Argus *Global Markets*

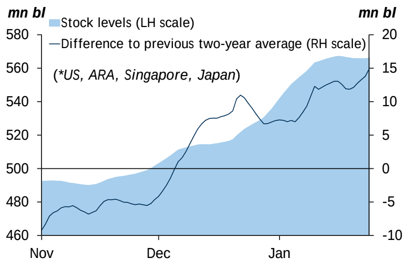
Weekly oil price reporting, derivatives and analysis

argusmedia.com

Volume L, 5, 31 January 2020

EDITORIAL: The markets appear to have been loosening even before the coronavirus outbreak

Clean product stocks*



Market markers

- Virus-related demand fears continue to weigh on oil prices
- North Sea Dated down by over $3.50/bl to just under $57.75/bl
- Dubai falls by $4.50/bl to go below $57.40/bl
- Jet fuel margins down by $1-5/bl in main refining centres

CONTENTS

Virus pressures Chinese demand	2
China travel ban hits fuel use	3
Belarus looks beyond Urals	4
Libyan shut-ins boost alternatives	5
US crude special report	*6-9*
German gasoline exports dwindle	10
Opec+ move 'very possible'	10
Iran expands condensate capacity	11
Runs in most main areas fall	12
Demand erosion adds pressure	14

Demand shock

Oil markets have weathered supply shocks over the past year. They are now struggling to get through a potential demand shock. History tells us these can be more disruptive to pricing. Initial reports on the coronavirus in China point to low infection rates relative to other similar outbreaks. And China is being more transparent about the virus than it was during the Sars outbreak of 2002-03. But serious disruption to travel in China and the potential knock-on effects on the wider economy have still helped depress crude prices by $6-8/bl since awareness of the virus spread after 20 January. And more may be to come should initial estimates of the demand impact prove short of the mark.

Evidence is already accumulating in the spot markets of a large drop in Chinese demand, backed up by anecdotal evidence around the activities of Chinese oil firms. Refinery runs in China fell by nearly 850,000 b/d in January from a record 13.8mn b/d in December, *Argus* surveys indicate. And a further 500,000 b/d cut in refinery runs in February appears likely to be at the very conservative end of forecasts. The real drop could be much larger.

A two percentage point drop in Chinese GDP translates into a roughly 260,000 b/d fall in its oil demand, calculations by *Argus* Consulting show. If GDP for the rest of the world falls by 0.3 percentage points, then combined total global GDP growth falls by just over 0.6 percentage points in this scenario. This would translate to a downward revision to global oil demand of around 300,000 b/d.

Chinese refiners bought up a lot of crude to arrive in the first quarter. Seaborne deliveries were on course to top 9.9mn b/d in January, which would be the second-highest monthly total on record. Many firms will be wondering where to put this wave of oil, and have stopped buying crude in the meantime. Sinopec is reselling March-loading Angolan cargoes, most likely to the European market, helping to push prices down by at least 30¢/bl against benchmark North Sea Dated. Independent refiners in Shandong province — home to 3.7mn b/d of crude capacity — have no such flexibility. They will not want to jeopardise their credibility by refusing cargoes, and will have to place the oil in storage.

Price signals are increasingly pointing to a looser global crude market in the first half of this year. US marker WTI has returned to contango — with spot prices below later deliveries. And the market for Mideast Gulf marker Dubai, while still backwardated, has seen the prompt price surrender 90¢/bl of its premium to the second-month market since 20 January.

But the coronavirus came as signs were emerging of a surplus building in the oil markets anyway. Clean product stocks have been building at a rate of over 850,000 b/d in high-frequency reporting centres in the Atlantic basin and Asia-Pacific in November-January (*see graph*). This is roughly 250,000 b/d faster than average rates over the previous two years. Much of the build is in US gasoline stocks, which have been rising by 400,000 b/d over the past three months.

This is putting pressure on refinery cracking economics. Global gasoline margins are weakening and have fallen to roughly $3.50/bl below seasonal averages since 20 January. Diesel margins are faring worse and are now $4/bl below average. More volatility could be in store when Chinese oil firms return from their extended holiday period.

CHINA DEMAND

Spreading virus dampens demand expectations

Chinese oil demand growth could be up to 60pc lower than expected this year, depending on how quickly the coronavirus is contained, writes Tom Reed

The coronavirus is expected to have a discernible impact on Chinese oil demand, as the country grinds to a halt for extended public holidays.

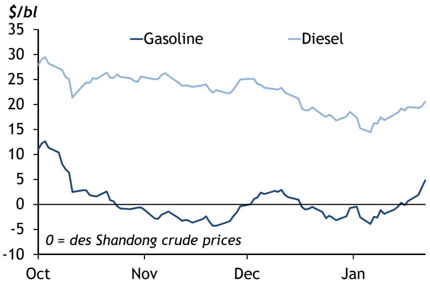
The central government has extended this year's lunar new year public holidays to 2 February, from 30 January, to limit the movement of people around the country and contain the spread of the coronavirus. Many municipal governments are extending the holiday further still. Shanghai will extend the break for non-essential businesses to 9 February and school holidays until 17 February. Many villages and towns are restricting road use to residents only.

These moves are likely to put a severe dent in the country's economy, and its fuel use. Chinese apparent oil demand expanded by 4.4pc, or 600,000 b/d, in January-November from a year earlier, to 14mn b/d. If the infection causes a two percentage point reduction in China's expected GDP growth rate this year, to 3.7pc, oil demand growth would drop by 260,000 b/d to 190,000 b/d, *Argus* Consulting Services estimates.

Customs data for December show crude imports down sharply from a month earlier — refining margins fell in October, during the Golden Week public holidays, when refiners were buying December-arrival cargoes. China imported 1.73mn b/d of crude from Russia in December and 1.65mn b/d from Saudi Arabia, down from 1.9mn b/d and 2mn b/d, respectively, in November. Private-sector firm Rongsheng sharply reduced imports from Saudi Arabia for its new 400,000 b/d Zhoushan refinery, after delaying the start-up of its second 200,000 b/d crude unit to late December. But fellow refiner Hengli took delivery of around 9.7mn bl of Saudi crude for its 400,000 b/d Changxing refinery. China did not import any crude from the US in December, after taking 63,000 b/d in December, as it remains subject to a 5pc tariff.

Many refiners targeted aggressive throughput rates in October-December to compensate for weak margins in January-June 2019. Seaborne crude receipts are likely to bounce back this month. Shandong province receipts may hit record highs of nearly 4mn b/d, data from oil analytics firm Vortexa suggest. This potentially poses major challenges, as independent refiners need cash flow from product sales to pay for their crude. Product stocks are building and refineries are cutting runs, reducing the rate at which they can absorb fresh crude imports. Spot gasoline and diesel prices have begun to tumble. Refining margins are likely to be deeply negative when markets reopen next month, although travellers are likely to favour private cars over public transport, potentially buoying gasoline sales.

Shandong gasoline and diesel margins

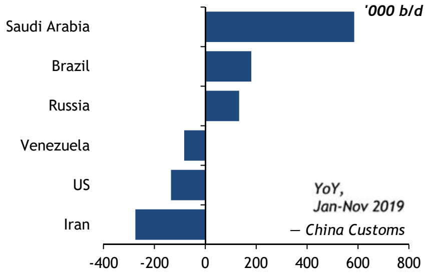


Slipping market

Recent data had suggested that the economy was stabilising. Its manufacturing purchasing managers index (PMI) was 50 in January. The IMF upgraded its economic growth forecast for 2020 following Beijing's interim trade deal with the US. And China will increase infrastructure spending this year, UK bank Standard Chartered says, potentially boosting diesel and naphtha demand. But a rising backlog of crude vessels waiting to discharge at Chinese ports, sliding prices and the coronavirus paint a bearish picture of oil demand. No new crude units are expected on stream until May, and slowing demand growth may delay those.

China is tackling the coronavirus with far greater transparency than it did Sars in 2003, potentially hastening attempts to control it. It took nine months, from its outbreak in November 2002, for the World Health Organisation to declare Sars under control. But Sars may have limited relevance as a template for this year's oil market. It coincided with the US-led invasion of Iraq and rapid economic expansion in China. China's 2003 GDP grew by 9.5pc in 2003, the IMF said.

Chinese crude import changes



CHINA BAN

China travel bans hit fuel demand

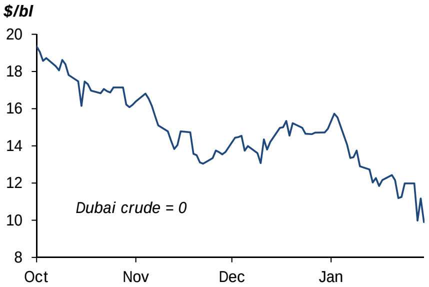
Supply had already been forecast to surpass demand this year even before the outbreak of the coronavirus in China, writes Tom Reed

Attempts to slow the spread of the coronavirus may cut projected oil demand growth considerably this year, and add to expected global oversupply.

China accounts for almost all the nearly 10,000 confirmed cases of the coronavirus to date. The government has extended the new year public holidays to 2 February from 30 January, and at least 10 provinces and administrative areas have told workers in non-essential business to delay their return to work — in Hubei, the epicentre of the virus, until 13 February.

The enforced halt to economic activity is likely to put a major dent in Chinese GDP growth this year. It also revives the spectre of a global economic slowdown just as expectations were rising that the partial US-China trade deal might bolster trade. The IMF downgraded its forecast for global GDP growth by 0.1 percentage point earlier this month to 3.3pc, highlighting US president Donald Trump's vow to tackle perceived inequities in trade with the EU and a slowdown in India as key concerns. That in turn will hit oil demand.

Singapore jet fuel margins



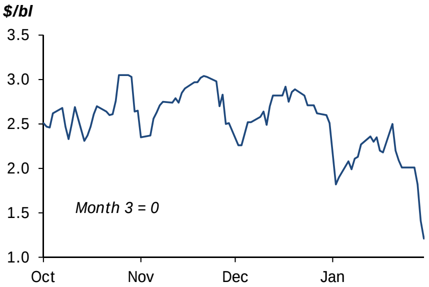
Jet fuel markets will bear the brunt of China's isolation. Jet demand growth will be 150,000 b/d lower than expected, US bank Goldman Sachs says. European carriers British Airways and Lufthansa have suspended all flights to and from China until 31 January and 9 February, respectively. US group United Airlines has cancelled 24 flights to and from China until 8 February, while Finnair has suspended all flights to Beijing, Daxing and Nanjing until 29 March. Singapore jet margins have fallen by $2/bl since 20 January (*see graph*).

A two percentage point hit to China's expected GDP growth this year could cut its oil demand growth by 260,000 b/d, *Argus* Consulting projects. And a 0.6 percentage point slowdown in global GDP growth would cut oil demand growth, globally, by around 300,000 b/d. Even before the coronavirus outbreak, *Argus* was forecasting a 400,000 b/d crude stockbuild this year.

Back on the market

Crude values are coming under pressure, particularly east of Suez or Atlantic basin grades that are mostly marketed in Asia-Pacific. Prompt Dubai is down by $8/bl and has surrendered over half its premium to the third-month market, a spread that Mideast Gulf producers monitor closely when setting official formula prices (*see graph*). Angolan crudes, heavily favoured by Chinese refiners, fell by 30¢/bl on 30 January as news emerged that Sinopec was reselling cargoes of Gindungo and Saturno rather than market them domestically.

Dubai month 1 minus month 3



These Mideast Gulf and west African cargoes may well arrive in May, when some public health officials believe the disease will have peaked. But Chinese refiners must figure out what to do with crude scheduled to arrive in the first quarter. Seaborne crude arrivals are on track to average 9.92mn b/d this month, data from analytics firm Vortexa show, which would be the second highest on record.

Chinese holidaymakers are opting to stay indoors, rather than risk infection by travelling over the lunar new year break. Products markets in China remain closed but road fuel prices are likely to begin trading sharply lower when they reopen. Refinery throughputs will fall by at least 840,000 b/d in January, *Argus* estimates, from record highs in December, causing crude to build in port storage tanks and swelling a backlog of vessels waiting at port.

"Some enterprises in China have suffered severe impacts... which may result in the failure to perform international trade contracts," the China Chamber of International Commerce (CCOIC) — a quasi-government lobby group — says. The CCOIC reserves the right to issue force majeure certificates, although this would be a highly controversial move. There are no signs that Chinese refiners are seeking these, although some LNG buyers have asked to defer cargoes.

RUSSIA-BELARUS

Belarus looks beyond Urals

Belarus is looking elsewhere for crude but may not find it as easy as it hopes to replace its Russian medium sour staple, writes Ruxandra Iordache

Belarus is considering taking crude from Saudi Arabia, the UAE and the US, after a price dispute briefly halted Russian flows to the country in early January.

"I have excellent relations with them [Saudi Arabia, the UAE, the US]. They promise to supply as much oil as we need. Certainly, at the global price. But the quality of their oil is better," President Alexander Lukashenko says.

Belarus is looking at deliveries by way of the Baltic Sea ports and has received "a batch of Norwegian oil" along that route, Lukashenko says. It is also looking at Black Sea imports by way of Ukraine. Russian supplies are now the "fourth option", Lukashenko says, with Belarus planning to reduce its imports from the country to 30-40pc of its overall requirements.

Belarus has traditionally depended on Russian Urals, supplemented with Supsa-loaded Azeri Light through Odessa. Iranian oil and, recently, two 600,000 bl cargoes of new Norwegian grade Johan Sverdrup, have also been fixed for the country. The 220,000 b/d Novopolotsk refinery received the first part of the Norwegian purchase, or 25,500 bl, in late January. The crude is being delivered to the Lithuanian port of Klaipeda for onward rail shipment to the plant.

Energy talks between the countries turned fractious as negotiations over deeper political and economic integration, under a 1999 framework that has yet to be fully implemented, stalled. The cost of crude supplies became a point of contention, leading to a brief halt to flows to Novopolotsk and the 323,000 b/d Mozyr refinery, which make up the country's downstream sector.

Flows have resumed but are still well below the refineries' overall needs. Russian pipeline exports to the country are scheduled at just under 120,000 b/d in January, with a further 25,000 b/d expected to arrive by rail.

Moscow and Minsk early this year brokered an interim supply deal for the first quarter but the full-year arrangements remain to be determined. Negotiations broke down at the end of last year when Belarus sought a $1.10-1.29/bl discount to Russia's export parity price for 2020, after paying a premium previously. "Long-term agreements usually include a premium because the buyer receives guaranteed crude volumes," a source at a Russian supplier says. And Belarus receives Russian crude exempt from duty, which Moscow regards as a subsidy for its neighbour's refining sector. The "indicative balance" of crude supplies for 2020 that the two sides agreed in December assumed deliveries of around 480,000 b/d.

The inroads less travelled

Saudi crude has already made inroads in eastern Europe — with Polish refiner PKN Orlen recently increasing its term take by a third to a little under 100,000 b/d, while UAE supplies have yet to gain a European foothold, finding a more lucrative market in Asia-Pacific. Saudi Arabia produces grades that can stand in for medium sour Urals, while UAE supplies are primarily along the lighter sourer spectrum. But the Opec+ deal could leave both countries with limited crude to spare, regardless of quality. The UAE has a 3.08mn b/d first-quarter quota under the agreement, while Saudi Arabia has a self-imposed ceiling of 9.74mn b/d.

US crude shipments to Europe have also picked up, but are largely light sweet grades WTI, Bakken and Eagle Ford.

Separately, Russian federal anti-monopoly service FAS and its Belarusian counterpart Mart have agreed on a tariff increase for crude transit through Belarus from 1 February of around 6.6pc. Belarus had sought a 16.6pc rise to compensate for reduced transit revenue in 2019 caused by second-quarter disruption to Druzhba pipeline flows. The two sides have agreed on compensation of $15/bl for roughly 4mn bl of contaminated Russian crude delivered to Mozyr.

MEDITERRANEAN CRUDE

Libyan shut-ins boost alternatives

Light Mediterranean and Caspian crudes are enjoying a price boost from the problems in Libya, write Ruxandra Iordache and Felix Todd

Algerian and Azeri crudes are in high demand to cover widespread disruptions in Libya that could take nearly all the country's output off stream.

Libyan production has been sinking fast after the anti-government Libyan National Army (LNA) told ports to halt loadings and blocked fields in mid-January. Production had fallen to less than 290,000 b/d by 28 January, according to oil firm NOC, down from 1.1mn b/d in December, as assessed by *Argus*. NOC had warned that output could fall to around 70,000 b/d within days of the blockades, with only Wafa condensate and medium sour flows from the offshore Bouri and Al Jurf fields still available.

Talks between the LNA and the Tripoli-based Government of National Accord (GNA) are under way, NOC chairman Mustafa Sanalla says, although a definite resolution appears a way off. But Sanalla says he is "very optimistic" that the sides can reach an agreement by the time the Opec+ group meets in early March, although there have been indications that the demand impact of the coronavirus outbreak could lead to a hasty rescheduling of the gatherings to February.

Output had been expected to resume by 24-26 January, with some buyers briefly suspending competing purchases. Refiners may have been unable to satisfy their very prompt requirements because of the slightly longer time it takes Algerian and Azeri shipments to reach some plants. But empty tankers have started to leave Libyan ports and buyers may have initially dipped into refinery stocks — which can meet 10-14 days of demand at some Mediterranean complexes — to make up the Libyan losses.

Interest in Azeri and Algerian crude is now rising as the likelihood of a swift resolution in Libya recedes, supplementing already firm demand because of the new IMO marine fuel sulphur cap, which is supporting light sweet values. Italy and Spain are typically Libya's main clients in Europe, taking 330,000 b/d and 170,000 b/d, respectively, last year, tracking data show. Another 180,000 b/d heads to China, but the impact of the Libyan problems in that market could be muted amid lower refinery runs because of the coronavirus.

Losses and gains

Algerian flagship crude Saharan Blend — the closest competitor to Libya's Esharara — has held a $2/bl premium to benchmark North Sea Dated since 16 January, *Argus* assessments show. The grade equalled an eight-year high premium of $2.45/bl on 23 January that it also hit earlier in the month.

Azeri crude BTC Blend, a rival to Libyan grades Es Sider, Sarir/Mesla and Amna, has made similarly rapid advances relative to North Sea Dated, hitting a $6.20/bl premium and with offers closer to $6.50/bl above the marker. But anything above that level could prove too high, given curremt middle distillate spreads, a market participant says, and refiners might reduce runs rather than make further purchases at that price.

Mediterranean refiners could also turn to North Sea crudes to make up for the Libyan shortfalls. A cargo of benchmark grade Brent has been sold to a Mediterranean refiner — it last travelled to the region in October, bound for Italy's Sarroch. And US light sweet WTI — which has made significant inroads in European markets over the past year — could be another substitute, although the journey time of nearly 20 days might prove a limiting factor.

Nigerian grades, in contrast, have gained scant purchase from the Libyan disruptions, with no price boost expected for the March loading programme. Equity producers could prove the only beneficiary of the problems, as oil majors might offer unsold February cargoes.

US CRUDE SPECIAL REPORT

Spending cuts to slow shale growth

Continued output gains in the shale regions will depend on efficiency and productivity gains, as firms rein in their spending, writes David Long

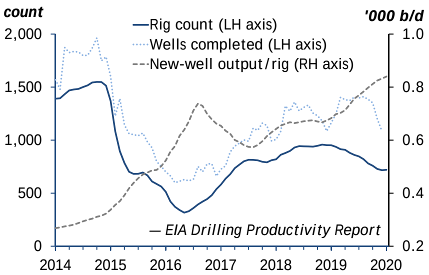
Spending cuts by US independent producers will slow the pace of oil output growth in the shale regions again this year.

The year-on-year growth rate for tight oil production eased from 1.5mn b/d in the first quarter of last year to 1.1mn b/d in the fourth quarter. The EIA forecasts a similar slowdown this year. Upstream spending by US independent exploration and production (E&P) companies is expected to fall by 10pc this year after a 12pc cut last year, UK bank Barclays' global 2020 E&P spending survey says. Investors are demanding better returns and shale developers are paring back spending to boost dividend payments and share buybacks after previously prioritising output growth. After years of spending more than they earned, the number of US E&P companies filing for bankruptcy rose by 50pc last year.

Rig counts bore the brunt of upstream spending cuts in 2019 as E&P companies scaled back growth targets and focused on cutting costs. "We have lowered company growth rates from 20-25pc over the last two years to a mid-teens growth rate," Pioneer Natural Resources chief executive Scott Sheffield says. The number of active drilling rigs in the seven shale oil producing regions in the EIA's *Drilling Productivity Report* (DPR) fell by a quarter between the end of 2018 and the end of 2019 to its lowest for over two years (*see graph*).

Some of this rig reduction is down to greater efficiency. "The average time to drill a well has been reduced by 20pc," EOG Resources chief operating officer Billy Helms says. Operators can now achieve their goals with fewer wells as longer horizontal sections, more intensive fracturing and wider well-spacing boost productivity. "We require fewer rigs to execute our programme compared to last year," Helms says. Rig productivity — the average production per rig from new oil wells — rose by nearly a quarter last year, EIA data show.

Shale production drivers

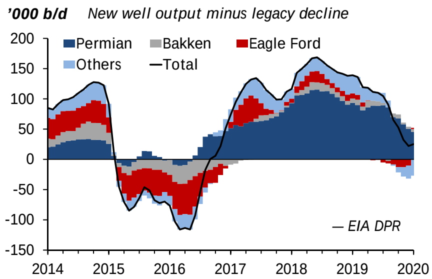


Read my lips: No new rigs

Companies see no need to add rigs. "Looking ahead to 2020, planning around a conservative commodity price, we can deliver oil growth, free cash flow and shareholder returns," Concho Resources chairman and chief executive Tim Leach says. "At higher prices, we will generate more free cash flow which will fund more shareholder returns," he says. In all, 65pc of the nearly 100 E&P companies that responded to Barclays' survey say their investment plans are based on $55/bl WTI, and 60pc expect no change in their land rig count by the end of 2020.

But with around two-thirds of output from new shale wells depleted after the first year, maintaining growth while cutting spending will be a challenge. The balance between new-well production and legacy decline rates is just about positive across the seven regions in the DPR, leaving the EIA forecasting a 22,000 b/d month-on-month net increase for February — less than a third of last year's 75,000 b/d average monthly increase. And growth is concentrated in the Permian region — where output is expected to rise by 45,000 b/d next month — while net losses are predicted for most other regions (*see graph*).

Monthly production changes



The relationship between the numbers of wells drilled and completed changed gear last year as operators cut rig counts. The drive for growth in 2018 boosted wells drilled and completions by around a quarter across the seven DPR regions. But the number of wells drilled in 2019 fell by 5pc, while completions rose by 7pc. To maintain growth, operators drew on the backlog of drilled-but-uncompleted (DUC) wells, which fell by 6pc over the year. With E&P companies planning to keep a tight grip on spending this year whatever happens to oil prices, output growth depends more than ever on improvements in rig and well productivity. Failing that, there is still a large reservoir of DUCs to fall back on.

US CRUDE SPECIAL REPORT

The advent of three pipelines has enabled Corpus Christi to rise to pole position in terms of crude exports, writes Eunice Bridges

US exports tilt to Corpus Christi

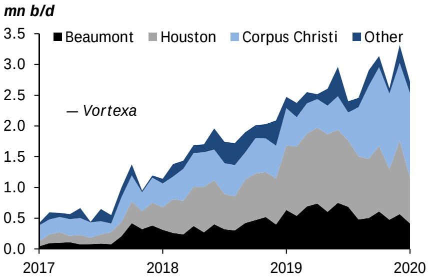
The port of Corpus Christi has become the largest source of US crude exports after the start-up of new pipeline connections from the prolific Permian basin.

The US exported just under 3mn b/d of crude last year, nearly 1mn b/d more than in 2018, data from the Census Bureau and the EIA show. Shipments peaked in December at 3.65mn b/d, preliminary EIA estimates show, thanks largely to rising flows through three pipelines that started up in the second half of last year running from the Permian basin to Corpus Christi in south Texas. These are the 670,000 b/d Cactus 2 pipeline, the 900,000 b/d Gray Oak pipeline and the 400,000 b/d Epic line. Gray Oak also has connections to terminals in the Houston area, although initial service was only to Corpus Christi.

The extra capacity to Corpus Christi has helped clear pent-up crude from the Permian basin in west Texas and southeastern New Mexico. Port loadings rose from less than 500,000 b/d in July, before the pipelines opened, to over 1.25mn b/d in the fourth quarter, or 42pc of all US crude exports (*see graph*). That figure rose to nearly 1.5mn b/d in January, preliminary loading data from analytics firm Vortexa show. Shipments from terminals around Houston — until September last year the largest port for US crude exports — made up just over a third of US crude exports in the fourth quarter, while terminals around the port of Beaumont, further east on the Texas coast from Houston, handled 18pc.

Exports from Corpus Christi are either WTI or lighter West Texas Light (WTL) from the Permian basin, as well as Eagle Ford crude and Eagle Ford condensate from the south Texas shale region. The rise in exports through Corpus Christi has led to the emergence of a spot WTI market around the port. Crude loadings from the port in February-March have risen to parity with fob cargoes in Houston after trading at discounts of 20-50¢/bl to the Houston market in late 2019. Sellers from the Houston terminals have had to reduce offers against the *Argus* WTI Houston crude benchmark to remain competitive.

US crude loadings



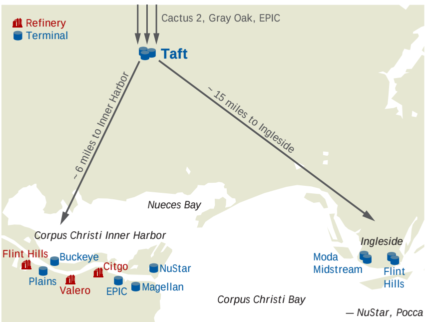
Bakken track

Corpus Christi has some infrastructure disadvantages to Houston, such as a lack of storage and refining capacity needed to export blended crudes. But other US grades could start to use the port next year. Continental Resources plans to export Bakken crude from Corpus Christi should two new pipelines enter service in 2021. Bakken would travel to the port through the proposed 350,000 b/d Liberty and 400,000 b/d Red Oak systems. Liberty, a 50:50 venture between refiner Phillips 66 and midstream group Bridger, will carry crude from the Bakken and Rockies to Cushing when it enters service in the first quarter of next year. Phillips 66's Red Oak pipeline would move crude from Cushing to terminals along the Gulf coast, including to Corpus Christi.

Midstream firms are also expanding storage at Corpus Christi to accommodate rising exports, and projects are under way in the nearby town of Taft, a junction for southbound pipelines (*see map*). Marine port expansions will also add storage space along the shore. Moda Midstream added 5mn bl to its Ingleside terminal last year and plans another 5mn bl by May. And Buckeye is opening 8.6mn bl of storage at its new South Texas Gateway terminal in the third quarter this year.

Proposed offshore projects that would allow very large crude carriers (VLCCs) to load 2mn bl of crude would also significantly boost exports. The US Maritime Administration is considering four such proposals and other companies are examining offshore port options. And a dredging project under way at Corpus Christi will allow some onshore ports to load VLCCs up to 1.5mn bl, lowering the cost of ferrying crude to larger tankers offshore.

Corpus Christi infrastructure



US CRUDE SPECIAL REPORT

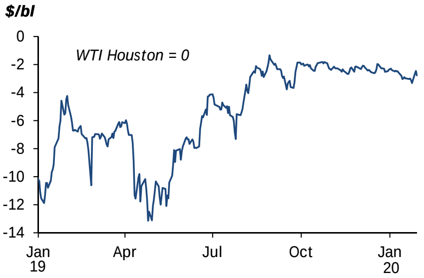
Pipeline spree slows, but more in the works

The pace of development may be slowing as the inland and coastal markets align more closely, but new lines are still on the way, writes Eunice Bridges

A recent frenzy of pipeline building is easing, but more projects are still in the works to ensure rising crude supplies reach expanding export infrastructure.

Inland US crude markets have levelled out much of their dislocation to global seaborne prices after a mammoth pipeline building programme that began to bear fruit in the middle of last year. Midstream firms have been bringing nearly 2mn b/d of transport capacity on stream in the Permian basin, with new lines entering service from August. Together with the expansion of existing lines, the extra takeaway capacity has helped bring prices at the Permian market hub of Midland to discounts of $2/bl to the Houston export price, after they dipped to $15/bl discounts in the first half of last year (*see graph*).

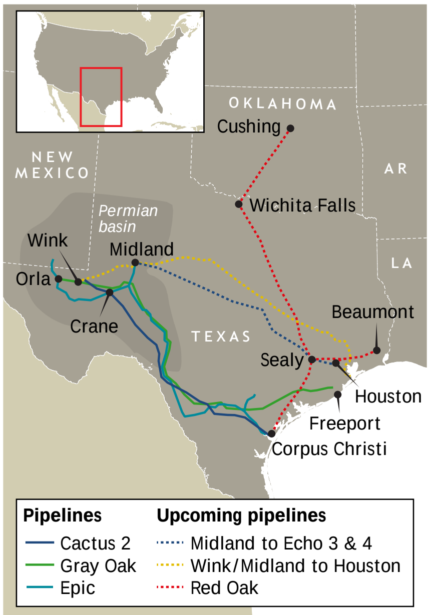
WTI Midland discount to WTI Houston



Three major lines entered service last year — the 670,000 b/d Cactus 2, 400,000 b/d Epic and 900,000 b/d Gray Oak lines. All run from the Permian basin in west Texas to Corpus Christi, pushing crude exports from the port above 1.3mn b/d — a number that is likely to increase as the new pipelines reach capacity and dock expansions are completed.

The Epic line was built to carry natural gas liquids (NGLs) but was put into interim crude service until a larger crude line can start. Epic's long-haul crude line will begin service at 600,000 b/d in the first quarter. Phillips 66's Gray Oak line runs from the Permian basin and Eagle Ford shale formation to Corpus Christi and onward to south of Houston, including a connection to the firm's 247,000 b/d Sweeny refinery. The initial service only includes the Corpus Christi destinations but a connection with Kinder Morgan's crude and condensate pipeline is already allowing about 100,000 b/d to reach terminals along the Houston Ship Channel. Gray Oak is expected to be in full service in the second quarter. Plains started initial service on Cactus 2 in August, moving crude from Wink to the Ingleside terminal in Corpus Christi (*see map*).

New crude pipelines



To the sea

More pipelines in development will ensure further increases in US crude exports. Phillips 66 is working on the 400,000 b/d Red Oak line, a joint venture with Plains, that will move crude from Cushing to coastal terminals at Corpus Christi, Houston and Beaumont. The firm plans to begin initial service on the line in the first half of 2021. Another joint venture, led by ExxonMobil and Plains, plans to build a 1.0mn-1.5mn b/d crude line from Wink and Midland in the Permian to Houston with onward connections to Texas City and Beaumont. Enterprise is also planning two more pipelines to Houston, each with 450,000 b/d of capacity. Midland-to-Echo 3 will start up in the third quarter of this year. Midland-to-Echo 4 will start up in the first half of 2021, with an option to expand to 540,000 b/d.

Export infrastructure is also being developed, especially at Corpus Christi. Epic Midstream last month loaded its first Aframax at the converted IGC marine terminal at the port. The firm repurposed the facility to export crude while it finishes a larger terminal that will be able to load 1mn bl Suezmaxes from the third quarter. Plains opened a 50,000 bl/hr Suezmax berth at the Eagle Ford Terminals Corpus Christi facility in September.

Moda's Ingleside terminal is also undergoing a large expansion, including a second berth for 2mn bl very large crude carriers (VLCCs) that it can already partially load. And Buckeye Partners will start up the South Texas Gateway facility in the third quarter this year, including two deepwater VLCC docks. Several firms, including Enterprise, Phillips 66, Trafigura, and Sentinel Midstream, are proposing to build offshore terminals that can dock and fully load VLCCs. Only one US port — the Louisiana Offshore Oil Port (Loop) — can fully load this size of tanker at present.

US CRUDE SPECIAL REPORT

WTI solidifies benchmark role

After a decade of struggling to fulfil its benchmark role, WTI is now in a strong position, writes Gustavo Vasquez

Rising production and growing capacity to bring it to market are solidifying WTI's role as a primary and secondary benchmark in the US and beyond.

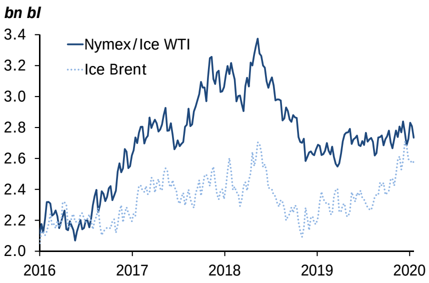
WTI has had to overcome high hurdles to remain an effective benchmark over the past decade. The primary benchmark market, based around the Nymex futures delivery point at Cushing, lies hundreds of miles inland. Local pipeline and storage infrastructure was unable to deal with steep demand drops and rising inbound flows of Canadian crude that bottled up crude in Cushing from 2009, leaving the WTI price extremely volatile against other seaborne benchmarks. But the expansion of storage in Cushing, the reversal of major pipelines to move midcontinent crude to the Gulf coast and the lifting of export restrictions in 2015 helped remove the biggest market dislocations.

Infrastructure expansion and the ability to export the US light sweet crude surplus have made the coastal WTI price a key swing market for global oil pricing. US exports regularly top 3mn b/d, almost all of which leaves from terminals around the ports of Houston, Beaumont or Corpus Christi. Growing US crude flows are changing pricing behaviour in European and Asian markets.

Crude markets must meet several requirements to be effective benchmarks. They need enough production to limit participants' ability to corner supply, enough liquidity to generate a reliable price signal, a broad array of buyers and sellers to reduce the market power of any one company, and transparency. WTI is well positioned. Output in the Permian basin, where WTI originates, will rise to 4.8mn b/d next month, the EIA projects, over a third of US crude output.

The primary WTI futures markets began to overtake Ice's Brent futures contract in mid-2016. Open interest on the CME and Ice WTI contracts peaked at the equivalent of nearly 3.4bn bl in early 2018, before stabilising at around 2.8bn bl for most of last year (*see graph*). But the more dramatic changes have been taking place in the secondary coastal market for WTI.

Futures contracts open interest



Coast to coast

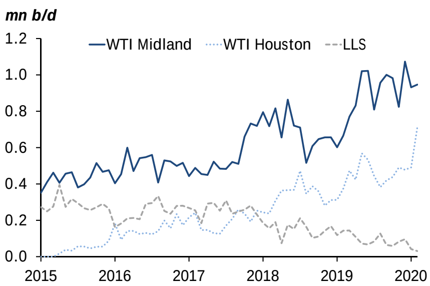
The WTI Houston market has been gradually expanding its benchmark role since exports began to rise. It has taken over from LLS — a blended grade that trades in Louisiana — as the de facto light sweet marker price in coastal refinery economics. Trade volumes attest to the switch. LLS and WTI Houston traded in roughly equal volumes in the spot market in late 2017. But WTI Houston registered a record 710,000 b/d in trade for delivery in February, compared with LLS volumes of just 30,000 b/d (*see graph*).

WTI Houston has succeeded in maintaining a diverse base of market participants, even though the shale sector is going through a period of consolidation. Roughly 30 companies are trading the market in recent months.

Mexican Pemex's decision to change the formula it uses to price its heavy sour Maya crude exports last year was a large step to expanding the benchmark use of WTI Houston. The firm now prices Maya sales to the US Gulf and Atlantic coasts and in the Caribbean against a basket comprising 65pc WTI Houston and 35pc Ice Brent. The shift away from its previous long-standing formula — which included large proportions of high-sulphur fuel oil and light sour WTS assessments — has brought Maya pricing into a more stable range relative to competing heavy sour crudes.

Some Asian refiners are indexing US crude purchases against WTI Houston. Taiwan's CPC and Japan's JX have signed term deals with elements of WTI Houston pricing. But uptake is otherwise slow. For now, Asian refiners, as well as those in Europe, tend to buy US crude through spot purchases linked to more familiar benchmarks, such as Ice Brent or Dubai crude.

Spot market trade volumes



IN BRIEF

Opec+ move to February ‘very possible’ because of coronavirus

The Opec+ group could bring forward its next meeting to tackle the challenges posed by the coronavirus outbreak, Opec’s president says. “It is very possible” that Opec+ meetings will take place in February rather than the scheduled 5-6 March, Algerian oil minister and Opec president Mohamed Arkab says, with a decision expected imminently. The coronavirus outbreak has raised the prospect of a fresh cut to oil demand growth, compounding existing pressure that has already neutered the potential price effects of large Libyan production shut-ins. Ice front-month Brent has fallen by more than 10pc since China, where the virus was first detected, started to take measures to contain the disease a fortnight ago.

Glencore to receive no term Libyan crude this year

Glencore will receive no term Libyan crude this year, trade sources say, after holding an exclusive contract in 2015-18. Glencore has not commented. The firm agreed a three-month trial deal with oil firm NOC in September 2015, allowing it to exclusively load and market Sarir/Mesla crude at the Marsa el-Hariga terminal. The deal, extended annually in 2016-18, was unusual given that NOC otherwise bans resales and reserves the right to decide which grades it allocates buyers. China’s Unipec joined Glencore as a term buyer last year, also for Sarir/Mesla. Half the 175,000 b/d of crude that left Marsa el-Hariga last year headed to China, but the port is currently closed because of civil conflict.

GERMAN GASOLINE

German gasoline exports dwindle

IMO 2020 is drawing more VGO to the marine fuel blending pool, lowering gasoline output and potentially eliminating exports, writes Charlotte Blum

Net German gasoline exports shrunk to a quarter of the 2018 figure last year, and further reductions are possible in 2020.

Net exports fell to 8,000 b/d in January-September, and half that if gasoline blending components are included, a drop of 73pc from 2018, or 93pc including components. Net exports were over 80,000 b/d in 2016-17, including components, of which around 45,000 b/d was finished product.

Falling production as refiners prioritise middle distillates, of which Germany is a net importer, lies behind the fall. Demand is also slipping, despite rising new car registrations. Finished gasoline production was 25,000 b/d above demand in January-September — a smaller surplus than in 2018 but one that still points to a possible stockbuild and potentially higher net exports.

But rising vacuum gasoil (VGO) demand from the bunker fuel sector is creating an incentive for coastal German refineries to reduce gasoline output even further, and inland prices indicate that they may already be doing this.

VGO is used for blending to produce 0.5pc sulphur fuel oil that meets the new IMO 2020 marine fuel mandate. Strong demand has kept it at a premium to Eurobob oxy gasoline in the Rotterdam region. This has led to a negative catalytic cracking margin of $9/bl since the IMO rules took force on 1 January, encouraging refiners to divert VGO to the bunker pool. Another reason for refiners to favour VGO over gasoline is the fact that the latter incurs costly obligations under Germany’s greenhouse gas quota system, and these have risen sharply this year.

Inland E5 gasoline prices in Hamburg have risen to a new and sustained premium to the rest of Germany since IMO 2020 fuel oil stockpiling started in earnest late last year, pointing to a structural change in the supply of gasoline from local refineries. Local E5 gasoline has held a premium of €1.72/100l ($3.04/bl) to the German average this month, *Argus* assessments show, against an average discount of €1/100l in January-September.

Gasoline in Germany			'000 b/d
	2019*	2018	2017
Finished gasoline			
Production	440	450	461
Inland deliveries	415	417	424
Imports	53	37	33
Exports	61	68	79
Net exports	8	30	46
Gasoline plus gasoline components			
Imports	78	57	50
Exports	82	117	132
Net exports	4	61	82
			— MWV, Bafa

**imports, exports and inland deliveries Jan-Oct, production Jan-Nov*

IN BRIEF

CFTC position limits proposal	
Contract*	**Spot month limit**
Nymex light sweet crude	4,000-6,000†
Nymex NYH ultra-low sulphur diesel	2,000
Nymex Rbob gasoline	2,000

**position limits also apply to similar contracts*
†6,000 for 3 days before contract expiry, 5,000 for 2 days before expiry, 4,000 for 1 day before expiry

— CFTC

CFTC proposes flexible position limits

US commodities regulator the CFTC wants new exemptions to a long-delayed position limits rule on crude, diesel and gasoline futures and swaps. The rule, mandated in 2010, has never taken effect amid years of debate about how tight limits should be. There will be "no more kicking the can down the road", CFTC chairman Heath Tarbert says. He also says more flexibility will ease industry concerns. The new rule would restrict position limits to the spot month contract and define new hedging exemptions for when they do not apply. It would also provide a streamlined process for commodity exchanges to approve new hedging exemptions. The CFTC aims to finish the rule later this year after public comment.

Iran expands condensate storage capacity

Iran is boosting condensate storage capacity at its South Pars gas field, under pressure from US sanctions. Pars Oil and Gas says onshore condensate storage capacity at the field has risen to 3.5mn bl, following the commissioning of three 500,000 bl tanks last month, with another 500,000 bl site expected soon. Iran is struggling to sell its liquids because of sanctions and while it has pared back its crude output, condensate production is more difficult to manage because it is predominantly associated with gas output, which is consumed locally. Iran produces 650,000-700,000 b/d of condensate, of which 500,000 b/d is processed domestically, with the rest put into storage if a buyer cannot be found.

Aramco joins North Sea blockchain platform Vakt

Saudi Aramco has joined Vakt — a blockchain-based platform for physical post-trade processing in the North Sea crude market. Aramco Trading will use Vakt, which allows parties to trade peer to peer and monitor deals through a secured network without third-party verification, removing the need for paperwork. Simplification, speed and security are all cited as benefits of Vakt, which has been in use since November 2018 for post-trade processing of benchmark grades Brent, Forties, Oseberg, Ekofisk and Troll. Vakt chief executive Etienne Amic said in June that "80pc of physical parcels" were being processed on the platform — or around 800,000 b/d of trade, based on planned January loadings of the five grades.

Kashagan growth to offset Tengiz decline in 2020

Rising output at Kazakhstan's Kashagan and Karachaganak fields will more than offset a decline at Tengiz this year, the oil ministry forecasts. Kashagan is forecast to produce 15.5mn t of crude and condensate, up from 14.1mn t last year, and Karachaganak 11.7mn t, up from 11.3mn t. Tengiz is forecast to produce 28.5mn t, a 1.3mn t drop. The government has said 2020 crude and condensate output will be little changed from 2019 at 90mn t, or 1.8mn b/d using the government's 7.3 bl/t conversion factor. *Argus* uses a 7.58 bl/t metric, putting output at 1.86mn b/d — 20,000 b/d above the first-quarter limit under the Opec+ deal.

Marathon to finish LA complex work, runs stranded fuel oil

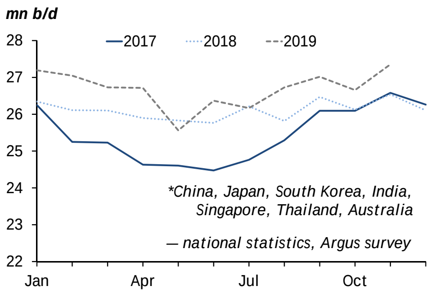
Marathon Petroleum's 363,500 b/d Los Angeles refining complex will complete a four-year integration project when hydrocracker work is carried out this quarter. The hydrocracker upgrade will allow the refinery to alternate up to 40,000 b/d of production between gasoline and ultra low-sulphur diesel. Marathon has also been processing more feedstocks that have come on the market because of the new IMO 2020 rules. It processed 20,000-30,000 b/d of cut fuel oil through its crude units, mainly at its Martinez plant in California, in the fourth quarter. The fuel used to go to the bunkering sector, before IMO 2020 hit the trade.

FUNDAMENTALS

China rises offset by declines elsewhere

Overall refining throughputs were essentially flat last year, with Chinese gains offset by falls in the US and EU 15

Key Asia-Pacific refinery runs



Weaker refining margins in the key regions — especially in the second half of last year — as well as heavy maintenance programmes in anticipation of the IMO 2020 sulphur cap and other impending fuel regulations — reduced crude throughputs in most of the principal areas last year.

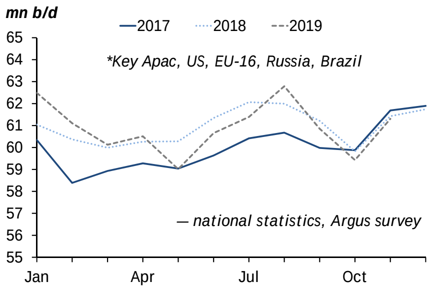
Refinery runs were still 575,000 b/d higher overall in seven Asia-Pacific countries, averaging 26.7mn b/d in January-November and driven entirely by Chinese increases that offset declines in South Korea, Thailand, India, Japan, Australia and Singapore. But the 2.2pc growth rate was some way off the 2.8pc rise registered in the same period a year earlier.

Adding the EU 15, the US, Russia and Brazil to the seven Asian countries leaves refinery runs essentially flat in January-November at 60.9mn b/d, as declines in the US and EU 15 neutered the Chinese gains.

US runs slipped by 400,000 b/d to 16.6mn b/d, while EU-15 throughputs were lower than a year earlier from May, Euroilsotck data show. EU-15 runs slipped to 10.2mn b/d overall, down by 200,000 b/d.

South Korean refiners cut crude processing by almost 4pc to 2.9mn b/d, while Japanese rates were stable.

Key countries refinery runs



Slowing sector

Preliminary data suggest that Chinese refinery runs, especially in the independent sector's Shandong province heartland, have collapsed as the spread of the coronavirus and extended public holidays curb demand.

Chinese throughputs may have fallen by about 840,000 b/d this month to 12.9mn b/d from a record 13.8mn b/d in December, *Argus* surveys indicate. Private-sector operator Rongsheng started up the second crude unit at its Zhoushan refinery in late December, prompting other less-efficient refiners to consider cutting runs.

The imposition of travel restrictions since 23 January, in an attempt to contain the spread of the coronavirus, has subsequently decimated fuel demand

Inland deliveries *'000 b/d*

		Gasoline			Jet-kerosine			Diesel/gasoil			Residual			Total		
	Latest month	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%
US	Jan*	8,536	8,743	-2.4	1,640	1,629	0.7	3,712	4,355	-14.8	334	304	9.9	19,884	20,452	-2.8
Japan	Nov	844	849	-0.6	374	350	7.0	773	799	-3.2	140	135	3.6	3,417	3,487	-2.0
S.Korea	Dec	229	224	2.3	202	210	-3.7	492	488	0.8	76	84	-9.4	2,763	2,691	2.7
India	Dec	674	653	3.2	225	254	-11.4	1,777	1,791	-0.8	113	126	-9.9	4,886	4,837	1.0
Brazil	Nov	675	633	6.7	120	124	-3.4	1,008	993	1.5	32	34	-6.5	2,475	2,423	2.2
China**	Nov	2,834	3,224	-12.1	825	723	14.0	3,049	3,375	-9.6	412	500	-17.7	13,547	12,880	5.2

**1-24 January ** refinery output plus net product imports*

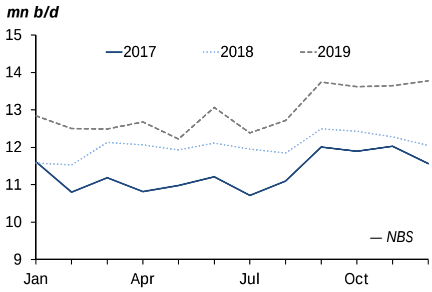
Refinery output *'000 b/d*

		Gasoline			Jet-kerosine			Diesel/gasoil			Residual			Total		
	Latest month	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%	20/19	19/18	±%
US	Jan*	9,432	9,735	-3.1	1,882	1,771	6.3	5,112	5,252	-2.7	246	398	-38.2	19,773	19,983	-1.0
Japan	Dec	912	937	-2.7	597	557	7.1	730	1,008	-27.6	173	260	-33.4	3,027	3,173	-4.6
EU-16	Dec	2,425	2,588	-6.3				5,641	5,825	-3.2	1,040	1,188	-12.5	10,788	11,099	-2.8
India	Dec	872	816	6.8	384	433	-11.2	2,193	2,156	1.7	129	183	-29.3	5,630	5,464	3.0
South Korea	Dec	496	469	5.7	527	505	4.4	994	1,046	-5.1	158	169	-6.7	3,486	3,569	-2.3
China	Nov	3,340	3,383	-1.2	1,182	1,010	17.0	3,582	3,649	-1.8	515	397	29.8	11,798	11,270	4.7

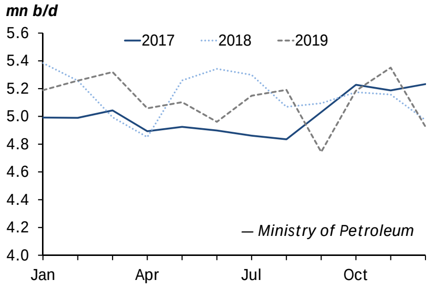
**1-24 January*

FUNDAMENTALS

China refinery runs



India refinery runs



and encouraged further run cuts. Fuel demand is shrinking across the country — many Chinese nationals would normally travel to visit relations during the holidays, but this year they are trying to stay indoors. Shandong independents began trimming runs in early January as the Zhoushan plant ramped up sales of finished products, and run cuts accelerated in late January in response to plummeting fuel sales and tumbling products prices.

Chinese gasoline and diesel output is expected to have fallen in January, as Sinopec and PetroChina boost IMO 2020-compliant bunker fuel production. National road fuel yields shrank in December while fuel oil yields rose, suggesting that state-owned refiners — the only companies that have export quotas at present — aim to boost sales to the bunkering sector.

Indian preparations

Indian refining throughputs dropped by 0.7pc last year, keeping runs at 5.1mn b/d, with heavy maintenance schedules, especially by state-owned refiners, and slowing products demand growth underpinning the drop.

December runs of 4.9mn b/d were lower than a year earlier, after domestic fuel demand fell, and as the country's refiners continued to prepare their plants to produce 10ppm sulphur, Euro-6 grade equivalent fuels from 1 April. State-run , including joint-venture plants, lowered their processing rates by 1.3pc to 3.3mn b/d last year. IOC — the country's biggest refiner — ran 1.4mn b/d of crude last year, 2.7pc down on 2018, mainly the result of maintenance at a couple of its plants.

Private-sector refiners processed 1.79mn b/d of crude last year, a small gain compared with 2018. Higher throughputs at the west coast's 400,000 b/d Vadinar plant — controlled by Russia's Rosneft — offset lower activity at Reliance Industries' Jamnagar complex, because of reduced runs at the export-oriented section of the facility.

Crude throughputs *'000 b/d*

	Latest month	20/19	19/18	±%	% util.
US	Jan*	16,663	16,785	-0.7	90.7
Japan	Dec	3,176	3,219	-1.3	90.3
EU-16	Dec	10,458	10,663	-1.9	85.3
S.Korea	Dec	2,957	3,029	-2.4	86.4
India	Dec	4,925	4,973	-1.0	99.1
China	Nov	13,778	12,049	+14.3	79.8
Russia	Nov	5,928	5,802	+2.2	89.4

1-24 January

Weekly US data *mn bl*

	24 Jan 20	17 Jan 20	±	25 Jan 19	± 20/19
Crude	431.7	428.1	3.5	445.9	-14.3
Total products	863.7	866.3	-2.5	816.4	47.4
Gasoline	261.2	260.0	1.2	257.4	3.9
Distillate	144.7	146.0	-1.3	141.3	3.5
Crude runs* (mn b/d)	16.66	17.00	-0.3	17.07	-0.4
Deliveries* (mn b/d)	19.88	19.95	-0.1	20.73	-0.8

**four-week average* — *EIA*

OVERVIEW

Signs of demand erosion add price pressure

Transport restrictions and an extended holiday period in China, as well as flight cancellations, are hitting the demand outlook

Global oil prices came under pressure from the uncertainty surrounding the potential demand effects of the coronavirus outbreak in China.

Atlantic basin benchmark North Sea Dated fell by $3.53/bl to $57.74/bl in the week to 30 January, while US marker WTI fell by $3.45/bl to $52.14/bl. Mideast Gulf benchmark Dubai was down by $4.46/bl to $57.38/bl.

An extension of the lunar new year holiday in China's major oil refining hub of Shandong province until 9 February, and similar moves in other provinces including Zhejiang, Jiangsu and Guangdong, is pressuring products prices.

Numerous airlines have suspended or reduced flights to China, weighing on global jet fuel markets. Asia-Pacific jet margins have slipped to their lowest since May 2017, while European jet premiums to North Sea Dated fell to a seven-month low on 27 January, in what is already a low-demand period.

Gasoline markets have also been affected as demand in China is expected to fall, with some provincial and municipal governments suspending public transport to further contain the outbreak. Asian gasoline margins fell to a 10-month low of $2.89/bl before recovering to more than $4/bl towards the end of the week.

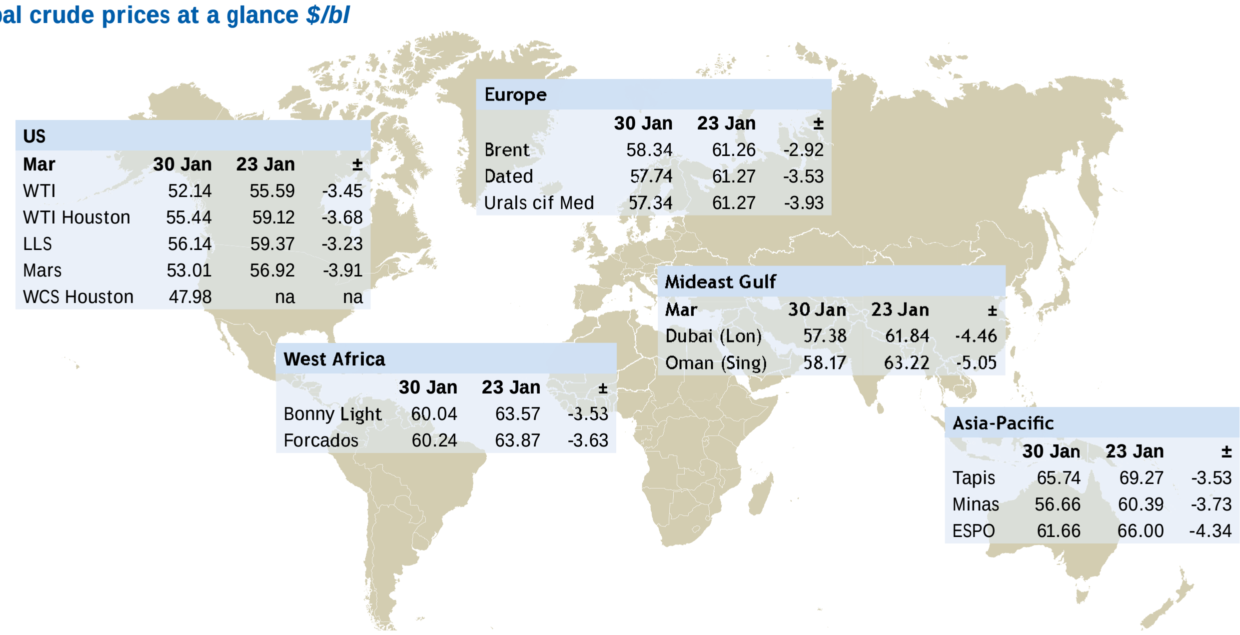
Libyan offset

The impact of the coronavirus on Asia-Pacific crude prices is unclear, in large part because of supply disruptions in Libya. Production fell below 290,000 b/d on 28 January, down from the *Argus*-assessed 1.1mn b/d in December, and flows could slip further to 70,000 b/d, according to oil firm NOC.

Light and medium sweet Malaysian and Vietnamese crudes are drawing support from the disruptions, as some regional refiners look for short-haul alternatives. Vietnam's PVOil sold March-loading medium sweet Bunga Orkid at a strong premium of more than $7/bl to North Sea Dated, probably to a Thai refiner. And Malaysia's Petronas sold a March-loading cargo of medium sweet Bertam to an Australian refiner at a record premium to North Sea Dated of $8.50-9.00/bl.

The Libyan problems have also increased interest in Azeri and Algerian crudes, adding to already firm demand spurred by the IMO marine fuel sulphur

Global crude prices at a glance ***$/bl***



US

Mar	30 Jan	23 Jan	±
WTI	52.14	55.59	-3.45
WTI Houston	55.44	59.12	-3.68
LLS	56.14	59.37	-3.23
Mars	53.01	56.92	-3.91
WCS Houston	47.98	na	na

Europe

	30 Jan	23 Jan	±
Brent	58.34	61.26	-2.92
Dated	57.74	61.27	-3.53
Urals cif Med	57.34	61.27	-3.93

Mideast Gulf

Mar	30 Jan	23 Jan	±
Dubai (Lon)	57.38	61.84	-4.46
Oman (Sing)	58.17	63.22	-5.05

West Africa

	30 Jan	23 Jan	±
Bonny Light	60.04	63.57	-3.53
Forcados	60.24	63.87	-3.63

Asia-Pacific

	30 Jan	23 Jan	±
Tapis	65.74	69.27	-3.53
Minas	56.66	60.39	-3.73
ESPO	61.66	66.00	-4.34

OVERVIEW

cap. Algerian Saharan Blend rose to a $2.80/bl premium to North Sea Dated, while Sonatrach raised the official February price for the grade by 56¢/bl to a $2.56/bl premium, the highest since October. Azeri differentials also hit records to the benchmark as refiners turned to BTC Blend to such an extent that some participants think the crude could be becoming too expensive to run and that refiners may opt to reduce throughputs instead.

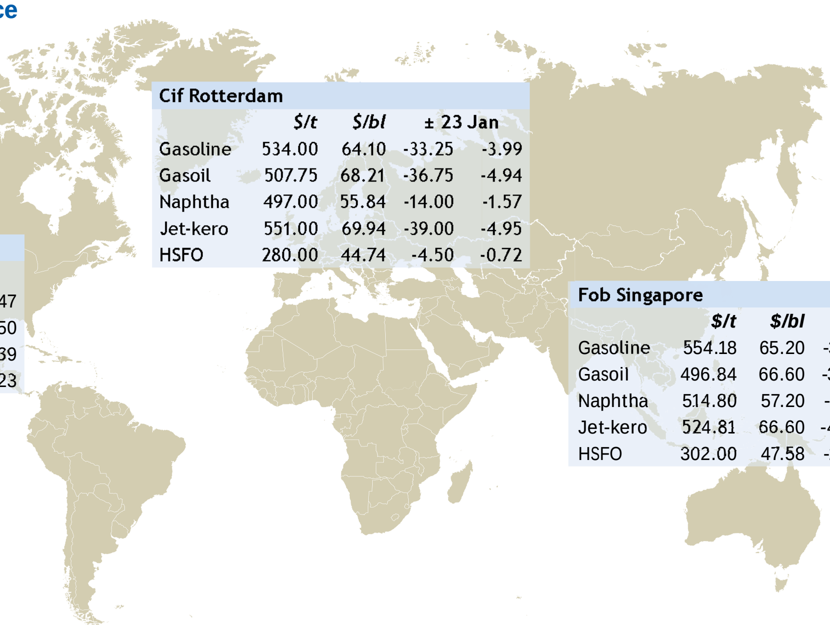
The crude shortfalls in the Mediterranean market have translated into rising values for North Sea grades, with light benchmark crudes Brent and Forties both making gains from a week earlier. But the support could be short-lived, with Norwegian crude loadings expected to rise by 7pc in March from February, according to the latest programmes. Combined Oseberg, Troll, Grane, Johan Sverdrup, Statfjord and Gullfaks loadings will average 1.2mn b/d in March, up from 1.01mn b/d in February, the schedules show.

US crude and products markets seem to have experienced little fallout from the coronavirus, at least for the time being. But Brazil's focus on China for its burgeoning crude exports makes it especially vulnerable to reduced Chinese demand. Of the 500,000 b/d that Petrobras exported in the first nine months of last year, close to three-quarters went to China. Brazil was China's second-fastest growing source of crude supply in January-November, with imports up by 180,000 b/d year on year, at 810,000 b/d.

Growing pressure

The uncertainty swirling around the possible demand implications of the coronavirus and its spread beyond China is ladling the pressure on an Asia-Pacific refining sector already feeling the weight of weak margins. This could lead to regional run cuts if the pressure grows. But in the short term, most Asian refiners have already covered their crude needs for February and March, and the March trade cycle is already largely over, so the impact on spot crude differentials is most likely to be felt in the coming weeks. But uncertainty over a timeline for the resolution to the production shut-ins in Libya will probably continue to lend support.

Global product prices at a glance
30 Jan



Fob USGC

	$/t	$/bl	± 23 Jan	
Gasoline	538.90	62.65	-21.22	-2.47
Gasoil	473.22	65.92	-48.76	-6.50
Jet-kero	501.13	64.24	-65.93	-8.39
HSFO	273.39	43.47	-7.97	-1.23

Cif Rotterdam

	$/t	$/bl	± 23 Jan	
Gasoline	534.00	64.10	-33.25	-3.99
Gasoil	507.75	68.21	-36.75	-4.94
Naphtha	497.00	55.84	-14.00	-1.57
Jet-kero	551.00	69.94	-39.00	-4.95
HSFO	280.00	44.74	-4.50	-0.72

Fob Singapore

	$/t	$/bl	± 23 Jan	
Gasoline	554.18	65.20	-31.87	-3.75
Gasoil	496.84	66.60	-38.42	-5.15
Naphtha	514.80	57.20	-13.95	-1.55
Jet-kero	524.81	66.60	-48.07	-6.10
HSFO	302.00	47.58	-27.25	-4.29

CRUDE MARKETS

Crude prices hit by coronavirus

• Crude prices plunged as the coronavirus outbreak curtailed Chinese demand. Atlantic basin benchmark North Sea Dated dropped below $60/bl for the first time in three months, falling by $3.53/bl to $57.74/bl. US marker WTI slipped by $3.45/bl to $52.14/bl.

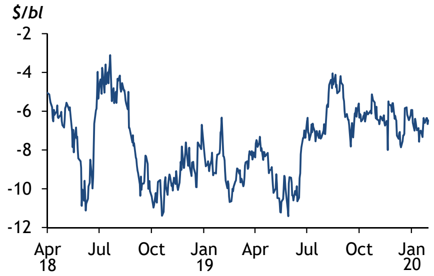
• West African values were hit by a combination of plunging demand in Asia-Pacific and unfavourable refinery margins for gasoil in Europe. China's Unipec — the main outlet for Angolan crude — sharply reduced its offers for March cargoes to entice buyers, reflecting the impact that the coronavirus is having on demand. And less than a sixth of the Nigerian March export programme has traded so far. Shell lifted force majeure on Bonny Light exports on 31 January after putting the measure in place 11 days earlier.

• Concerns over the coronavirus impact dented prompt prices in the Mideast Gulf. This, coupled with falling Asia-Pacific margins for jet fuel, could well lead Mideast Gulf producers such as Abu Dhabi to cut their upcoming official selling prices to Asia-Pacific customers.

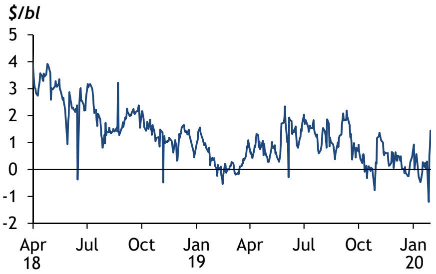
• US light sweet seaborne crude prices came under pressure from limited Asian demand. Benchmark WTI fob Houston widened its discount to Ice May Brent by 19¢/bl to $1.40/bl, while Bakken fob Beaumont tumbled by 59¢/bl to a $1.50/bl discount against the North Sea marker. Colombian medium sour Vasconia's discount to Brent widened by nearly 60¢/bl on expectations of slower demand in the Asia-Pacific markets.

• US sour Mars fell by roughly 25¢/bl against WTI Houston as competition between sour grades continued to rise at the coast. Rail deliveries of Canadian crude to the US were close to 300,000 b/d in November, up from 270,000 b/d in October, while the use of residual fuel oil as a processing feedstock is also on the increase as the IMO 2020 regulations start to bite.

WTI differential to North Sea



North Sea premium to Dubai



Crude marker grade price assessments				$/bl
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
	Forward North Sea (London close)		WTI Cushing (Houston close)	
Feb	59.38	-3.38	-	-
Mar	58.82	-3.08	52.14	-3.45
Apr	57.76	-3.40	52.23	-3.38
May	57.35	-3.16	52.27	-3.27
	Dubai (London close)		WTI Houston (Houston close)	
Mar	57.38	-4.46	55.44	-3.68
Apr	56.60	-4.07	55.18	na
May	56.17	-3.66	-	-
Jun	55.71	-3.29	-	-

Marker grades differentials						$/bl
	WTI/N Sea (London close)		N Sea/Dubai (London close)		WTI Houston/WTI (Houston close)	
	30 Jan	± 23 Jan	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Mar	-6.47	+0.06	+1.44	+1.38	+3.30	-0.23
Apr	-5.33	+0.45	+1.16	+0.67	+2.95	-
May	-4.89	+0.32	+1.18	+0.50	-	-

CRUDE MARKETS

Libyan output slides

• Libya's production has slumped to less than 290,000 b/d, according to oil firm NOC, down from around 1.1mn b/d in December. Talks have started on lifting the blockade of the country's oil facilities enforced by the anti-government Libyan National Army, but the timeline for a resolution remains unclear and flows could fall further before they start to rise again.

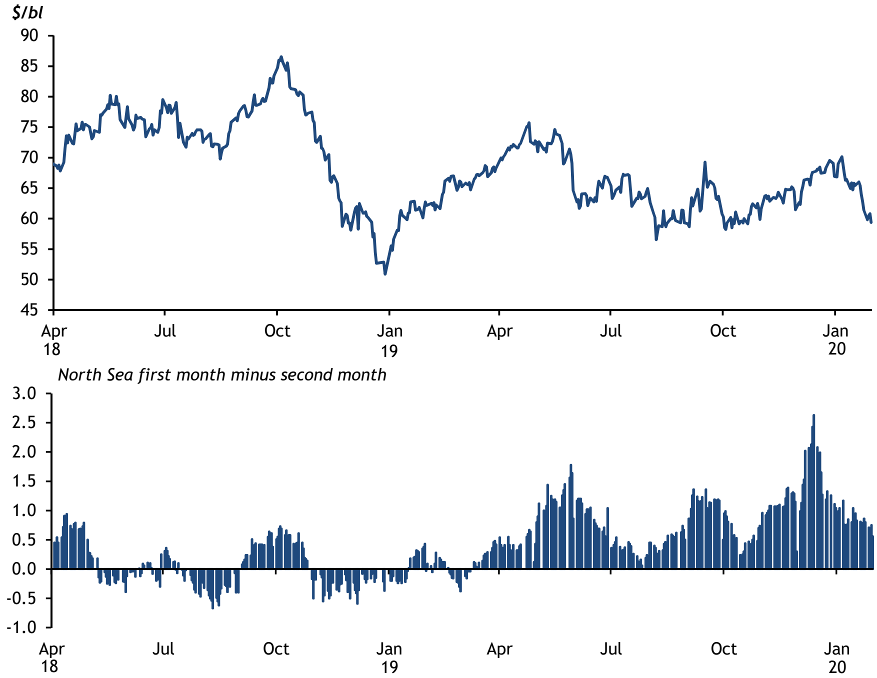
• Algeria's Sonatrach raised its official February Saharan Blend price by 56¢/bl to its highest premium to North Sea Dated since October 2011. The crude's market value climbed by 35¢/bl against the benchmark in the absence of Libyan crudes.

• Azeri light BTC Blend rose to a record premium of $6.50/bl to North Sea Dated, as Mediterranean refiners sought light sweet crude alternatives to Libyan shipments. Rising demand for high-sulphur fuel oil pushed Russian Baltic-loading Urals to its highest against North Sea Dated since late November, rebounding from a drop caused by easing freight rates at the start of the week.

• North Sea crudes were also supported by the Libyan disruptions, with benchmark grades Brent, Forties and Ekofisk gaining 61¢/bl, 27¢/bl and 45¢/bl, respectively, against North Sea Dated. At least one Brent cargo was poised to travel to the Mediterranean region, while Ekofisk was arousing interest as a suitable replacement for the lost Libyan supplies.

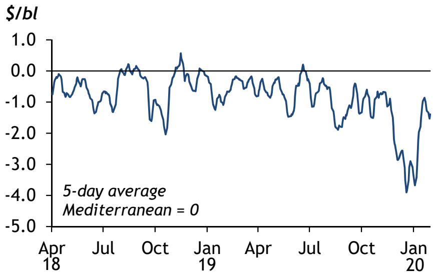
• Light and medium sweet Asia-Pacific crudes remained firm, as refiners focused on securing short-haul cargoes, given the lack of Libyan light sweet supplies. March-loading medium sweet Malaysian Bunga Orkid traded at a premium of more than $7/bl to North Sea Dated — little changed from last month's eight-year high. But there were concerns that the spread of the coronavirus will soon force refinery run cuts in Asia-Pacific.

Front-month North Sea



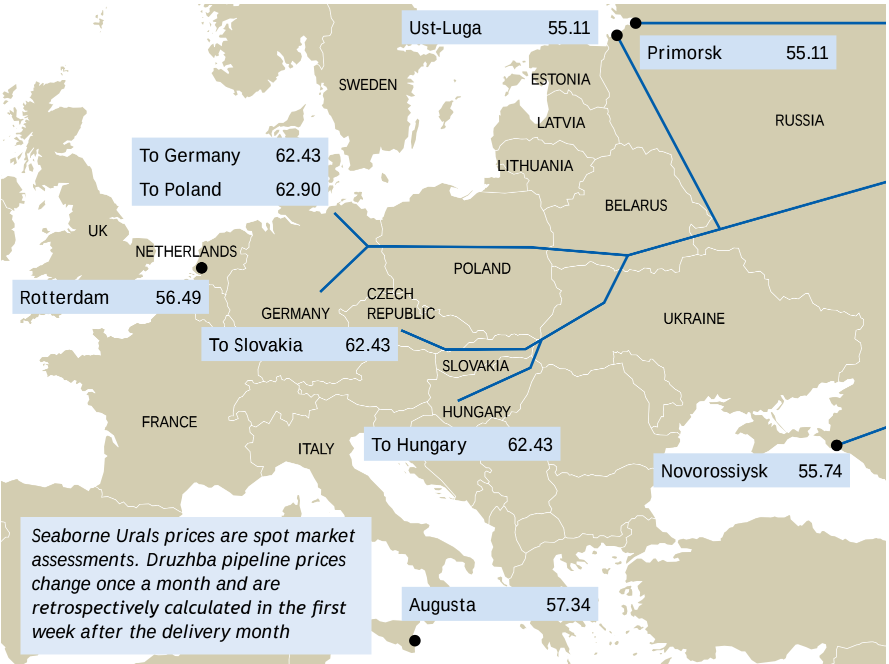
CRUDE MARKETS

Urals: NWE diff to Mediterranean



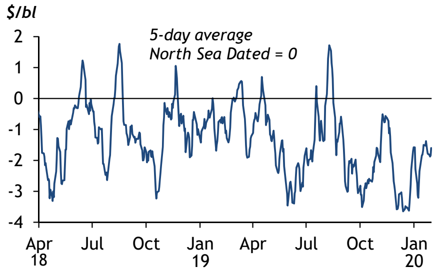
Crude price assessments						$/bl
					Differential	
		30 Jan	± 23 Jan	Basis	30 Jan	± 23 Jan
North Sea (London close)						
Dated		57.74	-3.53	Apr N Sea	-0.02	na
Brent		58.34	-2.92	Dtd	+0.60	+0.61
Forties		58.07	-3.26	Dtd	+0.33	+0.27
Flotta Gold		56.74	-3.53	Dtd	-1.00	nc
Ekofisk		60.74	-3.08	Dtd	+3.00	+0.45
Oseberg		60.59	-3.53	Dtd	+2.85	nc
Statfjord		59.49	-3.53	Dtd	+1.75	nc
North Sea Reference Price		59.07	-3.73			
FSU (London close)						
Urals NWE		56.49	-3.23	Dtd	-1.25	+0.30
Urals cif Mediterranean		57.34	-3.93	Dtd	-0.40	-0.40
Siberian Light cif Med		59.24	-3.53	Dtd	+1.50	nc
CPC Blend cif Med		56.44	-3.38	Dtd	-1.30	+0.15
BTC		64.24	-3.23	Dtd	+6.50	+0.30
Mediterranean (London close)						
Es Sider		57.64	-3.53	Dtd	-0.10	nc
Iran Heavy Sidi Kerir		52.97	-3.93	Dtd	-4.77	-0.40
Iran Light Sidi Kerir		55.77	-3.93	Dtd	-1.97	-0.40
Suez Blend		55.64	-3.93	Dtd	-2.10	-0.40
Saharan Blend		60.54	-3.18	Dtd	+2.80	+0.35
Kirkuk		53.34	-3.53	Dtd	-4.40	nc
West Africa (London close)						
Bonny Light		60.04	-3.53	Dtd	+2.30	nc
Escravos		60.14	-3.78	Dtd	+2.40	-0.25
Brass River		59.84	-3.53	Dtd	+2.10	nc
Forcados		60.24	-3.63	Dtd	+2.50	-0.10
Qua Iboe		60.04	-3.53	Dtd	+2.30	nc
Cabinda		59.54	-3.83	Dtd	+1.80	-0.30
Girassol		59.44	-3.83	Dtd	+1.70	-0.30
Zafiro		58.94	-4.13	Dtd	+1.20	-0.60
Hungo		57.94	-3.83	Dtd	+0.20	-0.30
Mideast Gulf (Singapore close)						
Dubai	Mar	57.48	-5.14			
Murban	Mar	60.03	-4.34	Adnoc	-0.60	nc
Das	Mar	59.28	-4.34	Adnoc	-0.65	nc
Oman	Mar	58.17	-5.05	Dubai swaps	+1.90	-0.71
Qatar Land	Mar	59.68	-4.34	QP	-0.60	nc
Qatar Marine	Mar	59.18	-4.34	QP	-0.25	nc

Russian Urals crude prices (30 Jan) *$/bl*



CRUDE MARKETS

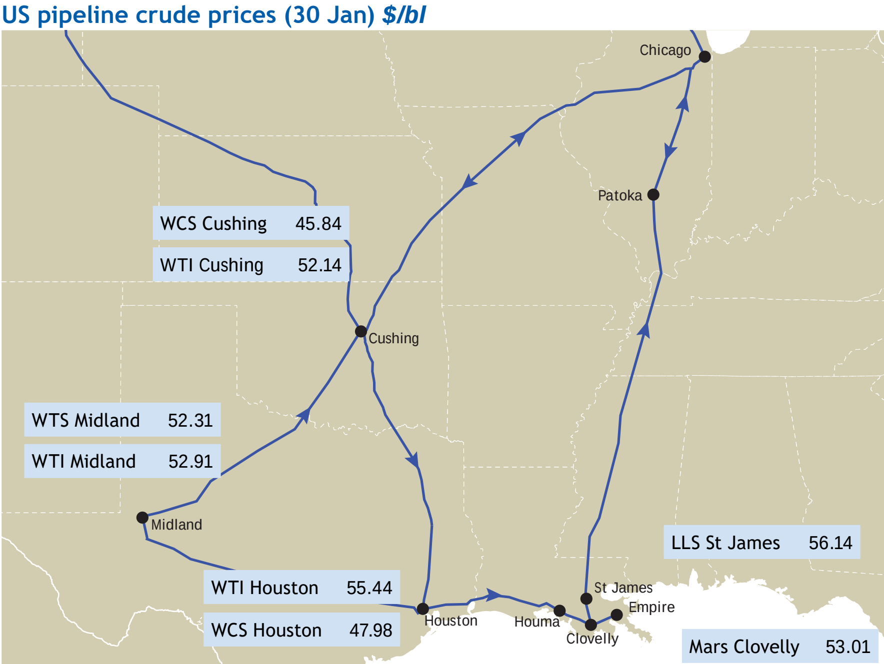
LLS diff to North Sea Dated



Crude price assessments $/bl

		30 Jan	± 23 Jan	Basis	Differential 30 Jan	Differential ± 23 Jan
Asia-Pacific (Singapore close)						
ESPO Blend		61.66	-4.34	Dubai swaps	+5.39	nc
Minas		56.66	-3.73	ICP	+1.00	nc
Duri		53.16	-3.73	ICP	+1.00	nc
Cinta		55.66	-3.73	ICP	+0.30	nc
Widuri		55.86	-3.73	ICP	+0.30	nc
Ardjuna		53.91	-3.73	ICP	even	nc
Belida		55.61	-3.73	ICP	+1.00	nc
Bach Ho		64.94	-3.53	Dtd	+7.20	nc
Tapis		65.74	-3.53	Dtd	+8.00	nc
Cossack		60.24	-3.53	Dtd	+2.50	nc
Kutubu		58.69	-3.53	Dtd	+0.95	nc
NW Shelf		57.44	-3.53	Dtd	-0.30	nc
Dar Blend		63.94	-3.53	Dtd	+6.20	nc
Americas seaborne (Houston close)						
WTI fob		55.60	-3.81	Mar WTI	+0.16	+0.03
Bakken fob		55.50	-4.21	Mar WTI	+0.06	-0.38
ANS USWC	Mar	59.45	-3.61	Mar WTI	+7.21	-0.26
Castilla Blend	Dtd	48.25	-4.53	May WTI	-4.02	na
Vasconia	Dtd	52.30	-4.86	May WTI	+0.03	na
Escalante	Dtd	57.48	-4.01	May WTI	+5.21	na
US/Canada pipeline (Houston close)						
Bakken Beaumont-Nederland	Mar	55.11	na	Mar CMA WTI + WTI diff	+2.94	na
WTI Midland	Mar	52.91	na	Mar WTI	+0.77	na
WTI Houston	Mar	55.44	-3.68	Mar WTI	+3.30	-0.23
LLS St James	Mar	56.14	na	Mar WTI	+4.00	na
HLS Empire	Mar	55.72	na	Mar WTI	+3.58	na
Mars Clovelly	Mar	53.01	na	Mar WTI	+0.87	na
Poseidon Houma	Mar	51.91	na	Mar WTI	-0.23	na
WTS Midland	Mar	52.31	na	Mar WTI	+0.17	na
WCS Cushing	Mar	45.84	na	Mar WTI	-6.40	na
WCS Houston	Mar	47.98	na	Mar CMA WTI	-4.26	na
WCS Hardisty	Mar	31.49	-1.10	Mar WTI	-20.75	+2.25
ASCI	Mar	53.01	na	Mar WTI	+0.87	na

US pipeline crude prices (30 Jan) $/bl



EUROPEAN PRODUCTS MARKETS

Margins feel the strain

• European products values mostly fell under pressure from the effects of the coronavirus and seasonally lacklustre demand.

• Jet fuel premiums to North Sea Dated shed $1.42/bl to $12.18/bl (*see graph*). The coronavirus outbreak in China has pressured European prices and will probably prompt higher imports from east of Suez to a well-supplied European market.

• Diesel margins to North Sea Dated slipped by $1.12/bl to $10.93/bl in northwest Europe, hitting a 30-month low during the week (*see graph*). Demand along the river Rhine halved month on month in January, while loadings from Russia's Primorsk port were scheduled at multi-year highs.

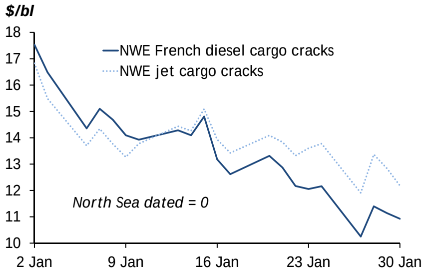
• Eurobob oxy gasoline's premium to North Sea Dated lost 70¢/bl to $4.47/bl, weighed down by rising supplies and seasonally poor demand. US gasoline inventories topped 261mn bl in the most recent week, while gasoline stocks in the wider Rotterdam region remained above 1mn t.

• Low-sulphur vacuum gasoil (VGO) dropped to a $12.25/bl premium to Ice April Brent, with reduced catalytic cracker throughputs and weaker 0.5pc sulphur fuel oil values weighing on the grade.

• High-sulphur fuel oil's discount to Ice Brent reached $17.70/bl — its narrowest since October — on US demand. And 0.5pc fuel oil barges in the Rotterdam region lost 7pc to $464/t, mirroring lower prices in Singapore and Fujairah.

• Northwest European naphtha's discount to North Sea Dated narrowed to $1.90/bl from $3.86/bl, as support from tightening supplies in the Mediterranean offset slow demand from the petrochemical and gasoline blending sectors.

Diesel and jet fuel vs Dated



European product price assessments *$/t*

cif	Northwest Europe cif 30 Jan	± 23 Jan	Mediterranean cif 30 Jan	± 23 Jan
Gasoline and blendstocks				
Gasoline 95 Ron	534.00	-33.25	540.00	-35.50
MTBE*	647.88	-44.00	-	-
Middle distillates				
Jet†	551.00	-39.00	529.50	-38.25
French diesel	512.25	-34.75	515.50	-35.75
French heating oil	507.75	-36.75	508.25	-36.50
Cracked fuel oil				
– 1% sulphur	423.50	-10.25	438.75	-9.50
– 3.5% sulphur	280.00	-4.50	283.50	-16.50
LPG and feedstocks				
Propane	357.00	-65.00	346.00	-64.00
Butane	465.25	-16.25	497.50	-16.50
Naphtha 65% para	497.00	-14.00	485.50	-13.75
Vacuum gasoil 0.5% sulphur†	481.25	-34.00	479.50	-32.38
Vacuum gasoil 2% sulphur	453.88	-30.38	-	-
Straight-run fuel oil 0.5% sulphur *$/bl*‡	11.00	-1.00	-	-

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

EUROPEAN PRODUCTS MARKETS

Gasoline and gasoil derivatives $/t

	Gasoline barge swaps			Ice gasoil futures settlement	
fob NWE	30 Jan	± 23 Jan		30 Jan	± 23 Jan
Feb	516.25	-26.25	Feb	509.00	-36.50
Mar	518.50	-25.50	Mar	510.50	-36.75
Apr	550.25	-27.25	Apr	510.50	-36.25

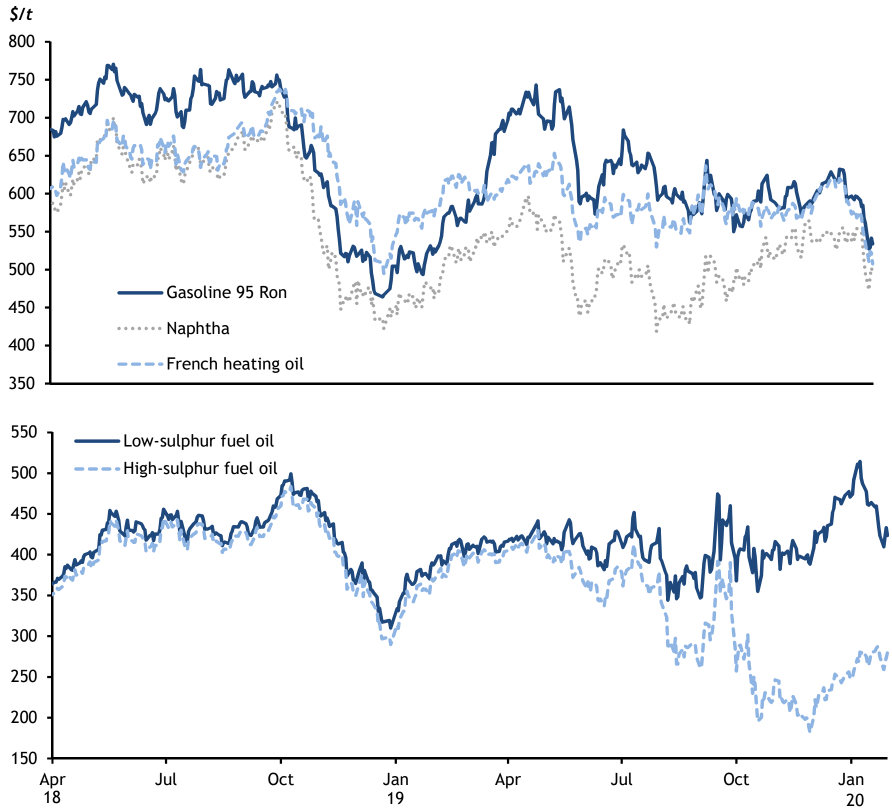
Fuel oil derivatives $/t

	Low-sulphur cargo swaps		High-sulphur barge swaps	
fob NWE	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Feb	403.50	-9.75	256.25	-20.00
Mar	400.00	-9.25	252.50	-18.75
Apr	397.00	-8.75	251.00	-17.75

River Rhine barge price assessments (30 Jan)

	Rotterdam barges	Ruhr tank wagons		Basel barges
	$/t	$/t	€/t	$/t
Heating oil	497.30	509.30	417.70	537.10
Gasoline Eurobob oxy	518.30	530.30	435.00	559.30
Diesel 10ppm	508.30	-	-	-

Northwest Europe cif cargoes



US PRODUCTS MARKETS

Sliding demand leaves plenty to spare

• Slim domestic demand led to a growing supply overhang even as Gulf coast refiners entered the spring turnaround season.

• Gulf coast conventional gasoline fell to its lowest in almost a year as regional stockpiles refreshed an all-time high for a fourth consecutive week at 95.5mn bl. Softer implied demand and exports failed to fully offset tumbling refinery runs.

• Gulf coast diesel inventories remained at the highest in more than two years, pressuring margins to their weakest since *Argus* began assessing WTI Houston in August 2008 (*see graph*).

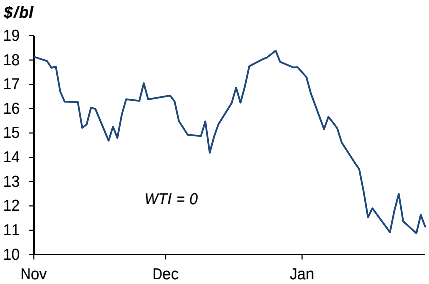
• Gulf coast jet prices fell to their lowest in about two and a half years, as the coronavirus outbreak hit global demand. Gulf coast stocks rose on slower exports.

• Weak catalytic cracker margins took a toll on vacuum gasoil (VGO) prices amid sluggish demand from refineries and bunker fuel blenders. Catalytic cracker turnarounds added to supplies. Arbitrage cargoes from Europe could rise in February amid cracker run cuts there. Canada and Colombia offered spot cargoes.

• Naphtha exports from the Gulf coast to Asia-Pacific continued despite high freight rates. The light naphtha market was depressed by a lack of diluent demand from Canada. Canadian diluent buyers sought a large amount of term supplies, reducing the country's spot demand.

• Gulf coast low-sulphur fuel oil prices fell to a four-month low of $69.57/bl. Shipowners stayed away from the spot market because of compatibility concerns, choosing instead to work off existing inventories.

Gulf coast diesel premium to WTI



East coast and US Gulf cargo price assessments *¢/USG*

	US Gulf fob		NY Harbor cif	
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Gasoline and blendstocks				
Conventional 93	162.68	-5.88	170.87	-10.15
Conventional 87	149.18	-5.88	153.62	-6.65
Rbob 83.7	-	-	149.50	-6.78
Ethanol	-	-	145.12	+4.88
Middle distillates				
Jet	153.20	-19.98	170.96	-15.20
Diesel (ULSD)	156.95	-15.48	163.84	-15.07
Heating oil	146.95	-16.98	154.46	-15.20
Fuel oil *$/bl*				
1.0% sulphur	-	-	64.67	-4.08
3.0% sulphur	43.47	-1.23	44.96	-1.15
LPG and Feedstocks				
Propane*	41.12	+1.88	-	-
Butane*	76.75	-0.88	-	-
Naphtha differential †	-21.00	+1.50	-	-
Vacuum gasoil 0.5% sulphur differential‡	9.27	-0.80	-	-
Vacuum gasoil 2% sulphur differential‡	9.27	-0.80	-	-

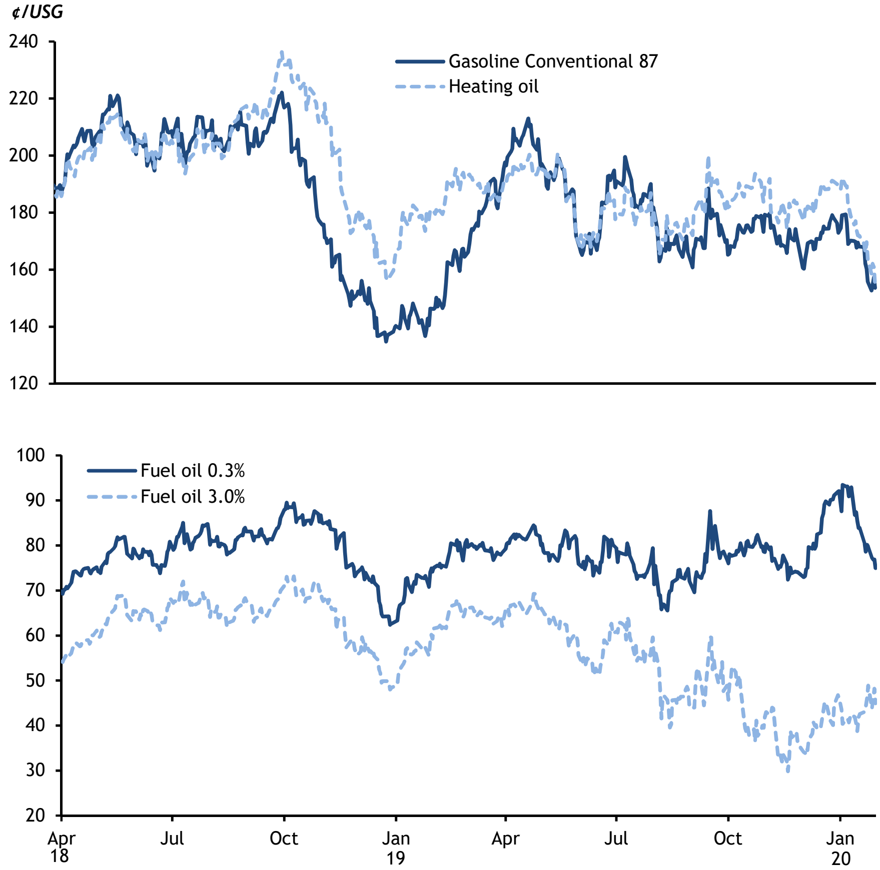
**Mont Belvieu ‡barges, vs 70:30 conventional gasoline 87/heating oil †vs conventional gasoline*

US PRODUCTS MARKETS

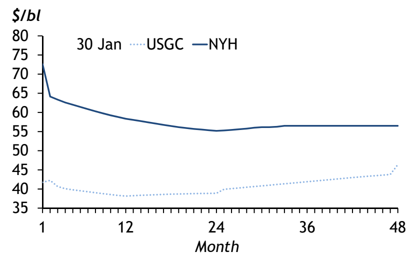
Products derivatives				
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Nymex close ¢/USG	Rbob gasoline		Heating oil	
Feb	149.37	-6.65	163.96	-15.20
Mar	150.55	-6.75	164.20	-15.23
Apr	167.60	-8.23	164.43	-15.09

West coast price assessments				
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Pipeline ¢/USG	Los Angeles		San Francisco	
Carbob 84	190.05	+1.03	178.55	-1.75
Carb diesel	171.20	-14.23	167.20	-13.73
Jet	165.95	-17.21	164.45	-17.21
Bunkers $/t	Los Angeles		Seattle	
HSFO 380	310.50	-128.50	462.00	+13.50

New York Harbor cif cargoes



Fuel oil futures curve



ASIA-PACIFIC PRODUCTS MARKETS

Transport fuel margins weaken

• Transport fuel values were hit by slumping demand because of the coronavirus outbreak, which has curtailed holiday travel in China, while naphtha and fuel oil margins rose on firm regional demand.

• Gasoline margins fell to a 10-month low of $2.89/bl before rebounding above $4/bl towards the end of the week (*see graph*). Gasoline demand within China is expected to fall, with some provincial and municipal governments suspending public transport networks.

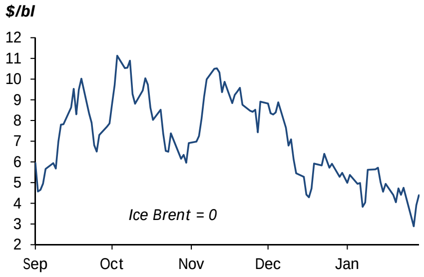
• Jet fuel margins slumped to a nearly 32-month low. Numerous Asia-Pacific airlines have suspended or reduced flights to China in light of the coronavirus outbreak, with an expected hit on jet demand.

• Gasoil margins fell as Abu Dhabi's Adnoc sold its second 450,000 bl February-loading 10ppm gasoil spot cargo, adding to availabilities. Adnoc usually supplies gasoil through term contracts.

• Naphtha margins rose as ethylene margins strengthened. Ethylene margins flipped into positive territory after being negative for almost seven consecutive weeks. The weak margins had prompted regional petrochemical cracker operators to cut operating rates.

• High-sulphur fuel oil discounts to crude narrowed to $10.65/bl from $11.33/bl a week earlier. Demand for high-sulphur straight-run fuel oil is firm as northeast Asian refiners purchase cargoes from the Mideast Gulf.

Gasoline premium to Ice Brent



Singapore and Japan price assessments				$/bl
	Fob Singapore		C+F Japan	
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Light distillates*				
Gasoline 95 Ron	65.20	-3.75	-	-
Gasoline 92 Ron	63.25	-3.75	-	-
Naphtha	57.20	-1.55	517.00	-14.75
Middle distillates				
Jet-kerosine	66.60	-6.10	68.95	-6.15
Gasoil 50ppm sulphur	68.20	-5.40	69.95	-5.30
Gasoil 0.5% sulphur	66.60	-5.15	-	-
Fuel oil				
LSWR (fob Indonesia)	66.76	-4.10	-	-
HSFO 180cst ($/t)	302.00	-27.25	315.80	-27.55
HSFO 380cst ($/t)	295.25	-27.50	-	-

**Japan $/t*

Singapore swaps				
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
	Gasoil $/bl		Jet $/bl	
Feb	68.30	-5.20	66.40	-5.90
Mar	67.70	-5.30	66.00	-6.00
Apr	67.40	-5.20	65.95	-5.90
	Naphtha $/bl		HSFO $/t	
Feb	53.95	-1.60	297.00	-26.25
Mar	52.20	-1.55	290.75	-25.50
Apr	50.80	-1.65	289.50	-19.00

ASIA-PACIFIC PRODUCTS MARKETS

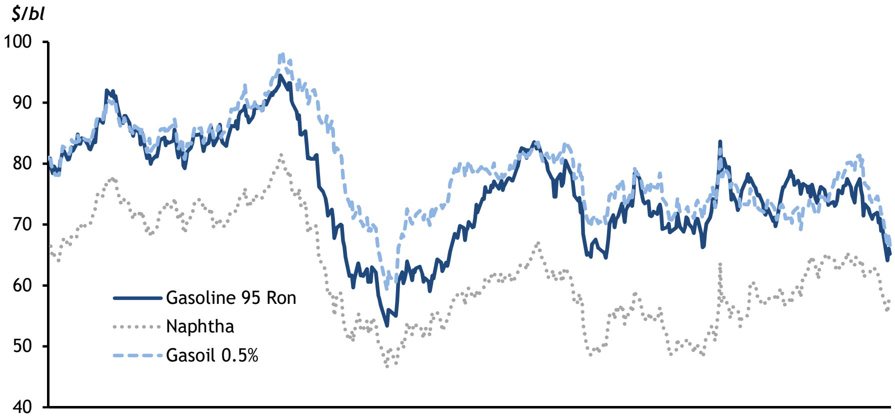
Mideast Gulf cargo price assessments			*$/bl*
	30 Jan	± 23 Jan	Premium to Platts* 30 Jan
Light distillates			
Gasoline 95 Ron	62.10	-3.70	+2.95
Naphtha (*$/t*)	491.30	-9.70	+37.75
Middle distillates			
Kerosine	64.55	-5.75	+2.25
Gasoil 0.2% sulphur	63.25	-5.05	-0.45
Gasoil 0.5% sulphur	62.40	-5.05	-1.30
Fuel oil (*$/t*)			
HSFO 180cst	280.35	-25.65	nc
HSFO 380cst	273.50	-26.10	+13.00

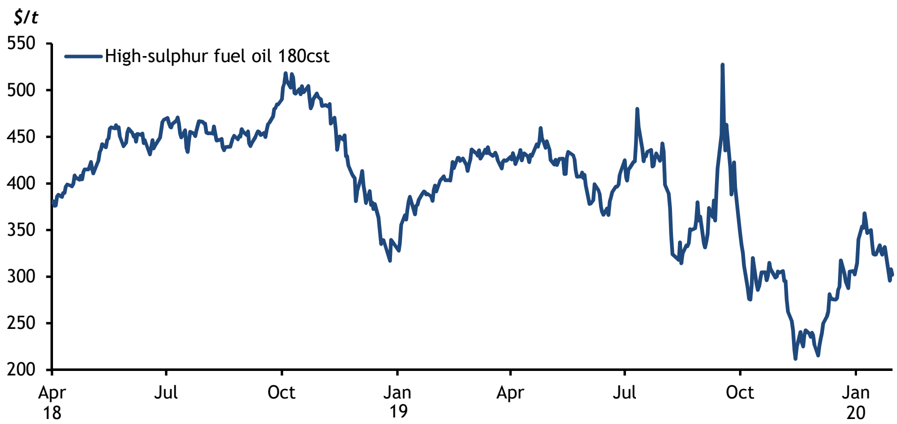
**Platts mean of Mideast Gulf assessment*

East of Suez LPG				*$/t*
	C+F Japan		Fob Mideast Gulf	
	30 Jan	± 23 Jan	30 Jan	± 23 Jan
Propane*	-84.00 /-80.00	-97.25	-5.00 /+5.00	-15.00
Butane*	-67.00 /-63.00	-80.25	-5.00 /+5.00	-15.00

**differentials to Saudi Aramco selling price*

Singapore fob cargoes



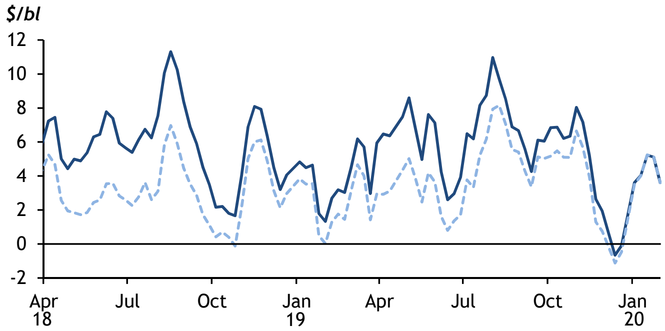


NETBACKS

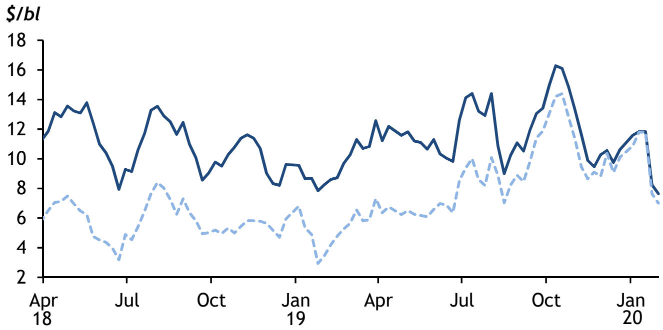
Netback values (24 - 30 Jan)													$/bl
	Refinery gate value				Freight	Netback value		Crude	Netback margin				
	Simple yield	± 17 - 23 Jan	Complex yield	± 17 - 23 Jan		Simple yield	Complex yield	Spot Price	Simple yield	± 17 - 23 Jan	Complex yield	± 17 - 23 Jan	
Northwest Europe													
Brent	64.26	-5.01	64.26	-5.01	1.22	63.04	63.04	59.43	+3.61	-1.51	+3.61	-1.50	
Forties	61.49	-4.77	61.57	-4.78	1.21	60.28	60.35	59.33	+0.95	-1.23	+1.02	-1.25	
Arab Light	59.43	-4.45	59.52	-4.43	1.72	57.71	57.81						
Arab Heavy	52.63	-3.62	52.73	-3.59	1.78	50.85	50.95						
Urals NWE*	60.07	-4.47	60.11	-4.47	-	60.07	60.11	57.46	+2.61	-0.64	+2.65	-0.64	
Bonny Light	66.82	-5.21	66.75	-5.24	2.82	64.00	63.93	61.31	+2.69	-0.84	+2.62	-0.87	
BTC	66.18	-5.06	66.18	-5.06	1.98	64.20	64.20	64.04	+0.16	-1.24	+0.16	-1.24	
Basrah Light	51.69	-3.49	51.74	-3.45	1.77	49.92	49.97	62.19	-12.27	+0.82	-12.22	+0.86	
US Gulf													
Mars*	60.42	-3.66	61.78	-4.02	-	60.42	61.78	54.43	+5.99	+0.64	+7.35	+0.28	
Basrah Light	56.41	-2.38	59.07	-4.15	2.27	54.14	56.79	62.19	-8.05	+2.03	-5.40	+0.25	
LLS*	64.27	-4.71	64.91	-4.67	-	64.27	64.91	57.26	+7.01	-0.63	+7.65	-0.59	
Bonny Light	65.35	-5.03	66.78	-4.95	3.41	61.94	63.36	61.31	+0.63	-0.52	+2.05	-0.46	
Arab Light	61.25	-4.06	62.41	-4.24	2.21	59.04	60.21						
Arab Medium	58.69	-3.23	60.46	-4.27	2.23	56.46	58.23						
Maya	53.97	-1.33	55.46	-3.02	3.91	50.06	51.55	49.72	+0.34	+3.55	+1.83	+1.86	
WTI	63.25	-4.61	63.93	-4.58	0.00	63.25	63.93	53.24	+10.01	-0.60	+10.69	-0.57	
Singapore													
Oman	53.70	-3.35	62.36	-4.40	2.21	51.49	60.15	61.19	-9.70	+0.87	-1.04	-0.19	
Basrah Light	54.36	-3.32	60.82	-4.12	2.24	52.12	58.58	62.19	-10.07	+1.25	-3.61	+0.44	
Minas	54.44	-3.57	64.09	-4.56	2.26	52.18	61.84	57.90	-5.72	+0.84	+3.94	-0.14	
ESPO Blend	56.18	-3.67	64.65	-4.68	1.09	55.09	63.56	63.18	-8.09	+1.30	+0.38	+0.28	
Arab Light	57.36	-3.79	63.67	-4.56	2.16	55.20	61.50						
Arab Heavy	52.81	-3.20	60.53	-4.14	2.25	50.56	58.28						
Murban	58.39	-4.02	64.90	-4.79	2.07	56.32	62.83	61.55	-5.23	+0.88	+1.28	+0.11	

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

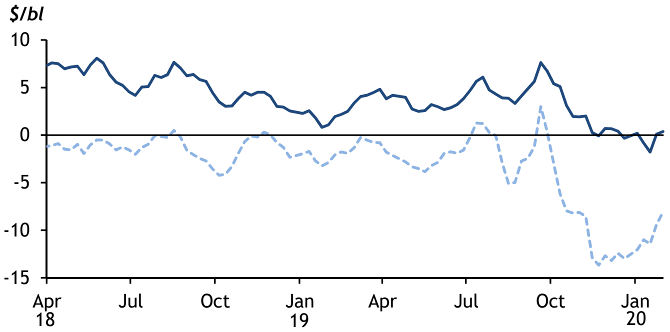
Brent northwest Europe



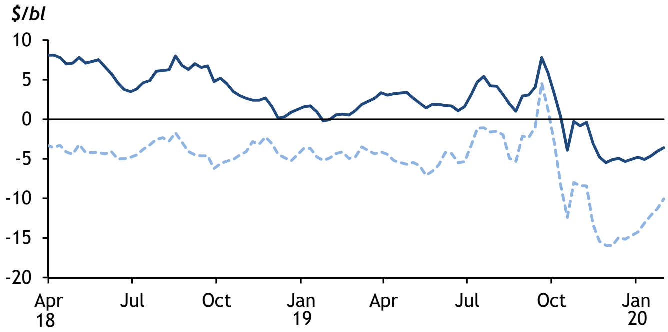
LLS US Gulf



ESPO Blend Singapore



Basrah Light Singapore



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

Complex Simple

FUTURES MARKETS

Futures: volumes and open interest				'000 lots
	Provisional volume		Open interest	
Nymex:	**24-30 Jan**	**17-23 Jan**	**29 Jan**	**22 Jan**
Sweet crude	5,583.08	4,334.22	2,196.00	2,149.00
Heating oil	1,203.25	1,154.41	399.00	391.00
Rbob	1,165.14	860.15	387.00	436.00
Ice:				
Brent	5,750.80	4,073.43	2,588.00	2,572.00
Gasoil	2,663.95	2,254.29	880.00	905.00

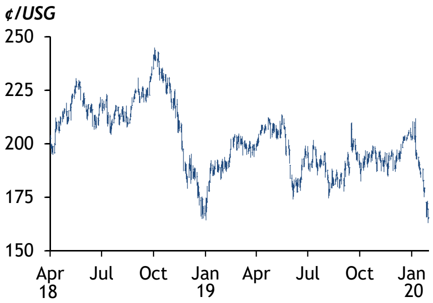
Settlement prices								
	First month				Second month			
Nymex:	30 Jan	±23 Jan	Week high	Week low	30 Jan	±23 Jan	Week high	Week low
Sweet crude ($/bl)	52.14	-3.45	54.19	52.14	52.23	-3.38	54.20	52.23
Heating oil (¢/USG)	163.96	-15.20	173.40	163.96	164.20	-15.23	173.74	164.20
Rbob (¢/USG)	149.37	-6.65	153.08	148.40	150.55	-6.75	154.08	149.30
Ice:								
Brent ($/bl)	58.29	-3.75	60.69	58.29	57.33	-3.95	59.89	57.33
Brent weighted avg ($/bl)	57.57	-3.61			57.16	-3.39		
Gasoil ($/t)	509.00	-36.50	536.00	509.00	510.50	-36.75	537.75	510.50

Net long positions: futures only						'000 contracts or mn bl
	Producer-merchant-refiner-user		Swaps dealers		Non-commercial*	
	21 Jan	**14 Jan**	**21 Jan**	**14 Jan**	**21 Jan**	**14 Jan**
Nymex light sweet crude	4	-2	-553	-563	521	530
Ice WTI	17	21	-207	-210	190	189
Ice Brent	-613	-619	263	261	336	339
Nymex heating oil	-65	-60	60	57	-8	-13
Nymex Rbob	-164	-154	27	23	128	125
Ice gasoil†	-151	-151	192	186	-44	-40
Total	**-972**	**-966**	**-218**	**-245**	**1,122**	**1,130**

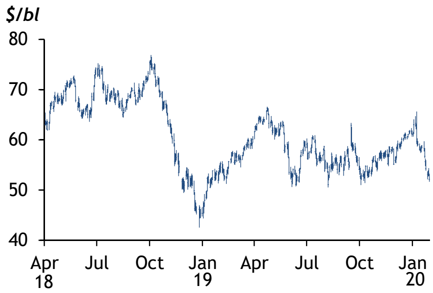
**combined 'managed money' and 'other reportables' categories*

†Positions converted to mn bl equivalent *— CFTC, Ice*

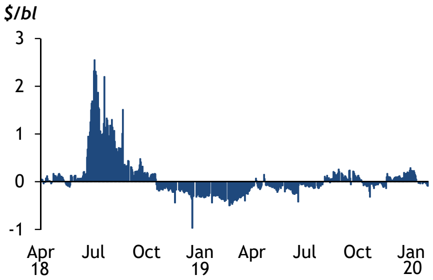
Nymex gasoline first month



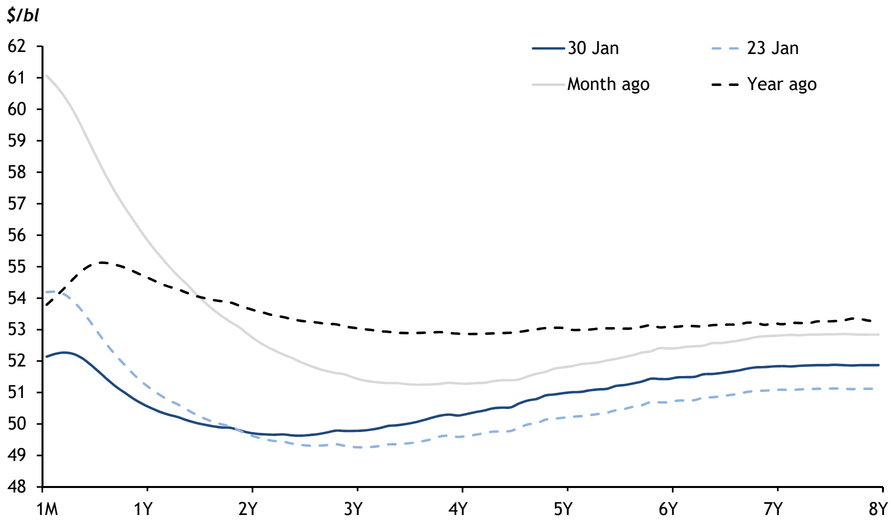
Nymex WTI first month



WTI 1st month minus 2nd month



Nymex WTI forward prices



CRUDE SPOT MARKETS

Crude marker grade spot prices											$/bl
Date is date of assessment	**1Q19**	**2Q19**	**3Q19**	**4Q19**	**Sep 19**	**Oct**	**Nov**	**Dec**	**13-17 Jan**	**20-24 Jan**	**27-30 Jan**
Forward North Sea (London close)											
First month	63.82	69.23	62.78	63.37	63.54	60.14	63.66	66.76	65.36	63.93	60.14
Second month	63.76	68.38	62.17	62.29	62.43	59.59	62.58	65.10	64.48	63.13	59.48
Third month	63.77	67.62	61.63	61.59	61.49	59.20	61.73	64.20	63.75	62.38	58.65
WTI (Houston close)											
First month	54.87	59.89	56.40	56.88	56.95	53.98	57.16	59.81	58.24	56.15	53.02
Second month	55.17	60.02	56.39	56.88	56.88	54.05	57.20	59.70	58.26	56.23	53.09
Third month	55.54	60.08	56.21	56.72	56.57	53.97	57.06	59.43	58.18	56.23	53.08
Dubai (London close)											
First month	63.43	67.39	61.04	61.97	61.10	59.34	61.91	64.93	64.67	62.98	58.68
Second month	63.17	66.32	60.15	60.44	59.89	57.83	60.40	63.34	63.25	61.65	57.77
Third month	62.94	65.52	59.28	59.31	58.77	56.74	59.15	62.30	62.39	60.82	57.20

Crude spot prices											$/bl
Date is date of assessment	**1Q19**	**2Q19**	**3Q19**	**4Q19**	**Sep 19**	**Oct**	**Nov**	**Dec**	**13-17 Jan**	**20-24 Jan**	**27-30 Jan**
North Sea (London close)											
Dated	63.08	68.74	61.84	63.06	62.57	59.73	63.11	66.83	63.88	62.26	58.79
Brent	63.16	69.54	62.15	64.09	63.30	60.39	63.83	68.61	63.67	62.24	59.31
Ice Brent weighted average	63.67	68.16	62.08	62.08	62.09	59.48	62.41	64.72	64.52	63.30	58.95
Forties	63.07	69.48	62.07	63.96	63.02	60.33	63.83	68.28	64.27	62.13	59.16
Flotta	61.85	67.94	61.46	62.93	62.57	59.30	62.61	67.45	64.08	61.50	57.79
Ekofisk	63.89	69.91	62.50	64.91	63.76	61.06	65.07	69.17	65.63	64.81	61.45
Oseberg	64.06	70.11	62.56	65.01	63.32	61.13	64.97	69.52	66.73	65.11	61.64
Statfjord	62.98	69.08	62.19	64.28	62.82	60.09	64.79	68.58	65.63	64.01	60.54
Russia (London close)											
Urals NWE	62.86	68.20	60.80	61.63	60.61	58.32	63.10	63.88	62.16	60.53	57.24
Urals Mediterranean	63.46	68.77	61.84	63.40	61.65	59.28	64.44	67.06	63.13	61.81	58.59
Siberian Light	64.22	70.00	63.10	65.45	64.06	61.84	66.02	69.01	65.38	63.76	60.29
BTC Blend	65.53	71.70	65.15	67.50	66.23	63.98	68.67	70.31	68.49	68.25	65.07
CPC Blend	61.76	67.45	60.66	62.25	61.74	58.56	62.83	65.89	63.20	60.90	57.48
Mediterranean (London close)											
Es Sider	62.49	68.82	61.79	63.62	62.86	59.78	64.22	67.40	63.86	62.16	58.69
Iran Heavy Sidi Kerir	59.09	64.40	57.47	59.03	57.28	54.91	60.07	62.69	58.76	57.44	54.22
Iran Light Sidi Kerir	61.89	67.20	60.27	61.83	60.08	57.71	62.87	65.49	61.56	60.24	57.02
Kirkuk	60.28	66.16	58.94	59.01	59.87	55.56	59.43	62.53	59.38	57.82	54.39
Suez Blend	61.76	67.07	60.14	61.70	59.95	57.58	62.74	65.36	61.43	60.11	56.89
Saharan Blend	63.08	68.96	61.75	64.05	63.07	60.19	64.33	68.19	65.89	64.59	61.35

CRUDE SPOT MARKETS

Crude spot prices											$/bl
Date is date of assessment	**1Q19**	**2Q19**	**3Q19**	**4Q19**	**Sep 19**	**Oct**	**Nov**	**Dec**	**13-17 Jan**	**20-24 Jan**	**27-30 Jan**
West Africa (London close)											
Bonny Light	64.88	70.70	63.71	65.24	64.57	60.94	65.59	69.83	66.18	64.56	61.09
Escravos	64.87	70.62	64.08	65.82	65.39	61.31	66.48	70.33	66.53	64.91	61.32
Brass River	64.87	70.64	63.63	65.05	64.47	60.92	65.40	69.43	65.98	64.36	60.89
Forcados	64.85	70.62	64.02	65.47	65.42	61.40	65.65	69.98	66.52	64.86	61.44
Qua Iboe	64.84	70.75	63.73	65.44	64.57	61.03	66.00	69.93	66.18	64.56	61.09
Cabinda	63.37	69.73	63.46	65.03	64.61	60.91	65.41	69.36	65.98	64.36	60.82
Girassol	64.06	70.57	64.38	65.34	65.36	61.34	65.65	69.62	65.84	64.26	60.72
Zafiro	63.98	70.14	63.68	65.09	64.47	60.86	65.36	69.67	65.68	64.06	60.22
Mideast Gulf (Singapore close)											
Murban	64.75	68.09	62.66	63.61	62.39	60.80	63.48	66.66	66.41	65.42	60.75
Das	64.11	67.48	62.04	62.91	61.68	60.07	62.77	66.02	65.74	64.66	60.00
Oman	63.60	67.78	62.04	62.78	61.97	60.18	62.81	65.49	65.39	64.28	60.67
Qatar Land	63.81	66.79	61.42	62.74	61.19	59.57	62.56	66.23	66.33	65.07	60.40
Qatar Marine	63.33	66.82	61.09	61.77	60.51	58.77	61.63	65.04	65.59	64.56	59.90
Asia-Pacific (Singapore close)											
ESPO Blend	65.61	69.92	65.14	66.96	64.98	64.64	66.75	69.60	70.55	67.33	62.38
Minas	56.03	65.13	59.89	60.08	60.18	57.28	60.30	62.78	62.31	61.67	57.14
Duri	53.49	61.65	56.39	56.58	56.68	53.78	56.80	59.28	58.81	58.17	53.64
Cinta	55.17	64.15	58.89	59.08	59.18	56.28	59.30	61.78	61.31	60.67	56.14
Widuri	55.37	64.35	59.09	59.28	59.38	56.48	59.50	61.98	61.51	60.87	56.34
Bach Ho	66.42	72.93	66.01	69.21	66.79	65.39	69.31	73.12	70.48	69.46	66.04
Tapis	67.08	72.91	66.63	70.08	67.68	66.01	70.21	74.22	71.58	70.20	66.84
Cossack	63.04	69.17	61.45	64.61	62.62	59.91	64.73	69.42	66.38	64.76	61.34
Kutubu	62.92	69.18	61.40	65.68	62.20	61.81	65.65	69.76	67.08	63.66	59.79
NW Shelf	59.22	64.49	57.89	62.72	59.13	57.39	63.39	67.62	64.22	62.20	58.54
Americas seaborne (Houston close)											
WTI fob	61.34	66.71	59.77	60.15	60.16	56.94	60.69	63.18	62.13	60.08	56.52
Bakken fob	61.31	66.55	59.72	60.09	60.06	56.86	60.66	63.10	62.00	60.26	56.40
ANS USWC	64.48	68.28	63.02	64.35	63.36	62.47	64.33	66.44	65.91	63.63	60.35
Vasconia	60.07	65.85	59.25	58.44	59.55	56.88	58.25	60.31	59.37	57.74	53.55
US pipeline (Houston close)											
Bakken Beaumont/Nederland	na	na	na	na	na	na	na	na	na	na	55.97
WTI Midland	53.70	57.62	56.12	57.80	57.22	54.75	58.24	60.75	59.09	56.79	53.80
WTI Houston	61.19	66.47	59.75	60.04	59.93	56.81	60.60	63.07	62.03	59.91	56.40
LLS St James	62.36	67.15	60.58	60.68	60.49	57.07	61.84	63.58	62.00	60.35	56.97
HLS Empire	62.18	67.36	61.47	60.65	61.78	57.45	61.65	63.24	61.52	59.45	56.54
WTS Midland	53.93	57.98	55.92	57.21	56.67	54.06	58.01	59.93	58.33	56.58	53.22
Mars	61.13	65.14	59.18	57.84	58.37	54.79	58.25	60.81	59.83	57.61	54.08
WCS Cushing	52.14	55.30	51.01	50.27	51.47	46.65	51.30	53.31	51.97	49.93	47.17
WCS Houston	57.16	61.06	53.36	51.98	53.22	48.31	52.78	55.28	54.33	51.84	49.13
WCS Hardisty	44.90	47.44	43.65	37.76	43.91	37.79	37.34	38.13	34.46	33.08	31.97

OFFICIAL CRUDE PRICE FORMULAS

Formula pricing												$/bl
	Mar 19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 20	Feb
Saudi Arabia fob Ras Tanura to US: ASCI												
Berri (Extra Light)	+5.10	+4.80	+4.60	+4.30	+4.60	+4.50	+4.50	+4.50	+4.50	+5.00	+5.10	+5.10
Arab Light	+3.05	+3.05	+3.15	+3.05	+2.75	+2.85	+2.85	+2.95	+2.95	+3.35	+3.35	+3.55
Arab Medium	+1.35	+1.35	+1.55	+1.45	+1.15	+1.25	+1.25	+1.35	+1.35	+1.55	+1.55	+1.75
Arab Heavy	+0.50	+0.50	+0.70	+0.60	+0.30	+0.50	+0.50	+0.60	+0.60	+0.80	+0.80	+1.00
Saudi Arabia delivered USGC: ASCI												
Arab Light	+4.35	+4.35	+4.45	+4.35	+4.05	+4.15	+4.15	+4.25	+4.25	+4.65	+4.65	+4.85
Arab Medium	+2.65	+2.65	+2.85	+2.75	+2.45	+2.55	+2.55	+2.65	+2.65	+2.85	+2.85	+3.05
Arab Heavy	+1.80	+1.80	+2.00	+1.90	+1.60	+1.80	+1.80	+1.90	+1.90	+2.10	+2.10	+2.30
Saudi Arabia to NW Europe: Ice Bwave												
Berri (Extra Light)	-0.85	-1.15	+0.35	+1.45	+0.45	-1.55	+1.40	+1.10	-0.40	+3.30	+2.10	-0.40
Arab Light	-1.60	-1.90	-0.80	0.00	-1.10	-2.70	-0.05	-1.25	-2.85	-0.05	-1.85	-4.05
Arab Medium	-2.85	-3.15	-1.95	-1.25	-2.45	-4.05	-1.60	-3.80	-5.20	-3.40	-5.50	-7.50
Arab Heavy	-4.00	-4.40	-3.50	-3.00	-4.00	-5.50	-3.25	-5.95	-7.20	-6.20	-8.70	-10.30
Saudi Arabia to Mediterranean: Ice Bwave												
Berri (Extra Light)	-0.30	-1.20	-0.20	+0.80	+0.80	-1.50	+1.35	+2.05	+1.05	+3.45	+3.90	+0.40
Arab Light	-0.90	-1.70	-0.60	+0.30	-0.10	-2.30	+0.40	-0.10	-1.70	0.00	-0.40	-3.30
Arab Medium	-2.15	-2.95	-1.95	-1.45	-1.55	-3.95	-1.45	-2.55	-4.20	-2.90	-3.40	-6.20
Arab Heavy	-2.70	-3.50	-2.30	-2.30	-2.50	-4.80	-2.45	-4.35	-6.05	-5.25	-6.10	-8.60
Saudi Arabia to Asia-Pacific: average Oman/Dubai												
Arab Super Light	+3.05	+3.05	+3.35	+4.55	+4.85	+4.45	+3.05	+4.15	+4.35	+6.75	+8.45	+7.85
Berri (Extra Light)	+0.95	+1.45	+1.70	+2.70	+3.20	+2.65	+1.70	+2.90	+3.60	+5.10	+5.80	+4.60
Arab Light	+0.70	+1.20	+1.40	+2.10	+2.70	+2.45	+1.70	+2.30	+3.00	+3.40	+3.70	+3.70
Arab Medium	+0.45	+0.85	+1.05	+1.45	+1.95	+1.75	+1.25	+1.65	+2.35	+2.15	+2.05	+2.45
Arab Heavy	-0.65	-0.45	-0.25	+0.15	+0.75	+0.85	+0.65	+0.35	+0.95	+0.45	-0.15	+0.55
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	-3.95	-4.75	-3.65	-2.85	-3.40	-5.60	-2.90	-3.50	-4.95	-3.45	-3.60	-6.40
Iranian Heavy	-6.80	-7.60	-6.55	-6.15	-6.40	-8.80	-6.30	-7.50	-8.90	-7.70	-7.95	-10.50
Foroozan Blend	-6.65	-7.45	-6.40	-6.00	-6.25	-8.65	-6.15	-7.35	-8.75	-7.55	-7.80	-10.35
Soroush	-10.65	-11.30	-10.00	-9.80	-10.15	-12.40	-10.25	-12.05	-13.45	-12.50	-12.75	-15.15
Nowruz	-10.65	-11.30	-10.00	-9.80	-10.15	-12.40	-10.25	-12.05	-13.45	-12.50	-12.75	-15.15
Iran fob Kharg Island to NWE: Ice Bwave												
Iranian Light	-3.85	-4.20	-3.20	-2.45	-3.50	-5.10	-2.50	-3.80	-5.25	-2.70	-4.35	-6.45
Iranian Heavy	-6.45	-6.80	-5.70	-5.05	-6.50	-8.10	-5.70	-7.90	-9.15	-7.10	-8.70	-10.55
Foroozan Blend	-6.30	-6.65	-5.55	-4.90	-6.35	-7.95	-5.55	-7.75	-9.00	-6.95	-8.55	-10.40
Iran fob Kharg Island: average Oman/Dubai												
Iranian Light	+0.40	+0.75	+1.00	+1.65	+2.20	+1.95	+1.25	+1.80	+2.40	+2.90	+3.25	+3.35
Iranian Heavy	-0.75	-0.45	-0.20	+0.15	+0.60	+0.40	-0.05	+0.05	+0.65	+0.45	+0.40	+0.90
Foroozan Blend	-0.60	-0.30	-0.05	+0.30	+0.75	+0.55	+0.10	+0.20	+0.80	+0.60	+0.55	+1.05
Soroush	-7.55	-7.45	-7.25	-6.85	-6.30	-6.20	-6.45	-6.90	-6.90	-7.50	-7.95	-7.15
Nowruz	-7.55	-7.45	-7.25	-6.85	-6.30	-6.20	-6.45	-6.90	-6.90	-7.50	-7.95	-7.15

OFFICIAL CRUDE PRICE FORMULAS

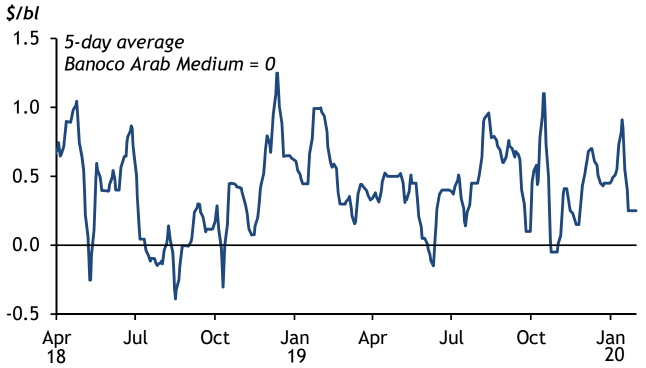
Formula pricing												$/bl
	Mar 19	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 20	Feb
Iraq to Europe: Dated Brent												
Kirkuk (Ceyhan)	-2.00	-2.50	-1.40	-1.15	-1.10	-2.40	-0.65	-1.25	-2.75	-2.35	-2.75	-4.20
Basrah Light (Basrah oil terminal)	-2.65	-3.20	-2.30	-1.70	-2.30	-4.05	-2.00	-3.60	-5.00	-3.35	-4.25	-5.80
Basrah Heavy (Basrah oil terminal)	-5.30	-5.70	-4.70	-4.25	-4.95	-6.65	-4.70	-7.10	-8.75	-7.90	-9.40	-10.85
Iraq to US: ASCI												
Kirkuk (Ceyhan)	+0.05	+0.05	+0.35	+0.45	+0.55	+0.75	+0.75	+0.55	+0.55	+0.70	+0.60	+0.70
Basrah Light (Basrah oil terminal)	+1.35	+1.35	+1.55	+1.65	+1.50	+1.25	+1.25	+1.35	+1.40	+1.50	+1.50	+1.60
Basrah Heavy (Basrah oil terminal)	-1.20	-1.20	-0.95	-0.95	-1.10	-1.25	-1.25	-1.15	-1.15	-1.05	-1.05	-0.95
Iraq to Asia-Pacific: average Oman/Dubai												
Basrah Light (Basrah oil terminal)	+0.30	+0.65	+1.00	+1.60	+2.10	+1.75	+1.35	+1.65	+2.45	+2.25	+2.10	+2.55
Basrah Heavy (Basrah oil terminal)	-2.70	-2.45	-2.20	-1.40	-0.70	-0.60	-0.75	-1.25	-0.70	-1.25	-1.70	-1.05
Kuwait fob Mina al-Ahmadi destination Asia: average Oman/Dubai												
Kuwait	+0.15	+0.55	+0.70	+1.15	+1.65	+1.40	+1.00	+1.30	+2.00	+1.65	+1.55	+1.95
Dubai: fob Dubai: Oman MOG OSP												
Dubai	-0.10	-0.10	-0.05	+0.05	-0.05	-0.25	0.00	-0.25	-0.30	-0.30	-0.40	-0.45
Libya: to Dated Brent												
Es Sider	-0.70	-0.70	-0.60	-0.45	-0.55	-0.45	-0.25	+0.05	+0.40	+0.70	+0.25	na
Bu Atiffel	+1.00	+0.95	+0.95	+1.05	+0.95	+0.95	+0.95	+1.05	+1.05	+1.20	+1.10	na
Sirtica	-1.55	-1.50	-1.40	-1.30	-1.30	-1.30	-1.30	-1.10	-0.90	-0.70	-0.95	na
Zueitina	-0.90	-0.90	-0.80	-0.70	-0.70	-0.60	-0.60	-0.40	-0.15	+0.15	0.00	na
Brega	-0.45	-0.55	-0.50	-0.35	-0.60	-0.60	-0.50	-0.25	-0.25	+0.05	-0.05	na
Sarir	-2.75	-2.75	-2.65	-2.55	-2.65	-2.50	-2.30	-2.00	-2.00	-1.80	-2.05	na
Amna	-0.50	-0.55	-0.50	-0.40	-0.45	-0.40	-0.20	-0.05	+0.25	+0.55	+0.40	na
Esharara	-0.15	-0.15	-0.05	+0.05	-0.30	-0.85	-0.60	-0.30	+0.20	+0.60	+0.30	na
Libya: spot Urals cif Augusta												
Bouri	-2.15	-2.15	-2.15	-2.15	-2.15	-2.15	-2.25	-2.15	-2.05	-2.05	-2.30	na
Al-Jurf	-0.45	-0.45	-0.40	-0.35	-0.35	-0.35	-0.45	-0.35	-0.35	-0.35	-0.55	na
Algeria: Dated Brent												
Saharan Blend*	+0.30	0.00	+0.35	+0.80	+0.01	-0.60	-0.10	+0.75	+0.75	+1.20	+1.90	+2.46
**middle of contract price range*												
Nigeria: Dated Brent												
Bonny Light	+1.63	+1.66	+1.39	+1.56	+2.04	+1.63	+1.45	+1.72	+0.58	+1.28	+2.51	+2.32
Brass River	+1.65	+1.69	+1.52	+1.67	+2.09	+1.58	+1.44	+1.51	+0.35	+1.20	+2.28	+1.98
Amenam	-0.30	-0.18	+0.08	+0.09	+0.20	+0.23	+0.31	+0.20	-1.06	+0.06	+0.70	+0.48
Qua Iboe	+1.62	+1.68	+1.43	+1.71	+2.15	+1.57	+1.44	+1.67	+0.63	+1.50	+2.66	+2.37
Pennington	+2.14	+2.14	+1.26	+1.27	+1.77	+1.80	+1.79	+2.14	+1.22	+2.34	+3.41	+2.74
Forcados	+1.78	+1.77	+1.53	+1.96	+2.24	+1.78	+1.60	+2.20	+1.28	+1.71	+2.96	+2.70
Escravos	+1.59	+1.60	+1.40	+1.68	+2.08	+1.65	+1.64	+2.15	+1.14	+1.89	+3.19	+2.77
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	+6.00	+6.00	+5.80	+5.80	+5.80	+4.45	+4.45	+4.45	+2.90	-1.55	-1.95	na
Isthmus	+3.65	+3.65	+3.70	+3.90	+3.15	+1.60	+2.75	+2.75	+1.10	-2.50	-4.40	na
Maya	-0.35	-0.35	+0.55	+2.15	+1.15	-0.75	+3.75	+0.50	+1.50	-8.00	-8.00	na

OFFICIAL CRUDE PRICES

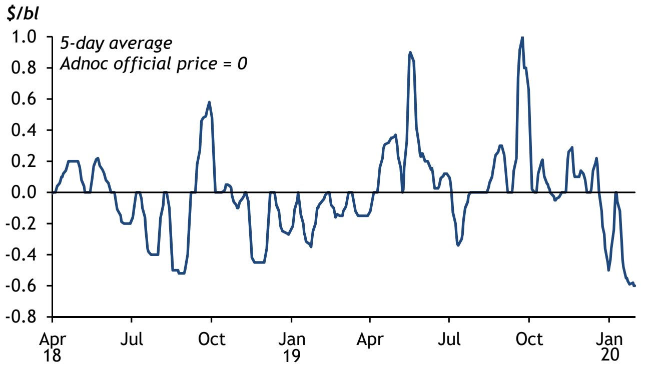
Official crude prices at a glance												$/bl
	Feb 19	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 20
Abu Dhabi												
Murban	66.35	68.60	73.05	72.35	64.80	66.15	62.30	65.20	63.60	66.60	69.25	na
Das	65.65	68.00	72.50	71.85	64.20	65.55	61.75	64.60	62.90	65.90	68.55	na
Upper Zakum	65.25	67.55	71.95	71.15	63.85	65.10	61.10	63.65	62.25	65.10	68.25	na
Umm Lulu	66.10	68.55	73.15	72.55	64.95	66.25	62.40	65.40	63.90	66.90	69.55	na
Oman												
Oman	57.33	59.36	64.48	66.98	71.15	69.99	61.72	63.87	59.68	61.81	60.26	62.81
Qatar												
Dukhan/Land	65.40	67.60	71.95	71.05	63.55	64.95	61.30	64.00	62.80	65.95	68.90	na
Premium to Dubai	0.82	0.67	1.00	1.67	1.79	1.70	2.19	2.88	3.43	3.98	4.01	na
Marine	65.10	67.55	71.80	71.00	63.45	64.75	60.75	63.05	61.75	64.85	68.05	na
Premium to Dubai	0.52	0.62	0.85	1.62	1.69	1.50	1.64	1.93	2.38	2.88	3.16	na
Indonesia												
Minas	62.42	64.78	69.44	69.05	61.84	61.98	57.97	61.06	59.98	63.64	67.61	na
Duri	59.99	63.09	67.88	67.94	60.85	60.95	60.04	67.88	67.19	70.70	75.38	na
Widuri	61.14	63.65	68.33	68.02	60.81	60.91	56.94	60.00	58.90	62.56	66.45	na
Belida	64.36	65.98	70.87	71.15	64.25	64.83	60.16	63.13	61.48	64.49	68.25	na
Attaka	64.27	67.28	71.93	71.36	64.37	64.42	60.40	63.37	62.06	64.53	68.34	na
Ardjuna	62.25	64.23	69.13	69.52	62.75	63.00	58.33	61.87	60.51	64.06	67.89	na
Cinta	60.92	63.42	68.12	67.87	60.67	60.77	56.79	59.85	58.75	62.41	65.90	na
Senipah	59.79	60.68	65.69	65.48	58.04	58.44	53.94	57.47	56.59	61.20	65.26	na
Malaysia												
Tapis	68.03	70.12	75.36	75.12	68.45	68.74	63.30	67.17	64.42	68.92	73.92	na
Tapis "Alpha" premium*	5.40	5.40	5.50	5.40	5.75	6.10	5.70	5.80	6.10	7.30	8.30	na
Labuan	69.43	71.52	76.76	76.52	69.85	70.14	64.70	68.57	65.82	70.32	75.32	na
Miri	69.43	71.52	76.76	76.52	69.85	70.14	64.70	68.57	65.82	70.32	75.32	na
Bintulu	68.03	70.12	75.36	75.12	68.45	68.74	63.30	67.17	64.42	68.92	73.92	na
** to North Sea Dated*												
Brunei												
Seria Lt	68.03	70.12	75.36	75.12	68.45	68.74	63.30	67.17	64.45	na	na	na
Opec Basket †	63.83	66.37	70.73	69.97	62.92	64.71	59.62	62.36	59.88	62.94	66.48	na

†Saharan Blend, Iranian Heavy, Basrah Light, Kuwait Export Blend, Es Sider, Bonny Light, Qatar Marine, Arab Light, Murban, Merey, Girassol and Oriente

Basrah Light vs Banoco Arab Medium



Murban: Spot differential to Adnoc price



PRODUCT SPOT PRICES

Product cargo spot prices											
Date is date of assessment	**1Q19**	**2Q19**	**3Q19**	**4Q19**	**Sep 19**	**Oct**	**Nov**	**Dec**	**13-17 Jan**	**20-24 Jan**	**27-30 Jan**
Northwest Europe *$/t* (cif)											
Propane	424.85	399.34	310.34	396.55	319.81	360.92	394.35	439.84	451.55	421.30	371.88
Butane	448.33	409.26	329.51	439.15	357.46	429.10	451.90	437.31	509.40	490.10	464.19
Gasoline 95 Ron unleaded	554.65	674.30	615.24	591.60	592.25	578.17	599.93	598.30	595.20	577.45	532.94
Naphtha (65% paraffin)	496.73	527.25	477.34	519.34	479.42	489.32	531.33	541.29	545.55	526.60	491.00
Jet	625.65	646.57	628.70	627.88	638.36	628.74	620.58	634.54	615.50	598.75	562.38
French diesel	594.56	615.75	586.15	593.75	599.29	590.34	586.10	605.71	579.45	557.80	520.12
French heating oil	587.97	602.12	576.43	581.98	589.96	577.50	575.58	593.86	572.95	554.95	516.00
Vacuum gasoil											
– 0.5% sulphur	458.66	512.80	475.89	475.63	475.02	457.38	468.58	504.02	522.83	513.40	483.53
– 2% sulphur	450.19	502.98	468.41	457.50	468.71	447.91	450.23	476.17	497.10	485.40	456.16
Cracked fuel oil											
– 1% sulphur	394.20	415.60	398.94	412.71	409.49	397.71	399.64	443.69	465.30	444.45	422.00
– 3.5% sulphur	378.08	387.92	333.51	231.65	328.10	245.74	212.69	235.35	271.00	282.50	269.94
Straight-run fuel oil											
– North Sea 0.5% sulphur‡ (*$/bl*)	-0.93	3.58	5.06	7.20	4.77	5.94	5.83	10.08	12.95	12.25	12.06
M-100	392.33	405.40	350.97	282.36	349.02	278.28	272.55	297.35	333.00	344.50	328.69
‡fob, premium to Ice Brent futures											
Mediterranean *$/t* (cif)											
Propane	438.01	412.71	307.22	389.78	309.95	352.50	388.52	433.98	439.50	409.40	360.88
Butane	450.60	412.76	334.63	455.97	372.05	442.70	467.83	458.78	547.00	523.60	496.50
Gasoline 95 Ron unleaded	554.52	656.09	608.45	600.71	597.61	587.94	611.90	603.64	604.55	585.85	538.75
Naphtha (65% paraffin)	486.57	517.80	469.83	506.50	472.90	479.76	518.12	525.05	530.50	514.35	479.69
Jet*	605.84	628.25	614.28	602.48	625.89	610.18	594.46	602.04	586.65	575.70	541.06
French diesel	599.63	614.48	586.22	596.13	598.88	591.75	589.93	607.68	579.55	561.25	523.50
French heating oil	587.55	602.84	580.66	584.92	592.33	578.78	578.96	598.23	573.25	555.15	516.31
Vacuum gasoil											
Vacuum gasoil (0.5% sulphur)*	466.69	512.51	480.30	482.73	483.54	465.08	477.69	508.34	526.60	520.68	490.38
Vacuum gasoil (2% sulphur)*	460.23	502.45	468.69	468.78	472.47	453.17	465.94	489.71	504.90	501.08	464.28
Cracked fuel oil											
– 1% sulphur	408.99	421.17	405.75	430.39	416.29	410.26	418.20	466.33	483.80	459.55	435.38
– 3.5% sulphur	380.40	390.56	339.72	239.32	336.96	274.32	207.79	232.20	271.90	298.40	283.25
**fob VGO prices have been replaced by cif prices from 5 January*											
New York Harbor *¢/USG* (cif)											
Gasoline conventional 93	175.42	209.58	194.99	190.28	189.28	194.40	188.59	187.30	189.96	182.29	172.67
Gasoline conventional 87	159.48	190.23	177.29	172.27	173.39	173.33	172.49	170.91	169.01	161.54	154.54
Gasoline Rbob 83.7	156.35	194.31	176.61	166.65	166.55	165.60	166.53	167.91	165.50	157.73	150.42
Ethanol	144.46	154.19	153.43	161.13	151.79	166.56	163.89	152.68	137.90	140.31	144.56
Diesel (ULSD)	193.38	198.13	188.78	195.05	193.57	193.51	193.14	198.47	187.48	178.46	168.24
Jet	205.89	206.36	197.36	202.78	201.62	201.04	200.98	206.32	195.11	185.88	175.46
Heating oil	183.50	187.24	180.21	185.04	185.49	187.45	181.95	185.19	174.11	167.13	158.96
No 6 fuel *$/bl*											
1% sulphur	62.80	65.76	60.34	65.82	59.36	63.46	62.99	70.96	73.90	68.51	65.85
3% sulphur	61.52	61.37	51.97	40.49	50.80	43.41	37.09	40.35	41.10	45.51	45.68

PRODUCT SPOT PRICES

Product cargo spot prices	1Q19	2Q19	3Q19	4Q19	Sep 19	Oct	Nov	Dec	13-17 Jan	20-24 Jan	27-30 Jan
US Gulf ¢/USG (fob)											
Propane*	66.81	55.69	44.57	49.48	44.96	46.57	52.99	49.49	43.56	40.41	39.91
Butane*	71.57	53.65	47.12	66.54	53.03	60.54	71.20	68.90	71.03	75.64	78.59
Gasoline conventional 93	174.38	208.49	195.26	181.06	185.92	184.49	181.31	177.09	176.86	169.77	163.12
Gasoline conventional 87	157.66	193.74	177.44	164.04	167.96	163.89	164.16	164.11	163.36	156.27	149.62
Ethanol	143.03	151.94	150.22	160.08	147.67	165.80	163.95	150.30	137.28	139.47	136.04
Jet	188.10	193.87	187.67	186.97	188.81	186.76	183.36	190.47	180.55	172.53	159.73
Diesel (ULSD)†	188.79	194.88	186.45	188.06	186.45	na	na	188.06	179.32	172.03	161.67
Heating oil	176.68	181.64	175.49	176.93	180.31	178.31	172.54	179.40	170.83	162.94	152.26
No 6 fuel *$/bl*											
3% sulphur	60.09	60.32	50.83	39.32	49.01	42.32	35.94	39.09	39.69	44.08	44.19
**Mont Belvieu †Diesel ULSD 61 has been replaced by Diesel ULSD 62 from 23 September*											
West coast ¢/USG											
Los Angeles (pipeline)											
Carbob 88.5	190.85	234.92	212.17	221.05	238.89	255.96	213.89	189.30	204.78	204.31	206.21
Carb diesel	192.18	213.69	193.80	204.73	200.49	208.22	211.58	194.71	190.31	184.66	175.20
Jet	194.72	206.62	190.78	202.61	194.83	201.08	205.82	201.38	190.36	182.46	172.45
Bunkers *$/t*											
HSFO 380cst	425.53	413.38	395.99	443.34	425.79	401.59	467.24	467.45	449.80	439.88	410.88
Singapore *$/bl* (fob)											
Gasoline 95 Ron unleaded	67.20	75.06	72.76	75.03	74.40	74.19	76.11	74.82	71.64	70.31	65.12
Jet-kerosine	76.35	79.77	77.00	75.99	77.75	75.38	74.89	77.75	75.59	74.28	67.92
Gasoil 50ppm sulphur (high pour)	76.89	80.27	77.18	76.85	77.70	76.30	75.41	78.88	76.32	74.91	68.87
Gasoil 0.5% sulphur (high pour)	74.90	78.11	75.04	73.77	75.92	73.27	72.04	76.04	74.27	73.06	67.15
LSWR Indonesia (V-500)	66.11	71.34	66.74	54.62	63.35	52.85	52.50	58.60	69.66	70.59	66.91
Naphtha	56.16	58.68	53.64	60.13	54.21	57.14	59.76	63.62	62.42	60.31	56.70
HSFO 180cst *$/t*	405.96	413.99	395.57	276.15	398.12	303.08	249.69	274.40	331.20	328.95	301.92
HSFO 380cst *$/t*	402.15	402.39	389.87	270.56	395.63	298.33	246.32	265.71	317.90	321.00	296.08
Japan *$/bl* (C+F)											
Jet-kerosine	78.57	81.68	78.83	78.31	79.64	77.61	77.20	80.17	78.05	76.72	70.32
Gasoil 50ppm (low pour)	77.60	81.19	77.85	78.32	78.44	77.59	77.21	80.19	77.82	76.60	70.55
$/t											
Naphtha	518.51	542.43	494.78	538.74	498.03	513.45	538.77	565.21	561.98	545.70	511.79
HSFO 180cst	416.60	424.33	405.12	293.58	407.73	321.43	264.14	293.85	351.47	343.29	315.82
Mideast Gulf *$/bl* (fob)											
Gasoline 95 Ron unleaded	64.93	72.85	70.57	72.22	72.04	71.35	73.48	71.86	68.53	67.10	61.98
Jet-kerosine	74.07	77.74	75.01	73.16	75.71	72.42	72.24	74.85	72.63	71.76	65.85
Gasoil 0.5% sulphur	71.55	75.22	72.27	71.06	72.68	70.71	69.85	72.63	69.71	68.66	63.12
$/t											
Naphtha	488.82	516.72	469.75	501.20	472.22	474.33	503.68	526.87	522.63	513.13	485.81
HSFO 180cst	391.90	399.12	381.02	251.27	383.57	278.49	228.76	245.28	299.95	305.06	280.13
HSFO 380cst	388.08	387.53	375.31	245.67	381.07	273.72	225.38	236.56	286.63	297.18	274.23

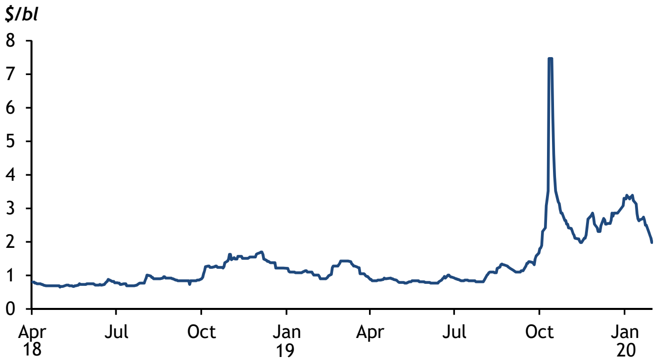
FREIGHT RATES AND ARBITRAGE

Route rates					30 Jan
	Clean 30,000-38,000t		Dirty 70,000-80,000t		$/t clean/dirty
	WS	± 23 Jan	WS	± 23 Jan	
Med-UK continent	175.0	-5.0	87.5	-52.5	12.84/12.76
Med-US Atlantic	155.0	-10.0	75.0	-10.5	17.37/23.12
Med-US Gulf	155.0	-10.0	75.0	-10.5	17.37/23.12
Cross Med	165.0	-5.0	95.0	-50.0	6.91/7.36
UK-UK continent	177.5	-2.5	120.0	-30.0	na
UK-US Atlantic	145.0	-17.5	105.0	-10.0	15.30/15.25
UK-US Gulf	145.0	-17.5	105.0	-10.0	15.30/15.25
S'pore-Asia-Pacific	147.5	-2.5	112.5	-2.5	12.46/14.52
Black Sea-Med	175.0	-5.0	100.0	-60.0	11.16/9.97
Baltic-UKC	187.5	-2.5	100.0	-32.5	9.05/9.19
Carib-UK continent	155.0	-30.0	150.0	-42.5	18.15/18.16
Carib-USAC	220.0	-25.0	135.0	-165.0	10.44/10.00
			130,000-135,000t		
W Africa-UK continent	–	–	110.0	-20.0	17.33
W Africa-US Gulf	–	–	100.0	-25.0	22.32
UK cont-US Atlantic	–	–	80.0	-31.5	20.27
	50,000-55,000t		260,000t		
UK-US Gulf	–	–	80.0	-20.0	20.27
Mideast Gulf-US Gulf	–	–	38.0	-10.0	38.27
Mideast Gulf-UKC/Med	–	–	38.5	-10.0	29.47
Mideast Gulf-Asia-Pacific	92.0	-18.0	59.0	-22.0	25.05/23.45

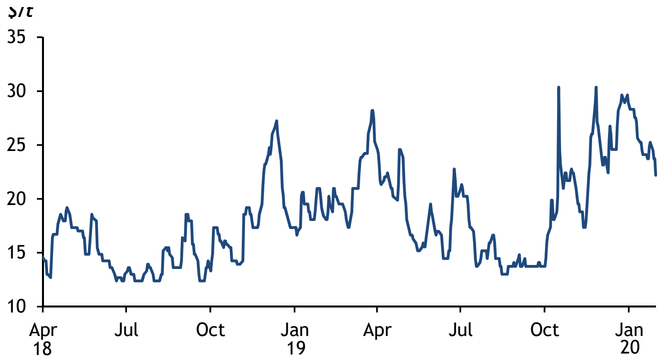
Routes to the US exclude oil pollution liability insurance premium

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

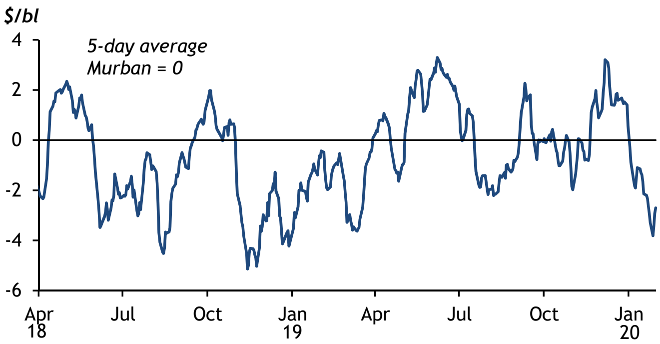
Mideast Gulf westbound VLCC rates



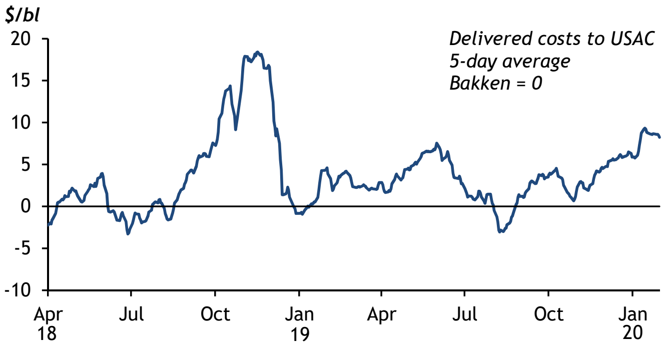
UK continent to US Atlantic coast clean rates



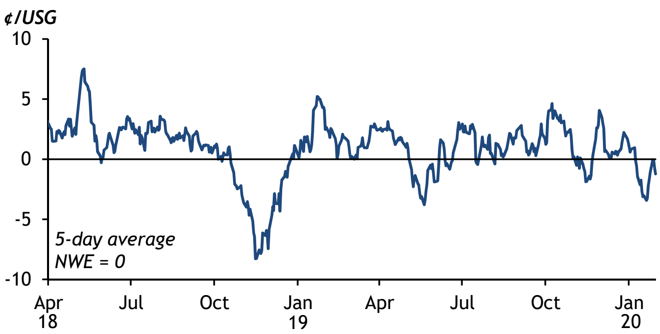
Forties minus Murban



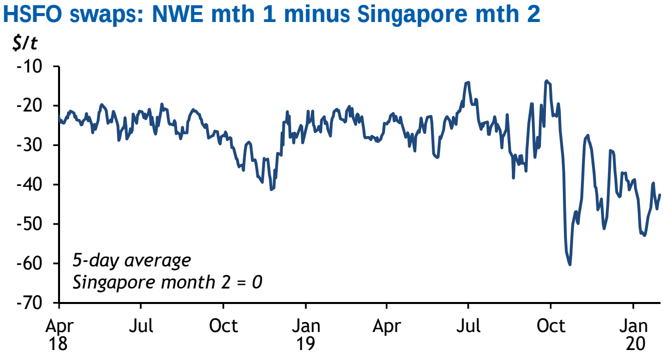
USAC: Bonny Light minus Bakken



Diesel: USGC minus NWE



HSFO swaps: NWE mth 1 minus Singapore mth 2



LOOKING AHEAD

3-5 Feb
Argus Americas Crude Summit

11 Feb
EIA *Short-Term Energy Outlook*

12 Feb
Ice Feb gasoil futures expire
Opec *Monthly Oil Market Report*

13 Feb
IEA *Oil Market Report*

17 Feb
Jodi Oil World Database update

20 Feb
Nymex Mar crude futures expire

25-27 Feb
IP Week, London

28 Feb
Ice Apr Brent futures expire
Nymex Mar products futures expire

5-6 Mar
Opec, non-Opec meeting, Vienna

15 Mar
IEA *Oil Market Report*

Argus *Global Markets* is published by Argus Media group

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

ISSN: 1368-7433

Publisher
Adrian Binks

Chief operating officer
Matthew Burkley

Global compliance officer
Jeffrey Amos

Chief commercial officer
Jo Loudiadis

Global SVP editorial
Neil Fleming

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, UK
Tel: +44 20 7780 4200
Nur-Sultan, Kazakhstan
Tel: +7 7172 72 92 94
Beijing, China Tel: +86 10 8535 7688
Dubai Tel: +971 4434 5112
Houston, US
Tel: +1 713 968 0000
Moscow, Russia Tel: +7 495 933 7571
New York, US
Tel: +1 646 376 6130
Sao Paulo, Brazil
Tel: +55 11 3235 2700
Singapore Tel: +65 6496 9966
Tokyo, Japan Tel: +81 3 3561 1805

INVESTORS IN PEOPLE

THE QUEEN'S AWARDS FOR ENTERPRISE: 2015