	3.20	3.22	3.22	3.17	3.22	3.17
Oman	0.98	1.07	1.07	1.10	1.08	1.07	1.07	1.07	1.07	1.08	1.07
Qatar	1.82	1.84	1.85	1.84	1.84	1.85	1.85	1.85	1.84	1.84	1.85
Others	0.28	0.29	0.29	0.31	0.29	0.28	0.30	0.30	0.26	0.30	0.24
Africa	1.34	1.31	1.29	1.31	1.31	1.28	1.29	1.29	1.30	1.29	1.28
Egypt	0.59	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Others	0.74	0.71	0.69	0.71	0.71	0.68	0.69	0.69	0.70	0.69	0.68
Total Non-OECD	**30.51**	**31.04**	**30.51**	**30.88**	**31.41**	**31.23**	**30.38**	**30.18**	**31.58**	**31.53**	**31.56**
Processing gains [5]	2.25	2.31	2.35	2.32	2.34	2.31	2.34	2.37	2.35	2.38	2.33
Global biofuels	2.79	2.95	3.13	3.33	2.84	2.64	3.23	3.50	2.69	2.72	2.63
TOTAL NON-OPEC	**63.83**	**65.70**	**66.65**	**66.23**	**66.73**	**66.40**	**66.47**	**66.84**	**67.01**	**66.39**	**66.38**
TOTAL SUPPLY	**95.38**	**100.07**		**101.16**	**101.42**				**101.52**	**100.78**	**100.79**

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)

	2021	2022	2023	3Q22	4Q22	1Q23	2Q23	3Q23	Nov 22	Dec 22	Jan 23
United States											
Alaska	437	438	425	425	444	441	421	406	445	452	453
California	380	343	328	340	336	333	330	326	335	335	334
Texas	4766	5041	5274	5093	5197	5195	5274	5295	5210	5148	5159
Federal Gulf of Mexico[2]	1707	1744	1861	1796	1804	1836	1876	1859	1801	1785	1828
Other US Lower 48	3963	4314	4596	4404	4504	4502	4616	4627	4583	4352	4474
NGLs[3]	5425	5914	6226	6090	6031	5978	6217	6353	6067	5908	5832
Other Hydrocarbons	156	203	241	213	223	220	237	253	220	240	210
Total	**16835**	**17996**	**18951**	**18362**	**18538**	**18505**	**18970**	**19119**	**18661**	**18220**	**18290**
Canada											
Alberta Light/Medium/Heavy	436	491	512	496	503	517	513	510	504	496	519
Alberta Bitumen	1921	1995	2036	2107	2061	1933	1936	2140	2037	1994	1883
Saskatchewan	444	457	461	457	467	467	463	458	463	465	469
Other Crude	456	427	440	416	405	430	468	461	417	408	454
NGLs	975	1025	1021	1006	1025	1045	1022	1003	1005	993	1039
Other Upgraders	180	181	185	177	189	195	176	172	206	191	195
Synthetic Crudes	1181	1167	1195	1139	1218	1255	1134	1107	1329	1233	1255
Total	**5593**	**5744**	**5850**	**5799**	**5868**	**5843**	**5712**	**5852**	**5961**	**5781**	**5814**
Mexico											
Crude	1780	1843	1949	1848	1865	1912	1950	1977	1860	1880	1894
NGLs	170	161	157	164	163	161	158	155	165	163	161
Total	**1954**	**2009**	**2110**	**2017**	**2032**	**2076**	**2112**	**2136**	**2029**	**2047**	**2059**
UK											
Brent Fields	25	23	19	15	21	23	22	15	26	22	23
Forties Fields	211	210	188	164	218	215	171	172	222	215	214
Ninian Fields	24	20	27	15	27	28	27	26	31	30	27
Flotta Fields	50	39	32	38	32	33	31	33	31	35	31
Other Fields	512	473	485	458	437	469	511	445	472	414	450
NGLs	67	66	61	61	63	62	61	61	66	60	63
Total	**888**	**831**	**813**	**752**	**798**	**829**	**824**	**752**	**848**	**776**	**809**
Norway[4]											
Ekofisk-Ula Area	141	122	124	136	137	135	126	113	135	138	136
Oseberg-Troll Area	211	190	224	166	179	223	223	224	156	174	229
Statfjord-Gullfaks Area	262	249	241	246	255	250	244	239	264	250	251
Haltenbanken Area	278	237	237	237	229	234	233	234	226	231	233
Sleipner-Frigg Area	816	793	984	794	862	961	960	1004	837	905	885
Other Fields	82	116	8	135	119	47	-5	3	156	96	50
NGLs	249	190	196	191	184	191	197	194	182	190	190
Total	**2039**	**1896**	**2014**	**1905**	**1965**	**2040**	**1977**	**2011**	**1956**	**1982**	**1975**
Other OECD Europe											
Denmark	66	65	64	62	63	62	61	64	65	61	62
Italy	97	84	88	82	76	88	88	88	80	85	84
Türkiye	66	69	81	72	72	75	79	84	72	72	73
Other	99	80	84	75	89	87	85	83	90	87	87
NGLs	7	7	6	6	7	7	6	6	7	6	7
Non-Conventional Oils	117	124	123	125	125	126	123	122	146	125	125
Total	**452**	**428**	**446**	**422**	**432**	**443**	**442**	**446**	**459**	**436**	**440**
Australia											
Gippsland Basin	5	5	4	4	4	4	4	4	4	4	4
Cooper-Eromanga Basin	23	18	17	18	17	17	17	16	17	17	17
Carnarvon Basin	113	112	105	113	111	108	106	104	111	110	109
Other Crude	193	178	174	147	189	167	166	167	184	195	164
NGLs	109	101	102	85	104	102	103	102	101	107	99
Total	**444**	**413**	**402**	**367**	**425**	**398**	**396**	**393**	**417**	**433**	**394**
Other OECD Asia Oceania											
New Zealand	18	16	15	15	16	16	15	15	15	16	16
Japan	4	3	3	3	3	3	3	3	3	3	3
NGLs	11	10	9	10	9	9	9	8	8	9	9
Non-Conventional Oils	37	38	38	39	35	38	38	38	30	41	38
Total	**71**	**68**	**64**	**67**	**62**	**65**	**64**	**64**	**56**	**68**	**65**
OECD											
Crude Oil	19589	20194	21088	20381	20742	20810	21015	21197	20855	20476	20621
NGLs	7019	7484	7786	7622	7593	7563	7782	7891	7609	7445	7407
Non-Conventional Oils[5]	1676	1718	1786	1698	1795	1838	1712	1696	1936	1834	1827
Total	**28284**	**29396**	**30660**	**29700**	**30130**	**30211**	**30508**	**30784**	**30399**	**29755**	**29855**

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)

	2021	2022	2023	1Q22	2Q22	3Q22	4Q22	1Q23	Nov 22	Dec 22	Jan 23
OPEC+											
Crude Oil											
Algeria	0.91	1.01	1.00	0.99	1.01	1.02	1.02	1.01	1.02	1.01	1.01
Angola	1.12	1.14	1.08	1.16	1.17	1.15	1.08	1.06	1.09	1.09	1.11
Azerbaijan	0.59	0.56	0.54	0.58	0.56	0.55	0.55	0.53	0.55	0.55	0.53
Bahrain	0.17	0.19	0.19	0.18	0.19	0.20	0.19	0.17	0.15	0.20	0.14
Brunei	0.08	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.08	0.07	0.08
Congo	0.27	0.26	0.27	0.27	0.26	0.26	0.26	0.27	0.26	0.26	0.26
Equatorial Guinea	0.10	0.08	0.07	0.09	0.09	0.09	0.06	0.06	0.06	0.05	0.05
Gabon	0.18	0.19	0.18	0.19	0.18	0.20	0.18	0.18	0.19	0.19	0.19
Iran	2.42	2.53	2.63	2.53	2.43	2.54	2.63	2.63	2.67	2.66	2.63
Iraq	4.03	4.45	4.42	4.29	4.45	4.54	4.50	4.40	4.46	4.45	4.42
Kazakhstan	1.52	1.50	1.61	1.63	1.43	1.35	1.60	1.62	1.68	1.68	1.66
Kuwait	2.42	2.70	2.68	2.61	2.67	2.80	2.71	2.68	2.68	2.66	2.68
Libya	1.15	0.99	1.18	1.08	0.77	0.96	1.17	1.17	1.15	1.17	1.14
Malaysia	0.42	0.40	0.38	0.41	0.39	0.38	0.40	0.39	0.41	0.41	0.40
Mexico	1.66	1.62	1.67	1.64	1.62	1.62	1.62	1.65	1.61	1.62	1.64
Nigeria	1.31	1.15	1.24	1.30	1.15	1.00	1.13	1.25	1.15	1.23	1.25
Oman	0.75	0.85	0.84	0.82	0.84	0.88	0.85	0.84	0.84	0.84	0.84
Russia	9.62	9.75	8.55	10.04	9.40	9.78	9.77	9.36	9.82	9.81	9.77
Saudi Arabia	9.15	10.56	10.47	10.20	10.49	10.93	10.60	10.45	10.47	10.44	10.39
South Sudan	0.15	0.14	0.12	0.14	0.14	0.15	0.14	0.12	0.14	0.12	0.11
Sudan	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
UAE	2.76	3.28	3.24	3.09	3.29	3.41	3.33	3.24	3.29	3.23	3.23
Venezuela	0.61	0.70	0.79	0.72	0.74	0.66	0.68	0.74	0.68	0.66	0.70
Total Crude Oil	**41.47**	**44.18**	**43.28**	**44.10**	**43.41**	**44.59**	**44.61**	**43.94**	**44.49**	**44.45**	**44.29**
of which Neutral Zone	*0.25*	*0.19*		*0.27*	*0.28*	*0.31*	*0.27*	*0.25*	*0.24*	*0.24*	*0.26*
Total NGLs	**7.50**	**7.91**	**8.22**	**7.86**	**7.88**	**7.86**	**8.04**	**8.18**	**8.10**	**8.12**	**8.14**
TOTAL OPEC+	**48.97**	**52.1**	**51.5**	**52.0**	**51.3**	**52.5**	**52.6**	**52.1**	**52.6**	**52.6**	**52.4**
NON-OPEC+											
OECD											
Americas[2]	22.44	23.75	24.81	22.99	23.40	24.17	24.42	24.36	24.63	24.01	24.11
United States	16.83	18.00	18.95	17.25	17.81	18.36	18.54	18.51	18.66	18.22	18.29
Canada	5.59	5.74	5.85	5.73	5.58	5.80	5.87	5.84	5.96	5.78	5.81
Chile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Europe	3.38	3.15	3.27	3.32	3.03	3.08	3.19	3.31	3.26	3.19	3.22
UK	0.89	0.83	0.81	0.92	0.86	0.75	0.80	0.83	0.85	0.78	0.81
Norway	2.04	1.90	2.01	1.97	1.74	1.90	1.96	2.04	1.96	1.98	1.97
Others	0.45	0.43	0.45	0.43	0.43	0.42	0.43	0.44	0.46	0.44	0.44
Asia Oceania	0.51	0.48	0.47	0.49	0.51	0.43	0.49	0.46	0.47	0.50	0.46
Australia	0.44	0.41	0.40	0.42	0.45	0.37	0.42	0.40	0.42	0.43	0.39
Others	0.07	0.07	0.06	0.07	0.07	0.07	0.06	0.06	0.06	0.07	0.07
Total OECD (non-OPEC+)	**26.33**	**27.39**	**28.55**	**26.80**	**26.94**	**27.68**	**28.10**	**28.13**	**28.37**	**27.71**	**27.80**
Non-OECD											
FSU	0.35	0.32	0.31	0.34	0.30	0.31	0.31	0.32	0.31	0.32	0.32
Asia	6.24	6.23	6.20	6.32	6.30	6.15	6.16	6.26	6.23	6.09	6.25
China	4.06	4.18	4.21	4.23	4.23	4.12	4.13	4.26	4.17	4.06	4.25
India	0.73	0.70	0.69	0.72	0.71	0.70	0.69	0.68	0.69	0.69	0.68
Indonesia	0.68	0.63	0.61	0.65	0.63	0.62	0.63	0.62	0.64	0.62	0.63
Others	0.77	0.72	0.67	0.73	0.72	0.71	0.71	0.69	0.72	0.71	0.69
Europe	0.11	0.11	0.10	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10
Americas	5.30	5.64	6.09	5.44	5.46	5.77	5.88	5.95	5.83	5.85	5.89
Brazil	3.00	3.12	3.41	3.08	3.00	3.16	3.23	3.28	3.18	3.17	3.21
Argentina	0.64	0.71	0.77	0.69	0.70	0.72	0.74	0.76	0.74	0.74	0.76
Colombia	0.74	0.76	0.76	0.75	0.76	0.76	0.77	0.77	0.77	0.77	0.77
Ecuador	0.48	0.47	0.47	0.47	0.45	0.47	0.46	0.47	0.47	0.48	0.47
Others	0.43	0.58	0.68	0.44	0.55	0.66	0.67	0.67	0.67	0.68	0.68
Middle East	1.92	1.93	1.95	1.91	1.94	1.94	1.94	1.95	1.94	1.94	1.95
Qatar	1.82	1.84	1.85	1.82	1.84	1.84	1.84	1.85	1.84	1.84	1.85
Others	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Africa	1.12	1.11	1.11	1.11	1.11	1.11	1.10	1.11	1.10	1.11	1.11
Egypt	0.59	0.60	0.60	0.59	0.61	0.60	0.60	0.60	0.60	0.60	0.60
Others	0.53	0.51	0.51	0.52	0.50	0.51	0.51	0.51	0.50	0.51	0.51
Total non-OECD (non-OPEC+)	**15.04**	**15.33**	**15.76**	**15.24**	**15.22**	**15.37**	**15.49**	**15.69**	**15.52**	**15.41**	**15.61**
Processing gains	2.25	2.31	2.35	2.28	2.29	2.32	2.34	2.31	2.35	2.38	2.33
Global biofuels	2.79	2.95	3.13	2.54	3.10	3.33	2.84	2.64	2.69	2.72	2.63
TOTAL NON-OPEC+	**46.41**	**47.98**	**49.79**	**46.86**	**47.55**	**48.71**	**48.78**	**48.77**	**48.92**	**48.22**	**48.36**
TOTAL SUPPLY	**95.38**	**100.07**	**101.29**	**98.83**	**98.84**	**101.16**	**101.42**	**100.89**	**101.52**	**100.78**	**100.79**

1 From Feb 2023, OPEC+ supply reflects latest OPEC+ deal and individual country's sustainable capacity. Libya, Iran, Venezuela held at most recent level through 2023.

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			
	Aug2022	Sep2022	Oct2022	Nov2022	Dec2022[3]	Dec2019	Dec2020	Dec2021	1Q2022	2Q2022	3Q2022	4Q2022
OECD INDUSTRY-CONTROLLED STOCKS[1]												
OECD Americas												
Crude	572.2	578.9	593.9	572.8	584.2	566.5	642.3	588.4	-0.23	0.03	0.09	0.06
Motor Gasoline	242.5	236.2	238.7	248.8	254.3	280.4	273.2	259.6	0.08	-0.22	-0.11	0.20
Middle Distillate	180.2	174.2	175.1	185.6	182.4	211.8	231.5	195.7	-0.20	0.01	-0.05	0.09
Residual Fuel Oil	35.1	34.4	36.0	35.5	36.3	36.4	38.0	32.2	0.03	0.01	-0.01	0.02
Total Products[4]	735.1	732.3	735.0	750.9	732.0	798.2	804.0	730.7	-0.48	0.23	0.32	0.00
Total[5]	**1469.6**	**1468.8**	**1488.6**	**1484.0**	**1479.2**	**1521.9**	**1613.5**	**1470.0**	**-0.64**	**0.32**	**0.35**	**0.11**
OECD Europe												
Crude	327.6	337.2	331.5	341.0	334.8	352.1	371.0	303.3	0.23	0.18	-0.03	-0.03
Motor Gasoline	87.2	87.2	86.3	87.0	84.5	91.7	98.7	85.4	0.06	-0.06	0.01	-0.03
Middle Distillate	241.1	235.5	238.0	239.6	246.7	277.0	317.1	243.1	-0.05	-0.01	-0.03	0.12
Residual Fuel Oil	61.1	66.2	67.0	69.1	70.2	59.5	67.1	59.5	0.04	0.02	0.02	0.04
Total Products[4]	501.4	500.3	498.2	502.2	507.5	546.0	595.3	484.9	0.06	0.09	0.03	0.08
Total[5]	**905.6**	**918.5**	**914.4**	**928.1**	**925.6**	**977.8**	**1042.9**	**857.2**	**0.37**	**0.24**	**0.08**	**0.08**
OECD Asia Oceania												
Crude	119.2	127.6	121.1	128.7	135.1	154.7	152.7	99.4	0.07	-0.12	0.36	0.08
Motor Gasoline	23.5	23.5	24.7	25.8	24.4	26.8	25.9	24.0	0.02	0.00	-0.02	0.01
Middle Distillate	61.6	62.4	68.8	72.3	61.9	72.5	66.3	64.2	-0.09	0.06	0.01	-0.01
Residual Fuel Oil	15.4	16.3	18.6	19.5	17.5	17.4	15.6	16.9	-0.02	0.01	0.00	0.01
Total Products[4]	164.9	168.2	182.1	184.1	166.3	175.3	168.5	162.7	-0.05	0.08	0.03	-0.02
Total[5]	**344.4**	**358.5**	**364.9**	**373.3**	**362.6**	**393.8**	**380.1**	**323.6**	**-0.09**	**0.02**	**0.44**	**0.04**
Total OECD												
Crude	1019.0	1043.6	1046.5	1042.5	1054.1	1073.3	1165.9	991.0	0.07	0.09	0.42	0.11
Motor Gasoline	353.2	346.8	349.6	361.5	363.2	398.9	397.8	369.0	0.16	-0.28	-0.12	0.18
Middle Distillate	482.9	472.1	481.8	497.5	491.0	561.2	615.0	503.0	-0.33	0.06	-0.07	0.21
Residual Fuel Oil	111.6	116.9	121.6	124.1	123.9	113.3	120.6	108.6	0.05	0.04	0.01	0.08
Total Products[4]	1401.3	1400.7	1415.3	1437.2	1405.8	1519.5	1567.8	1378.2	-0.47	0.40	0.37	0.05
Total[5]	**2719.6**	**2745.8**	**2767.9**	**2785.4**	**2767.3**	**2893.5**	**3036.5**	**2650.7**	**-0.36**	**0.57**	**0.87**	**0.23**
OECD GOVERNMENT-CONTROLLED STOCKS[6]												
OECD Americas												
Crude	445.1	416.4	398.6	388.4	373.3	635.0	638.1	593.7	-0.31	-0.80	-0.84	-0.47
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	195.1	194.0	193.4	195.9	195.3	207.5	205.2	200.3	-0.02	-0.04	-0.01	0.01
Products	254.3	252.3	251.7	256.2	258.9	273.0	280.1	277.0	-0.09	-0.14	-0.04	0.07
OECD Asia Oceania												
Crude	350.1	342.3	343.7	346.4	342.8	377.3	374.6	370.1	-0.03	-0.11	-0.17	0.01
Products	37.3	37.3	36.0	35.9	35.6	38.9	39.1	38.9	-0.01	-0.01	0.00	-0.02
Total OECD												
Crude	990.3	952.7	935.6	930.7	911.4	1219.7	1217.9	1164.0	-0.35	-0.94	-1.02	-0.45
Products	293.6	291.6	289.7	294.0	296.6	313.9	321.2	317.9	-0.11	-0.14	-0.04	0.05
Total[5]	**1285.0**	**1245.4**	**1226.2**	**1226.1**	**1209.8**	**1535.3**	**1541.2**	**1483.7**	**-0.46**	**-1.08**	**-1.06**	**-0.39**

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)

	July			August			September			October			November		
	2021	2022	%	2021	2022	%	2021	2022	%	2021	2022	%	2021	2022	%
United States[2]															
Crude	438.7	424.2	-3.3	421.5	419.7	-0.4	420.3	428.8	2.0	436.6	439.4	0.6	433.4	416.3	-3.9
Motor Gasoline	230.8	225.6	-2.3	225.6	215.6	-4.4	227.0	209.6	-7.7	216.7	211.0	-2.6	220.6	221.3	0.3
Middle Distillate	187.7	154.8	-17.5	182.2	152.7	-16.2	176.8	147.6	-16.5	175.8	148.2	-15.7	171.2	160.1	-6.5
Residual Fuel Oil	29.4	29.1	-1.0	29.8	28.6	-4.0	27.8	27.3	-1.8	28.7	29.8	3.8	27.9	29.1	4.3
Other Products	248.9	238.6	-4.1	256.5	254.6	-0.7	261.3	264.9	1.4	256.4	263.2	2.7	244.8	258.5	5.6
Total Products	696.8	648.1	-7.0	694.1	651.5	-6.1	692.9	649.4	-6.3	677.6	652.2	-3.7	664.5	669.0	0.7
Other[3]	142.6	143.1	0.4	134.6	141.2	4.9	137.7	136.8	-0.7	138.8	139.1	0.2	135.8	140.7	3.6
Total	**1278.1**	**1215.4**	**-4.9**	**1250.2**	**1212.4**	**-3.0**	**1250.9**	**1215.0**	**-2.9**	**1253.0**	**1230.7**	**-1.8**	**1233.7**	**1226.0**	**-0.6**
Japan															
Crude	70.5	66.7	-5.4	73.9	76.2	3.1	70.8	86.2	21.8	72.8	79.1	8.7	78.1	82.7	5.9
Motor Gasoline	9.9	8.8	-11.1	9.9	9.6	-3.0	10.2	9.7	-4.9	11.6	9.7	-16.4	10.4	11.0	5.8
Middle Distillate	30.8	28.8	-6.5	34.4	30.9	-10.2	36.2	31.4	-13.3	36.6	34.5	-5.7	36.9	37.0	0.3
Residual Fuel Oil	7.1	6.2	-12.7	7.3	6.8	-6.8	7.4	6.8	-8.1	6.9	7.3	5.8	6.5	7.3	12.3
Other Products	31.7	35.8	12.9	36.3	36.9	1.7	37.7	39.1	3.7	39.1	39.8	1.8	36.4	38.8	6.6
Total Products	79.5	79.6	0.1	87.9	84.2	-4.2	91.5	87.0	-4.9	94.2	91.3	-3.1	90.2	94.1	4.3
Other[3]	51.1	47.1	-7.8	52.9	49.2	-7.0	51.4	51.2	-0.4	49.9	50.7	1.6	50.9	49.7	-2.4
Total	**201.1**	**193.4**	**-3.8**	**214.7**	**209.6**	**-2.4**	**213.7**	**224.4**	**5.0**	**216.9**	**221.1**	**1.9**	**219.2**	**226.5**	**3.3**
Germany															
Crude	50.6	48.4	-4.3	47.8	47.9	0.2	45.3	47.8	5.5	46.4	52.0	12.1	47.0	50.4	7.2
Motor Gasoline	9.1	10.4	14.3	9.5	9.2	-3.2	9.6	10.5	9.4	10.6	10.4	-1.9	10.6	10.1	-4.7
Middle Distillate	25.4	23.5	-7.5	25.1	23.1	-8.0	21.8	24.0	10.1	21.2	24.2	14.2	22.4	24.1	7.6
Residual Fuel Oil	7.9	7.8	-1.3	8.1	8.2	1.2	8.1	9.2	13.6	8.1	9.3	14.8	8.5	9.0	5.9
Other Products	10.1	10.3	2.0	10.5	10.4	-1.0	10.3	10.9	5.8	10.7	10.7	0.0	10.4	10.8	3.8
Total Products	52.5	52.0	-1.0	53.2	50.9	-4.3	49.8	54.6	9.6	50.6	54.6	7.9	51.9	54.0	4.0
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	**103.1**	**100.4**	**-2.6**	**101.0**	**98.8**	**-2.2**	**95.1**	**102.4**	**7.7**	**97.0**	**106.6**	**9.9**	**98.9**	**104.4**	**5.6**
Italy															
Crude	36.0	34.3	-4.7	32.9	36.2	10.0	33.6	40.0	19.0	31.8	34.4	8.2	36.1	40.5	12.2
Motor Gasoline	9.4	10.0	6.4	9.3	10.2	9.7	9.6	11.1	15.6	11.7	10.2	-12.8	11.3	9.7	-14.2
Middle Distillate	22.6	22.6	0.0	26.6	21.7	-18.4	26.6	22.8	-14.3	25.1	24.0	-4.4	23.8	23.4	-1.7
Residual Fuel Oil	7.0	7.2	2.9	7.5	7.0	-6.7	7.0	8.1	15.7	7.1	8.1	14.1	7.5	7.9	5.3
Other Products	10.8	11.6	7.4	11.5	10.7	-7.0	11.0	11.6	5.5	11.1	11.3	1.8	10.9	10.8	-0.9
Total Products	49.8	51.4	3.2	54.9	49.6	-9.7	54.2	53.6	-1.1	55.0	53.6	-2.5	53.5	51.8	-3.2
Other[3]	13.9	14.6	5.0	14.3	14.6	2.1	14.8	14.3	-3.4	15.4	13.9	-9.7	14.5	13.5	-6.9
Total	**99.7**	**100.3**	**0.6**	**102.1**	**100.4**	**-1.7**	**102.6**	**107.9**	**5.2**	**102.2**	**101.9**	**-0.3**	**104.1**	**105.8**	**1.6**
France															
Crude	13.6	12.0	-11.8	13.4	11.5	-14.2	12.2	11.6	-4.9	12.6	15.9	26.2	11.9	13.7	15.1
Motor Gasoline	3.8	5.6	47.4	4.2	5.4	28.6	4.0	4.6	15.0	4.0	4.7	17.5	4.1	4.6	12.2
Middle Distillate	21.6	19.5	-9.7	21.3	21.8	2.3	19.5	17.2	-11.8	17.0	19.5	14.7	18.0	21.0	16.7
Residual Fuel Oil	2.0	2.6	30.0	1.7	3.0	76.5	2.0	2.5	25.0	1.6	1.9	18.8	1.7	2.4	41.2
Other Products	3.3	3.7	12.1	3.1	3.7	19.4	3.2	4.0	25.0	3.3	3.6	9.1	3.4	3.6	5.9
Total Products	30.7	31.4	2.3	30.3	33.9	11.9	28.7	28.3	-1.4	25.9	29.7	14.7	27.2	31.6	16.2
Other[3]	7.6	7.0	-7.9	7.0	7.1	1.4	7.0	7.6	8.6	7.0	7.7	10.0	6.5	7.9	21.5
Total	**51.9**	**50.4**	**-2.9**	**50.7**	**52.5**	**3.6**	**47.9**	**47.5**	**-0.8**	**45.5**	**53.3**	**17.1**	**45.6**	**53.2**	**16.7**
United Kingdom															
Crude	26.8	27.4	2.2	24.0	25.9	7.9	24.9	27.9	12.0	24.8	21.1	-14.9	23.4	21.6	-7.7
Motor Gasoline	9.4	9.0	-4.3	9.3	9.2	-1.1	8.7	9.4	8.0	9.5	8.9	-6.3	9.8	8.8	-10.2
Middle Distillate	24.5	20.0	-18.4	23.7	18.6	-21.5	21.4	19.1	-10.7	21.3	17.5	-17.8	22.1	18.0	-18.6
Residual Fuel Oil	1.5	1.2	-20.0	1.2	1.5	25.0	1.3	1.4	7.7	1.3	1.4	7.7	1.6	1.6	0.0
Other Products	6.3	6.9	9.5	6.9	6.9	0.0	7.1	7.1	0.0	6.5	6.6	1.5	6.1	7.0	14.8
Total Products	41.7	37.1	-11.0	41.1	36.2	-11.9	38.5	37.0	-3.9	38.6	34.4	-10.9	39.6	35.4	-10.6
Other[3]	8.8	7.8	-11.4	8.2	7.4	-9.8	8.2	7.5	-8.5	9.0	9.0	0.0	9.1	8.7	-4.4
Total	**77.3**	**72.3**	**-6.5**	**73.3**	**69.5**	**-5.2**	**71.6**	**72.4**	**1.1**	**72.4**	**64.5**	**-10.9**	**72.1**	**65.7**	**-8.9**
Canada[4]															
Crude	133.7	118.6	-11.3	132.2	118.9	-10.1	133.3	116.1	-12.9	138.0	120.3	-12.8	137.5	122.5	-10.9
Motor Gasoline	14.8	14.6	-1.4	13.9	14.7	5.8	14.4	15.1	4.9	14.9	15.6	4.7	15.9	15.6	-1.9
Middle Distillate	19.8	17.4	-12.1	20.2	17.5	-13.4	17.5	16.7	-4.6	16.9	16.9	0.0	17.8	16.5	-7.3
Residual Fuel Oil	2.8	1.9	-32.1	2.0	2.3	15.0	2.4	2.4	0.0	2.6	2.0	-23.1	2.2	2.4	9.1
Other Products	12.0	13.5	12.5	12.0	13.6	13.3	11.2	13.3	18.8	10.8	12.8	18.5	11.4	13.2	15.8
Total Products	49.4	47.4	-4.0	48.1	48.1	0.0	45.5	47.5	4.4	45.2	47.3	4.6	47.3	47.7	0.8
Other[3]	25.7	20.7	-19.5	26.7	21.1	-21.0	25.3	20.7	-18.2	25.3	20.4	-19.4	23.8	19.5	-18.1
Total	**208.8**	**186.7**	**-10.6**	**207.0**	**188.1**	**-9.1**	**204.1**	**184.3**	**-9.7**	**208.5**	**188.0**	**-9.8**	**208.6**	**189.7**	**-9.1**

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 December 2021		End March 2022		End June 2022		End September 2022		End December 2022 [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	201.7	90	185.7	84	187.9	79	184.3	-	-	-
Chile	10.8	28	10.3	27	9.9	26	10.6	-	-	-
Mexico	36.7	22	35.7	20	36.6	20	36.7	-	-	-
United States[4]	1794.3	89	1721.7	85	1675.0	82	1633.5	-	-	-
Total[4]	**2065.6**	**84**	**1975.5**	**80**	**1931.5**	**77**	**1887.2**	**75**	**1854.5**	**74**
OECD Asia Oceania										
Australia	37.6	36	40.0	37	38.3	35	35.8	-	-	-
Israel	-	-	-	-	-	-	-	-	-	-
Japan	519.4	140	500.5	165	502.8	158	522.4	-	-	-
Korea	168.8	62	174.6	70	165.9	65	174.5	-	-	-
New Zealand	6.8	44	6.2	43	6.2	40	5.5	-	-	-
Total	**732.6**	**93**	**721.4**	**103**	**713.3**	**99**	**738.1**	**97**	**741.0**	**92**
OECD Europe[5]										
Austria	20.9	85	24.1	98	20.0	80	17.4	-	-	-
Belgium	43.3	68	42.9	74	44.8	75	45.4	-	-	-
Czech Republic	22.5	107	22.2	100	22.3	101	22.6	-	-	-
Denmark	22.7	161	20.3	135	21.7	141	21.1	-	-	-
Estonia	2.5	90	2.6	77	2.3	75	2.3	-	-	-
Finland	36.2	189	38.4	209	41.0	205	40.4	-	-	-
France	151.6	98	148.8	99	144.6	89	142.3	-	-	-
Germany	268.9	125	269.0	125	267.8	119	266.5	-	-	-
Greece	29.4	107	29.2	104	29.8	88	30.1	-	-	-
Hungary	27.0	143	28.0	152	29.2	156	28.6	-	-	-
Ireland	10.8	70	10.6	72	10.3	69	10.3	-	-	-
Italy	112.5	96	116.3	94	119.3	94	123.3	-	-	-
Latvia	2.6	76	2.8	79	2.8	68	2.8	-	-	-
Lithuania	8.2	137	9.8	161	8.4	117	8.2	-	-	-
Luxembourg	0.6	11	0.5	11	0.7	14	0.6	-	-	-
Netherlands	109.5	130	123.9	139	127.1	144	125.2	-	-	-
Norway	21.4	112	26.3	171	25.5	106	26.0	-	-	-
Poland	80.6	112	82.8	113	82.4	112	82.1	-	-	-
Portugal	20.9	89	21.3	84	22.5	85	21.1	-	-	-
Slovak Republic	12.2	134	12.8	135	13.2	141	13.5	-	-	-
Slovenia	5.2	108	4.6	86	4.8	92	4.5	-	-	-
Spain	104.9	84	106.6	81	107.9	83	111.5	-	-	-
Sweden	30.1	99	28.2	104	30.2	94	32.7	-	-	-
Switzerland	31.5	168	30.2	173	29.9	150	28.2	-	-	-
Republic of Türkiye	87.4	96	87.6	86	87.8	80	86.6	-	-	-
United Kingdom	72.8	55	68.6	49	67.3	48	72.4	-	-	-
Total	**1336.2**	**101**	**1358.4**	**101**	**1363.8**	**97**	**1365.9**	**102**	**1381.7**	**105**
Total OECD	**4134.4**	**90**	**4055.3**	**90**	**4008.6**	**86**	**3991.2**	**86**	**3977.1**	**86**
DAYS OF IEA Net Imports[6]	**-**	**156**	**-**	**156**	**-**	**243**	**-**	**241**	**-**	**-**

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 December 2022 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]		
4Q2019	4429	1535	2894	98	34	64
1Q2020	4518	1537	2981	121	41	80
2Q2020	4778	1561	3217	113	37	76
3Q2020	4732	1551	3181	110	36	74
4Q2020	4578	1541	3037	108	36	72
1Q2021	4472	1546	2926	102	35	67
2Q2021	4407	1524	2884	97	33	63
3Q2021	4282	1513	2770	92	32	59
4Q2021	4134	1484	2651	90	32	58
1Q2022	4055	1442	2613	90	32	58
2Q2022	4009	1343	2665	86	29	57
3Q2022	3991	1245	2746	86	27	59
4Q2022	3977	1210	2767	86	26	60

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 4Q2022 (where latest forecasts are used).

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

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
Saudi Light & Extra Light												
Americas	0.20	0.26	0.34	0.43	0.44	0.46	0.52	0.48	0.35	0.44	0.49	-0.06
Europe	0.68	0.59	0.48	0.55	0.53	0.68	0.60	0.57	0.57	0.58	0.52	0.07
Asia Oceania	1.42	1.39	1.30	1.48	1.57	1.36	1.53	1.42	1.48	1.66	1.41	0.25
Saudi Medium												
Americas	0.12	0.14	0.01	-	-	-	-	-	-	-	-	-
Europe	0.02	0.02	0.01	-	0.00	0.04	0.03	0.02	0.00	-	-	-
Asia Oceania	0.23	0.25	0.21	0.26	0.20	0.26	0.26	0.20	0.17	0.26	0.25	0.01
Canada Heavy												
Americas	2.27	2.39	2.59	2.82	2.69	2.54	2.58	2.71	2.72	2.61	2.94	-0.33
Europe	0.04	0.03	0.03	0.03	0.03	0.09	0.08	0.09	0.11	0.09	0.02	0.06
Asia Oceania	0.00	0.00	0.02	0.00	0.01	0.01	0.01	0.03	-	-	0.01	-
Iraqi Basrah Light[2]												
Americas	0.31	0.11	0.08	0.17	0.16	0.30	0.25	0.33	0.19	0.21	0.11	0.10
Europe	0.85	0.58	0.62	0.71	0.61	0.64	0.82	0.80	0.64	0.76	0.77	-0.02
Asia Oceania	0.37	0.22	0.17	0.19	0.17	0.20	0.26	0.29	0.22	0.35	0.26	0.08
Kuwait Blend												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.11	0.04	-	-	-	-	-	-	-	-	-	-
Asia Oceania	0.61	0.55	0.48	0.52	0.58	0.42	0.47	0.39	0.41	0.51	0.53	-0.03
Iranian Light												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.00	-	-	-	-	-	-	-	-	-	-	-
Asia Oceania	0.00	-	-	-	-	-	-	-	-	-	-	-
Iranian Heavy[3]												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.04	-	-	-	-	-	-	-	-	-	-	-
Asia Oceania	0.14	-	-	-	-	-	-	-	-	-	-	-
BFOE												
Americas	0.00	-	0.00	-	-	-	-	-	-	-	-	-
Europe	0.37	0.42	0.36	0.40	0.38	0.44	0.44	0.37	0.34	0.31	0.38	-0.07
Asia Oceania	0.01	0.03	0.05	0.05	0.02	0.06	0.02	0.07	-	-	0.00	-
Kazakhstan												
Americas	-	-	0.01	-	-	-	-	-	-	-	-	-
Europe	0.76	0.74	0.69	0.68	0.86	0.69	0.67	0.57	0.55	0.62	0.60	0.02
Asia Oceania	0.18	0.07	0.09	0.10	0.14	0.16	0.09	0.04	0.11	0.14	0.07	0.07
Venezuelan 22 API and heavier												
Americas	0.05	-	-	-	-	-	-	-	-	-	-	-
Europe	0.09	0.04	-	-	-	-	0.04	-	-	0.03	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
Mexican Maya												
Americas	0.51	0.48	0.40	0.32	0.36	0.47	0.40	0.40	0.46	0.28	0.38	-0.10
Europe	0.19	0.16	0.14	0.12	0.11	0.07	0.09	0.07	0.10	0.17	0.13	0.03
Asia Oceania	0.13	0.12	0.14	0.13	0.08	0.05	0.04	0.03	0.10	0.04	0.14	-0.09
Russian Urals												
Americas	0.01	-	-	-	-	-	-	-	-	-	-	-
Europe	1.37	1.12	1.05	1.15	1.08	0.79	0.71	0.75	0.50	0.47	1.24	-0.77
Asia Oceania	-	-	0.01	-	-	-	-	-	-	-	-	-
Cabinda and Other Angola												
North America	0.01	0.01	-	-	-	-	0.00	-	-	-	-	-
Europe	0.15	0.12	0.03	0.04	0.06	0.26	0.29	0.20	0.28	0.36	-	-
Pacific	0.00	-	-	-	-	-	0.01	0.02	0.03	-	-	-
Nigerian Light[4]												
Americas	0.03	-	0.02	-	-	-	0.01	-	-	-	-	-
Europe	0.51	0.49	0.41	0.52	0.47	0.43	0.29	0.29	0.23	0.64	0.49	0.16
Asia Oceania	0.02	0.02	0.01	0.01	-	-	0.02	0.02	0.02	-	-	-
Libya Light and Medium												
Americas	0.00	-	0.02	-	-	-	-	-	-	-	-	-
Europe	0.67	0.19	0.80	0.78	0.66	0.56	0.52	0.76	0.86	0.69	0.78	-0.09
Asia Oceania	0.03	0.01	0.02	0.03	0.02	0.02	0.01	0.02	-	0.03	0.03	0.00

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier % change
Crude Oil												
Americas	2722	1896	2077	2128	2096	2075	2161	2007	1969	2309	2142	8%
Europe	9872	8349	8516	9137	8892	9196	9298	9437	8625	9134	9247	-1%
Asia Oceania	6541	5579	5519	5876	6101	5363	6197	6019	5336	5978	5921	1%
Total OECD	**19136**	**15823**	**16113**	**17141**	**17089**	**16633**	**17656**	**17463**	**15930**	**17422**	**17311**	**1%**
LPG												
Americas	26	28	21	25	39	21	24	25	14	31	24	32%
Europe	434	422	404	424	470	503	497	483	550	556	405	38%
Asia Oceania	583	559	563	528	681	569	533	519	490	575	482	19%
Total OECD	**1042**	**1009**	**988**	**977**	**1189**	**1093**	**1054**	**1027**	**1054**	**1163**	**911**	**28%**
Naphtha												
Americas	5	7	8	8	6	6	7	6	2	6	6	11%
Europe	347	409	512	563	399	409	225	152	231	151	564	-73%
Asia Oceania	990	1003	1146	1199	1078	971	1063	985	1089	1075	1148	-6%
Total OECD	**1342**	**1419**	**1667**	**1770**	**1482**	**1386**	**1295**	**1143**	**1322**	**1232**	**1718**	**-28%**
Gasoline[3]												
Americas	812	576	805	574	485	890	733	670	579	582	535	9%
Europe	112	109	106	89	102	125	108	102	82	61	39	56%
Asia Oceania	110	116	146	129	157	175	173	216	177	179	100	79%
Total OECD	**1034**	**801**	**1057**	**793**	**745**	**1190**	**1014**	**988**	**837**	**822**	**674**	**22%**
Jet & Kerosene												
Americas	174	159	165	179	120	123	115	87	163	162	137	18%
Europe	520	337	334	411	306	429	538	575	597	566	395	43%
Asia Oceania	72	60	71	82	71	76	69	70	123	143	111	30%
Total OECD	**766**	**556**	**570**	**673**	**497**	**629**	**722**	**732**	**883**	**871**	**643**	**36%**
Gasoil/Diesel												
Americas	118	134	197	222	158	76	41	26	50	164	274	-40%
Europe	1300	1192	1192	1262	1093	1145	1152	1240	1521	1317	1433	-8%
Asia Oceania	261	328	352	377	299	352	314	351	303	342	430	-21%
Total OECD	**1679**	**1654**	**1740**	**1862**	**1551**	**1572**	**1507**	**1617**	**1874**	**1824**	**2138**	**-15%**
Heavy Fuel Oil												
Americas	116	143	102	104	139	135	82	84	118	189	66	187%
Europe	223	295	374	375	302	253	244	260	277	254	480	-47%
Asia Oceania	101	88	119	129	117	96	68	70	90	64	138	-54%
Total OECD	**440**	**526**	**594**	**607**	**559**	**484**	**393**	**415**	**485**	**507**	**684**	**-26%**
Other Products												
Americas	714	591	580	509	496	534	502	424	496	468	506	-8%
Europe	865	574	575	689	667	557	622	670	582	619	754	-18%
Asia Oceania	261	207	233	241	221	182	218	267	225	200	226	-11%
Total OECD	**1840**	**1372**	**1389**	**1440**	**1384**	**1274**	**1342**	**1361**	**1303**	**1286**	**1486**	**-13%**
Total Products												
Americas	1965	1639	1878	1621	1443	1786	1502	1322	1422	1602	1547	4%
Europe	3800	3339	3497	3814	3339	3421	3385	3482	3840	3525	4070	-13%
Asia Oceania	2378	2360	2630	2686	2624	2420	2438	2480	2496	2578	2636	-2%
Total OECD	**8144**	**7338**	**8005**	**8121**	**7407**	**7627**	**7326**	**7284**	**7758**	**7705**	**8253**	**-7%**
Total Oil												
Americas	4688	3534	3955	3749	3540	3861	3663	3329	3391	3912	3690	6%
Europe	13672	11688	12013	12951	12231	12617	12683	12918	12466	12659	13317	-5%
Asia Oceania	8919	7939	8150	8562	8725	7783	8635	8499	7832	8557	8557	0%
Total OECD	**27279**	**23161**	**24118**	**25262**	**24496**	**24260**	**24982**	**24747**	**23688**	**25127**	**25564**	**-2%**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier % change
Crude Oil												
Americas	2573	1835	1982	2027	2033	2012	2093	1937	1895	2235	2081	7%
Europe	8913	7115	7264	7832	7550	7681	7618	7873	7033	7277	7836	-7%
Asia Oceania	5914	5051	4910	5312	5480	4849	5659	5524	4663	5409	5291	2%
Total OECD	**17399**	**14002**	**14156**	**15171**	**15062**	**14542**	**15370**	**15334**	**13590**	**14921**	**15207**	**-2%**
LPG												
Americas	23	22	20	25	37	21	24	25	14	31	24	32%
Europe	303	252	242	251	253	249	236	264	279	287	248	16%
Asia Oceania	74	58	47	33	90	53	55	41	47	87	21	325%
Total OECD	**400**	**331**	**309**	**309**	**379**	**323**	**315**	**331**	**339**	**405**	**292**	**39%**
Naphtha												
Americas	2	1	4	5	3	2	2	1	0	4	3	69%
Europe	320	390	425	485	338	332	224	152	228	151	441	-66%
Asia Oceania	895	832	975	1073	942	929	953	872	976	964	1018	-5%
Total OECD	**1217**	**1223**	**1404**	**1563**	**1283**	**1263**	**1179**	**1024**	**1203**	**1119**	**1462**	**-23%**
Gasoline[3]												
Americas	304	195	248	176	111	233	214	162	104	109	149	-27%
Europe	108	104	100	80	84	103	90	86	68	53	21	150%
Asia Oceania	84	98	141	129	157	174	173	216	176	178	100	79%
Total OECD	**496**	**397**	**489**	**385**	**352**	**511**	**477**	**464**	**349**	**341**	**270**	**26%**
Jet & Kerosene												
Americas	41	55	63	93	43	33	25	24	104	58	54	7%
Europe	464	297	298	362	303	381	464	463	455	409	327	25%
Asia Oceania	72	60	71	82	71	76	69	70	123	143	111	30%
Total OECD	**576**	**413**	**433**	**538**	**416**	**489**	**558**	**558**	**681**	**610**	**491**	**24%**
Gasoil/Diesel												
Americas	86	103	134	146	87	26	12	7	4	65	190	-66%
Europe	1126	1062	1109	1186	1026	1062	1037	1088	1358	1169	1365	-14%
Asia Oceania	260	323	352	377	299	352	314	351	303	342	430	-21%
Total OECD	**1472**	**1488**	**1595**	**1709**	**1412**	**1439**	**1364**	**1446**	**1665**	**1576**	**1985**	**-21%**
Heavy Fuel Oil												
Americas	102	110	86	77	109	101	56	36	92	128	34	276%
Europe	202	279	347	350	282	239	215	230	261	227	460	-51%
Asia Oceania	100	88	119	129	117	96	68	70	90	64	138	-54%
Total OECD	**404**	**477**	**552**	**555**	**508**	**436**	**339**	**337**	**443**	**419**	**633**	**-34%**
Other Products												
Americas	543	514	530	463	455	471	397	367	385	370	444	-17%
Europe	629	352	398	498	481	379	433	451	422	449	576	-22%
Asia Oceania	177	130	155	150	148	114	141	179	135	152	153	0%
Total OECD	**1350**	**996**	**1083**	**1111**	**1083**	**964**	**971**	**997**	**942**	**971**	**1172**	**-17%**
Total Products												
Americas	1102	1000	1085	985	844	887	730	623	703	764	897	-15%
Europe	3152	2735	2920	3211	2767	2745	2701	2734	3069	2746	3438	-20%
Asia Oceania	1662	1590	1860	1974	1824	1792	1773	1800	1849	1932	1971	-2%
Total OECD	**5915**	**5325**	**5864**	**6169**	**5434**	**5424**	**5203**	**5157**	**5621**	**5442**	**6305**	**-14%**
Total Oil												
Americas	3675	2835	3067	3012	2876	2900	2824	2560	2598	2999	2978	1%
Europe	12064	9850	10183	11043	10317	10425	10318	10607	10102	10023	11273	-11%
Asia Oceania	7576	6641	6769	7286	7304	6642	7431	7324	6512	7340	7261	1%
Total OECD	**23315**	**19327**	**20020**	**21341**	**20497**	**19966**	**20573**	**20491**	**19211**	**20363**	**21512**	**-5%**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier % change
Crude Oil												
Americas	149	60	95	101	64	62	68	70	74	75	62	21%
Europe	959	1234	1252	1305	1342	1515	1681	1564	1593	1857	1412	32%
Asia Oceania	628	527	610	563	621	514	538	495	673	570	630	-10%
Total OECD	**1736**	**1821**	**1957**	**1969**	**2027**	**2091**	**2286**	**2129**	**2340**	**2501**	**2104**	**19%**
LPG												
Americas	3	6	1	0	2	0	0	0	0	0	0	na
Europe	131	171	162	173	217	254	261	218	271	269	157	72%
Asia Oceania	508	501	516	495	591	517	478	478	444	488	462	6%
Total OECD	**642**	**678**	**679**	**669**	**810**	**771**	**739**	**697**	**715**	**757**	**619**	**22%**
Naphtha												
Americas	3	6	4	2	2	4	4	5	2	2	3	-36%
Europe	27	20	87	79	61	77	1	0	3	0	123	-100%
Asia Oceania	96	170	172	126	136	42	110	114	113	111	130	-15%
Total OECD	**125**	**196**	**263**	**207**	**200**	**123**	**115**	**119**	**118**	**113**	**256**	**-56%**
Gasoline[3]												
Americas	508	382	557	399	375	656	518	508	475	473	386	23%
Europe	4	5	6	9	18	22	18	16	14	8	18	-55%
Asia Oceania	26	18	5	0	0	0	0	0	0	0	0	-75%
Total OECD	**538**	**404**	**567**	**408**	**393**	**679**	**536**	**524**	**489**	**481**	**404**	**19%**
Jet & Kerosene												
Americas	133	103	102	86	78	90	90	63	59	105	84	25%
Europe	56	40	35	49	3	48	74	112	142	156	68	130%
Asia Oceania	0	0	0	0	0	1	0	0	0	0	0	na
Total OECD	**190**	**144**	**138**	**135**	**81**	**139**	**164**	**175**	**201**	**261**	**152**	**72%**
Gasoil/Diesel												
Americas	31	31	63	76	71	50	29	19	46	99	84	18%
Europe	174	131	82	77	67	83	114	152	163	148	68	117%
Asia Oceania	1	4	0	0	0	0	0	0	0	0	0	-5%
Total OECD	**206**	**166**	**146**	**153**	**138**	**133**	**143**	**171**	**209**	**247**	**152**	**62%**
Heavy Fuel Oil												
Americas	14	33	16	27	31	34	25	48	26	61	32	92%
Europe	21	16	26	25	20	14	28	30	17	27	19	41%
Asia Oceania	1	0	0	0	0	0	0	0	0	0	0	na
Total OECD	**36**	**49**	**42**	**52**	**50**	**48**	**53**	**77**	**43**	**88**	**51**	**72%**
Other Products												
Americas	171	78	50	47	41	64	105	57	111	98	62	58%
Europe	236	222	178	191	187	178	189	219	161	169	178	-5%
Asia Oceania	83	77	78	91	73	69	77	88	90	48	73	-35%
Total OECD	**491**	**377**	**306**	**329**	**301**	**310**	**371**	**364**	**362**	**315**	**314**	**1%**
Total Products												
Americas	864	639	793	636	600	899	772	700	719	838	651	29%
Europe	649	604	577	603	572	676	685	748	771	779	632	23%
Asia Oceania	716	770	771	713	801	628	665	680	647	646	665	-3%
Total OECD	**2228**	**2013**	**2141**	**1952**	**1973**	**2203**	**2122**	**2127**	**2137**	**2263**	**1948**	**16%**
Total Oil												
Americas	1013	699	888	737	663	961	840	770	793	913	712	28%
Europe	1608	1838	1829	1908	1914	2191	2365	2312	2364	2636	2044	29%
Asia Oceania	1343	1297	1381	1276	1422	1141	1203	1175	1320	1216	1296	-6%
Total OECD	**3964**	**3834**	**4098**	**3921**	**3999**	**4294**	**4408**	**4256**	**4477**	**4764**	**4052**	**18%**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
OECD Americas												
Venezuela	81	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	865	745	719	731	780	802	917	952	784	1012	756	255
North Sea	148	59	92	101	64	62	60	70	74	75	62	13
Other OECD Europe	2	1	3	-	-	-	-	-	-	-	-	-
Non-OECD Europe	-	-	-	-	-	-	-	-	-	-	-	-
Former Soviet Union	192	91	229	185	103	27	25	-	52	6	209	-204
Saudi Arabia	621	588	427	520	571	569	487	462	474	507	605	-97
Kuwait	45	21	21	20	24	25	14	-	41	39	25	14
Iran	-	-	3	-	6	-	-	-	-	-	-	-
Iraq	331	177	152	192	225	229	277	231	195	265	165	100
Oman	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	3	5	17	22	10	19	19	-	-	-	-	-
Other Middle East	-	-	-	-	-	-	-	-	-	-	-	-
West Africa[2]	267	145	228	180	171	211	201	150	137	174	184	-9
Other Africa	137	45	161	157	144	131	139	120	212	232	104	128
Asia	32	17	25	22	-	-	21	21	-	-	33	-
Other	0	3	-	-	-	-	-	-	-	-	-	-
Total	**2722**	**1896**	**2077**	**2128**	**2096**	**2075**	**2161**	**2007**	**1969**	**2309**	**2142**	**167**
of which Non-OECD	**2573**	**1835**	**1982**	**2027**	**2033**	**2012**	**2093**	**1937**	**1895**	**2235**	**2081**	**154**
OECD Europe												
Canada	60	95	83	55	79	139	125	123	188	147	76	71
Mexico + USA	900	1139	1169	1250	1263	1376	1556	1441	1405	1709	1335	374
Venezuela	106	44	-	-	-	-	35	-	-	37	-	-
Other Central & South America	118	208	219	194	217	402	562	627	551	328	160	168
Non-OECD Europe	14	25	23	23	20	12	12	15	13	18	22	-4
Former Soviet Union	4239	3504	3538	3849	4060	3197	2951	2971	2500	2731	3925	-1194
Saudi Arabia	792	756	518	483	523	779	867	1021	799	811	444	367
Kuwait	97	48	0	0	-	-	-	-	-	-	-	-
Iran	74	6	1	-	-	-	-	-	-	-	-	-
Iraq	1124	814	912	1018	881	1013	1121	1108	918	990	1110	-121
Oman	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	2	-	-	-	-	31	86	78	61	78	-	-
Other Middle East	3	8	9	6	-	6	11	-	31	-	-	-
West Africa[2]	1140	1074	822	947	807	1169	971	697	885	1080	951	129
Other Africa	1180	596	1197	1282	996	1038	981	1325	1249	1201	1223	-22
Asia	-	0	0	-	5	-	-	-	-	-	-	-
Other	13	11	1	6	3	8	-	-	-	-	-	-
Total	**9863**	**8329**	**8493**	**9113**	**8855**	**9170**	**9278**	**9406**	**8600**	**9130**	**9247**	**-117**
of which Non-OECD	**8913**	**7115**	**7264**	**7832**	**7550**	**7681**	**7618**	**7873**	**7033**	**7277**	**7836**	**-558**
OECD Asia Oceania												
Canada	5	1	16	3	9	6	10	32	-	-	10	-
Mexico + USA	613	477	496	463	582	452	486	395	648	570	586	-16
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	48	91	110	97	129	102	140	138	86	142	105	37
North Sea	10	49	98	97	30	56	42	69	25	-	35	-
Other OECD Europe	-	-	-	-	-	-	-	-	-	-	-	-
Non-OECD Europe	-	-	-	-	-	-	-	-	-	-	-	-
Former Soviet Union	435	300	335	376	405	272	116	61	136	178	333	-155
Saudi Arabia	1878	1867	1766	2020	2029	1862	2040	1886	1944	1925	1937	-12
Kuwait	666	584	506	563	624	472	516	442	476	554	571	-17
Iran	137	-	-	-	-	-	-	-	-	-	-	-
Iraq	364	224	167	192	172	204	262	295	220	287	263	25
Oman	59	22	32	22	28	39	68	33	30	33	-	-
United Arab Emirates	1256	1096	1083	1184	1145	1200	1509	1538	1326	1263	1260	3
Other Middle East	449	387	362	301	442	326	424	403	289	291	252	39
West Africa[2]	56	65	71	79	52	61	88	135	90	29	79	-50
Other Africa	90	42	56	39	42	31	32	41	60	30	22	8
Non-OECD Asia	220	161	175	153	126	130	97	77	122	154	136	18
Other	254	210	241	280	277	151	367	477	-120	512	328	184
Total	**6541**	**5577**	**5515**	**5869**	**6093**	**5363**	**6197**	**6019**	**5333**	**5967**	**5915**	**52**
of which Non-OECD	**5914**	**5051**	**4910**	**5312**	**5480**	**4849**	**5659**	**5524**	**4663**	**5409**	**5291**	**118**
Total OECD Trade	**19126**	**15801**	**16085**	**17111**	**17044**	**16608**	**17636**	**17432**	**15902**	**17406**	**17305**	**102**
of which Non-OECD	**17399**	**14002**	**14156**	**15171**	**15062**	**14542**	**15370**	**15334**	**13590**	**14921**	**15207**	**-287**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
OECD Americas												
Venezuela	4	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	83	40	41	51	12	44	61	59	12	52	28	23
ARA (Belgium Germany Netherlands)	188	149	194	96	126	255	199	182	111	106	78	28
Other Europe	294	213	327	273	222	364	266	273	334	333	297	36
FSU	79	56	83	58	31	3	0	0	-	-	71	-
Saudi Arabia	7	6	24	-	6	62	19	22	18	24	-	-
Algeria	-	4	1	-	-	-	2	5	-	4	-	-
Other Middle East & Africa	14	13	13	4	8	14	22	14	17	11	11	0
Singapore	5	1	4	3	-	-	4	9	-	-	1	-
OECD Asia Oceania	28	21	37	30	27	39	54	53	31	34	11	23
Non-OECD Asia (excl. Singapore)	112	72	81	60	53	108	107	53	57	13	38	-25
Other	0	-	0	-	-	0	-	-	-	6	-	-
Total[2]	**812**	**576**	**805**	**574**	**485**	**890**	**733**	**670**	**579**	**582**	**535**	**47**
of which Non-OECD	**304**	**195**	**248**	**176**	**111**	**233**	**214**	**162**	**104**	**109**	**149**	**-40**
OECD Europe												
OECD Americas	3	3	5	8	17	21	17	14	14	7	17	-10
Venezuela	0	0	2	-	2	2	3	4	5	3	-	-
Other Central & South America	3	4	7	5	14	4	14	20	6	6	3	4
Non-OECD Europe	18	16	10	6	5	6	14	21	5	12	6	5
FSU	54	31	8	2	7	24	3	6	2	2	2	1
Saudi Arabia	0	8	3	0	0	1	2	-	-	-	-	-
Algeria	0	1	-	-	-	12	7	-	10	2	-	-
Other Middle East & Africa	8	3	5	2	11	9	6	7	3	6	2	5
Singapore	3	2	0	0	1	2	1	1	1	3	0	3
OECD Asia Oceania	1	1	1	1	1	1	1	2	-	1	1	0
Non-OECD Asia (excl. Singapore)	0	0	3	3	3	2	4	4	7	1	3	-2
Other	21	37	62	61	41	41	37	23	28	17	6	11
Total[2]	**112**	**107**	**106**	**89**	**102**	**125**	**108**	**102**	**82**	**61**	**39**	**22**
of which Non-OECD	**108**	**104**	**100**	**80**	**84**	**103**	**90**	**86**	**68**	**53**	**21**	**32**
OECD Asia Oceania												
OECD Americas	6	4	1	0	0	0	0	0	0	0	0	0
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central & South America	-	-	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	14	4	4	0	0	0	-	-	0	0	0	0
Other Europe	5	10	0	0	0	0	-	-	0	0	0	0
FSU	0	0	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	1	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East & Africa	-	1	-	-	-	-	-	-	-	-	-	-
Singapore	46	51	100	120	135	122	121	122	111	144	90	55
Non-OECD Asia (excl. Singapore)	21	37	29	0	14	44	35	63	26	25	1	24
Other	17	9	12	9	9	9	16	31	40	9	9	0
Total[2]	**110**	**116**	**146**	**129**	**157**	**175**	**173**	**216**	**177**	**179**	**100**	**79**
of which Non-OECD	**84**	**98**	**141**	**129**	**157**	**174**	**173**	**216**	**176**	**178**	**100**	**79**
Total OECD Trade[2]	**1034**	**799**	**1057**	**793**	**745**	**1190**	**1014**	**988**	**837**	**822**	**674**	**147**
of which Non-OECD	**496**	**397**	**489**	**385**	**352**	**511**	**477**	**464**	**349**	**341**	**270**	**71**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
OECD Americas												
Venezuela	1	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	38	34	28	20	3	6	12	7	4	1	34	-33
ARA (Belgium Germany Netherlands)	5	11	34	22	40	6	3	4	1	19	21	-2
Other Europe	2	4	5	10	2	3	0	0	0	6	22	-16
FSU	6	12	25	33	25	-	-	-	-	-	50	-
Saudi Arabia	3	8	15	18	18	15	-	-	-	5	8	-2
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	2	9	25	26	8	-	-	-	-	18	26	-8
Singapore	0	-	2	-	2	-	-	-	-	1	-	-
OECD Asia Oceania	24	16	25	44	29	42	26	15	44	74	41	33
Non-OECD Asia (excl. Singapore)	30	34	27	31	0	2	-	-	-	15	46	-31
Other	7	6	12	18	31	3	-	-	-	24	26	-1
Total[2]	**118**	**134**	**197**	**222**	**158**	**76**	**41**	**26**	**50**	**164**	**274**	**-110**
of which Non-OECD	**86**	**103**	**134**	**146**	**87**	**26**	**12**	**7**	**4**	**65**	**190**	**-125**
OECD Europe												
OECD Americas	138	99	40	33	31	61	97	117	114	107	21	86
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	0	3	1	3	1	1	3	9	0	-	0	-
Non-OECD Europe	41	30	35	32	39	46	43	65	59	41	28	12
FSU	608	627	611	516	595	472	506	437	454	559	580	-21
Saudi Arabia	205	193	140	153	98	163	186	210	217	251	176	75
Algeria	0	2	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	83	71	158	222	137	160	147	134	243	174	228	-54
Singapore	27	17	19	22	39	50	28	50	34	24	16	8
OECD Asia Oceania	36	32	42	44	36	22	18	35	50	41	48	-7
Non-OECD Asia (excl. Singapore)	152	101	126	195	88	149	105	173	344	111	320	-209
Other	10	15	20	43	30	20	19	10	6	10	17	-7
Total[2]	**1300**	**1190**	**1191**	**1262**	**1092**	**1145**	**1152**	**1240**	**1521**	**1317**	**1433**	**-116**
of which Non-OECD	**1126**	**1062**	**1109**	**1186**	**1026**	**1062**	**1037**	**1088**	**1358**	**1169**	**1365**	**-195**
OECD Asia Oceania												
OECD Americas	1	4	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	-
FSU	4	2	1	1	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	7	13	4	3	-	11	14	-	-	-	7	-
Singapore	111	91	109	110	123	117	112	87	97	109	121	-12
Non-OECD Asia (excl. Singapore)	133	208	229	259	168	217	177	238	166	225	298	-73
Other	5	9	8	5	8	7	11	26	40	8	5	4
Total[2]	**261**	**328**	**352**	**377**	**299**	**352**	**314**	**351**	**303**	**342**	**430**	**-88**
of which Non-OECD	**260**	**323**	**352**	**377**	**299**	**352**	**314**	**351**	**303**	**342**	**430**	**-88**
Total OECD Trade[2]	**1679**	**1652**	**1740**	**1861**	**1550**	**1572**	**1507**	**1617**	**1874**	**1824**	**2138**	**-314**
of which Non-OECD	**1472**	**1488**	**1595**	**1709**	**1412**	**1439**	**1364**	**1446**	**1665**	**1576**	**1985**	**-409**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
OECD Americas												
Venezuela	0	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	7	5	1	-	-	-	-	-	3	-	-	-
ARA (Belgium Germany Netherlands)	-	-	5	-	-	0	-	-	1	-	-	-
Other Europe	0	4	7	10	0	1	-	-	0	-	-	-
FSU	-	0	4	16	3	-	-	-	-	-	11	-
Saudi Arabia	2	6	6	17	5	-	-	-	-	-	-	-
Algeria	-	1	4	5	-	-	-	-	-	4	2	2
Other Middle East and Africa	10	11	18	22	11	10	6	5	52	19	4	15
Singapore	3	4	2	-	2	2	1	2	-	2	-	-
OECD Asia Oceania	133	100	91	76	78	90	90	63	59	105	84	21
Non-OECD Asia (excl. Singapore)	16	23	27	33	17	18	17	17	48	32	36	-5
Other	3	4	1	-	5	4	1	-	-	-	-	-
Total[2]	**174**	**159**	**165**	**179**	**120**	**123**	**115**	**87**	**163**	**162**	**137**	**25**
of which Non-OECD	**41**	**55**	**63**	**93**	**43**	**33**	**25**	**24**	**104**	**58**	**54**	**4**
OECD Europe												
OECD Americas	20	13	3	9	1	4	6	11	15	14	15	-1
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	1	0	0	1	-	1	1	-	-	-	2	-
Non-OECD Europe	2	0	0	0	-	4	4	9	0	11	-	-
FSU	41	21	27	21	20	12	16	14	15	17	13	4
Saudi Arabia	105	40	27	21	37	58	62	59	71	62	30	32
Algeria	11	9	5	-	3	8	5	-	-	-	-	-
Other Middle East and Africa	199	155	155	168	154	186	210	235	169	151	151	0
Singapore	29	10	11	15	6	11	26	41	9	3	20	-17
OECD Asia Oceania	36	27	32	40	2	44	68	102	127	142	53	89
Non-OECD Asia (excl. Singapore)	73	50	62	113	78	95	125	104	190	166	114	51
Other	2	10	9	22	4	2	14	2	-	0	-4	4
Total[2]	**520**	**336**	**333**	**411**	**306**	**425**	**538**	**575**	**597**	**566**	**395**	**171**
of which Non-OECD	**464**	**297**	**298**	**362**	**303**	**381**	**464**	**463**	**455**	**409**	**327**	**82**
OECD Asia Oceania												
OECD Americas	-	-	0	0	0	0	-	-	0	0	0	0
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	-	-	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	-	-	0	-	-	-	-	-	-	-	-	-
Other Europe	-	-	0	-	-	1	-	-	-	-	-	-
FSU	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	-	-	1	-	-	0	-	-	-	0	-	-
Singapore	21	14	16	19	26	28	42	32	43	54	16	38
Non-OECD Asia (excl. Singapore)	29	28	34	29	20	38	20	28	63	70	54	16
Other	22	18	21	34	25	9	7	11	16	19	40	-22
Total[2]	**72**	**60**	**71**	**82**	**71**	**76**	**69**	**70**	**123**	**143**	**111**	**33**
of which Non-OECD	**72**	**60**	**71**	**82**	**71**	**76**	**69**	**70**	**123**	**143**	**111**	**33**
Total OECD Trade[2]	**766**	**555**	**570**	**673**	**497**	**624**	**722**	**732**	**883**	**871**	**643**	**229**
of which Non-OECD	**576**	**413**	**433**	**538**	**416**	**489**	**558**	**558**	**681**	**610**	**491**	**119**

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)

	2019	2020	2021	4Q21	1Q22	2Q22	3Q22	Sep 22	Oct 22	Nov 22	Year Earlier Nov 21	Year Earlier change
OECD Americas												
Venezuela	7	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	50	52	34	44	55	53	36	20	55	90	12	78
ARA (Belgium Germany Netherlands)	6	12	6	9	6	11	14	40	19	35	1	34
Other Europe	8	21	10	18	25	23	11	8	7	26	31	-4
FSU	29	43	34	18	46	24	4	-	21	6	14	-7
Saudi Arabia	2	2	0	2	1	12	8	8	-	15	5	10
Algeria	8	2	7	13	-	10	4	-	-	3	4	-2
Other Middle East and Africa	5	10	8	0	6	1	3	2	4	10	-	-
Singapore	1	1	0	-	-	-	-	-	-	-	-	-
OECD Asia Oceania	-	-	0	-	-	-	-	-	-	-	-	-
Non-OECD Asia (excl. Singapore)	0	-	2	-	-	-	2	6	12	4	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total[2]	**116**	**143**	**102**	**104**	**139**	**135**	**82**	**84**	**118**	**189**	**66**	**123**
of which Non-OECD	**102**	**110**	**86**	**77**	**109**	**101**	**56**	**36**	**92**	**128**	**34**	**94**
OECD Europe												
OECD Americas	7	12	24	20	13	6	21	27	10	13	12	1
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	5	6	4	1	1	3	6	-	-	21	-	-
Non-OECD Europe	21	13	12	11	17	35	47	58	54	4	7	-4
FSU	144	141	247	279	216	119	89	60	53	42	376	-334
Saudi Arabia	-	2	-	-	-	-	-	-	-	-	-	-
Algeria	0	2	2	3	-	13	4	-	-	7	-	-
Other Middle East and Africa	19	13	14	13	11	34	9	5	44	46	9	37
Singapore	1	3	3	2	5	0	2	2	-	-	-	-
OECD Asia Oceania	14	4	3	5	7	7	7	2	7	14	7	7
Non-OECD Asia (excl. Singapore)	3	-	-	-	-	-	3	7	7	7	-	-
Other	8	93	59	41	30	33	51	89	62	100	68	32
Total[2]	**222**	**288**	**368**	**374**	**300**	**251**	**238**	**250**	**237**	**254**	**480**	**-226**
of which Non-OECD	**202**	**279**	**347**	**350**	**282**	**239**	**215**	**230**	**261**	**227**	**460**	**-234**
OECD Asia Oceania												
OECD Americas	1	-	-	-	-	-	-	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-
Other Central and South America	-	0	-	-	-	-	-	-	-	-	-	-
ARA (Belgium Germany Netherlands)	-	-	0	-	-	0	-	-	0	-	-	-
Other Europe	-	-	-	-	-	-	-	-	0	-	-	-
FSU	6	5	0	-	-	-	-	-	-	-	-	-
Saudi Arabia	1	1	13	25	12	29	15	-	-	22	22	0
Algeria	-	-	-	-	-	-	-	-	-	-	-	-
Other Middle East and Africa	27	38	30	30	6	6	2	6	14	4	49	-45
Singapore	25	18	29	23	34	21	19	29	4	15	27	-12
Non-OECD Asia (excl. Singapore)	40	26	47	51	64	39	32	36	71	23	40	-17
Other	1	-	-	-	-	-	-	-	-	-	-	-
Total[2]	**101**	**88**	**119**	**129**	**117**	**96**	**68**	**70**	**90**	**64**	**138**	**-74**
of which Non-OECD	**100**	**88**	**119**	**129**	**117**	**96**	**68**	**70**	**90**	**64**	**138**	**-74**
Total OECD Trade[2]	**439**	**519**	**588**	**607**	**556**	**482**	**387**	**405**	**445**	**507**	**684**	**-177**
of which Non-OECD	**404**	**477**	**552**	**555**	**508**	**436**	**339**	**337**	**443**	**419**	**633**	**-214**

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	1Q22	2Q22	3Q22	4Q22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23
CRUDE PRICES													
IEA CIF Average Import[1]													
IEA Europe	64.25	42.91	70.67	97.95	111.08	102.38		102.23	92.19	92.14	91.79		
IEA Americas	56.93	37.31	64.78	86.94	106.20	92.16		91.78	83.23	81.52	78.55		
IEA Asia Oceania	66.38	46.28	70.41	89.86	113.01	111.62		110.99	107.28	102.95	94.84		
IEA Total	**62.75**	**42.19**	**68.87**	**92.72**	**110.17**	**101.91**		**101.72**	**93.49**	**91.92**	**89.14**		
SPOT PRICES[2]													
North Sea Dated	41.76	70.82	101.10	102.12	113.90	100.66	88.36	99.63	89.76	93.11	91.10	80.36	82.86
North Sea Dated M1	42.90	71.51	101.17	101.45	114.15	100.16	89.54	99.19	91.49	94.52	92.28	81.31	84.19
WTI (Cushing) M1	39.25	68.10	94.67	95.18	108.77	91.91	82.82	91.57	83.96	87.26	84.78	76.50	78.11
WTI (Houston) M1	40.71	69.01	96.27	96.77	109.96	94.04	84.33	93.61	86.34	89.60	86.27	77.21	79.59
Urals	41.21	69.00	76.58	89.49	79.11	75.41	62.46	74.63	68.59	73.28	65.40	47.87	45.83
Dubai M1	42.36	69.35	96.32	96.06	108.12	96.79	84.68	96.43	91.10	91.08	86.12	77.09	80.41
PRODUCT PRICES[2]													
Northwest Europe													
Gasoline	44.64	80.07	117.16	110.20	146.06	114.30	99.41	111.23	98.47	110.80	102.07	84.51	97.41
Diesel	49.34	78.41	142.39	124.88	160.84	145.21	139.55	142.81	139.29	162.68	134.75	120.56	124.73
Jet/Kero	45.80	77.31	139.96	122.94	165.15	142.09	130.90	142.85	134.91	138.99	132.07	121.11	128.40
Naphtha	40.18	71.58	86.64	99.99	97.26	77.03	72.63	74.18	70.37	75.57	75.15	66.76	77.51
HSFO	33.99	61.18	76.72	84.19	92.98	70.72	59.67	76.18	63.12	60.23	61.74	56.80	60.32
0.5% Fuel Oil	48.50	76.78	107.14	109.62	126.09	106.56	87.19	106.23	96.12	94.38	88.73	77.95	85.56
Mediterranean Europe													
Gasoline	45.57	80.50	119.90	111.66	147.99	117.35	103.89	112.32	99.07	108.74	112.24	89.60	100.32
Diesel	48.82	77.93	136.16	122.53	156.54	136.06	130.46	133.39	132.06	148.51	129.87	112.15	123.96
Jet/Kero	45.57	77.19	140.07	123.04	164.87	142.30	131.28	143.11	135.16	139.44	132.50	121.36	128.65
Naphtha	39.04	70.65	84.74	98.64	94.95	75.37	70.36	72.44	68.91	73.55	73.01	64.08	75.83
HSFO	34.17	60.05	73.58	82.75	89.63	65.84	56.73	72.15	52.07	57.51	58.64	53.81	55.53
US Gulf Coast													
Gasoline	47.30	86.49	123.12	116.70	153.69	119.07	103.04	115.54	106.77	116.16	102.36	90.55	106.15
Diesel	50.26	84.73	145.79	126.70	167.83	146.96	141.65	148.23	140.22	159.40	141.16	124.37	133.56
Jet/Kero	46.30	77.95	140.06	121.54	163.46	140.49	134.73	139.74	136.19	148.53	133.22	122.36	148.09
Naphtha	40.12	72.24	91.33	99.45	105.15	84.63	76.09	87.05	75.70	81.05	76.50	70.75	84.75
HSFO	34.71	59.90	77.10	83.38	93.04	76.51	55.48	81.74	61.76	52.59	59.87	54.18	55.23
0.5% Fuel Oil	49.88	79.69	113.04	114.08	133.17	112.20	92.69	111.24	99.54	100.80	94.68	82.69	91.63
Singapore													
Gasoline	45.28	78.49	110.99	111.63	137.95	106.08	89.89	107.19	94.03	91.16	93.11	85.09	95.49
Diesel	49.60	77.80	135.52	119.08	159.99	138.17	126.25	139.12	129.66	137.25	127.61	113.75	116.12
Jet/Kero	45.06	75.29	126.96	113.53	147.63	129.57	118.30	131.73	121.58	123.40	121.01	110.22	115.07
Naphtha	40.94	71.02	83.96	98.04	92.73	74.63	70.92	72.73	68.22	71.86	74.22	66.34	72.52
HSFO	38.33	63.20	77.81	85.69	98.18	69.96	58.60	74.95	60.36	57.46	61.74	56.28	58.90
0.5% Fuel Oil	52.85	80.81	116.91	115.97	139.05	116.26	97.77	110.92	101.48	105.77	99.25	88.14	92.84

1IEA CIF Average Import price for Nov 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

January 2023

	NATIONAL CURRENCY [1]						US DOLLARS					
	Total Price	% change from Dec-22	% change from Jan-22	Ex-Tax Price	% change from Dec-22	% change from Jan-22	Total Price	% change from Dec-22	% change from Jan-22	Ex-Tax Price	% change from Dec-22	% change from Jan-22
GASOLINE [2] (per litre)												
France	1.844	9.4	8.6	0.846	18.7	16.9	1.986	11.3	3.3	0.911	20.7	11.2
Germany	1.784	2.1	2.1	0.803	-1.5	-1.4	1.921	3.8	-2.9	0.865	0.2	-6.1
Italy	1.830	9.6	4.2	0.772	-5.3	8.4	1.971	11.5	-0.9	0.831	-3.6	3.2
Spain	1.624	0.2	7.8	0.869	0.2	12.6	1.749	1.9	2.6	0.936	2.0	7.1
United Kingdom	1.494	- 3.9	3.0	0.715	-6.5	13.7	1.826	-3.4	-7.2	0.874	-6.1	2.5
Japan	168.2	0.1	0.1	96.3	0.1	0.1	1.288	3.3	-12.0	0.737	3.3	-11.9
Canada	1.530	5.9	2.3	1.064	8.5	5.6	1.139	7.2	-3.8	0.792	9.8	-0.8
United States	0.882	4.0	0.7	0.750	4.7	0.5	0.882	4.0	0.7	0.750	4.7	0.5
AUTOMOTIVE DIESEL FOR NON COMMERCIAL USE (per litre)												
France	1.882	6.8	16.6	0.959	11.6	30.3	2.027	8.7	10.9	1.033	13.6	24.0
Germany	1.842	1.4	14.0	1.048	-0.9	18.0	1.984	3.1	8.4	1.129	0.9	12.3
Italy	1.881	8.4	15.8	0.925	-5.6	29.6	2.026	10.3	10.2	0.996	-4.0	23.3
Spain	1.683	- 0.7	21.7	1.012	-1.0	32.5	1.813	1.0	15.8	1.090	0.7	26.0
United Kingdom	1.720	- 4.0	15.4	0.904	-6.1	36.6	2.102	-3.6	4.1	1.105	-5.7	23.1
Japan	148.2	-	0.1	102.7	-	0.1	1.135	3.2	-11.9	0.786	3.2	-12.0
Canada	1.961	- 4.7	27.9	1.497	-5.0	37.3	1.460	-3.5	20.2	1.115	-3.8	29.1
United States	1.209	- 2.9	22.9	1.056	-3.3	26.6	1.209	-2.9	22.9	1.056	-3.3	26.6
DOMESTIC HEATING OIL (per litre)												
France	1.366	2.5	25.6	0.982	2.9	30.9	1.471	4.2	19.5	1.057	4.7	24.5
Germany	1.235	- 0.6	31.7	0.928	-5.5	27.7	1.330	1.1	25.3	0.999	-3.9	21.5
Italy	1.656	0.6	15.0	0.954	0.8	22.8	1.784	2.3	9.4	1.028	2.5	16.8
Spain	1.172	0.3	33.8	0.872	0.3	39.0	1.262	2.0	27.3	0.939	2.0	32.2
United Kingdom	0.924	- 0.8	28.0	0.778	-0.9	35.1	1.129	-0.3	15.4	0.951	-0.4	21.8
Japan [3]	111.3	0.1	4.4	98.4	0.1	4.6	0.852	3.3	-8.1	0.753	3.3	-8.0
Canada	1.970	1.0	36.6	1.756	1.0	39.6	1.467	2.2	28.4	1.307	2.2	31.1
United States	-	-	-	-	-	-	-	-	-	-	-	-
LOW SULPHUR FUEL OIL FOR INDUSTRY [4] (per kg)												
France	0.653	- 0.7	- 5.9	0.513	-0.9	-7.4	0.703	1.0	-10.5	0.553	0.8	-11.9
Germany	-	-	-	-	-	-	-	-	-	-	-	-
Italy	0.642	0.5	1.0	0.611	0.5	1.0	0.691	2.2	-3.9	0.658	2.2	-3.9
Spain	0.587	- 7.2	15.5	0.570	-7.4	16.0	0.632	-5.6	9.9	0.614	-5.8	10.4
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.

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Table 15
IEA Global Indicator Refining Margins

$/bbl	2020	2021	2022	1Q22	2Q22	3Q22	4Q22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23
NW Europe													
Light sweet hydroskimming	1.11	2.54	10.02	5.27	15.29	8.94	10.81	9.59	12.60	18.20	8.00	6.12	11.21
Light sweet cracking	2.07	3.51	16.18	8.85	22.17	15.19	18.77	14.76	18.73	28.10	15.32	12.75	18.20
Light sweet cracking + Petchem	3.23	6.55	18.41	10.98	26.45	16.98	19.60	16.72	19.25	27.95	16.36	14.38	18.44
Medium sour cracking*	4.30	6.11	39.13	21.55	59.43	37.59	38.87	35.46	36.92	51.37	43.03	21.16	24.48
Mediumsour cracking + Petchem*	5.44	9.07	41.30	23.63	63.59	39.33	39.69	37.37	37.42	51.22	44.03	22.79	24.72
Mediterranean													
Light sweet hydroskimming	2.36	2.90	9.05	4.13	13.88	7.56	10.84	8.32	13.16	16.58	9.22	6.59	11.21
Light sweet cracking	3.34	4.97	16.79	8.76	23.71	15.85	19.14	15.53	20.07	25.52	17.62	14.12	20.05
Medium sour cracking	5.70	5.68	21.64	11.85	30.24	20.49	24.36	20.65	22.74	30.72	22.78	19.42	27.89
US Gulf Coast													
Light sweet cracking	4.28	11.04	26.64	16.54	38.22	26.72	25.10	25.62	25.24	33.60	22.71	18.86	29.74
Medium sour cracking	6.61	15.79	35.70	25.08	47.39	35.32	35.01	34.26	32.85	43.51	32.36	29.05	40.17
Heavy sour coking	9.73	19.98	45.91	32.06	55.43	46.40	49.73	43.63	46.34	62.38	48.59	38.16	54.39
US Midwest													
Light sweet cracking	3.74	12.33	29.85	13.95	40.42	34.23	30.81	33.17	36.13	44.90	33.72	13.94	27.06
Heavy sour coking	13.26	26.02	50.57	32.07	60.64	53.96	55.59	50.68	56.76	71.61	59.49	35.85	54.29
Singapore													
Light sweet cracking	0.20	3.10	11.48	7.94	18.69	10.93	8.75	11.75	8.85	9.10	8.27	8.92	13.13
Light sweet cracking + Petchem	2.03	4.82	12.94	8.63	20.69	12.83	10.05	13.84	11.28	10.28	9.18	10.77	13.84
Medium sour cracking	1.80	3.92	12.87	9.85	23.35	7.91	10.83	8.98	4.63	9.01	12.17	11.19	14.78
Medium sour cracking + Petchem	3.61	5.61	14.31	10.53	25.33	9.79	12.11	11.04	7.02	10.17	13.07	13.01	15.48

Source: IEA, Argus Media Ltd prices.

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

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

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

	Sep-22	Oct-22	Nov-22	Nov-21	Nov 22 vs Previous Month	Nov 22 vs Previous Year	Nov 22 vs 5 Year Average	5 Year Average
OECD Americas								
Naphtha	0.9	0.9	1.0	1.2	0.1	-0.2	-0.4	1.4
Motor gasoline	44.8	46.2	46.4	47.5	0.2	-1.1	-1.3	47.7
Jet/kerosene	8.7	8.7	8.8	7.8	0.1	1.0	0.4	8.4
Gasoil/diesel oil	28.9	29.2	29.4	28.4	0.2	1.0	0.6	28.8
Residual fuel oil	3.3	3.2	2.9	3.1	-0.3	-0.1	-0.1	3.0
Petroleum coke	4.2	4.2	4.2	4.1	0.1	0.1	-0.1	4.4
Other products	12.9	11.6	11.3	11.3	-0.2	0.0	0.7	10.6
OECD Europe								
Naphtha	7.8	8.7	8.3	8.2	-0.4	0.0	-0.1	8.4
Motor gasoline	20.4	19.5	20.6	21.7	1.2	-1.1	-0.7	21.3
Jet/kerosene	8.6	7.7	7.5	6.6	-0.2	0.9	0.1	7.4
Gasoil/diesel oil	39.4	39.9	41.2	41.5	1.3	-0.3	0.8	40.4
Residual fuel oil	8.9	9.3	8.0	8.2	-1.3	-0.2	-0.7	8.7
Petroleum coke	1.7	1.7	1.6	1.5	-0.1	0.1	0.2	1.4
Other products	15.9	15.2	15.2	15.1	0.0	0.0	0.1	15.1
OECD Asia Oceania								
Naphtha	16.4	16.0	16.7	16.2	0.7	0.5	0.5	16.1
Motor gasoline	20.8	21.0	21.2	23.4	0.2	-2.2	-1.1	22.3
Jet/kerosene	13.0	13.5	14.0	12.7	0.4	1.2	-0.3	14.3
Gasoil/diesel oil	30.7	31.3	30.4	30.5	-0.9	0.0	0.5	29.9
Residual fuel oil	8.9	8.9	8.9	8.0	0.0	0.9	1.5	7.4
Petroleum coke	0.4	0.3	0.3	0.5	0.0	-0.1	0.0	0.4
Other products	12.0	11.9	11.3	12.5	-0.6	-1.2	-0.8	12.1
OECD Total								
Naphtha	5.7	5.9	5.9	6.0	0.0	-0.1	-0.3	6.2
Motor gasoline	33.0	33.5	34.1	35.1	0.6	-1.0	-0.6	34.7
Jet/kerosene	9.4	9.2	9.2	8.2	0.1	1.0	0.1	9.1
Gasoil/diesel oil	32.5	33.0	33.3	33.0	0.3	0.3	0.6	32.7
Residual fuel oil	6.0	6.1	5.5	5.6	-0.6	0.0	-0.1	5.6
Petroleum coke	2.7	2.7	2.8	2.7	0.0	0.1	0.0	2.7
Other products	13.7	12.8	12.5	12.8	-0.3	-0.2	0.2	12.3

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)

	2020	2021	2022	2Q22	3Q22	4Q22	Nov 22	Dec 22	Jan 23
ETHANOL									
OECD Americas	**934**	**1008**	**1037**	**1038**	**1000**	**1056**	**1084**	**1040**	**1041**
United States	906	979	1006	1006	968	1025	1052	1008	1004
Other [1]	28	28	32	32	32	32			
OECD Europe	**95**	**101**	**109**	**119**	**124**	**84**	**33**	**116**	**106**
France	18	18	20	26	29	7	0	12	20
Germany	12	12	14	18	18	6	0	3	13
Spain	9	10	10	10	10	11	7	17	10
United Kingdom	6	9	9	8	8	11	8	17	9
Other [1]	50	53	55	58	60	48			
OECD Asia Oceania	**4**	**4**	**4**	**4**	**4**	**3**	**1**	**5**	**5**
Australia	4	4	4	4	4	3	0	4	4
Other [1]	0	0	0	0	0	0			
Total OECD Ethanol	**1033**	**1113**	**1150**	**1162**	**1128**	**1143**	**1117**	**1160**	**1152**
Total Non-OECD Ethanol	**751**	**718**	**756**	**865**	**1121**	**701**	**755**	**443**	**326**
Brazil	560	515	528	637	893	472	527	214	78
China [1]	69	76	81	79	79	86			
Argentina [1]	15	18	21	21	21	21			
Other	106	110	126	128	128	120	228	228	248
TOTAL ETHANOL	**1783**	**1832**	**1906**	**2027**	**2249**	**1844**	**1872**	**1603**	**1477**
BIODIESEL									
OECD Americas	**160**	**167**	**210**	**211**	**221**	**218**	**215**	**225**	**254**
United States	153	160	200	201	211	205	205	205	239
Other [1]	7	7	10	9	9	13			
OECD Europe	**274**	**302**	**314**	**340**	**329**	**258**	**88**	**365**	**316**
France	48	51	51	62	55	33	0	51	51
Germany	62	64	64	68	66	53	15	79	63
Italy [1]	28	24	25	30	30	20			
Spain	24	31	32	32	33	27	9	40	32
Other	112	133	142	147	145	125	60	166	144
OECD Asia Oceania	**12**	**12**	**12**	**14**	**15**	**7**	**0**	**11**	**12**
Australia	0	0	0	0	0	0	0	0	0
Other [1]	12	12	12	14	15	7			
Total OECD Biodiesel	**446**	**482**	**535**	**564**	**565**	**484**	**303**	**600**	**581**
Total Non-OECD Biodiesel	**422**	**472**	**513**	**513**	**513**	**513**	**513**	**513**	**571**
Brazil	111	116	108	105	116	110	109	105	135
Argentina [1]	27	36	42	42	42	42			
Other [1]	285	319	363	366	355	362			
TOTAL BIODIESEL	**868**	**954**	**1049**	**1078**	**1078**	**997**	**816**	**1114**	**1152**
GLOBAL BIOFUELS	**2651**	**2785**	**2955**	**3104**	**3327**	**2841**	**2688**	**2716**	**2630**

1 monthly data not available.

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