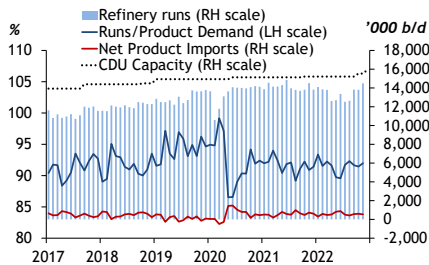


EDITORIAL: How China responds to surging domestic Covid rates will have implications for the global diesel markets

China: Crude runs and product trade



Market markers

- North Sea Dated down by nearly \$3.30/bl to \$77.11/bl
- WTI falls by over \$3.80/bl to under \$73.70/bl
- Global gasoline margins firm by \$2.35-7.70/bl
- Diesel margins weaken in Europe and Asia

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Chinese puzzle

China is opening up again. Beijing abandoned its zero-Covid policy last month and is starting to ease regulations that protected the country during the pandemic. But the implications for the global oil market are unclear as the virus is spreading rapidly, threatening China's economic recovery and oil demand prospects.

China's oil industry is closely regulated by the government. State-owned firms – Sinopec and PetroChina – own around two-thirds of refinery capacity and the government also uses crude import and products export quotas to control the activities of privately owned firms, especially independent refiners in Shandong province that account for around a quarter of China's crude distillation capacity. Domestic refinery margins can behave very differently from the wider international market as local shortages and surpluses distort prices within China when quotas prevent companies from taking advantage of arbitrage opportunities.

Beijing's zero-Covid policy locked down China's economy over the past three years, capping oil demand and restricting refinery runs. In 2019 – before the pandemic struck – China's refinery runs covered 94pc of the country's products demand, defined as refinery output plus net products trade. But this ratio slipped to just 92pc in the zero-Covid period as quotas restricted throughputs and products exports (see graph). Government policies effectively increased dependency on products imports, despite a significant margin of spare refinery capacity.

Last year, tight export controls on gasoline, diesel and jet fuel bottled up surplus refinery output inside China, depressing domestic margins and denying much-needed product supplies to the rest of the global market. Refinery margins in the rest of the world soared after Russia invaded Ukraine as there was not enough capacity to replace lost Russian products exports. Yet Beijing, wary of potential spillover effects from the disruption caused by the war in Ukraine, pushed domestic firms to build stocks rather than export fuel, cutting fuel export quotas.

Diesel exports from China averaged less than 80,000 b/d in the first half of last year compared with over 400,000 b/d before the pandemic in 2019. Refiners cut runs sharply as domestic margins were squeezed and low quotas restricted products exports to higher-priced global markets. Refinery utilisation rates fell to around 84pc during the summer, compared with 94pc over the same period a year earlier. But Beijing later relaxed restrictions, issuing higher products export quotas in September after complaints from powerful state-owned refiners.

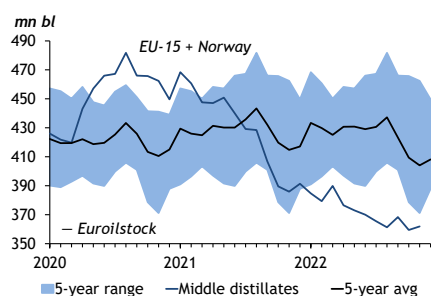
Since September, crude runs have picked up again, with diesel exports recovering. Refinery run rates averaged 91pc and diesel exports averaged 400,000 b/d in September-November. And Beijing continues to encourage oil products exports with its first batch of export quotas for this year – up by 46pc from a year earlier. Two big new coastal refineries are also starting up, boosting China's export potential.

How Beijing responds to the surge in Covid cases triggered by ending its zero-Covid policy will be critical for a global oil refining industry facing the prospect of further squeezes on diesel supply when the EU's import ban on Russian products begins next month. If Chinese oil demand slows and Beijing cuts export quotas, diesel markets could tighten again. If Beijing lets refiners use their spare capacity to export surpluses, diesel markets may have an easier ride.

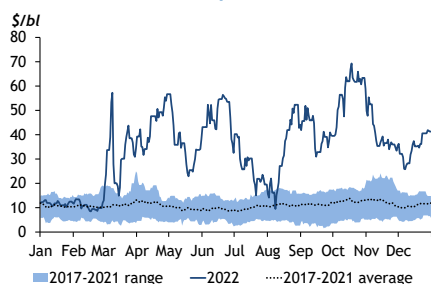
EUROPEAN PRODUCTS

Looming recession could result in refiners making deep run cuts, hitting diesel supply just as Russian imports dry up, write Benedict George and George Maher-Bonnett

EU-16 middle distillate stocks



NWE diesel crack spreads



Dwindling demand chases shrinking supply

Europe enters 2023 with demand for diesel waning as high energy prices and rampant inflation take their toll on the region's economic growth prospects. But the fall in consumption is still likely to be outpaced by constraints on supply once the EU's ban on Russian oil products imports takes effect on 5 February.

The ban was announced in June last year, but Europe has done little to prepare. There has been no gradual phase-out – Europe took more diesel and gasoil from Russia in November 2022 than it did a year earlier, according to data from Vortexa, and overall more than half the seaborne diesel and gasoil that arrived in Europe last year came from Russia – equivalent to around 10pc of regional demand. Inventories also sank to historic lows late last year – as soaring refining costs encouraged the use of stored diesel to meet marginal demand – before firms began to rebuild stocks in anticipation of supply disruption in the new year. Euroilstock data showed EU-15 and Norway middle distillate stockpiles at a 14-year low in October, with Dutch diesel stockpiles at the end of September at their lowest since at least 2014 (see graph).

Europe did get a taste of what might lie ahead in October, when industrial disputes in France shut five of the country's six refineries. These closures took roughly 225,000 b/d of diesel out of the European market, Argus estimates. Traders responded by importing more from Asia, but were at one point paying premiums of more than \$200/t over Singapore diesel prices for these shipments, pushing European diesel prices to a record \$77/bl premium to crude in mid-October (see graph).

The Russian import ban will hit even harder, starving Europe of around 450,000 b/d of diesel supply. And while the strikes in France were resolved within weeks, the thin prospects of an end to the war in Ukraine mean that the EU ban looks set to stay in place for much longer.

But the economic landscape has changed since October. Europe is edging steadily into recession, with eurozone GDP expected to contract in the fourth quarter of last year and first quarter of 2023, according to the European Central Bank. Inflation has been running at more than 10pc annually, prompting central banks to ratchet up interest rates to try to cool economic activity. All of this is already depressing diesel demand in the UK and Germany, and is likely to do the same elsewhere in Europe.

Forced down

Diesel demand fell by around 10pc in some European countries during the 2008-09 economic downturn, on a par with the proportion of regional diesel supply currently coming from Russia. But if the looming recession is as severe as its 2008-09 forebear, it will also hit demand for other products, and force European refiners to make deep run cuts. So Europe could still be left with a diesel shortfall, thanks to the possible simultaneous drop in regional production and cut-off of Russian imports.

Diesel premiums to crude have come down a long way since their peak during the French strikes, spending most of November at \$45/bl before dipping briefly below \$40/bl. But three factors pushed margins back into the \$40-50/bl range as 2022 came to a close – diesel was diverted into storage in anticipation of supply disruption in the new year; colder weather temporarily pushed up natural gas prices, in turn driving up diesel production costs; and prices of other products such as gasoline dipped, encouraging refiners to run less crude and therefore trim diesel output. Slim demand is keeping diesel margins much lower than they would otherwise be, but this will be short-lived, market participants say.

OPEC+

Opec+ will have its work cut out to gauge the exact market balance in 2023, in what is likely to be another turbulent year, writes Nader Itayim

Opec+ to stay vigilant in face of cloudy outlook

The myriad uncertainties that made 2022 an extremely challenging year for oil markets look likely to continue to complicate the outlook for Opec+ in 2023.

At its last ministerial meeting in December, the group opted to roll over the nominal 2mn b/d cut to production targets that ministers agreed at the previous meeting in October. Delegates argued then that it was more prudent to take a wait-and-see approach to production policy until there was better visibility about the months ahead, given that the market was facing a host of uncertainties, not least around the then-looming Russian crude import embargo.

Going into 2023, the situation is no clearer, with geopolitical and economic uncertainties continuing to complicate any attempts by the group to plan for the coming months.

On the supply side of the equation, there is no more important issue than Russia, and the effect that the EU embargoes on importing Russian seaborne crude and products will ultimately have on the market. That Russian supplies will be affected appears almost a foregone conclusion among market watchers, but where they differ is the extent to which they expect supplies to be disrupted.

For its part, Moscow [has said](#) it may have to cut output by 500,000-700,000 b/d in “some moments” in early 2023 because of the embargoes and the G7-led price cap. But the projections grow from there, with Opec saying last month that it expects Russian oil output to drop by 850,000 b/d to 10.1mn b/d in 2023, while the IEA foresees a more dramatic 1.4mn b/d fall in output on the year in 2023.

In December, the month in which the embargo on Russian crude began, crude exports from Russian ports, not including CPC Blend or Urals supplied by Kazakh firms, fell by 520,000 b/d to 2.61mn b/d, according to Vortexa.

This figure could feasibly rise in the first quarter of this year, particularly if Russian president Vladimir Putin makes good on [his repeated threats](#) to cut off any companies or traders that abide by the price cap. Although such a move would not necessarily make economic sense, some Opec+ delegates warned as far back as last year that Moscow could retaliate by cutting supplies.

Covid considerations

What effect these losses ultimately have on markets will, in no small part, depend on China and the speed at which its economy, and in turn oil demand, recovers after the government abruptly overturned the country’s zero-Covid policy last month. The lifting of lockdowns will no doubt drive a recovery in Chinese demand, but Opec+ delegates highlight that the surge in infection rates that the country is now experiencing will almost certainly keep a lid on growth in the short term, possibly until the second half of 2023.

And oil markets beyond China are still contending with the looming threat of recession in much of the western world, as inflationary concerns and tight monetary policies curb demand. “Advanced economies are heading into a recession, led by the euro area and the UK,” UK-based bank Barclays says in its first-quarter 2023 outlook, noting that the US economy “will also likely contract”.

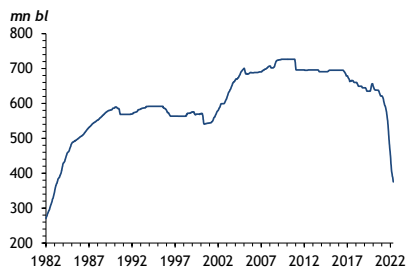
The producer group believes that the decision to cut production targets late last year has helped balance oil markets. Producers aim to be proactive and pre-emptive, as Saudi oil minister Prince Abdulaziz bin Salman says, but not reckless. In theory, the group’s decision to keep production targets unchanged will hold until it next meets – it is not due to gather again at a ministerial level until 4 June. But Saudi Arabia and Opec+ have shown their willingness to meet and take decisions at short notice, and the group could step in to adjust production should the need arise.

Opec+ Dec quotas		mn b/d	
	Aug baseline	Cut	Target
Saudi Arabia	11.004	-0.526	10.478
Iraq	4.651	-0.220	4.431
Kuwait	2.811	-0.135	2.676
UAE	3.179	-0.160	3.019
Algeria	1.055	-0.048	1.007
Nigeria	1.826	-0.084	1.742
Angola	1.525	-0.070	1.455
Congo (Brazzaville)	0.325	-0.015	0.310
Gabon	0.186	-0.009	0.177
Equatorial Guinea	0.127	-0.006	0.121
Opec 10 total	26.689	-1.273	25.416
Russia	11.004	-0.526	10.478
Oman	0.881	-0.040	0.841
Azerbaijan	0.717	-0.033	0.684
Kazakhstan	1.706	-0.078	1.628
Malaysia	0.594	-0.027	0.567
Bahrain	0.205	-0.009	0.196
Brunei	0.102	-0.005	0.097
Sudan	0.075	-0.003	0.072
South Sudan	0.130	-0.006	0.124
Non-Opec 9 total	15.412	-0.727	14.687
Opec+ total	42.101	-2.000	40.103

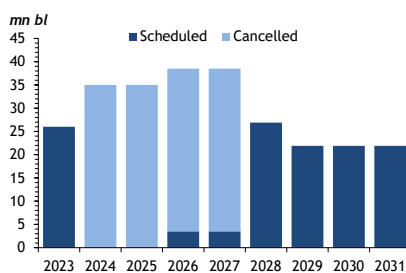
STRATEGIC STOCKS

Some regard the use of the SPR as a means of controlling oil values as a short-term fix that obscures price signals, writes Chris Knight

US SPR inventory



SPR mandatory sales by fiscal year



US readies shift in management of oil reserves

The US is seeking a more flexible use of the Strategic Petroleum Reserve (SPR) to buy and sell crude to manage oil prices.

President Joe Biden’s administration aims to refill the reserve when prices are near \$70/bl, and potentially sell crude again if oil prices spike. The new policy will kick off soon with a “pilot” purchase in February of up to 3mn bl of US-produced crude that will be injected into the Big Hill site in Texas. The administration intends to buy more crude in the coming years to partly refill the SPR – which at 375mn bl in reserve is filled to more than half capacity – at a targeted price of \$67-72/bl (see graph).

The plan to purchase crude to refill the SPR marks a substantial shift from roughly a year ago, when Congress committed through previous laws to sell more than 300mn bl of the 600mn bl of crude in the SPR at the time. That plan changed after Biden ordered the emergency sale of 180mn bl of crude in response to the war in Ukraine. The emergency sales turned out to be a “good deal” for US taxpayers by bringing down short-term fuel prices and selling crude at an average price of \$96/bl, administration officials say.

The White House is operating under a new plan to use the \$17bn it earned from last year’s sales to partially refill the SPR, with the possibility of restarting emergency sales from the SPR if prices spike. A year-end spending law, passed while Democrats still held a majority in Congress, will support the policy. The law will divert some revenue from last year’s emergency sales to cancel previous mandates to sell 140mn bl from the SPR in the 2024-27 fiscal years (see graph). It would have made “no sense” to sell crude from the reserve at the same time it was being refilled, an Energy Department official told lawmakers last year. But the law would not reverse a previous mandate that will require the US to sell an additional 26mn bl of crude from the SPR by 30 September.

The upcoming pilot purchase of 3mn bl marks the first time that the US will buy crude at a fixed price, rather than benchmark-based prices, an approach the administration says will give producers “assurances to make investments today”. The White House plans to buy US-produced crude when WTI prices are at or below \$67-72/bl, either through immediate purchase or for future deliveries in 2024 and 2025.

Short-term fix

The willingness of the Biden administration to deploy the SPR to manage prices has frustrated some in the oil industry, who fear that the intervention will obscure price signals that influence investment. “At best, SPR releases are a short-term fix, not a long-term solution or signal of stability,” refinery trade group AFPM chief executive Chet Thompson said last year.

Republicans have criticised Biden’s emergency crude sales as a political ploy to lower fuel prices before last year’s elections. They plan to use their new majority in the House of Representatives to pass a bill to block further crude drawdowns from the SPR, unless the White House offers a plan to increase oil and gas production on federal land.

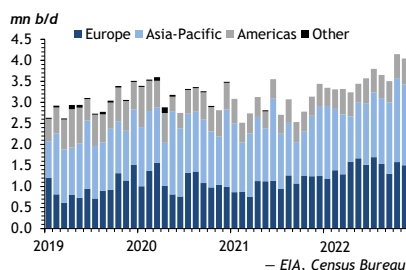
Biden can be relatively assured that he can continue managing the SPR as he wants without near-term interference. Republicans had aimed to hold a preliminary vote to advance the bill on 3 January, but were unable to do so because of days of infighting over who to elect as House speaker.

The impasse highlights the divisions among Republicans that will make it harder for them to pass legislation, particularly because Democrats have retained control of the US Senate.

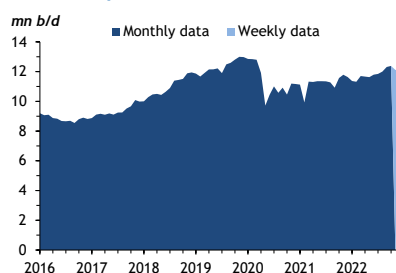
US CRUDE

Europe has become a key market for US crude, although high freight rates for some tanker classes could inhibit the trade, writes Amanda Hilow

US crude exports



US crude production



US crude exports poised for record year

US crude exports are poised to hit record highs this year as US shale output expands and European countries seek to diversify their import slates.

The EU ban on Russian seaborne crude imports from 5 December has left some eastern and central European refiners looking to replace up to 40pc of their traditional supply. Germany and Poland have also been promoting a plan to impose an EU-wide ban on imports of Russian crude to their countries along the northern leg of the Druzhba pipeline. Germany opted to stop importing Russian crude through the line on 1 January, even though such deliveries are exempt from the import ban. The 226,000 b/d Schwedt refinery has been testing US WTI and Mars since August. The refinery was operating at around 55pc of nameplate capacity in early January following the halt to Russian crude supplies.

Poland's PKN Orlen says it will turn to North Sea, Mideast Gulf and possibly US and west African crudes when its 72,000 b/d term contract with Russian firm Rosneft for Russian pipeline imports along the Druzhba line expires at the end of January. And it is considering term contracts for US crude imports if its pipeline deliveries are sanctioned by the EU. The US shipped an estimated 13-16 cargoes of crude to Poland last year, up from two in 2021, according to an analysis of customs data, as well as data from oil analytics firm Vortexa.

Italian refiner Saras is also planning to increase its intake of US crude for the 300,000 b/d Sarroch refinery. Saras began importing cargoes from the Americas for the first time in 2022 through its partnership with 5pc stakeholder Trafigura. WTI topped Sarroch's imports for the first time in December at 50,000 b/d, when it also took 35,000 b/d of Brazilian crude. The refinery's intake has shifted because of the Russia-Ukraine war and amid Saras' ties with Trafigura.

Record rates

US crude is already flowing at record rates to Europe. Exports were an estimated 1.5mn b/d in 2022, only slightly lower than the amount shipped to Asia-Pacific last year, as EU refiners sought out new supply (*see graph*).

Total US crude exports averaged 3.61mn b/d in 2022, according to an analysis of data published by the US EIA and the US Census Bureau. That rate reflects a roughly 22pc increase over 2021 and is the highest on record since the US Congress first lifted decades-old restrictions on exporting crude in December 2015. Exports surged to a record-high 4.15mn b/d in October, before falling back to around 4mn b/d by December.

US crude exports have also been supported by rising domestic production, coupled with firmer international demand. Total output averaged 12.05mn b/d in the third quarter of 2022, up by about 870,000 b/d, or over 7pc, compared with the same period a year earlier (*see graph*).

The EIA expects crude production from the top US shale basins to climb further in January, led by record output from the Permian basin, where primary export grade WTI is produced. Shale production is forecast to rise by roughly 90,000 b/d from December estimates to 9.32mn b/d in January, with Permian growth comprising about 40pc of the total.

Overall US output in 2023 is forecast to surpass the record 12.32mn b/d posted in 2019, although production forecasts have been gradually scaled back as benchmark prices have trended lower.

High freight rates for Aframax tankers because of the increased demand for US crude in Europe could still erode export economics. But the arbitrage could still work if exporters opt to load larger vessel sizes, which are assessed at less than half the Aframax rates.

IN BRIEF

ARA gasoil stocks build

ARA stocks*	'000t		
	Dec	Nov	Dec 21
Gasoline	1,342	1,344	1,018
Naphtha	291	323	216
Jet-kerosine	869	880	893
Gasoil	1,925	1,723	1,735
Fuel oil	1,108	1,020	1,148
Total	5,535	5,290	5,010

*end-month stocks in independent storage in Amsterdam-Rotterdam-Antwerp

Moscow to release more details of price cap response in January

Russia will release details in January of how it plans to monitor and implement its ban on oil exports to companies that adhere to the [G7-led price cap](#). President Vladimir Putin signed a decree on 27 December banning oil exports to companies that agree to the price cap terms, but he left it to the government to work out the details of how the decree will be enforced. The government is working to devise “the mechanism of monitoring and implementation of the decree”, deputy prime minister Alexander Novak says, as quoted by state news agency Tass. Putin’s decree stipulates that the restrictions on selling oil to price cap participants will take effect on 1 February and remain in place until at least 1 July.

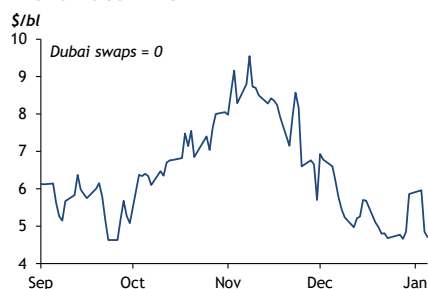
China raises oil products quotas in first batch for 2023

China has issued 18.99mn t of oil products export quotas in a first batch for this year, up by almost 50pc from a year earlier, as domestic stocks rise in the country because of subdued demand. The quotas, equivalent to around 154mn bl of gasoline, diesel and kerosine, were awarded to domestic refiners on 30 December. Quotas went to state-controlled Sinopec, PetroChina, Sinochem and CNOOC, as well as private-sector Zhejiang Petroleum and Chemical, a source at Sinochem tells *Argus*. Private-sector refiner Shenghong was not granted any quotas, despite applying for them, a source says. Shenghong started operations at its 320,000 b/d Lianyungang refinery in late November.

NORTH SEA CRUDE

North Sea shipments to Asia fell to nothing as European refiners sought alternatives to Russian crude, writes Lina Bulyk

Brent-Dubai EFS



North Sea crude flows east dry up in December

Exports of North Sea crude to Asia dried up in December, when no cargoes left for a long-haul trip east, but shipments might resume in January.

No cargoes laden with North Sea crude left for Asia last month for the first time in more than seven years, according to Vortexa, whose records start in 2016. Eastbound exports started falling after Russia’s invasion of Ukraine and dropped to as little as 26,000 b/d in July, but then bounced back to 258,000 b/d in October and almost 200,000 b/d in November – but this was still well below the 480,000 b/d shipped in 2021. Crude exports from Europe to Asia averaged 169,000 b/d across the whole of 2022 as North Sea crude mainly stayed in Europe, with local refiners looking to replace feedstock of Russian origin and with difficult arbitrage economics.

But crude flows east might resume in January, fixtures suggest. Equinor booked the very large crude carrier (VLCC) *CSSC Liao Ning* to depart from Mongstad, where medium sour Johan Sverdrup loads, on 22 January for an unspecified destination in Asia. The fixture was not confirmed and may still fail.

Arbitrage economics to take North Sea crude east have improved recently. The front-month Brent-Dubai EFS, or Ice Brent’s premium to the same month’s Dubai swaps and a key barometer of the west-east arbitrage, narrowed to \$5.44/bl in December, when most January-loading cargoes would have traded. A more than \$2.50/bl drop in the EFS compared with November’s average made North Sea crude more affordable for Asian buyers. The average December EFS was the lowest since January 2022.

Freight expenses to take a cargo from the North Sea east also eased in recent weeks. The cost of shipping a VLCC to east Asia peaked at \$51.85/t in the second half of November, the highest since April 2020, but fell to around \$33/t in mid-December, *Argus* data show. Freight rates eased further to \$30.56/t on 3 January, making crude shipping the most affordable since August.

IN BRIEF

Kazakhstan asks for Druzhba capacity

Kazakh state-controlled pipeline operator Kaztransoil has asked its Russian counterpart Transneft for capacity to ship 1.2mn t of Kazakh crude to Germany through Russia in 2023. Transneft spokesman Igor Demin said on 29 December that a request has been received but there was still no deal, state news agency Tass reports. Russia's deputy prime minister Alexander Novak says the issue has been "worked through", according to Tass. Kazakh crude can be shipped through Russia to Germany by the Druzhba system, which serves the 226,000 b/d Schwedt and the 236,000 b/d Leuna refineries in eastern Germany. Kazakh crude could potentially help replace some [Russian crude previously supplied through the Druzhba system](#).

Chevron finishes Nigerian Agbami FPSO maintenance

Chevron's Nigerian subsidiary Star Deep Water (SDW) has completed maintenance at the Agbami floating production, storage and offloading (FPSO) vessel. Post-maintenance processes were initiated on 29 December, when production stood at 86,824 bl of crude, a source tells *Argus*. Maintenance began earlier in December. An SDW report seen by *Argus* shows that Agbami production was around 104,000 b/d in the first five days of the month, before hitting zero on 9 December. *Argus* categorises Agbami as crude, but Nigerian authorities define it as condensate.

Keystone pipeline repaired, restarted

TC Energy's 622,000 b/d Keystone crude pipeline has been repaired and is back in service at reduced pressure after a leak in Kansas forced it off line for more than three weeks. Keystone is operational to all delivery points, TC Energy said at the end of December, allowing flows of heavy Canadian crude to once again reach the US Gulf coast. The system's Cushing Extension segment had been shut since 14,000 bl of crude spilled in Kansas on 7 December. The Cushing Extension is estimated to handle at least 156,000 b/d. The Keystone section extending from Steele City to Illinois returned to service on 14 December at reduced pressure.

North Dakota oil output rebounds as state thaws

As much as 13pc of North Dakota's 1.1mn b/d of crude production remains off line following extreme winter weather in mid-December. Crude output in the US' third-largest producing state stood at 960,000-1.01mn b/d on 3 January, the North Dakota Pipeline Association (NDPA) tells *Argus*. There are "no major midstream issues ongoing", says NDPA director Justin Kringstad, noting that favourable weather and staff returning from holidays should contribute to the rebound in production after the severe winter weather took out about 400,000 b/d, or 36pc, of the state's capacity.

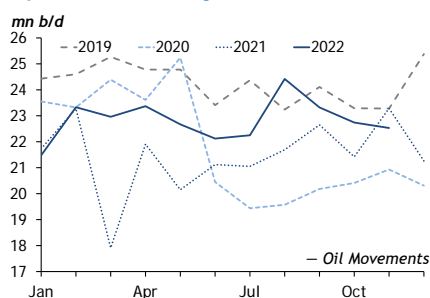
Indian imports of Russian crude hit record

Indian imports of Russian crude rose to an all-time high in December, with shipments from Russian ports, including CPC Blend of Kazakh origin, hitting 1.23mn b/d, Vortexa data show, up from 1.09mn b/d in November. India received 59,000 b/d of light sour Arctic Varandey Blend from the Barents Sea port of Murmansk in December for the first time. Imports of Varandey Blend are on course to almost double this month, with 114,000 b/d to arrive in January. Around 867,000 b/d of Russian crude and condensate is scheduled to arrive at Indian ports in January, according to Vortexa. And Japan was scheduled to receive close to 800,000 bl of Russian Sakhalin Blend in early January, its first such delivery in about seven months. Sakhalin Blend, produced at the Sakhalin 2 project, is [exempt from the EU's ban on Russian seaborne crude imports](#) until June 2023.

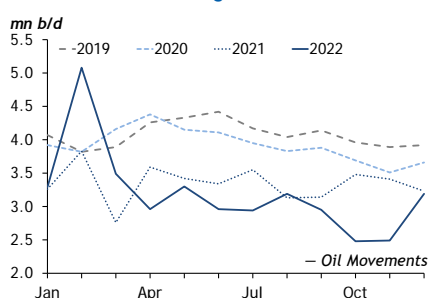
FUNDAMENTALS

West African exports to Europe rose markedly, as the region looks to replace Russian supply

Opec crude liftings



West African liftings



Opec liftings rise in December

Opec crude liftings increased to 22.1mn b/d in December, up by 670,000 b/d from November, according to Oil Movements. Opec crude loadings were 840,000 b/d higher on the year, recovering from a drop in November, driven primarily by a rise in liftings by Opec Mideast Gulf members.

Total Mideast Gulf loadings, including non-Opec Qatar and Oman, increased by 340,000 b/d to 16.7mn b/d in December. Eastbound loadings increased by 810,000 b/d, probably driven by more shipments to South Korea and Taiwan, whereas westbound loadings dropped by around 470,000 b/d.

West African crude liftings increased from November's 2.49mn b/d to 3.19mn b/d in December, with Asia-Pacific demand for regional cargoes up by 270,000 b/d. Westbound loadings increased by 430,000 b/d as European refiners sought non-Russian crudes.

Nigerian exports up

Nigerian seaborne crude exports rose by around 300,000 b/d to 1.38mn b/d in December, the highest since June 2021, as the country's crude production capacity gradually returned in the final quarter of 2022.

Nigerian loadings to Europe increased by 19pc from November to 746,000 b/d in December, the highest since March, according to Vortexa. The renewed demand for Nigerian crude is probably a result of the EU embargo on Russian oil imports from 5 December. Nigerian crude exports to Europe could find more support in the first half of January because of moderating freight rates. The cost of moving Suezmax cargoes from west Africa to Europe was down by 25pc to \$21.79/t on 3 January, compared with the first session of December.

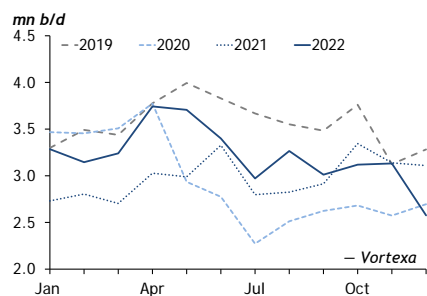
Crude loadings from Nigeria to the US climbed to a seven-month high of 193,000 b/d in December, a 55,000 b/d increase on November. The uptick in long-haul demand was probably encouraged by the discount of prompt Brent prices to future values, which means that crude shipments effectively gain value while in transit.

Stocks at sea	mn b/d					
	Dec 22	Nov 22	Oct 22	Sep 22	Aug 22	Dec 21
Total	745	737	762	763	774	752
Opec	479	488	515	505	522	483
of which:						
ME Gulf eastbound	278	285	315	293	316	293
ME Gulf westbound	111	105	109	115	114	95
Non-Opec	248	249	247	258	252	269

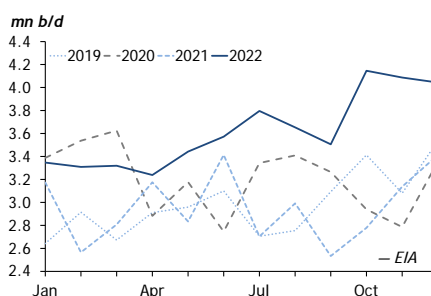
Liftings	mn b/d					
	Dec 22	Nov 22	Oct 22	Sep 22	Aug 22	Dec 21
Total	33.62	32.97	35.04	34.72	35.20	32.03
Opec	22.10	21.43	22.74	23.32	24.42	21.26
Mideast Gulf:	16.72	16.38	17.98	17.56	18.87	15.98
ME Gulf eastbound	14.65	13.84	15.21	14.38	15.46	13.58
ME Gulf westbound	2.07	2.54	2.77	3.18	3.41	2.40
West Africa eastbound	1.59	1.32	1.42	1.51	1.79	2.05
Non-Opec	11.52	11.54	12.30	11.40	10.78	10.77

FUNDAMENTALS

Russian crude loadings



US crude exports



Russian crude exports down

Russian seaborne crude exports dropped by almost 550,000 b/d to 2.58mn b/d in December, according to Vortexa data, as the EU embargo on Russian crude imports coincided with lower Asian appetite for the country's oil.

Urals loadings to Europe dropped to 386,000 b/d in December, with shipments moving only under term contracts or to countries that are exempt from the ban on Russian crude imports. Urals exports to India also dipped from 1mn b/d in November to below 600,000 b/d in December, although 300,000 b/d of Urals cargoes on vessels that have flagged Egypt as a destination are expected to mostly end up in India.

Seaborne exports of ESPO Blend similarly dropped by 166,000 b/d to around 650,000 b/d in December, Vortexa data show. This was primarily driven by lower demand from China, which has been experiencing a massive wave of Covid infections and hence reduced oil consumption. The drop in Chinese demand was felt by several other major oil suppliers too, including Iraq, Saudi Arabia, Angola and Oman. The reduced Chinese demand also led to zero Asia-bound loadings of North Sea crudes in December, for the first time in more than seven years.

US exports remain near record

The latest EIA statistics put US crude exports at 4.04mn b/d on 1-30 December, only slightly below October's record 4.15mn b/d, despite disruptions to crude production and loadings caused by a recent winter storm. US crude has been flowing to Europe at record rates of around 1.5mn b/d since April, up from 1.08mn b/d in 2021, as European refiners seek to replace Russian crude.

US crude exports will continue to draw support from European demand in the coming months. In addition, we estimate that US crude output in 2023 will rise to around 12.39mn b/d from 11.88mn b/d last year, supporting crude exports. But freight rates remain an important factor affecting transatlantic trade. The recent rise in European demand for US crudes has driven up freight rates, hampering the arbitrage for January loadings.

Arrivals	mn b/d					
	Dec 22	Nov 22	Oct 22	Sep 22	Aug 22	Dec 21
Total	42.71	40.06	37.88	39.76	40.16	40.33
West of Suez	17.59	16.34	16.43	17.05	17.73	18.02
<i>of which:</i>						
North America	8.96	9.28	8.84	8.74	9.09	9.00
Europe	8.50	7.31	7.72	8.10	8.43	8.54
East of Suez	25.12	23.72	21.45	22.71	22.43	22.31

Weekly US data	mn b/d					
	30 Dec 22	23 Dec 22	±	31 Dec 21	±22/21	
Crude	420.6	419.0	1.7	417.9	2.8	
Total products	784.6	789.4	-4.8	776.9	7.7	
Gasoline	222.7	223.0	-0.3	232.8	-10.1	
Distillate	118.8	120.2	-1.4	126.8	-8.1	
Crude runs* (mn b/d)	15.5	16.2	-0.7	15.8	-0.2	
Deliveries* (mn b/d)	20.5	20.8	-0.4	21.4	-0.9	
<i>*four-week average</i>						- EIA

OVERVIEW

The demand outlook in China is a key uncertainty as 2023 gets under way, with Covid rates rising in the country

Demand concerns weigh on prices

Oil prices fell as China’s efforts to deal with surging Covid-19 infection rates sparked fresh alarm over an economic slowdown.

Atlantic basin marker North Sea Dated fell by \$3.29/bl to \$77.11/bl in the two weeks to 5 January, while US light sweet WTI was down by \$3.82/bl to \$73.67/bl. Mideast Gulf sour benchmark Dubai fell by \$2.78/bl to \$75.20/bl.

China’s struggles to combat Covid-19 have added to concerns about the outlook for oil demand. But higher products export quotas issued by Beijing in a first batch for 2023 could encourage Chinese refiners to raise throughputs.

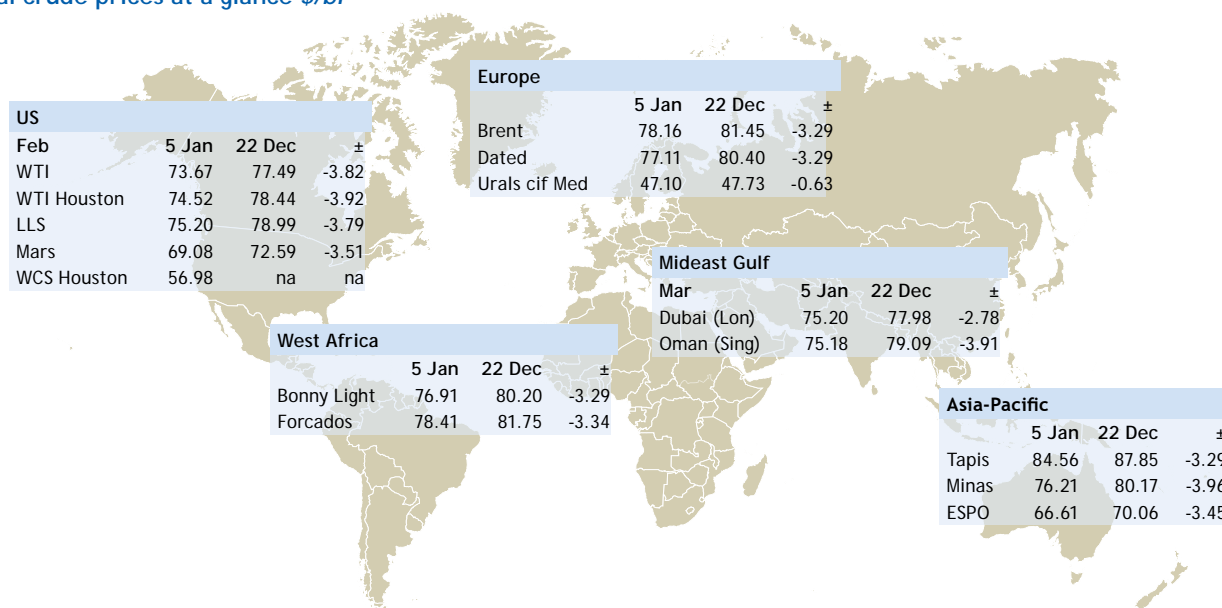
Spot Angolan crude prices firmed on the prospect of a Chinese demand recovery and a slimmer February loading programme. Most Angolan grades rose by 20¢/bl, while Dalia gained \$1.40/bl against North Sea Dated.

A smaller loading programme for February Norwegian sour Johan Sverdrup helped support the grade. Johan Sverdrup and fellow North Sea sour crudes Grane and Flotta Gold firmed by \$2-2.50/bl against North Sea Dated, although they remained at a discount to the benchmark. The arbitrage to move European cargoes to Asia-Pacific destinations became more workable, with Ice Brent holding a smaller premium to Dubai crude values.

The open arbitrage to the east, and stronger naphtha margins, may have supported a demand surge for Caspian light sour CPC Blend crude in the last week of December. The February Brent-Dubai exchange of futures for swaps (EFS) – the premium of Ice Brent to Dubai swaps and an indicator of the eastward arbitrage – fell to \$4.66-4.85/bl in the last week of December, the narrowest in three months. The front-month March EFS hovered at \$4.71/bl on 5 January.

Increased eastward flows of Atlantic basin crude could limit Asian refiners’ need for Mideast Gulf grades. Slow demand from China, and continued exports of Russian crude to India and China, had put downward pressure on Mideast Gulf crude values, pulling the front-month February premium to third-month April Dubai down to \$1.17/bl on average in December, the shallowest backwardation since May 2021. This led Saudi Aramco to cut its February Asia-Pacific formula price for flagship Arab Light crude to the lowest since November 2021.

Global crude prices at a glance \$/bl



OVERVIEW

China's crude import demand may rise following the issuance of higher products export quotas. But the higher quotas are weighing on Asia-Pacific gasoil margins, given the plausibility of increased Chinese exports. Jet fuel margins in Asia-Pacific also weakened as regional Covid measures for Chinese travellers are likely to curb Asian travel rebound.

Diesel margins in Europe were under pressure from weak demand. But diesel cargoes are going into storage to prepare for expected supply tightness when the EU bans Russian diesel imports from 5 February. The stockpiling has pushed independent inventories of diesel and gasoil in the Amsterdam-Rotterdam-Antwerp hub to the highest level in nearly 15 months.

Unless demand collapses, Europe will have to replace a significant quantity of Russian diesel from February, either through higher refinery runs, which will be profitable only if diesel prices rise, or by paying up for imports from Asia-Pacific or the Mideast Gulf. Either way, diesel supplies are likely to become more expensive in the short term.

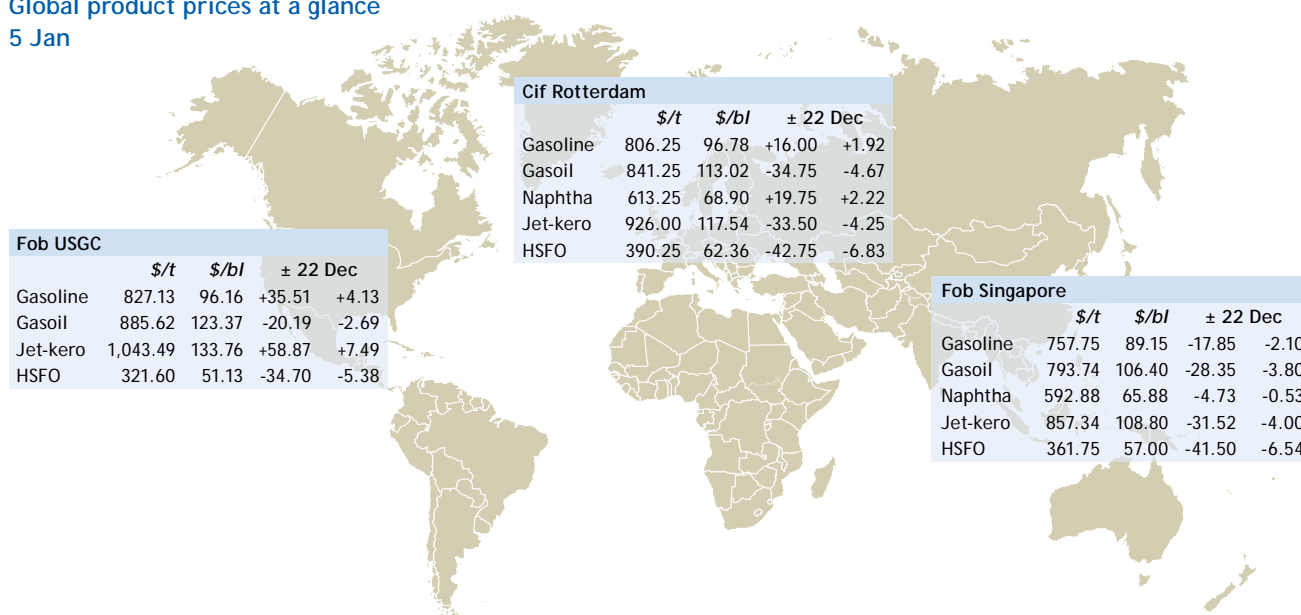
European gasoline margins were supported by an uptick in US demand as US refinery shutdowns caused by winter storms prompted buyers to turn to European supplies. Lower freight rates facilitated European exports to the US.

Gasoline prices on the US Gulf coast rose to the highest in seven weeks at the end of the year as a late-December winter freeze halted some refinery production in Texas and Louisiana. US gasoline inventories in the week to 30 December fell to 222.7mn bl, the second straight weekly drop following six builds, according to US EIA data. US refinery utilisation rates on average tumbled to below 80pc of capacity, down from 92pc a week earlier.

Diesel determinant

Plentiful crude supplies and slow demand have kept a lid on prices. But crude prices could rise if refiners boost runs to meet a diesel supply shortfall when EU sanctions on Russian products imports are imposed in February. The outlook for Chinese oil demand remains a key uncertainty. Prices could bounce back if Chinese demand recovers sufficiently to curb the country's products exports.

Global product prices at a glance
5 Jan



CRUDE MARKETS

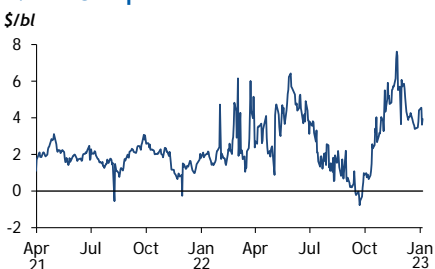
Global prices ease

- Global prices fell on demand concerns, as pressures mounted on the global economy. Atlantic basin benchmark North Sea Dated shed \$3.29/bl to \$77.11/bl in the two weeks to 5 January, while US marker WTI fell by \$3.82/bl to \$73.67/bl.
- Mideast Gulf crude values remained under pressure, pending a rebound in Chinese spot demand. Light sour Abu Dhabi Murban values fell further, as Asia-Pacific refiners seemed to be looking for more arbitrage cargoes from Europe and the US. The front-month March Brent-Dubai EFS – Ice Brent’s premium to Dubai swaps and a measure of the west-east arbitrage – had narrowed to around \$4.70/bl on 5 January. This could make North Sea Dated-linked arbitrage cargoes more attractive to buyers in the Asia-Pacific market.
- Russian Urals prices shed \$1/bl relative to North Sea Dated. Russian crude exports appear to be on the decline. Overall crude exports from Russian ports, not including Caspian CPC Blend or Kazakh-origin Kebco, stood at 2.61mn b/d in December, down from 3.13mn b/d a month earlier. CPC Blend gained ground in brisk trade for February cargoes, supported by rising naphtha margins and a steady arbitrage east of Suez. Azeri BTC Blend also gained ground, with the vast majority of January-loading shipments placed.
- Saudi Aramco reduced its official February formula prices for northwest European and Mediterranean clients by \$1-1.80/bl from January. But spot values for Iraqi grades Basrah Medium, Basrah Heavy and Kirkuk made gains on stronger refining margins in Europe and the Mediterranean region.
- Canadian heavy sour WCS firmed in the Alberta market as all sections of TC Energy’s 622,000 b/d Keystone pipeline system are now operational, although at reduced capacity, following a shutdown. But WCS priced in the US Gulf coast market fell following the restart of the pipeline and ahead of typically lower refinery runs in February because of turnarounds.

WTI differential to North Sea



North Sea premium to Dubai



Crude marker grade price assessments					\$/bl			
	5 Jan		± 22 Dec		5 Jan		± 22 Dec	
	Forward North Sea (London close)				WTI Cushing (Houston close)			
Feb	78.94	-3.17	73.67	-3.82				
Mar	79.14	-3.66	73.92	-3.50				
Apr	79.33	-3.23	74.14	-3.12				
May	79.32	na	74.30	na				
	Dubai (London close)				WTI Houston (Houston close)			
Feb	-	-	74.52	-3.92				
Mar	75.20	-2.78	74.95	na				
Apr	74.75	-2.46	-	-				
May	74.34	-2.51	-	-				

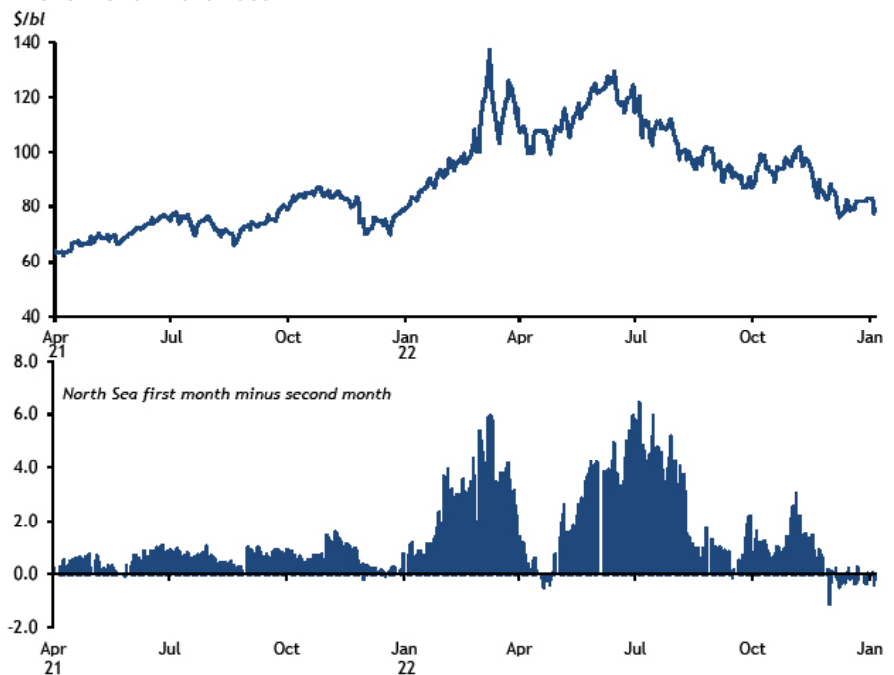
Marker grades differentials							\$/bl	
	WTI/N Sea (London close)		N Sea/Dubai (London close)		WTI Houston/WTI (Houston close)			
	5 Jan		± 22 Dec		5 Jan		± 22 Dec	
Feb	-4.88	-1.21	-	-	+0.85	-0.10		
Mar	-4.83	-0.40	+3.94	-0.88	+1.03	-		
Apr	-4.81	-0.45	+4.58	-0.77	-	-		

CRUDE MARKETS

Sweet prices increase on brighter outlook

- North Sea crudes made gains. Forties inched up relative to North Sea Dated on trading firm Mercuria’s buying interest in early February supplies. Prices for main local sour grades Johan Sverdrup, Grane and Flotta Gold rose by \$2-2.50/bl against North Sea Dated, but remained at a discount to the benchmark.
- WTI delivered to Europe was slightly higher at a \$1.20/bl premium to North Sea Dated on a cif Rotterdam basis for February supplies, and a \$1.80/bl premium for cargoes arriving in March, up from previous assessments of a 90¢/bl premium.
- Nigerian prices were broadly steady as gains from renewed European demand and lower freight costs were capped by competition from other regions. Angolan prices firmed on the expectation of Chinese demand bouncing back in the second quarter of 2023 and lower exports in February. Most grades gained 20¢/bl, while Dalia increased by \$1.40/bl against North Sea Dated.
- Libya’s NOC raised the official formula prices for January-loading cargoes of all its 10 sweet crude grades by \$0.90-1.05/bl from December. NOC also issued formula prices for Bouri and Al-Jurf for the first time in 10 months. Spot prices for Libyan Es Sider increased on firmer demand for light sweet grades. Algeria’s Sonatrach cut the January price of Saharan Blend by \$1.75/bl, while spot Saharan Blend gained ground on demand in Europe.
- US waterborne spot crude prices recovered relative to the physical pipeline market as the start of the February trade month coincided with higher demand after the holiday season, while falling freight rates boosted the arbitrage. Waterborne WTI firmed by 45¢/bl against the February WTI Houston pipeline price to return to a premium of 38¢/bl. Bakken fob Beaumont/Nederland firmed by 50¢/bl to a 60¢/bl premium to WTI Houston.

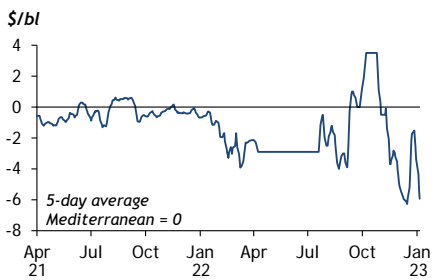
Front-month North Sea



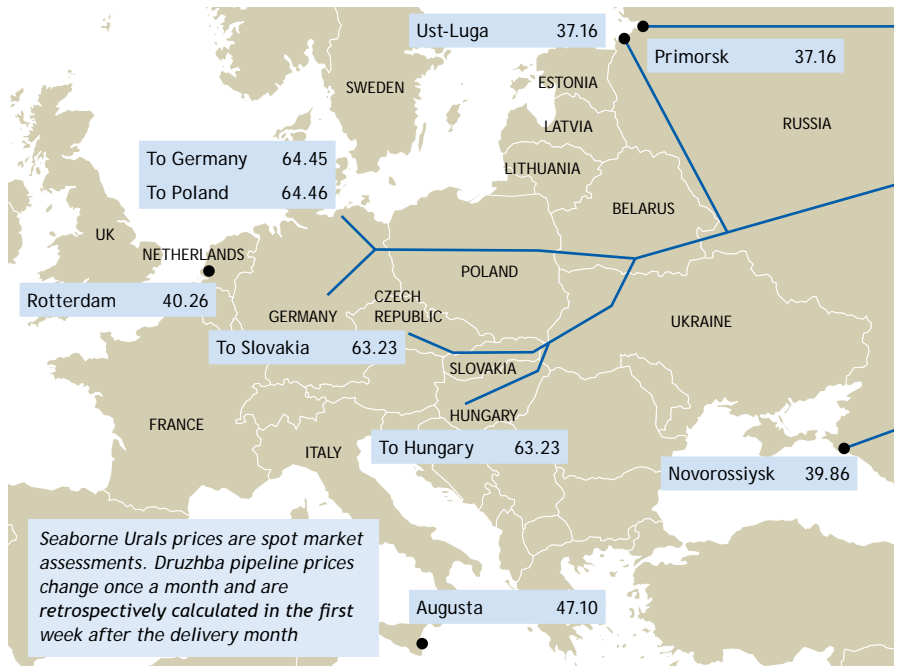
CRUDE MARKETS

Crude price assessments						\$/bl	
	5 Jan	± 22 Dec	Basis	Differential			
				5 Jan	± 22 Dec		
North Sea (London close)							
Dated	77.11	-3.29	Mar N Sea	-2.03	na		
Brent	78.16	-3.29	Dtd	+1.05	nc		
Forties	76.51	-3.14	Dtd	-0.60	+0.15		
Flotta Gold	75.61	-0.79	Dtd	-1.50	+2.50		
Ekofisk	80.21	-3.29	Dtd	+3.10	nc		
Oseberg	80.61	-3.29	Dtd	+3.50	nc		
Statfjord	78.32	-3.29	Dtd	+1.21	nc		
FSU (London close)							
Urals NWE	40.26	-6.29	Dtd	-36.85	-3.00		
Urals cif Mediterranean	47.10	-0.63	Dtd	-30.01	+2.66		
Siberian Light cif Med	63.61	-3.29	Dtd	-13.50	nc		
CPC Blend cif Med	73.36	-1.64	Dtd	-3.75	+1.65		
BTC	83.61	-2.79	Dtd	+6.50	+0.50		
Mediterranean (London close)							
Es Sider	77.36	-2.84	Dtd	+0.25	+0.45		
Iran Heavy Sidi Kerir	67.19	-2.99	Dtd	-9.92	+0.30		
Iran Light Sidi Kerir	69.99	-2.99	Dtd	-7.12	+0.30		
Suez Blend	69.86	-2.99	Dtd	-7.25	+0.30		
Saharan Blend	79.61	-1.69	Dtd	+2.50	+1.60		
Kirkuk	58.36	-2.04	Dtd	-18.75	+1.25		
West Africa (London close)							
Bonny Light	76.91	-3.29	Dtd	-0.20	nc		
Escravos	78.71	-3.29	Dtd	+1.60	nc		
Brass River	76.41	-3.29	Dtd	-0.70	nc		
Forcados	78.41	-3.34	Dtd	+1.30	-0.05		
Qua Iboe	78.31	-3.34	Dtd	+1.20	-0.05		
Cabinda	75.26	-3.09	Dtd	-1.85	+0.20		
Girassol	75.51	-3.09	Dtd	-1.60	+0.20		
Zafiro	77.01	-3.29	Dtd	-0.10	nc		
Hungo	72.31	-3.09	Dtd	-4.80	+0.20		
Mideast Gulf (Singapore close)							
Dubai	Mar	74.56	-3.77				
Murban	Mar	76.80	na				
Das	Mar	75.40	na				
Oman	Mar	75.18	-3.91	Dubai swaps	+1.48	-0.41	
Qatar Land	Mar	79.04	na	QP	even	na	
Qatar Marine	Mar	76.29	na	QP	even	na	

Urals: NWE diff to Mediterranean



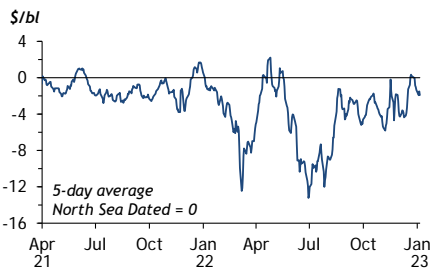
Russian Urals crude prices (5 Jan) \$/bl



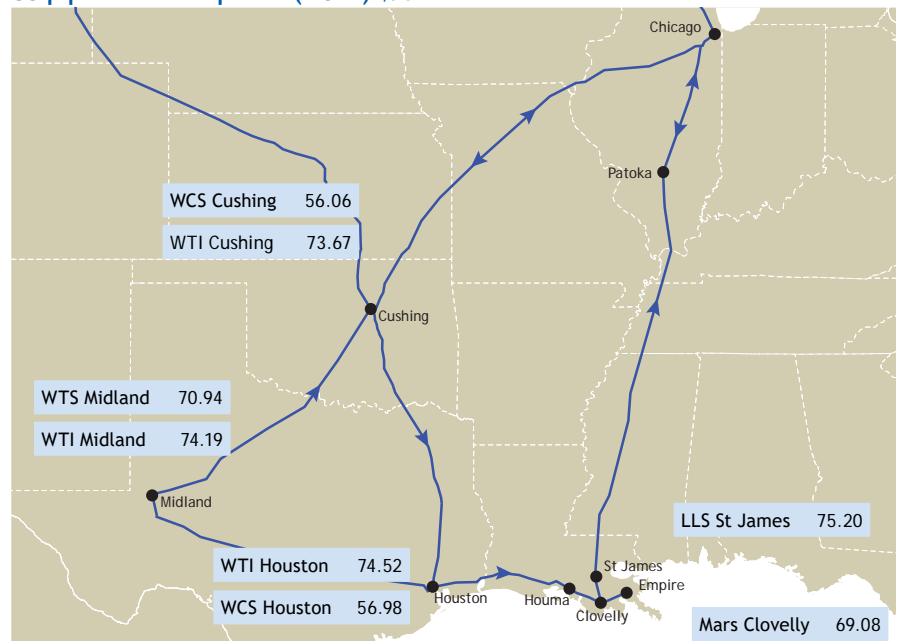
CRUDE MARKETS

Crude price assessments						\$/bl
	5 Jan	± 22 Dec	Basis	Differential		
				5 Jan	± 22 Dec	
Asia-Pacific (Singapore close)						
ESPO Blend	66.61	-3.45	Dubai swaps	-7.50	nc	
Minas	76.21	-3.96	ICP	+1.00	nc	
Duri	72.71	-3.96	ICP	+1.00	nc	
Cinta	75.21	-3.96	ICP	+0.30	nc	
Widuri	75.41	-3.96	ICP	+0.30	nc	
Ardjuna	73.46	-3.96	ICP	even	nc	
Belida	75.16	-3.96	ICP	+1.00	nc	
Bach Ho	83.26	-3.29	Dtd	+6.15	nc	
Tapis	84.56	-3.29	Dtd	+7.45	nc	
Cossack	75.61	+1.91	Dtd	-1.50	+5.20	
Kutubu	71.11	-3.29	Dtd	-6.00	nc	
NW Shelf	66.81	-3.29	Dtd	-10.30	nc	
Dar Blend	75.26	-3.29	Dtd	-1.85	nc	
Americas seaborne (Houston close)						
WTI fob	74.90	-3.48	Feb WTI	+0.38	+0.44	
Bakken fob	75.12	-3.43	Feb WTI	+0.60	+0.49	
ANS USWC	Mar 75.70	na	Mar WTI	+1.50	na	
Castilla Blend	Dtd 62.32	-2.84	Apr WTI	-11.82	+0.28	
Vasconia	Dtd 69.42	-3.04	Apr WTI	-4.72	+0.08	
Escalante	Dtd 75.82	-2.55	Apr WTI	+1.68	na	
US/Canada pipeline (Houston close)						
Bakken Beaumont-Nederland	Feb 75.00	na	Feb CMA WTI + WTI	+1.23	na	
WTI Midland	Feb 74.19	na	Feb WTI	+0.52	na	
WTI Houston	Feb 74.52	-3.92	Feb WTI	+0.85	-0.10	
LLS St James	Feb 75.20	na	Feb WTI	+1.53	na	
HLS Empire	Feb 71.69	na	Feb WTI	-1.98	na	
Mars Clovelly	Feb 69.08	na	Feb WTI	-4.59	na	
Poseidon Houma	Feb 67.98	na	Feb WTI	-5.69	na	
WTS Midland	Feb 70.94	na	Feb WTI	-2.73	na	
WCS Cushing	Feb 56.06	na	Feb WTI	-17.93	na	
WCS Houston	Feb 56.98	na	Feb CMA WTI	-17.00	na	
WCS Hardisty	Feb 47.48	-2.65	Feb WTI	-26.50	+0.75	
ASCI	Feb 68.75	na	Feb WTI	-4.92	na	

LLS diff to North Sea Dated



US pipeline crude prices (5 Jan) \$/bl



EUROPEAN PRODUCTS MARKETS

Light ends find support

• European products margins were mixed, with gasoline crack spreads unseasonally firm on rising US demand. Demand for diesel was lacklustre but the threat of a looming shortfall in supply could lend some support to margins.

• Eurobob oxy gasoline margins rose to a \$10.70/bl premium to North Sea Dated crude, as Amsterdam-Rotterdam-Antwerp (ARA) stocks fell by 2pc to 1.32mn t (see graph). Premiums are the highest since early November on rising US demand and lower freight rates, which are bolstering the arbitrage.

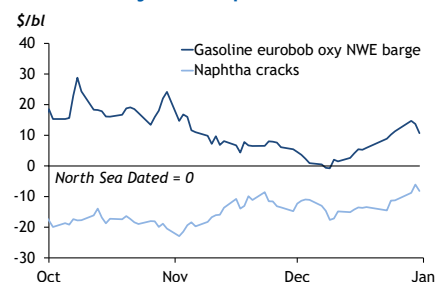
• Naphtha's discount to North Sea Dated narrowed to \$8.21/bl, marking its firmest point since May 2022 (see graph). Independently held ARA stocks increased by 5.5pc to 307,000t, but gasoline margins remained firm.

• Diesel cargo premiums to North Sea Dated crude weakened. Demand is slim and independently held ARA stocks rose to their highest since October 2021. But the imminent ban on Russian diesel supply continues to lend some support. ARA jet fuel stocks dropped by 1pc to 862,000t, as air passenger demand has been robust during the holiday season.

• European fuel oil prices face pressure from rising supply. Domestic refinery rates are firm, KPC has offered fresh cargoes from its new Al-Zour refinery and Chinese export quotas have risen on the year. Very-low sulphur fuel oil's spread to Ice Brent remained negative, but discounts narrowed by \$1.55/bl to \$1.45/bl.

• High and low-sulphur vacuum gasoil (VGO) premiums to crude futures were stable at \$5.50/bl and \$7/bl cif ARA. Liquidity has been thin, but low-sulphur feedstocks may soon draw support from rising gasoline margins. High-sulphur VGO could soon gain traction as diesel supply tightens once Russian supply is fully sanctioned.

Eurobob oxy and naphtha vs NSD



European product price assessments				\$/t	
cif	Northwest Europe cif		Mediterranean cif		
	5 Jan	± 22 Dec	5 Jan	± 22 Dec	
Gasoline and blendstocks					
Non-oxy Gasoline 95 Ron	806.25	+16.00	785.50	+8.75	
MTBE*	1,089.88	+140.62	-	-	
Middle distillates					
Jet†	926.00	-33.50	894.00	-13.50	
French diesel	885.25	-12.50	882.25	+13.75	
French heating oil	841.25	-34.75	863.75	-18.75	
Cracked fuel oil					
- 1% sulphur	437.75	-25.75	484.25	-32.75	
- 3.5% sulphur	390.25	-42.75	374.00	-26.25	
LPG and feedstocks					
Propane	526.00	-5.00	546.00	-5.00	
Butane	533.75	-17.75	530.75	-17.75	
Naphtha 65% para	613.25	+19.75	597.50	+28.75	
Vacuum gasoil 0.5% sulphur†	593.00	-23.12	589.50	-28.25	
Vacuum gasoil 2% sulphur	576.38	-22.88	-	-	
Straight-run fuel oil 0.5% sulphur \$/b‡	-1.50	-1.75	-	-	

*Rotterdam barges †job Mediterranean price replaced by cif price from 5 January ‡differential to Brent crude futures

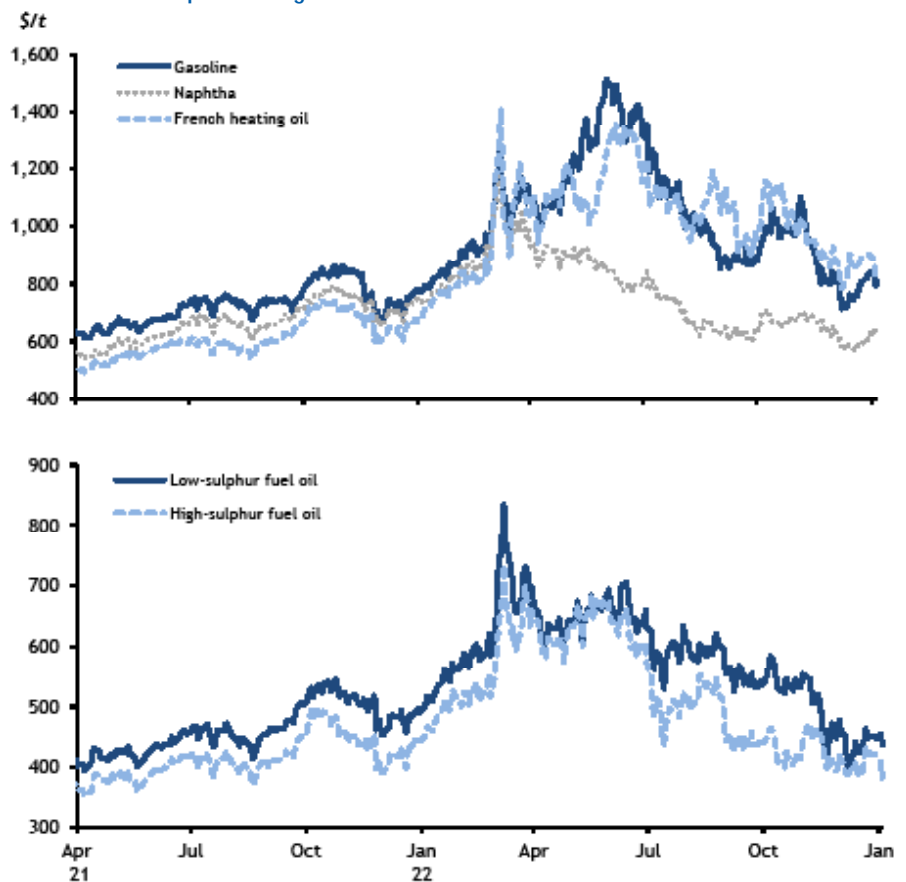
EUROPEAN PRODUCTS MARKETS

Gasoline and gasoil derivatives						\$/t
fob NWE	Gasoline barge swaps		Ice gasoil futures settlement			
	5 Jan	± 22 Dec		5 Jan	± 22 Dec	
Jan	722.50	+10.00	Jan	860.25	-34.75	
Feb	719.50	+5.50	Feb	843.75	-41.50	
Mar	717.75	+1.25	Mar	820.50	-45.75	

Fuel oil derivatives					\$/t
fob NWE	Low-sulphur cargo swaps		High-sulphur barge swaps		
	5 Jan	± 22 Dec	5 Jan	± 22 Dec	
Jan	409.25	-33.00	348.00	-23.75	
Feb	410.75	-31.75	348.25	-25.75	
Mar	411.75	-31.25	350.25	-26.50	

River Rhine barge price assessments (5 Jan)				
	Rotterdam barges	Ruhr tank wagons		Basel barges
	\$/t	\$/t	€/t	\$/t
Heating oil	864.00	876.00	832.20	945.60
Gasoline Eurobob oxy	731.50	743.50	706.30	817.40
Diesel 10ppm	864.30	-	-	-

Northwest Europe cif cargoes



US PRODUCTS MARKETS

Holidays lift gasoline, diesel demand

• US gasoline and diesel demand rose, spurred by holiday-related travel. Poor weather diminished jet fuel demand owing to widespread flight cancellations. Fuel oil demand rebounded as Gulf coast refineries restarted units following shut-downs caused by a winter storm.

• The gasoline arbitrage from the Gulf coast to New York Harbor widened. The diesel arbitrage from Houston to New York reopened after closing in the latter part of December (see graph).

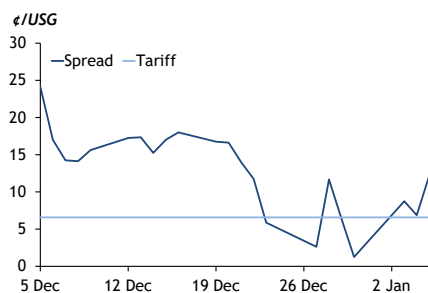
• Gasoline component prices pushed higher. The gains were particularly noticeable in the Gulf coast reformat and alkylate markets, with premiums to the Nymex Rbob gasoline contract running 22¢/USG higher for reformat and 34¢/USG higher for alkylate. A draw on gasoline supplies nationally and Gulf coast refinery problems underpinned the upward momentum.

• Efforts to replenish inventories following inventory tax assessments at the end of December were limited by refinery downtime, owing to the winter storm over Christmas. Refiners were cautiously watching unit restarts, with most affected facilities resuming operations at the end of December, including at ExxonMobil's Beaumont refinery, Valero's Port Arthur plant, Pemex's Deer Park complex and Marathon's Galveston Bay site.

• Supplies of N+A naphtha were thin, with much of the availability for the first half of January already committed late last year.

• Gulf coast fuel oil demand returned as regional refineries underwent restart activities and shipping traffic resumed after being hampered by fog.

USGC diesel vs New York Harbor



East coast and US Gulf cargo price assessments					¢/USG
	US Gulf fob		NY Harbor cif		
	5 Jan	± 22 Dec	5 Jan	± 22 Dec	
Gasoline and blendstocks					
Conventional 93	253.46	+18.33	275.21	+8.83	
Conventional 87	228.96	+9.83	238.71	+3.83	
Rbob 83.7	-	-	227.84	+2.46	
Ethanol	-	-	240.88	+10.88	
Middle distillates					
Jet	318.73	+17.84	327.73	+25.09	
Diesel (ULSD)	293.73	-6.41	301.98	-10.16	
Heating oil	199.48	-15.91	241.23	-9.91	
Fuel oil \$/bl					
1.0% sulphur	-	-	69.15	-3.34	
3.0% sulphur	51.13	-5.38	57.03	-5.45	
LPG and Feedstocks					
Propane*	72.56	+2.06	-	-	
Butane*	101.25	+7.75	-	-	
Naphtha differential †	-52.25	-3.00	-	-	
Vacuum gasoil 0.5% sulphur differential‡	-18.53	-7.34	-	-	
Vacuum gasoil 2% sulphur differential‡	-18.53	-10.91	-	-	

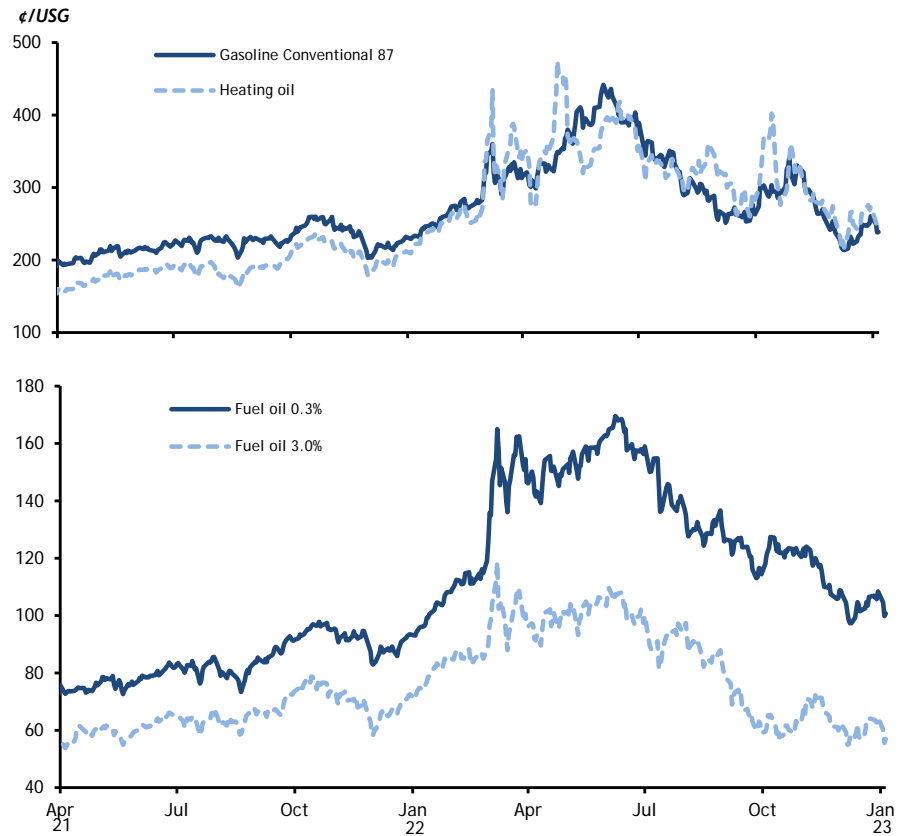
*Mont Belvieu †barges, vs 70:30 conventional gasoline 87/heating oil ‡vs conventional gasoline

US PRODUCTS MARKETS

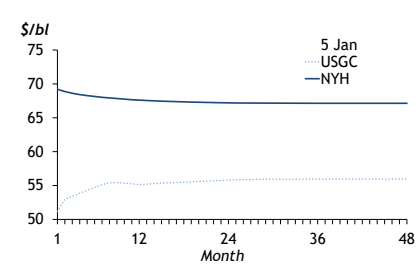
Products derivatives				
	5 Jan	± 22 Dec	5 Jan	± 22 Dec
Nymex close <i>¢/USG</i>			Rbob gasoline	Heating oil
Feb	226.71	+0.74	297.23	-12.31
Mar	227.32	+0.37	289.25	-12.08
Apr	244.16	-0.01	279.61	-11.70

West coast price assessments				
	5 Jan	± 22 Dec	5 Jan	± 22 Dec
Pipeline <i>¢/USG</i>			Los Angeles	San Francisco
Carbob 84	238.71	+1.83	226.71	-13.76
Carb diesel	282.23	-28.81	282.23	-14.91
Jet	299.23	-7.91	299.23	-7.91
Bunkers <i>\$/t</i>			Los Angeles	Seattle
HSFO 380	395.00	-8.50	300.50	-40.00

New York Harbor cif cargoes



Fuel oil futures curve



ASIA-PACIFIC PRODUCTS MARKETS

Margins fall as China issues export quotas

- Middle distillate margins fell as China released a larger first batch of products export quotas for 2023 than it did last year. Further pressure on jet fuel margins came from the imposition of Covid measures on Chinese travellers.

- Gasoil margins fell to about \$31.93/bl (see graph). China has released its latest batch of export quotas totalling 18.99mn t, at the higher end of market expectations and which is likely to lead to more regional supply.

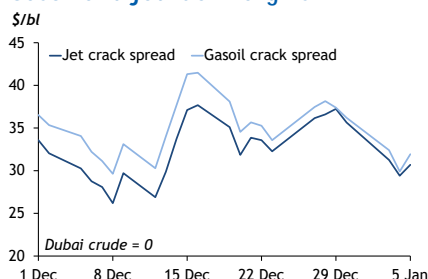
- Jet fuel margins dropped to \$30.69/bl (see graph). More countries have put in place Covid measures for Chinese travellers, possibly dampening regional travel activity even as China prepares to reopen its borders on 8 January.

- Low-sulphur fuel oil (LSFO) margins fell as China announced its first batch of LSFO export quotas for this year at around 8mn t, higher than for 2022 and 2021. Kuwait's KPC offered 300,000t of LSFO for January-March loading, and Vietnam's NSRP offered cargoes, probably owing to a temporary refinery unit closure.

- Naphtha margins rose on cautious expectations of a petrochemical demand rebound after China lifted more Covid restrictions. South Korea's LG Chem sought more spot cargoes for first-half February delivery.

- Gasoline margins drew support from the emergence of prompt spot demand, although pressure also came from the prospect of more supply from China. Chinese refiners Wepec and CNOOC offered January-loading cargoes.

Gasoil and jet fuel margins



Singapore and Japan price assessments					\$/bl
	Fob Singapore		C+F Japan		
	5 Jan	± 22 Dec	5 Jan	± 22 Dec	
Light distillates*					
Gasoline 95 Ron	89.15	-2.10	-	-	
Gasoline 92 Ron	85.80	-1.60	-	-	
Naphtha	65.88	-0.53	630.25	-6.00	
Middle distillates					
Jet-kerosine	108.80	-4.00	113.60	-4.50	
Gasoil 0.001% (10ppm)	109.55	-5.75	-	-	
Gasoil 50ppm sulphur	109.10	-5.75	112.05	-5.40	
Gasoil 0.5% sulphur	106.40	-3.80	-	-	
Fuel oil (\$/t)					
LSWR fob Indonesia	530.55	-22.39	-	-	
HSFO 180cst	361.75	-41.50	397.55	-43.55	
HSFO 380cst	342.75	-39.75	-	-	

*Japan \$/t

Singapore swaps				
	5 Jan	± 22 Dec	5 Jan	± 22 Dec
Gasoil \$/bl				
Jan	108.40	-5.20	107.45	-4.45
Feb	106.05	-5.30	105.25	-4.25
Mar	103.95	-5.30	103.25	-4.25
Naphtha \$/bl				
Jan	65.40	+0.15	362.50	-39.00
Feb	64.90	+0.45	364.25	-35.00
Mar	64.30	+0.60	365.00	-34.00

ASIA-PACIFIC PRODUCTS MARKETS

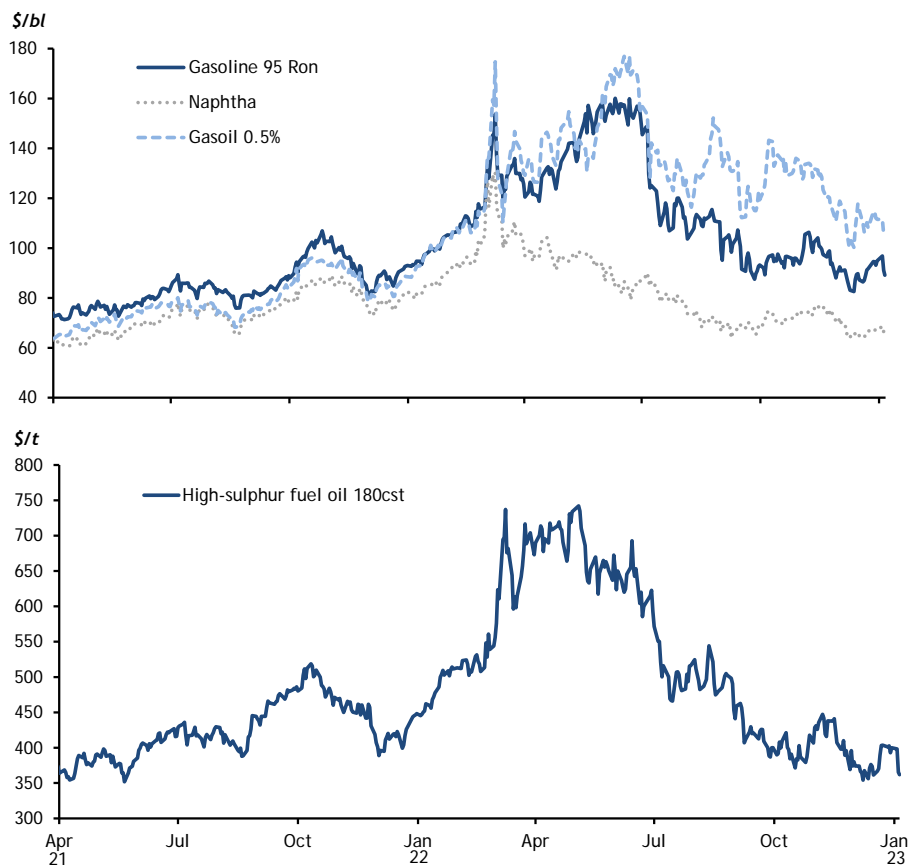
Mideast Gulf cargo price assessments				\$/bl
	5 Jan	± 22 Dec	Premium to Platts*	5 Jan
Light distillates				
Gasoline 95 Ron	83.55	-2.00	+6.55	
Naphtha (\$/t)	536.05	-3.95	+29.75	
Middle distillates				
Kerosine	101.70	-4.10	+7.10	
Gasoil 0.001% (10ppm)	102.05	-5.85	+7.00	
Gasoil 0.2% sulphur	98.85	-5.85	+3.80	
Gasoil 0.5% sulphur	97.80	-5.85	+2.75	
Fuel oil (\$/t)				
HSFO 180cst	317.65	-39.40	nc	
HSFO 380cst	298.65	-37.60	+26.00	

*Platts mean of Mideast Gulf assessment

East of Suez LPG					\$/t
	C+F Japan		Fob Mideast Gulf		
	5 Jan	± 22 Dec	5 Jan	± 22 Dec	
Propane*	+20.00 / +23.50	-22.75	-18.00 / -8.00		+2.00
Butane*	+29.00 / +32.50	-13.75	-18.00 / -8.00		+2.00

*differentials to Saudi Aramco selling price

Singapore fob cargoes

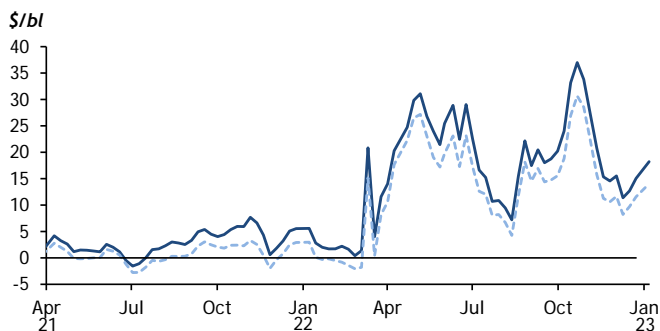


NETBACKS

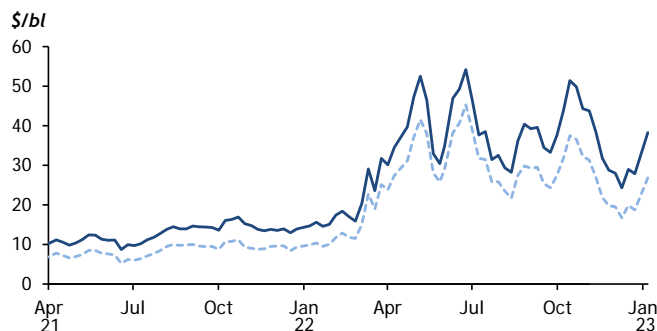
Netback values (30 Dec - 5 Jan)											\$/bl	
	Refinery gate value				Freight	Netback value		Crude Spot Price	Netback margin			
	Simple yield	± 16 - 22 Dec	Complex yield	± 16 - 22 Dec		Simple yield	Complex yield		Simple yield	± 16 - 22 Dec	Complex yield	± 16 - 22 Dec
Northwest Europe												
Brent	95.46	+1.21	99.65	+1.92	1.63	93.83	98.02	79.80	+14.03	+2.47	+18.22	+3.18
Forties	95.16	+1.31	98.45	+1.98	1.62	93.54	96.83	78.00	+15.54	+3.47	+18.83	+4.13
Arab Light	91.97	+0.80	95.52	+1.53	2.02	89.95	93.51					
Arab Heavy	81.31	+1.11	85.21	+1.94	2.09	79.22	83.11					
Urals NWE*	90.93	+0.91	95.20	+1.71	-	90.93	95.20	42.16	+48.77	+5.14	+53.04	+5.94
Bonny Light	102.09	+0.99	105.93	+1.21	2.85	99.24	103.08	78.55	+20.69	+2.52	+24.53	+2.75
BTC	99.52	+0.74	104.09	+1.48	2.84	96.68	101.24	83.34	+13.34	+1.27	+17.90	+2.00
US Gulf												
Mars*	90.49	+4.57	109.88	+8.59	-	90.49	109.88	70.81	+19.68	+5.41	+39.07	+9.43
LLS*	104.27	+7.29	115.67	+9.54	-	104.27	115.67	77.42	+26.85	+8.13	+38.25	+10.38
Bonny Light	95.86	+5.57	119.90	+9.54	3.56	92.30	116.34	78.55	+13.75	+7.17	+37.79	+11.14
Arab Light	98.22	+5.81	112.80	+9.00	2.41	95.81	110.38					
Arab Medium	92.06	+4.87	110.12	+8.74	2.45	89.61	107.68					
Maya	70.27	+2.26	99.58	+7.80	6.12	64.15	93.46	61.62	+2.53	+2.90	+31.84	+8.44
WTI	105.04	+8.07	114.66	+9.89	0.00	105.04	114.66	75.92	+29.12	+8.36	+38.74	+10.18
Singapore												
Oman	72.89	+0.50	90.60	+0.21	2.05	70.84	88.56	78.39	-7.55	-0.39	+10.18	-0.67
Minas	75.04	+0.18	95.05	-0.41	5.97	69.07	89.09	79.92	-10.85	-2.14	+9.17	-2.72
ESPO Blend	78.73	+0.18	95.83	-0.07	2.75	75.98	93.08	69.73	+6.25	-0.80	+23.35	-1.05
Arab Light	81.23	+0.14	93.95	+0.09	2.01	79.22	91.94					
Arab Heavy	70.41	+0.66	86.25	+0.51	2.08	68.33	84.18					
Murban	84.12	+0.31	97.03	-0.01	1.92	82.20	95.11	80.25	+1.95	-0.13	+14.86	-0.46

*quotes are FIP, and therefore freight is implicit in the spot price

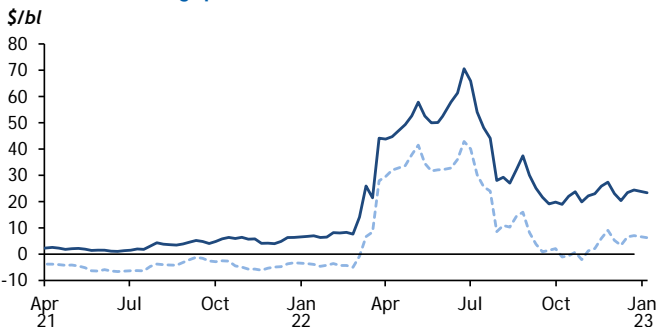
Brent northwest Europe



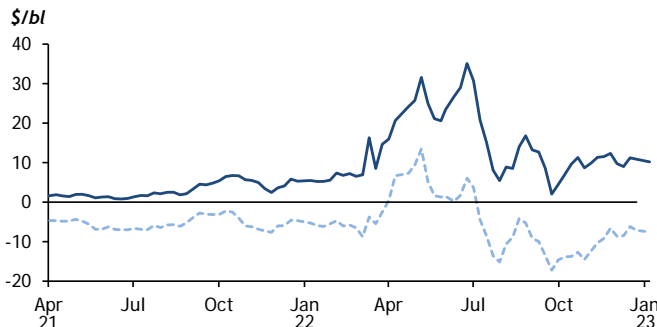
LLS US Gulf



ESPO Blend Singapore



Oman Singapore



Visit www.argusmedia.com/netbacks for details of the Argus Netback Model

— Complex - - - - Simple

FUTURES MARKETS

Futures: volumes and open interest				
	Provisional volume		Open interest	
	30 Dec-5 Jan	16-22 Dec	4 Jan	21 Dec
Nymex:				
Sweet crude	2,878.01	2,862.41	1,501.00	1,399.00
Heating oil	544.71	608.88	253.00	271.00
Rbob	554.10	573.20	240.00	263.00
Ice:				
Brent	3,106.08	3,482.80	1,872.00	1,913.00
Gasoil	887.04	768.32	489.00	481.00

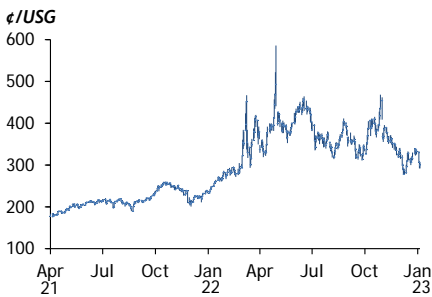
Settlement prices								
Nymex:	First month				Second month			
	5 Jan	±22 Dec	Week high	Week low	5 Jan	±22 Dec	Week high	Week low
Sweet crude (\$/bl)	73.67	-3.82	80.26	72.84	73.92	-3.50	80.45	73.10
Heating oil (¢/USG)	297.23	-12.31	336.22	297.19	289.25	-12.08	329.50	289.18
Rbob (¢/USG)	226.71	+0.74	245.95	225.92	227.32	+0.37	247.83	226.37
Ice:								
Brent (\$/bl)	78.69	-2.98	85.91	77.84	78.82	-2.64	85.65	78.01
Brent weighted avg (\$/bl)	78.83	-4.08			79.00	-3.76		
Gasoil (\$/t)	860.25	-34.75	921.00	842.75	843.75	-41.50	906.00	829.75

Net long positions: futures only						
Producer-merchant-refiner-user	Swaps dealers		Non-commercial*			
	27 Dec	20 Dec	27 Dec	20 Dec	27 Dec	20 Dec
Nymex light sweet crude	-15	-3	-251	-254	248	238
Ice WTI	-25	-29	-30	-30	57	61
Ice Brent	-221	-189	237	230	-27	-50
Nymex heating oil	-91	-89	52	52	20	20
Nymex Rbob	-86	-86	31	31	51	53
Ice gasoil†	-127	-121	136	136	-18	-25
Total	-564	-516	175	164	331	297

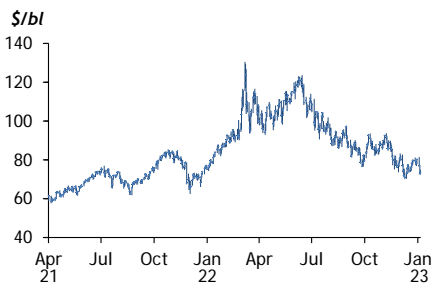
*combined 'managed money' and 'other reportables' categories
 †Positions converted to mn bl equivalent

– CFTC, Ice

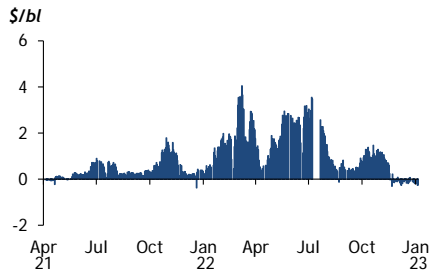
Nymex heating oil first month



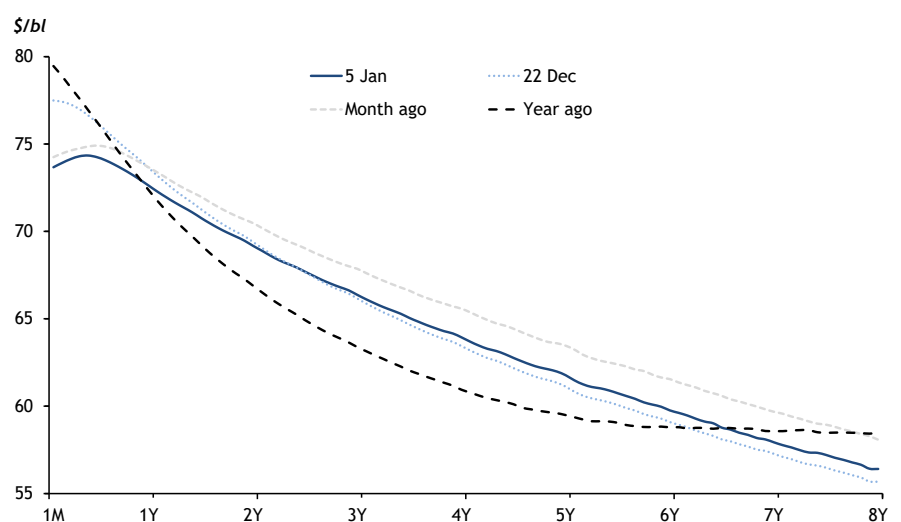
Nymex WTI first month



WTI 1st month minus 2nd month



Nymex WTI forward prices



CRUDE SPOT MARKETS

Crude marker grade spot prices											\$/bl
Date is date of assessment	1Q22	2Q22	3Q22	4Q22	Sep 22	Oct	Nov	Dec	19-23 Dec	26-30 Dec	2-5 Jan
Forward North Sea (London close)											
First month	101.45	114.15	100.16	89.54	91.49	94.52	92.28	81.31	80.92	82.45	81.10
Second month	98.62	111.74	97.71	88.84	90.71	93.51	91.09	81.46	81.07	82.66	81.18
Third month	96.38	109.71	95.65	88.06	89.64	91.75	90.24	81.77	81.61	83.00	81.27
WTI (Houston close)											
First month	95.18	108.77	91.63	82.82	83.86	87.26	84.78	76.50	77.25	79.29	75.30
Second month	93.55	106.96	90.34	82.29	83.37	86.07	84.27	76.62	77.39	79.42	75.52
Third month	91.63	104.90	89.08	81.68	82.71	84.85	83.60	76.69	77.39	79.47	75.70
Dubai (London close)											
First month	96.50	108.00	96.35	84.71	90.51	91.32	85.64	77.08	77.41	78.78	76.94
Second month	93.76	105.23	92.92	83.21	87.77	89.17	83.95	76.45	76.86	78.26	76.26
Third month	91.29	102.59	89.97	81.83	85.05	86.59	82.89	75.91	76.11	77.60	75.75
Crude spot prices											\$/bl
Date is date of assessment	1Q22	2Q22	3Q22	4Q22	Sep 22	Oct	Nov	Dec	19-23 Dec	26-30 Dec	2-5 Jan
North Sea (London close)											
Dated	102.12	113.90	100.66	88.36	89.76	93.11	91.10	80.36	79.75	80.93	79.16
Brent	105.02	115.80	104.69	89.65	91.96	94.11	92.56	81.76	80.80	81.98	80.20
Ice Brent weighted average	97.78	111.20	97.30	88.59	90.63	93.19	90.74	81.61	81.45	83.60	81.58
Forties	104.84	115.57	102.83	89.03	89.43	93.52	92.08	80.97	79.52	80.14	78.46
Flotta	102.91	116.01	104.53	86.64	90.23	92.37	89.84	77.11	76.15	76.93	76.41
Ekofisk	105.55	118.53	106.21	91.36	93.02	96.02	94.32	83.22	82.85	84.03	82.25
Oseberg	105.71	119.16	107.68	92.45	94.48	98.11	95.35	83.31	83.25	84.43	82.66
Statfjord	104.24	117.89	106.67	90.29	91.91	95.26	93.23	81.84	80.96	82.14	80.37
Russia (London close)											
Urals NWE	89.49	79.11	75.41	62.46	68.59	73.28	65.40	47.87	46.12	46.03	42.30
Urals Mediterranean	91.49	81.99	77.06	63.90	68.62	70.54	67.98	52.44	47.86	50.21	49.29
Siberian Light	99.84	104.17	91.09	76.58	79.97	83.11	79.19	66.86	66.25	67.43	65.66
BTC Blend	na	na	na	na	na	na	na	na	na	na	85.66
CPC Blend	98.94	108.80	98.69	83.67	89.09	91.50	86.13	72.74	73.39	76.18	74.91
Mediterranean (London close)											
Es Sider	101.78	115.04	101.42	87.55	89.85	93.79	90.48	77.78	77.87	80.88	79.41
Iran Heavy Sidi Kerir	97.36	106.90	90.93	79.42	79.65	84.15	82.91	70.62	69.59	71.01	69.23
Iran Light Sidi Kerir	100.16	109.70	93.73	82.22	82.45	86.95	85.71	73.42	72.39	73.81	72.03
Kirkuk	96.56	104.23	84.90	73.06	71.36	76.85	80.17	61.28	59.75	62.18	60.41
Suez Blend	100.03	109.57	93.60	82.09	82.32	86.82	85.58	73.29	72.26	73.68	71.91
Saharan Blend	104.13	116.37	102.82	89.29	91.07	94.62	91.93	80.79	80.41	82.89	81.66

CRUDE SPOT MARKETS

Crude spot prices											\$/bl
Date is date of assessment	1Q22	2Q22	3Q22	4Q22	Sep 22	Oct	Nov	Dec	19-23 Dec	26-30 Dec	2-5 Jan
West Africa (London close)											
Bonny Light	103.75	117.15	105.05	88.85	91.56	94.98	90.97	80.07	79.85	80.73	78.95
Escravos	104.71	118.76	108.07	90.95	93.60	97.96	92.72	81.63	81.35	82.53	80.75
Brass River	103.77	117.43	105.55	88.83	92.06	95.48	90.96	79.50	79.05	80.23	78.45
Forcados	104.52	118.61	106.42	90.11	91.76	95.18	93.00	81.60	81.10	82.26	80.45
Qua Iboe	104.42	117.93	106.60	90.08	92.59	95.83	92.51	81.38	80.88	82.16	80.36
Cabinda	103.62	115.71	104.53	88.71	91.49	95.20	91.87	78.40	77.70	78.88	77.21
Girassol	104.57	115.65	105.81	89.24	92.21	95.61	92.76	78.68	77.95	79.13	77.46
Zafiro	103.45	116.27	103.60	88.85	90.68	93.61	92.12	80.26	79.65	80.83	79.06
Mideast Gulf (Singapore close)											
Murban	97.98	111.02	98.64	88.19	92.45	93.64	90.90	80.17	79.64	81.79	80.50
Das	97.60	110.51	97.74	87.06	91.28	92.54	89.80	78.99	78.44	80.59	79.20
Oman	96.32	107.90	96.86	84.75	90.80	90.90	86.15	77.43	77.51	79.50	78.72
Qatar Land	96.70	110.70	101.97	88.13	94.53	93.59	89.67	81.32	81.11	83.52	82.46
Qatar Marine	96.10	110.15	100.87	86.53	93.56	92.26	88.48	79.04	78.36	80.77	79.71
Asia-Pacific (Singapore close)											
ESPO Blend	91.87	84.13	82.10	78.92	83.57	87.03	80.09	69.98	68.75	70.83	70.00
Minas	96.25	109.77	95.57	86.45	88.91	91.08	89.21	79.14	78.18	81.08	80.12
Duri	92.75	106.27	92.07	82.95	85.41	87.58	85.71	75.64	74.68	77.58	76.62
Cinta	95.25	108.77	94.57	85.45	87.91	90.08	88.21	78.14	77.18	80.08	79.12
Widuri	95.45	108.97	94.77	85.65	88.11	90.28	88.41	78.34	77.38	80.28	79.32
Bach Ho	107.57	122.58	111.41	96.50	99.22	102.70	100.29	86.61	85.90	87.48	85.31
Tapis	108.06	123.53	116.15	98.50	102.63	104.20	101.73	89.68	88.26	88.78	86.61
Cossack	103.64	115.08	101.23	81.55	89.79	84.80	86.02	73.76	73.05	74.63	77.66
Kutubu	103.16	113.77	93.11	81.32	79.86	85.30	85.17	73.50	73.44	75.33	73.16
NW Shelf	102.73	108.86	88.58	78.66	76.82	82.19	82.55	71.23	70.23	71.03	68.86
Americas seaborne (Houston close)											
WTI fob	97.37	110.66	94.53	84.64	86.78	90.08	86.55	77.38	78.21	80.23	76.53
Bakken fob	97.37	110.81	94.70	84.84	86.92	90.27	86.73	77.62	78.41	80.46	76.69
ANS USWC	96.31	112.55	99.13	87.92	90.61	92.06	92.43	79.48	78.70	81.37	77.40
Vasconia	91.60	105.37	90.82	80.62	83.89	85.27	83.98	72.78	72.97	75.27	71.17
US pipeline (Houston close)											
Bakken Beaumont/Nederland	96.82	110.29	93.88	84.81	86.46	89.84	86.79	77.91	78.74	80.59	76.61
WTI Midland	96.43	109.66	93.41	83.97	85.84	89.14	85.96	76.89	77.83	79.64	75.72
WTI Houston	96.77	109.96	93.77	84.33	86.24	89.60	86.27	77.20	78.25	79.96	76.03
LLS St James	97.49	110.27	94.07	85.47	86.21	90.07	88.43	78.04	79.35	80.84	76.81
HLS Empire	96.49	108.65	93.30	83.36	85.71	89.57	85.95	74.68	75.45	77.21	73.21
WTS Midland	94.76	108.60	92.32	81.55	83.48	86.43	83.19	75.10	77.16	77.70	72.47
Mars	93.36	105.29	89.66	78.79	82.82	83.81	81.18	71.51	72.73	74.14	70.38
WCS Cushing	87.24	98.22	na	65.14	na	66.84	65.77	62.83	70.39	62.87	57.86
WCS Houston	88.40	99.42	79.84	66.29	70.97	68.11	66.95	63.83	71.39	63.87	58.82
WCS Hardisty	79.79	90.31	na	53.66	na	57.81	54.73	48.49	49.49	51.92	48.67

OFFICIAL CRUDE PRICE FORMULAS

Formula pricing													\$/bl
	Mar 22	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 23	Feb	
Saudi Arabia fob Ras Tanura to US: ASCI													
Arab Extra Light	+3.80	+4.80	+7.00	+7.00	+7.00	+7.00	+7.50	+8.00	+8.20	+8.20	+8.20	+8.20	
Arab Light	+2.45	+3.45	+5.65	+5.65	+5.65	+5.65	+6.15	+6.15	+6.35	+6.35	+6.35	+6.35	
Arab Medium	+1.75	+2.75	+4.95	+4.95	+4.95	+4.95	+5.45	+5.95	+6.15	+6.15	+6.15	+6.15	
Arab Heavy	+1.30	+2.30	+4.50	+4.50	+4.50	+4.50	+5.00	+5.50	+5.70	+5.70	+5.70	+5.70	
Saudi Arabia delivered USGC: ASCI													
Arab Light	+3.75	+4.75	+6.95	+6.95	+6.95	+6.95	+7.45	+7.45	+7.65	+7.65	+7.65	+7.65	
Arab Medium	+3.05	+4.05	+6.25	+6.25	+6.25	+6.25	+6.75	+7.25	+7.45	+7.45	+7.45	+7.45	
Arab Heavy	+2.60	+3.60	+5.80	+5.80	+5.80	+5.80	+6.30	+6.80	+7.00	+7.00	+7.00	+7.00	
Saudi Arabia to NW Europe: Ice Brent													
Arab Extra Light	+2.20	+4.30	+8.10	+5.60	+6.80	+8.00	+6.50	+4.50	+2.70	+3.40	+1.40	-0.40	
Arab Light	-0.10	+1.60	+4.60	+2.10	+4.30	+5.30	+4.70	+2.70	+0.90	+1.70	-0.10	-1.50	
Arab Medium	-0.90	+0.50	+1.90	-0.10	+1.30	+1.80	+2.20	+0.20	-1.30	-1.30	-1.80	-2.80	
Arab Heavy	-2.60	-1.40	-1.10	-4.10	-2.60	-2.60	-2.20	-4.20	-5.70	-4.90	-4.90	-5.90	
Saudi Arabia to Mediterranean: Ice Brent													
Arab Extra Light	+2.30	+4.00	+5.60	+5.60	+6.80	+8.00	+6.50	+4.80	+3.00	+3.50	+1.80	0.00	
Arab Light	0.00	+1.90	+4.90	+1.90	+3.90	+5.10	+4.70	+2.70	+0.90	+1.40	-0.10	-1.50	
Arab Medium	-1.10	+0.80	+2.20	+0.20	+1.40	+1.80	+2.30	+0.30	-1.20	-1.00	-1.50	-2.50	
Arab Heavy	-2.60	-0.60	0.00	-3.00	-2.80	-2.80	-2.40	-4.40	-5.90	-5.40	-5.40	-6.40	
Saudi Arabia to Asia-Pacific: average Oman/Dubai													
Arab Super Light	+5.45	+8.15	+10.85	+5.75	+8.50	+11.35	+12.15	+9.15	+9.15	+9.15	+7.35	+4.95	
Arab Extra Light	+3.60	+5.90	+9.60	+4.65	+7.15	+10.65	+10.95	+6.45	+6.35	+6.45	+6.45	+3.55	
Arab Light	+2.80	+4.95	+9.35	+4.40	+6.50	+9.30	+9.80	+5.85	+5.85	+5.45	+3.25	+1.80	
Arab Medium	+2.75	+4.90	+9.30	+4.35	+6.15	+7.15	+7.75	+3.75	+4.00	+3.20	+2.10	+1.10	
Arab Heavy	+1.40	+3.55	+7.95	+3.00	+4.80	+5.30	+6.00	+2.20	+2.45	+1.25	-1.25	-2.25	
Iran fob Sidi Kerir to Mediterranean: Ice Bwave													
Iranian Light	na	na	na	na	na	na	na	na	na	na	na	na	
Iranian Heavy	na	na	na	na	na	na	na	na	na	na	na	na	
Foroozan Blend	na	na	na	na	na	na	na	na	na	na	na	na	
Iran fob Kharg Island to Mediterranean: Ice Bwave													
Iranian Light	-1.55	+0.20	+3.15	+0.10	+1.85	+3.05	+2.60	+0.60	-1.25	-0.70	-2.10	na	
Iranian Heavy	-3.60	-1.85	-0.50	-2.60	-1.65	-1.30	-0.85	-2.85	-4.45	-4.25	-4.75	na	
Foroozan Blend	-3.50	-1.75	-0.40	-2.50	-1.55	-1.20	-0.95	-2.95	-4.40	-4.35	-4.60	na	
Soroush	na	na	na	na	na	na	na	na	na	na	na	na	
Nowruz	na	na	na	na	na	na	na	na	na	na	na	na	
Iran fob Kharg Island to NWE: Ice Bwave													
Iranian Light	-1.60	-0.05	+2.90	+0.35	+2.30	+3.30	+2.65	+0.65	-1.15	-0.35	-2.05	na	
Iranian Heavy	-3.30	-2.10	-0.75	-2.85	-1.70	-1.25	-0.90	-2.90	-4.40	-4.40	-4.85	na	
Foroozan Blend	-3.20	-2.00	-0.65	-2.75	-1.60	-1.15	-1.00	-3.00	-4.50	-4.30	-4.95	na	
Iran fob Kharg Island: average Oman/Dubai													
Iranian Light	+2.65	+4.70	+9.20	+4.25	+6.10	+8.90	+9.50	+5.55	+5.65	+5.35	+3.15	na	
Iranian Heavy	+1.70	+3.65	+7.95	+2.95	+4.60	+5.60	+6.30	+2.30	+2.60	+1.85	+0.75	na	
Foroozan Blend	+1.70	+3.75	+8.05	+2.95	+4.70	+5.65	+6.40	+2.20	+2.70	+1.95	+0.70	na	
Soroush	-2.20	-0.10	+4.30	-0.70	+0.95	+1.45	+2.25	-1.45	-1.15	-2.30	-4.05	na	
Nowruz	-2.20	-0.10	+4.30	-0.70	+0.95	+1.45	+2.25	-1.45	-1.15	-2.30	-4.05	na	

OFFICIAL CRUDE PRICE FORMULAS

Formula pricing	\$/bbl											
	Mar 22	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 23	Feb
Iraq to Europe: Dated Brent												
Kirkuk (Ceyhan)	-0.30	+0.55	-0.25	-2.15	-2.50	-2.75	-2.75	-3.50	-3.60	-2.55	-4.35	na
Basrah Medium (Basrah oil terminal)	-4.65	-3.05	-4.25	-6.85	-7.60	-8.35	-8.10	-9.00	-9.20	-8.20	-9.90	na
Basrah Heavy (Basrah oil terminal)	-7.00	-5.70	-7.25	-9.65	-11.00	-12.75	-12.75	-13.55	-13.95	-13.25	-14.75	na
Iraq to US: ASCI												
Kirkuk (Ceyhan)	+0.60	+0.90	+1.40	+1.40	+1.40	+1.30	+0.30	+0.30	+0.30	0.00	0.00	na
Basrah Medium (Basrah oil terminal)	-2.30	-2.00	-1.55	-1.70	-1.70	-2.10	-2.10	-2.10	-2.00	-1.70	-2.00	na
Basrah Heavy (Basrah oil terminal)	-4.05	-3.35	-2.50	-3.15	-3.15	-3.90	-5.30	-5.60	-6.05	-5.75	-6.25	na
Iraq to Asia-Pacific: average Oman/Dubai												
Basrah Medium (Basrah oil terminal)	+1.30	+3.50	+5.80	+2.80	+3.30	+4.50	+5.10	+1.40	+1.70	+0.90	-0.50	na
Basrah Heavy (Basrah oil terminal)	-1.80	+0.20	+2.80	-0.40	+0.10	+0.65	+0.50	-2.50	-2.10	-3.25	-5.05	na
Kuwait fob Mina al-Ahmadi destination Asia: average Oman/Dubai												
Kuwait	+2.55	+4.80	+9.30	+4.35	+6.15	+7.15	+7.80	+3.80	+4.00	+3.20	+2.10	na
Dubai: fob Dubai: Oman MOG OSP												
Dubai	-0.05	-0.05	-0.25	-0.25	-0.05	-0.05	-0.05	0.00	-0.20	-0.05	-0.05	-0.05
Libya: to Dated Brent												
Es Sider	-0.85	+0.05	+0.05	+1.40	+1.40	+1.55	+0.65	+0.80	+0.15	-2.85	-1.85	na
Bu Atiffel	-1.50	-0.60	-0.60	+0.90	+0.90	+0.90	+0.15	+0.30	+0.10	-2.90	-1.85	na
Sirtica	-0.60	+0.30	+0.30	+1.65	+1.65	+1.65	+0.80	+0.80	+0.60	-2.25	-1.30	na
Zueitina	-0.70	+0.20	+0.20	+1.70	+1.70	+1.70	+0.70	+0.70	+0.60	-2.40	-1.40	na
Brega	-0.60	+0.90	+0.90	+2.40	+1.90	+1.90	+0.70	+0.70	+0.40	-2.45	-1.45	na
Sarir	-3.40	-2.50	-2.50	-1.15	-1.15	-0.85	-1.85	-1.70	-2.20	-4.90	-3.90	na
Amna	-0.40	+0.50	+0.50	+1.85	+1.85	+2.15	+1.50	+1.65	+1.35	-1.50	-0.60	na
Esharara	+0.40	+1.90	+1.90	+3.90	+2.90	+2.90	+1.80	+1.80	+1.30	-1.70	-0.65	na
Libya: spot Urals cif Augusta												
Bouri	na	na	na	na	na	na	na	na	na	na	na	na
Al-Jurf	na	na	na	na	na	na	na	na	na	na	na	na
Algeria: Dated Brent												
Saharan Blend*	+3.05	+5.00	+2.15	+4.75	+3.20	+4.60	+2.90	+2.55	+2.50	+2.65	+0.90	na
<i>*middle of contract price range</i>												
Nigeria: Dated Brent												
Bonny Light	+1.93	+2.02	+1.94	+1.66	+4.95	+6.46	+5.91	+1.91	+1.74	+0.31	-0.50	na
Brass River	+1.62	+1.87	+1.71	+1.71	+5.30	+5.30	+5.71	+1.76	+1.63	+0.11	-1.15	na
Amenam	+1.64	+1.61	+1.66	+1.32	+3.93	+5.93	+4.55	+1.50	+2.49	+0.66	-1.63	na
Qua Iboe	+2.16	+2.37	+2.43	+2.11	+5.80	+7.49	+7.58	+3.20	+2.90	+1.62	+0.55	na
Pennington	+2.54	+2.85	+3.49	+3.54	+6.35	+9.32	+10.10	+5.29	+5.05	+2.54	+2.30	na
Forcados	+2.42	+2.72	+2.93	+2.74	+6.73	+8.38	+8.14	+2.98	+2.51	+1.73	+0.92	na
Escravos	+2.53	+2.89	+2.96	+2.91	+6.84	+9.43	+9.06	+4.14	+4.01	+2.67	+1.10	na
Premium for deferred pricing	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	+0.07	na
Mexico to US: Mexican formula												
Olmeca	-3.95	-2.20	-2.70	-3.10	-3.75	-5.55	-4.50	-5.65	-6.70	-8.50	-8.00	na
Isthmus	-3.95	-2.20	-2.70	-3.10	-3.75	-5.55	-4.50	-5.65	-7.00	-9.85	-10.75	na
Maya	-7.55	-6.30	-6.30	-7.55	-9.45	-11.35	-11.35	-13.25	-13.40	-16.30	-16.65	na

SELECTED DECEMBER CRUDE DEALS

Northwest Europe

EFP 29/12 Mar at: +0.10. 29/12 Mar at: +0.11. 29/12 Mar at: +0.11.
Forties 07/12 at: Dated +1.20 (4-6 Jan).
North Sea 01/12 Feb at: 88.74. 01/12 Feb at: 88.73. 02/12 Feb at: 86.53. 02/12 Feb at: 86.47. 05/12 Feb at: 85.11. 05/12 Mar at: 85.18. 06/12 Feb at: 80.63. 06/12 Feb at: 80.45. 06/12 Feb at: 80.54. 07/12 Feb at: 78.66. 07/12 Mar at: 79.15. 08/12 Feb at: 76.60. 09/12 Feb at: 77.54. 09/12 Feb at: 77.45. 12/12 Mar at: 78.96. 12/12 Feb at: 78.60. 13/12 Mar at: 80.77. 13/12 Feb at: 80.60. 13/12 Mar at: 80.98. 14/12 Feb at: 82.80. 15/12 Feb at: 81.14. 15/12 Mar at: 81.26. 16/12 Feb at: 78.55. 16/12 Mar at: 79.28. 19/12 Mar at: 80.31. 19/12 Feb at: 79.96. 19/12 Mar at: 80.21. 20/12 Mar at: 79.88. 21/12 Feb at: 81.71. 22/12 Feb at: 82.11. 28/12 Mar at: 83.12. 29/12 Feb at: Mar N Sea -0.80. 29/12 Mar at: 82.81. 29/12 Feb at: Mar N Sea -0.55. 29/12 Feb at: Mar N Sea -0.75. 30/12 Mar at: 83.26. 30/12 Mar at: 83.17.
North Sea Dated CFD 01/12 at: CFD +0.90 (5-9 Dec). 01/12 at: Feb N Sea +0.09 (5-9 Dec). 01/12 at: CFD +0.40 (12-16 Dec). 01/12 at: CFD +0.35 (12-16 Dec). 01/12 at: Feb N Sea -0.70 (12-16 Dec). 01/12 at: Feb N Sea -0.86 (12-16 Dec). 01/12 at: Feb N Sea -0.75 (12-16 Dec). 01/12 at: Feb N Sea -1.25 (19-23 Dec). 01/12 at: Feb N Sea -1.33 (19-23 Dec). 01/12 at: CFD -0.03 (28-30 Dec). 02/12 at: Feb N Sea -0.30 (12-16 Dec). 02/12 at: Feb N Sea -1.03 (19-23 Dec). 02/12 at: Feb N Sea -1.05 (19-23 Dec). 02/12 at: Feb N Sea -0.97 (19-23 Dec). 02/12 at: CFD +0.06 (28-30 Dec). 05/12 at: Feb N Sea -0.95 (28-30 Dec). 05/12 at: CFD +0.25 (28-4 Jan). 05/12 at: Mar N Sea -1.15 (2-6 Jan). 06/12 at: Feb N Sea -0.40 (12-16 Dec). 06/12 at: Feb N Sea -0.50 (12-16 Dec). 06/12 at: CFD -0.04 (3-6 Jan). 07/12 at: Feb N Sea -1.32 (19-23 Dec). 07/12 at: Feb N Sea -1.28 (19-23 Dec). 07/12 at: CFD +0.14 (22-23 Dec). 07/12 at: Feb N Sea -1.35 (19-23 Dec). 07/12 at: Feb N Sea +1.25 (28-30 Dec). 07/12 at: Mar N Sea -1.80 (2-6 Jan). 08/12 at: Mar N Sea -1.95 (2-6 Jan). 08/12 at: CFD +0.15 (19-23 Dec). 09/12 at: Feb N Sea -0.80 (19-23 Dec). 09/12 at: Feb N Sea -0.75 (19-23 Dec). 09/12 at: Mar N Sea -1.70 (2-6 Jan). 09/12 at: CFD +0.30 (19-23 Dec). 12/12 at: N Sea -0.35 (19-23 Dec). 12/12 at: N Sea -0.40 (19-23 Dec). 12/12 at: Mar N Sea -1.20 (28-30 Dec). 12/12 at: Mar N Sea -1.68 (2-6 Jan). 12/12 at: Mar N Sea -1.65 (2-6 Jan). 12/12 at: CFD -0.11 (23-27 Jan). 13/12 at: N Sea -1.05 (19-23 Dec). 13/12 at: Mar N Sea -0.70 (26-30 Dec). 13/12 at: Mar N Sea -0.60 (26-30 Dec). 13/12 at: Mar N Sea -0.75 (26-30 Dec). 13/12 at: Mar N Sea -1.25 (2-6 Jan). 13/12 at: Mar N Sea -1.15 (2-6 Jan). 13/12 at: Mar N Sea -1.30 (9-13 Jan). 13/12 at: Mar N Sea -1.33 (9-13 Jan). 14/12 at: N Sea +0.35 (19-23 Dec). 14/12 at: Mar N Sea -1.00 (9-13 Jan). 14/12 at: Mar N Sea -0.99 (9-13 Jan). 14/12 at: CFD 0.00 (9-13 Jan). 14/12 at: CFD -0.01 (9-13 Jan). 14/12 at: CFD +0.02 (1-31 Jan). 14/12 at: CFD +0.08 (16-22 Feb). 15/12 at: CFD +0.75 (28-30 Dec). 15/12 at: CFD +0.70 (28-30 Dec). 15/12 at: CFD +0.13 (5-11 Jan). 15/12 at: Mar N Sea -0.95 (9-13 Jan). 15/12 at: CFD +0.12 (1-31 Jan). 15/12 at: CFD +0.20 (1-31 Jan). 15/12 at: CFD +0.03 (10-16 Feb). 16/12 at: Mar N Sea -1.43 (2-6 Jan). 16/12 at: Mar N Sea -0.46 (2-6 Jan). 16/12 at: CFD +0.10 (3-9 Jan). 16/12 at: Mar N Sea -1.45 (9-13 Jan). 16/12 at: CFD -0.02 (1-28 Feb). 19/12 at: Mar N Sea -1.55 (9-13 Jan). 19/12 at: CFD -0.06 (1-31 Jan). 20/12 at: CFD -0.16 (18-24 Jan). 21/12 at: Mar N Sea -2.10 (26-30 Dec). 21/12 at: CFD -0.14 (16-20 Jan). 22/12 at: CFD -0.43 (28-30 Dec). 22/12 at: Mar N Sea -1.80 (3-6 Jan).

22/12 at: CFD -0.10 (3-9 Jan). 22/12 at: Mar N Sea -1.50 (16-20 Jan). 23/12 at: CFD -0.25 (9-13 Jan). 23/12 at: Mar N Sea -1.35 (16-20 Jan). 23/12 at: Mar N Sea -1.15 (23-27 Jan). 28/12 at: CFD -0.50 (30-30 Dec). 28/12 at: Mar N Sea -1.50 (16-20 Jan). 28/12 at: Mar N Sea -1.25 (23-27 Jan). 29/12 at: Mar N Sea -1.85 (2-6 Jan). 29/12 at: Mar N Sea -1.60 (9-13 Jan). 29/12 at: Mar N Sea -1.45 (16-20 Jan). 29/12 at: CFD -0.24 (16-27 Jan). 29/12 at: Mar N Sea -1.20 (23-27 Jan). 29/12 at: CFD 0.00 (6-10 Feb). 30/12 at: Mar N Sea -1.25 (9-13 Jan). 30/12 at: Mar N Sea -1.30 (9-13 Jan). 30/12 at: Mar N Sea -1.17 (16-20 Jan). 30/12 at: Mar N Sea -1.20 (16-20 Jan). 30/12 at: Mar N Sea -1.05 (23-27 Jan).

Canada

Cold Lake Cushing 02/12 Jan at: Jan CMA Nymex -20.50. 05/12 Jan at: Jan CMA Nymex -20.60. 05/12 Jan at: Jan CMA Nymex -20.45. 06/12 Jan at: Jan CMA Nymex -20.25. 06/12 Jan at: Jan CMA Nymex -20.25. 07/12 Jan at: Jan CMA Nymex -18.00. 08/12 Jan at: Jan CMA Nymex -13.75. 08/12 Jan at: Jan CMA Nymex -13.75. 09/12 Jan at: Jan CMA Nymex -15.00. 09/12 Jan at: Jan CMA Nymex -14.00. 12/12 Jan at: Jan CMA Nymex -14.80. 13/12 Jan at: Jan CMA Nymex -13.00. 14/12 Jan at: Jan CMA Nymex -11.00. 16/12 Jan at: Jan CMA Nymex -11.00. 19/12 Jan at: Jan CMA Nymex -7.00. 21/12 Jan at: Jan CMA Nymex -7.00. 28/12 Feb at: Feb CMA Nymex -17.00. 29/12 Feb at: Feb CMA Nymex -16.50.
Cold Lake Houston 01/12 Jan at: Jan CMA Nymex -19.50. 02/12 Jan at: Jan CMA Nymex -19.25. 05/12 Jan at: Jan CMA Nymex -19.60. 06/12 Jan at: Jan CMA Nymex -19.50. 07/12 Jan at: Jan CMA Nymex -16.50. 07/12 Jan at: Jan CMA Nymex -16.50. 08/12 Jan at: Jan CMA Nymex -12.75. 09/12 Jan at: Jan CMA Nymex -13.00. 09/12 Jan at: Jan CMA Nymex -14.00. 13/12 Jan at: Jan CMA Nymex -12.50. 14/12 Jan at: Jan CMA Nymex -10.00. 28/12 Feb at: Feb CMA Nymex -16.00. 30/12 Feb at: Feb CMA Nymex -15.75.
WCS Cushing 05/12 Jan at: Jan CMA Nymex -20.45. 13/12 Jan at: Jan CMA Nymex -13.50. 16/12 Jan at: Jan CMA Nymex -11.00. 20/12 Jan at: Jan CMA Nymex -7.00. 22/12 Jan at: Jan CMA Nymex -7.00.
WCS Hardisty 08/12 Jan at: Jan CMA Nymex -27.85.
WCS Houston 14/12 Jan at: Jan CMA Nymex -10.50.

Argus US crude trades and averages			Jan
	Wtd avg diff	Wtd avg price	Volume b/d
WTI Diff to CMA	-0.037		1,053,987
WTI Midland	+0.470	76.737	992,519
WTI Houston	+0.774	77.041	683,259
AGS	+0.738	77.005	706,485
ASCI	-4.494	71.774	488,951
Bakken Beaumont-Nederland	+1.343	77.714	44,629
LLS	+1.588	77.855	157,571
HLS	-1.603	74.664	113,548
Thunder Horse	-1.407	74.861	103,630
Mars	-4.929	71.339	294,757
Poseidon	-5.918	70.350	80,000
SGC	-2.509	73.759	114,194
WCS Cushing	-14.378	62.030	197,262
WCS Houston	-13.320	63.088	139,876

PRODUCT SPOT PRICES

Product cargo spot prices											
Date is date of assessment	1Q22	2Q22	3Q22	4Q22	Sep 22	Oct	Nov	Dec	19-23 Dec	26-30 Dec	2-5 Jan
Northwest Europe \$/t (cif)											
Propane	780.14	745.45	635.92	564.44	608.47	558.60	587.98	544.68	525.10	545.17	542.25
Butane	861.52	820.08	611.25	597.14	592.13	610.69	623.32	554.11	545.10	561.17	546.62
Non-oxy Gasoline 95 Ron unleaded	956.21	1,263.94	1,019.59	894.79	881.42	986.93	917.38	773.19	777.40	831.33	823.25
Naphtha (65% paraffin)	889.87	865.60	683.41	646.44	625.31	672.73	668.86	594.16	585.00	610.08	628.75
Jet	968.80	1,301.39	1,117.55	1,031.47	1062.04	1095.27	1040.72	954.31	951.60	982.42	944.62
French diesel	932.14	1,193.09	1,040.68	1,016.60	1004.60	1150.87	1005.77	887.51	897.00	940.92	908.62
French heating oil	904.61	1,159.93	1,055.63	962.83	999.42	1084.07	937.78	863.08	869.25	901.08	861.12
Vacuum gasoil											
- 0.5% sulphur	740.66	920.67	772.28	657.10	672.46	709.12	671.24	586.91	585.25	596.83	584.81
- 2% sulphur	723.49	890.95	744.39	639.21	650.92	689.51	653.78	570.37	568.75	580.25	568.31
Cracked fuel oil											
- 1% sulphur	616.24	649.64	575.74	492.71	545.35	543.08	493.94	438.45	445.65	450.00	446.38
- 3.5% sulphur	555.44	628.55	487.46	422.60	441.99	425.77	433.91	406.81	414.95	421.08	398.38
Straight-run fuel oil											
- North Sea 0.5% sulphur† (\$/bbl)	9.16	22.39	14.83	5.18	7.38	10.19	5.20	-0.10	0.15	-0.92	-1.50
M-100	572.37	591.07	442.28	364.34	391.82	367.85	377.52	346.16	353.10	356.83	na
<i>†fob, premium to Ice Brent futures</i>											
Mediterranean \$/t (cif)											
Propane	792.78	750.32	634.06	580.63	616.46	574.90	603.57	561.43	544.10	565.17	562.25
Butane	842.48	798.95	588.80	594.11	583.99	607.69	620.23	551.11	542.10	558.17	543.62
Gasoline 95 Ron unleaded	946.72	1,261.77	993.04	892.54	843.06	929.60	960.84	778.49	767.70	819.08	818.12
Naphtha (65% paraffin)	877.92	845.01	668.64	626.22	612.18	654.76	649.77	570.34	560.20	586.83	609.75
Jet*	944.30	1,258.38	1,087.12	989.31	1035.10	1058.44	1000.92	903.95	899.20	933.58	905.75
French diesel	927.27	1,191.91	1,030.31	997.04	998.67	1128.01	991.27	865.85	864.75	913.42	903.12
French heating oil	903.46	1,160.77	1,054.02	966.82	996.04	1086.10	942.03	868.84	875.25	916.25	880.12
Vacuum gasoil											
Vacuum gasoil (0.5% sulphur)*	741.85	929.64	785.21	681.42	685.10	725.35	699.98	614.87	609.70	615.25	603.75
Vacuum gasoil (2% sulphur)*	723.53	902.61	763.04	662.17	664.53	705.00	680.50	597.01	592.90	598.42	587.06
Cracked fuel oil											
- 1% sulphur	640.10	697.11	623.20	544.15	594.95	596.19	543.66	490.05	498.45	506.00	493.12
- 3.5% sulphur	536.14	587.70	436.70	388.37	352.69	388.95	399.93	375.03	382.60	386.08	382.62
<i>*fob VGO prices have been replaced by cif prices from 5 January</i>											
New York Harbor ¢/USG (cif)											
Gasoline conventional 93	296.67	417.24	364.67	332.00	309.55	342.17	369.26	286.36	269.02	289.99	280.91
Gasoline conventional 87	282.14	373.52	301.08	273.41	262.43	301.43	286.62	232.82	235.12	251.73	244.29
Gasoline Rbob 83.7	278.21	371.06	299.87	261.02	249.43	283.26	276.28	224.25	226.02	240.28	232.67
Ethanol	237.46	284.56	257.45	247.53	250.62	253.64	261.99	227.66	227.45	240.91	241.44
Diesel (ULSD)	312.71	433.58	356.80	384.92	342.68	434.13	409.94	311.89	311.89	335.65	309.32
Jet	308.76	507.27	355.03	371.19	351.55	428.52	375.98	309.29	301.67	334.24	330.69
Heating oil	283.31	370.54	316.17	291.27	291.15	332.21	291.25	250.33	250.99	272.99	246.94
No 6 fuel \$/bbl											
1% sulphur	96.85	104.07	88.45	77.76	80.39	84.19	79.03	70.13	71.74	75.22	70.47
3% sulphur	89.35	100.96	82.43	62.73	68.18	61.14	67.01	60.24	61.31	63.59	58.60

PRODUCT SPOT PRICES

Product cargo spot prices											
	1Q22	2Q22	3Q22	4Q22	Sep 22	Oct	Nov	Dec	19-23 Dec	26-30 Dec	2-5 Jan
US Gulf €/USG (fob)											
Propane*	131.28	125.13	107.73	79.93	99.36	85.46	85.16	69.40	67.93	71.38	75.22
Butane*	159.10	135.29	110.46	96.50	105.03	96.56	99.34	93.75	93.83	99.31	102.25
Gasoline conventional 93	290.42	404.54	315.68	273.48	285.12	310.01	276.29	234.26	237.36	259.70	259.67
Gasoline conventional 87	279.00	367.03	283.78	246.48	255.52	277.72	244.87	216.77	220.36	243.61	236.17
Ethanol	na	na	na	na	na	na	na	na	na	na	243.75
Jet	290.78	390.54	335.80	322.15	326.38	355.01	318.56	292.72	293.81	333.35	326.44
Diesel (ULSD)†	302.81	400.69	350.47	338.38	350.47	na	na	338.38	298.92	330.58	301.07
Heating oil	270.16	341.33	287.48	267.14	274.72	316.50	271.44	213.69	215.24	232.55	205.19
No 6 fuel \$/bl											
3% sulphur	83.38	93.04	75.98	55.48	61.56	52.59	59.87	54.18	55.27	57.24	52.66
<i>*Mont Belvieu †Diesel ULSD 61 has been replaced by Diesel ULSD 62 from 23 September</i>											
West coast €/USG											
Los Angeles (pipeline)											
Carbob 88.5	324.50	415.38	379.89	302.10	443.73	356.64	315.33	234.96	246.23	275.76	262.91
Carb diesel	308.18	406.96	355.15	338.34	352.40	386.19	334.35	294.30	306.62	335.29	292.94
Jet	289.85	398.69	344.16	320.73	337.68	350.64	312.59	298.58	305.44	332.53	306.44
Bunkers \$/t											
HSFO 380cst	580.68	726.09	512.36	429.35	405.05	391.33	488.78	410.79	404.70	416.38	411.50
Singapore \$/bl (fob)											
Gasoline 95 Ron unleaded	113.98	143.24	109.50	94.20	97.45	94.78	98.27	89.40	89.11	94.29	93.00
Jet-kerosine	113.09	147.85	129.23	118.28	120.92	123.40	121.01	110.54	110.75	116.59	112.33
Gasoil 0.001% (10ppm)	118.62	160.26	137.80	126.13	129.08	137.25	127.61	114.00	113.44	117.70	112.43
Gasoil 50ppm sulphur (high pour)	118.27	159.76	137.30	125.64	128.58	136.76	127.11	113.53	112.99	117.25	112.43
Gasoil 0.5% sulphur (high pour)	115.07	150.29	131.21	123.07	124.45	133.86	125.31	110.44	108.61	113.20	108.97
Naphtha	97.78	92.80	74.22	70.87	68.09	71.87	74.23	66.41	65.27	67.23	67.26
LSWR fob Indonesia \$/t†	744.71	893.53	765.69	627.67	682.87	705.59	627.28	553.87	545.00	563.70	na
HSFO 180cst \$/t	558.82	664.64	473.59	397.20	420.98	395.69	416.43	378.49	386.70	399.19	380.00
HSFO 380cst \$/t	542.37	623.69	441.36	372.20	381.86	364.90	392.05	358.36	363.70	375.56	360.00
Japan \$/bl (C+F)											
Jet-kerosine	115.43	152.69	134.90	123.40	127.04	128.12	126.00	116.18	116.32	121.75	117.25
Gasoil 50ppm (low pour)	120.21	160.05	137.36	129.73	131.00	140.41	131.89	117.29	116.34	119.53	114.78
\$/t											
Naphtha	882.49	873.34	711.67	673.05	661.68	680.06	699.02	639.17	628.58	647.56	647.75
HSFO 180cst	571.12	683.50	497.77	426.22	446.66	418.54	445.79	413.05	422.46	437.04	416.98
<i>†LSWR fob Indonesia changed to 0.45pc sulphur specification with price in \$/t from 31 July. Prices before this date are for 0.35pc LSWR in \$/bl</i>											
Mideast Gulf \$/bl (fob)											
Gasoline 95 Ron unleaded	111.11	137.90	103.84	89.46	91.75	90.65	93.89	83.70	83.41	88.64	87.28
Jet-kerosine	110.46	142.79	123.80	113.31	115.16	119.73	116.48	103.86	103.78	109.49	105.18
Gasoil 0.001% (10ppm)	115.84	154.90	132.06	120.89	123.00	133.38	122.82	106.96	106.10	110.20	105.33
Gasoil 0.5% sulphur	112.87	150.00	124.74	114.57	118.85	126.92	115.73	101.59	101.61	105.95	101.08
\$/t											
Naphtha	848.70	804.83	638.11	606.12	583.50	631.77	638.39	547.90	533.08	550.01	552.77
HSFO 180cst	540.95	637.29	441.82	358.61	387.59	364.88	377.04	333.34	341.07	352.99	334.98
HSFO 380cst	524.49	596.34	409.59	333.61	348.49	334.09	352.65	313.21	318.09	329.38	315.00

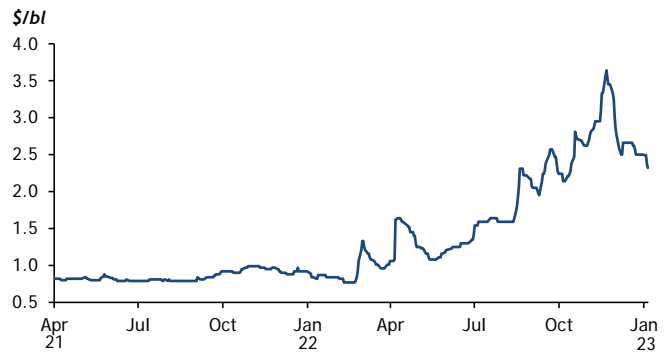
FREIGHT RATES AND ARBITRAGE

Route rates	Clean				Dirty		5 Jan \$/t clean/dirty
	30,000-38,000t		70,000-80,000t		WS	± 22 Dec	
	WS	± 22 Dec	WS	± 22 Dec			
Med-UK continent	231.5	-228.5	177.5	-45.0	14.77/14.50		
Med-US Atlantic	203.0	-187.0	120.0	-45.0	19.85/25.64		
Med-US Gulf	203.0	-187.0	120.0	-45.0	19.85/25.64		
Cross Med	230.0	-220.0	170.0	-72.5	8.15/8.44		
UK-UK continent	247.5	-127.5	170.0	-60.0	na		
UK-US Atlantic	196.0	-114.0	122.5	-57.5	17.73/17.71		
UK-US Gulf	196.0	-114.0	122.5	-57.5	17.73/17.71		
S'pore-Asia-Pacific	270.0	-90.0	262.5	-72.5	13.83/16.02		
Black Sea-Med	229.5	-445.5	270.0	-95.0	12.92/11.23		
Baltic-UKC	270.5	-729.5	192.5	-157.5	10.57/10.97		
Carib-UK continent	112.5	-52.5	160.0	-115.0	20.65/20.65		
Carib-USAC	160.0	-105.0	132.0	-88.0	12.44/11.84		
130,000-135,000t							
W Africa-UK continent	-	-	95.0	-46.2	19.37		
W Africa-US Gulf	-	-	100.0	-36.2	24.70		
UK cont-US Atlantic	-	-	na	na	22.98		
50,000-55,000t							
UK-US Gulf	-	-	na	na	22.98		
Mideast Gulf-US Gulf	-	-	40.0	-14.0	42.52		
Mideast Gulf-UKC/Med	-	-	42.0	-15.0	33.03		
Mideast Gulf-Asia-Pacific	310.0	-65.0	53.0	-22.0	27.49/26.34		

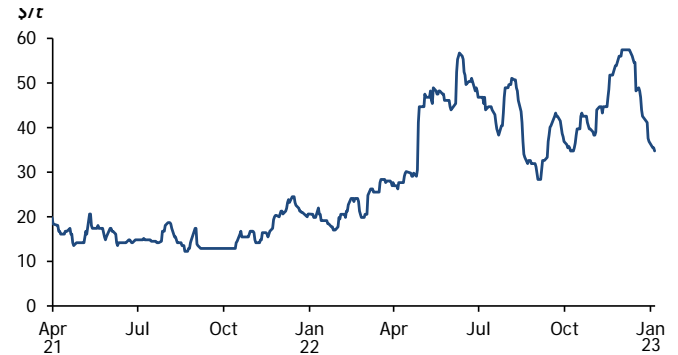
Routes to the US exclude oil pollution liability insurance premium

*Indonesia-Japan †Primorsk-UK continent 100,000t

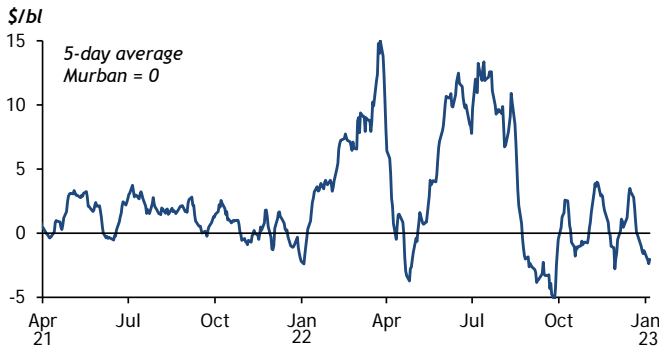
Mideast Gulf westbound VLCC rates



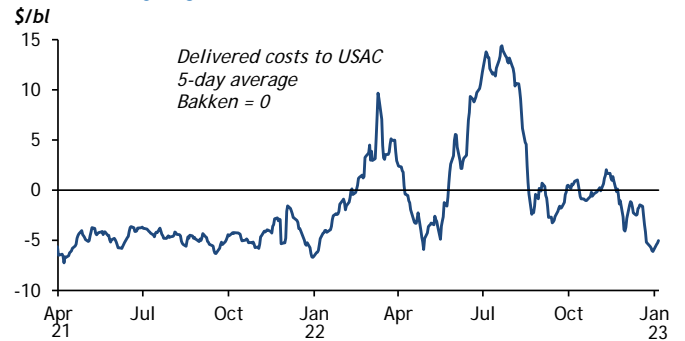
UK continent to US Atlantic coast clean rates



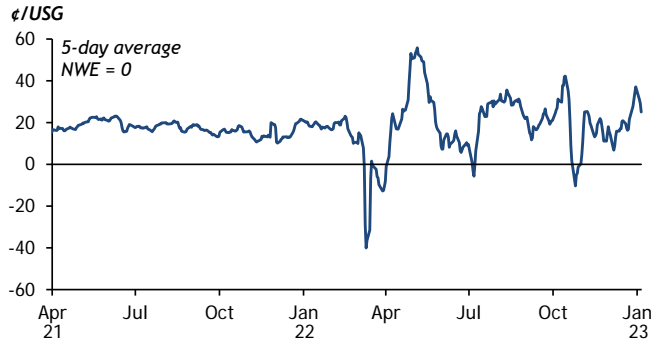
Forties minus Murban



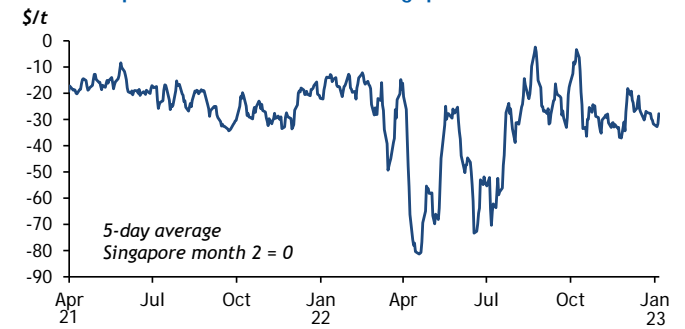
USAC: Bonny Light minus Bakken



Diesel: USGC minus NWE



HSFO swaps: NWE mth 1 minus Singapore mth 2



LOOKING AHEAD

10 Jan

EIA Short-Term Energy Outlook

12 Jan

Ice Jan gasoil futures expire

18 Jan

IEA Oil Market Report

20 Jan

Nymex Feb WTI futures expire

31 Jan

Ice Mar Brent futures expire

Nymex Feb products futures expire

7 Feb

EIA Short-Term Energy Outlook

10 Feb

Ice Feb gasoil futures expire

15 Feb

IEA Oil Market Report

21 Feb

Nymex Mar WTI futures expire

28 Feb

Ice Apr Brent futures expire

Nymex Mar products futures expire

7 Mar

EIA Short-Term Energy Outlook

10 Mar

Ice Mar gasoil futures expire

15 Mar

IEA Oil Market Report

21 Mar

Nymex Apr WTI futures expire

31 Mar

Ice May Brent futures expire

Nymex Apr products futures expire

11 Apr

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12 Apr

Ice Apr gasoil futures expire

14 Apr

IEA Oil Market Report

20 Apr

Nymex May WTI futures expire

28 Apr

Ice Jun Brent futures expire

Nymex May products futures expire

9 May

EIA Short-Term Energy Outlook

11 May

Ice May gasoil futures expire

16 May

IEA Oil Market Report

22 May

Nymex Jun WTI futures expire

31 May

Ice Jul Brent futures expire

Nymex Jun products futures expire

4 Jun

Opec+ meeting

6 Jun

EIA Short-Term Energy Outlook

12 Jun

Ice Jun gasoil futures expire

13 Jun

IEA Oil Market Report

20 Jun

Nymex Jul WTI futures expire

30 Jun

Ice Aug Brent futures expire

Nymex Jul products futures expire

11 Jul

EIA Short-Term Energy Outlook

12 Jul

Ice Jul gasoil futures expire



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Registered office

Lacon House, 84 Theobald's Road,
London, WC1X 8NL
Tel: +44 20 7780 4200

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Chief operating officer
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President, Oil
Euan Craik

Global SVP editorial
Neil Fleming

Editor in chief
Jim Washer

Managing editor
Andrew Bonnington

Senior editor
Sean Cronin
Tel: +44 20 7780 4227
agm@argusmedia.com

Customer support and sales:
support@argusmedia.com
sales@argusmedia.com

London, Tel: +44 20 7780 4200

Beijing, Tel: +86 10 6598 2000

Dubai, Tel: +971 4434 5112

Hamburg, Tel: +49 40 8090 3717

Houston, Tel: +1 713 968 0000

Kyiv, Tel: +38 (044) 298 18 08

Moscow, Tel: +7 495 232 0110

Mumbai, Tel: +91 22 4174 9900

New York, Tel: +1 646 376 6130

Paris, Tel: +33 1 53 05 57 58

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Sao Paulo, Tel: +55 11 3235 2700

Shanghai, Tel: +86 21 6377 0159

Singapore, Tel: +65 6496 9966

Tokyo, Tel: +81 3 3561 1805

Washington, DC, Tel: +1 202 775 0240