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Short-Term  
Outlook

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# OIES Oil Monthly

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**OIES OM: 08**

6 October 2021



## In Focus

### West African crudes: Bellwether for the strength of the recovery

Given the uncertainties still surrounding the oil market and the prevalence of the view that the market can only go in one direction for the foreseeable future, the shift in West African crude trade flows, and their pricing in the next few months, will provide us with important clues regarding the extent of the strength of the demand recovery and its evenness.

Brent crude futures broke the \$80/b mark with some predicting the upward march to continue driven by strong fundamental factors including the potential switch from gas to liquids which will create an additional source for oil demand, the rise in mobility indices, the lifting of air travel restrictions, the drawdown in inventories accelerated by hurricane Ida, the improvement in refining margins in many parts of the world and across products, and revised expectations about how quickly an Iran nuclear deal could be reached. The high ‘involuntary’ compliance by some OPEC+ countries is also a clear signal that only a few OPEC+ members can satisfy their quotas. Concerns about stagflation, the potential resurgence of the Delta variant in countries with low vaccination rates, and revision of growth outlook in key parts of the world including China – which is dealing with its own crisis in the power and property market - are currently being brushed aside. For many, the current oil price (and energy prices more generally) are still below the levels needed to rationalize demand and analysts are speculating about the price that will cause demand destruction.

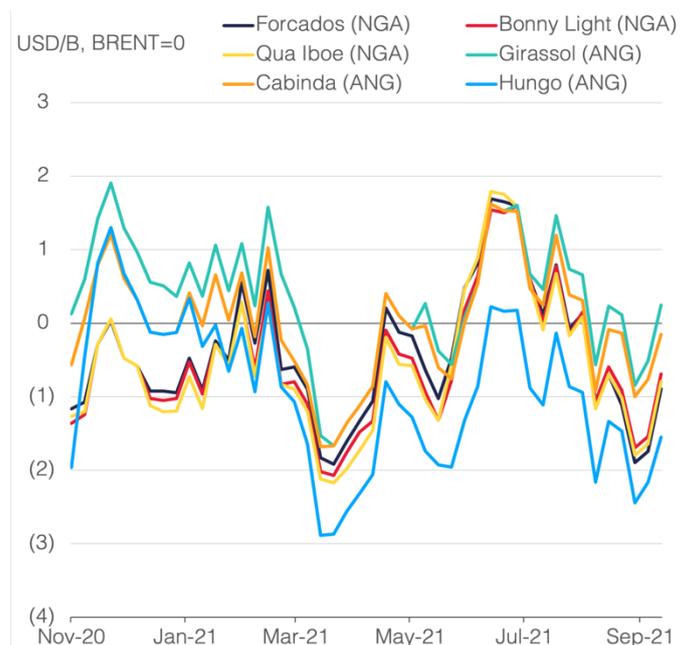
These improvements have also been reflected in physical differentials which, after weeks of falling, have picked up recently (Figure 1). Physical differentials provide valuable information about oil market conditions and about key shifts in its dynamics, very often more than the price levels in futures markets which are also influenced by macro factors, sentiment, and divergent expectations. If the demand recovery faces headwinds, sellers lower their crude differentials to make their crude oil more attractive to end users. The relative prices of key benchmarks and freight rates also need to adjust to give an incentive for traders to move crude from surplus to deficit regions and clear the overhang. If the recovery consolidates, this would be reflected in the strengthening of the physical differentials relative to the underlying benchmarks and the adjustment in the spreads between benchmarks. In this complex web of differentials, WAF differentials and shifts in WAF trade flows provide particularly valuable clues to assess the strength of the pace of the recovery and its evenness.

#### Features of WAF barrels

WAF crudes, particularly Nigerian grades, play an important role as the swing barrels both to the east and the west of the Atlantic basin. Nigerian grades also have many features which make them highly tradable and most responsive to shifts in market fundamentals. These features include:

- **High volume:** Nigeria is a major OPEC producer with the capacity to produce around 1.8 mb/d of crude. However, in recent months, Nigeria’s production has been falling as it faces many operational and technical problems (e.g., declaration of force majeure at Forcados terminal in August this year, ongoing security challenges in Niger Delta and underinvestment in deepwater blocks), resulting in Nigeria over complying with their quotas which were set at 1.596 mb/d (applies to crude only). While Nigeria’s crude production rebounded in September to reach approximately 1.47 mb/d, a rise of around 170,000 b/d from August levels, the country is still pumping below its OPEC quota due to underinvestment.<sup>1</sup>

Fig 1: WAF price spreads



Source: Argus, OIES

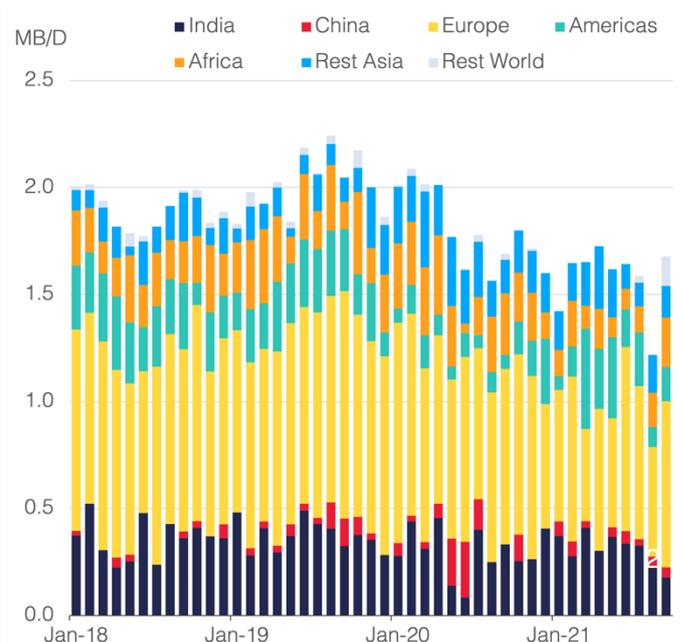
## In Focus

- High quality:** All Nigerian crude oil grades are of high quality. They consist of light and medium heavy density and have very low sulphur content and thus typically command a premium over the underlying Dated Brent benchmark. A key Nigerian grade is Bonny Light which has high gravity (32.9 API) and low sulphur content (0.16 per cent). Another key grade is Qua Iboe with gravity of 37.6 API and sulphur content of 0.10 per cent. Historically, these grades yield high amounts of gasoline, light naphtha, jet fuel and diesel and usually trade at a premium to their Brent benchmarks.
- No destination restrictions:** Because of the variety of density among the grades (roughly between 24 API and 48 API) and lack of destination restrictions, Nigerian crudes are highly popular and seem to find customers in most places. The most important markets for Nigerian oil are in Europe, accounting for about 40 per cent in H1 2021, followed by Asia in close second accounting for 36 per cent. In Asia, the key market for Nigerian crude is India accounting for around 20 per cent of all Nigerian exports (**Figure 2**). In Europe, the volumes are almost equally split between North West Europe (NWE) and the Mediterranean. The main European destinations are the Netherlands, the UK, Spain and Italy while Nigerian oil finds its way to refineries from the Baltics in the North to Israel and Bulgaria in the Mediterranean.
- Diversity of suppliers:** Unlike many other producers within OPEC whose production is totally controlled, or dominated by a national oil company, several major international oil companies (IOCs) have been operating in Nigeria for decades under various production sharing agreements.
- Access to crude:** Many players have access to Nigerian crude for sale in international markets and although the process in which Nigerian crudes are marketed is complex, it does make the crude highly tradable. There are three main ways to access Nigerian oil (1) Equity production, which is available to a handful of IOCs operating in Nigeria; (2) Direct Sale, Direct Purchase' (DSDP) agreement or 'oil for products exchange'; and (3) Term contracts, where every year Nigerian National Petroleum Corporation (NNPC) awards each qualifying company one or more contracts of about 33,000 b/d (or one cargo per

month). NNPC tends to award these contracts to a very wide range of companies, which are, in most cases not end-users. In 2017 there were 396 companies with NNPC term contracts which exceeded the oil available for sale.

- Tradability on spot basis:** Adding to the complexity of Nigerian oil contracts is that contract holders are allowed to nominate five grades of crude acceptable to the buyer. NNPC can deliver any of these grades of their own choosing. However, there is no guarantee on the part of NNPC to supply the agreed volumes. In fact, there is no guarantee that the buyer will obtain any oil at all, despite having signed the contract. Allocation becomes clearer only when the monthly loading programmes are released. These are not always complete and additional cargoes are often added later. Given the nature of the term contract process, it is very difficult for a refiner to have a term contract with NNPC. Even though some refiners have term contracts, there is no guarantee that they will get the grade they need, at the time they need it. India, a key market for Nigerian grades, tends to buy oil in monthly tenders. Co-loading barrels on a very large crude carrier (VLCC) can make scheduling a very complex operation. This has major implications for the marketing of Nigerian crudes. On the one hand, refiners need certainty in terms of grade quality

**Fig 2: Nigeria crude exports by destination**



Source: Kpler, OIES

## In Focus

and loading dates and thus find it difficult to buy directly from NNPC. On the other hand, most of the volumes end up either with traders or trading arms of the major oil companies. As a result, a large volume of oil is traded on a spot basis, reinforcing the point that Nigerian barrels can act as a useful proxy for physical market strength.

- OSP and Spot Market Assessment:** In line with many other producers, NNPC does not disclose the way they set their official selling prices (OSPs) or differentials, which are set against Dated Brent. It is generally accepted that OSPs are a function of the spot market price movements in the previous month. When the spot price is below the OSPs, experienced traders will ‘offload’ the barrels as quickly as they can, as close to the OSPs as possible, to minimize their losses. The term contract holders will be losing money on their long-term contracts and expect, and probably even demand, lower OSPs in the subsequent period to re-coup their losses. As a result, there is an implied and close relationship between the OSPs and spot prices: When the OSP is set low relative to the market, the informed trader will buy as many cargoes as possible, creating an upward momentum in the spot price. Equally, when the OSPs are high, there will be aggressive selling of spot cargoes causing an accelerated fall in the differentials. This feature of Nigerian barrels makes them even more responsive to prevailing market conditions.

These features will continue to evolve over time. The start-up of the 650,000 b/d Dangote refinery in 2022 will transform Nigeria’s crude and product balances, with implications for key trade flows (e.g. North West Europe and West Africa gasoline trade). Also, COVID-19’s impact on the European refining landscape has been significant, with about 2 mb/d of refining capacity either shut-down or converted into bio-fuel plant operations.<sup>2</sup> As Europe currently prepares to stockpile middle distillates ahead of the winter season, Asia has been increasing diesel exports to Europe (supported by an open arbitrage). This trend acts as a reminder that the competitiveness of WAF – already transformed several years ago by rising US exports to Europe – is set for another transformation in the coming years, driven by consolidation and refinery closures/conversions in Europe, growing refining capacity in Asia/Middle East, and planned increases in West African refining capacity.

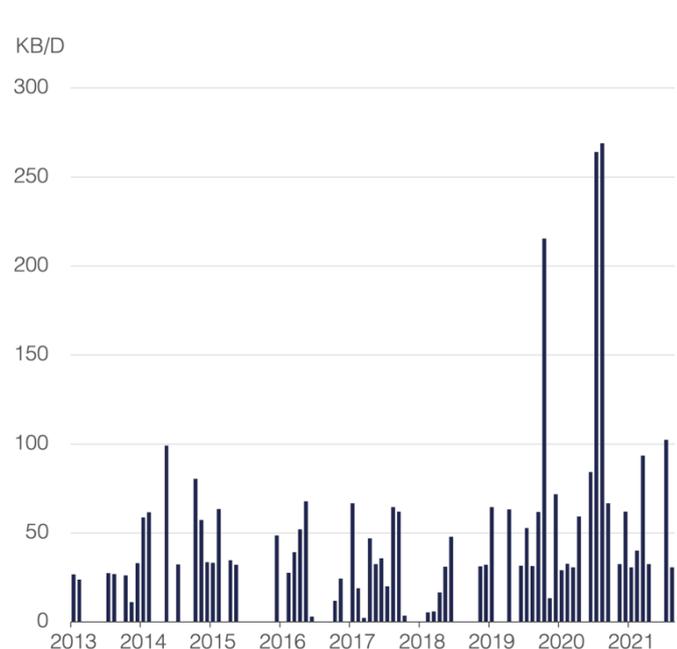
### Asian demand and imports from WAF

The above features, particularly given that large volumes of Nigerian barrels are traded on a spot basis and the popularity of Nigerian grades which can flow East or West of the Atlantic basin, make Nigerian barrels an excellent short-term indicator of changes in market conditions. In the last few months this has been reflected in multiple ways.

- Brent-Dubai spread and arbitrage flows:** The economics of shifting WAF crude to Asia can be highly responsive to benchmark spreads such as Brent-Dubai. Indeed, WAF flows typically see a dual impact when Brent-Dubai spread is narrow: both a direct pull on WAF-Asia as a result of narrowing spreads, but also a secondary pull on WAF into Europe as West of Suez grades (e.g., Johan Sverdrup) arbitrage into Asia. This can drive up spot differentials in the North Sea, making WAF grades competitive for European buyers.

While certain WAF grades remain baseload for a number of Indian refiners, WAF flows to Asia have been highly impacted by the widening of the Brent-Dubai spread. Despite relatively cheap freight rates backwardation in the market and the widening of Brent-Dubai (above \$2/b) has incentivized refiners to purchase Dubai-linked

**Fig 3: China crude imports from Nigeria**



Source: Kpler, OIES

## In Focus

cargoes – a trend expected to persist as OPEC+ increase production during the rest of 2021.

- China’s demand:** In addition to OPEC+ cuts, one of the major equilibrating forces for oil markets in 2020 was China’s demand, of which a significant volume ended up in storage. In this process, Nigerian barrels played a key role. As global oil demand contraction reached its peak in April 2020, Nigerian crude differentials fell sharply, trading from premiums to Atlantic benchmarks in early March to large discounts by mid-April. Nigerian differentials for the flagship Bonny Light and Qua Iboe grades fell to -\$8/b as sellers struggled to find homes for their cargoes. As Nigerian grades became relatively cheap, China, the first country to be affected by COVID-19 but also the first country to show signs of recovery, emerged as a key buyer of Nigerian barrels although China is not usually a major destination for Nigerian crude. The narrowing in the Brent-Dubai spread, and the fall in freight rates, provided Chinese refineries with an opportunity to buy cheap Nigerian crude.

This was helped by the availability of storage in China from the strategic petroleum reserve (SPR) as well as the Chinese government protection of refinery margins when oil falls below \$40/b.

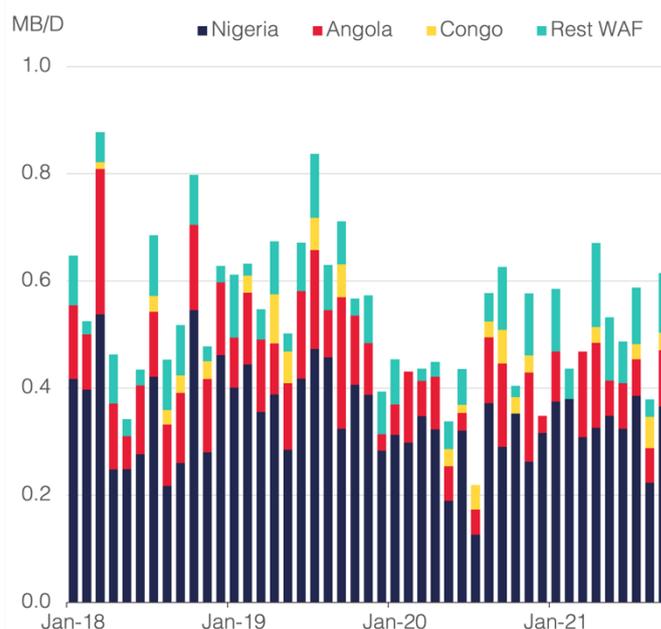
Since then, China has played a less important role as an outlet for Nigerian crude. This is not being helped by China’s demand outlook which has softened due to COVID-19 restrictions as well as a slowdown in industrial activity on the back of measures to tame the real estate sector and bottlenecks in the supply chain. The crackdown on refineries—where crude and intermediate feedstock imports by China’s independents hit an 18-month low in August this year—and limiting quotas have resulted in a decline in China’s crude imports overall, with Nigerian crudes falling to 30,000 b/d (**Figure 3**).

- India’s demand:** India constitutes an important destination for Nigerian crude as major players such as India Oil Corporation (IOC) rely on Nigerian grades as a key crude and actively seek WAF cargoes in monthly tenders, supported by refinery configuration shifts and upgrades (e.g. 300,000 b/d Paradip refinery). However, as discussed in the previous oil monthly, India’s demand took a massive hit forcing refineries to cut runs, limiting participation in monthly spot

tenders, and reduce overall imports. Demand for gasoline, diesel, and jet fuel declined sharply in the months of April and May before recently recovering. This impacted the volume of Nigerian barrels going to India in the same period but only temporarily and Nigerian barrels maintained their share of India’s total imports (**Figure 4**). In particular, the shutdown of the Paradip refinery sharply reduced Nigerian imports with the IOC buying less than half (190,000 b/d) of the usual (420,000 b/d in the previous month).<sup>3</sup> In effect, it turned the ‘baseload’ Nigerian barrels into ‘marginal’ barrels, looking for a home.

India’s and China’s softening imports and challenging arbitrage economics as OPEC+ eased their output restrictions have put WAF and particularly Nigerian grades under pressure. The differentials weakened considerably with WAF grades having traded at a discount to Brent before recently recovering (see **Figure 1**). These factors also had the effect of directing WAF flows to Europe and North America, driven by seasonal demand strength for gasoline and refiners shifting yields to maximise light ends (**Figure 5**). Indeed, WAF exports to Europe rose from 635,000 b/d in May to just over 1 mb/d in June. The flows of West African crude to Louisiana on the US Gulf coast also increased, as blenders and refiners looked for medium and heavy sweet grades of oil. Some 30,000 b/d of WAF crude went to Louisiana after April, with exports almost solely

**Fig 4: India crude imports by WAF origin**



Source: Kpler, OIES

## In Focus

going for St James. This compared to less than 10,000 b/d, shipped to the US Gulf during the whole of 2020.<sup>4</sup> These trade shifts reflect the uneven recovery in demand across regions.

However, WAF differentials have recently rebounded, due to a combination of supply and demand factors (see **Figure 1**).

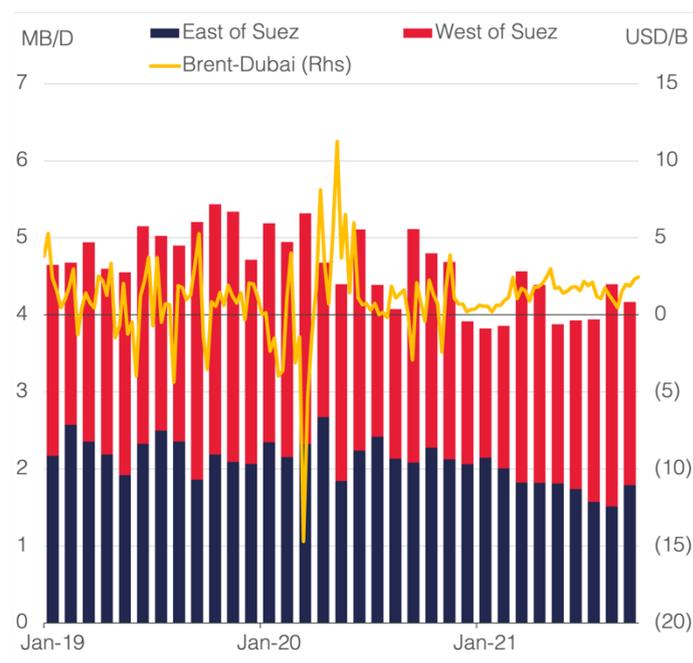
- While Nigeria saw an increase in exports in September, Nigeria has been reported to be struggling to clear its October loading programme. Likewise, Angola crude exports are estimated to fall to ~950,000 b/d in November based on preliminary schedules. In 2021, West African crude loadings have been at their lowest for over a decade (averaging 3.63 mb/d year-to-date) as underinvestment has taken a toll on their upstream sector.
- COVID-related restrictions in India started easing and we expect refinery runs to trend higher reaching January 2021 levels of around 5 mb/d for the rest of this year as the recovery consolidates and crude imports rise. This is being reflected in India's appetite for Nigerian grades (despite widening Brent-Dubai spreads) which has resumed of late, with India Oil Corporation being active in the September trading cycle (actively buying Agbami, Qua Iboe and Akpo grades from traders). The economics of processing certain WAF grades have also been supported by strengthening gasoline cracks in Asia and strong ethylene margins underpinning naphtha demand.
- The pickup in demand by independent refiners for WAF barrels is quickly reflected in the demand for the mainstream Angolan barrels such as Dalia, Girasol and Nemba. For example, following the pickup in demand by the 'teapots' in September this year, the differential (versus Brent Dated) for Dalia improved by \$1.5/b between early and late September. While China has been releasing crude from storage and has started auctions from SPR (including Murban and Forties<sup>5</sup> which compete with WAF), these volumes are small and, in any case, China will continue to return to buying for storage purposes to ensure adequate days of demand cover.

### Bellwether for the strength of the recovery

Despite many indicators pointing to tighter markets and the dominance of the super-cycle narrative, the path ahead for oil prices is far from clear, and many uncertainties remain. These range from the extent to which there will be substitution from gas to oil in the power sector, the outlook for China and EU oil demand, the strength of India's recovery and particularly diesel demand and the price level at which demand would start being impacted. Adding to this mix of uncertainty, the winter power and coal supply crisis impacting China could impact refinery utilization rates (particularly given reports of power rationing among independent refiners) – a factor which could weigh on China's Q4 crude import quota allocations. Due to the Golden week holiday in China, the country's purchase of WAF oil slowed considerably with no bids or offers for WAF on Platts window. Bloomberg reports that Nigeria is yet to sell about 25-30 cargoes which include some October shipments but mostly November cargoes.<sup>6</sup>

In the current context, where the dominant narrative is of an incredibly tight market, these uncertainties will continue to be brushed aside and the price level can continue to rise even if downside risks start emerging. For instance, if expectations of a strong demand recovery in India don't materialise and China's softer demand persists for longer, the reverberations of such developments are most likely to be felt on WAF crudes.

**Fig 5: WAF east/west flows and Brent-Dubai spread**



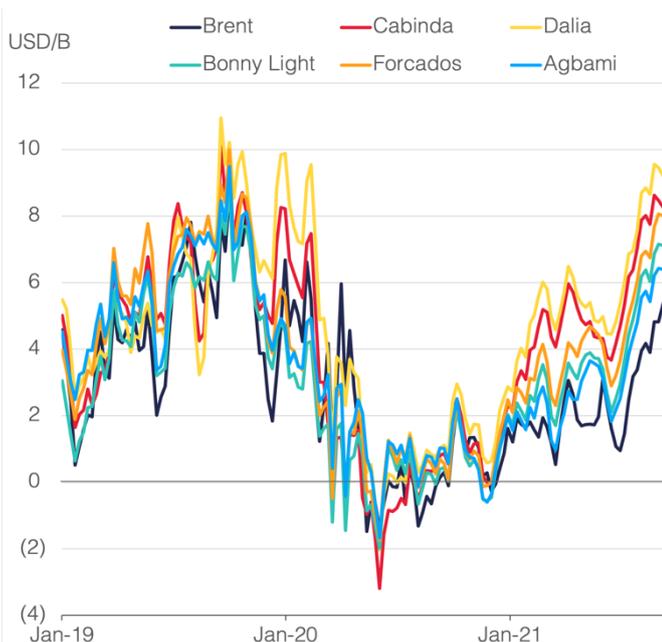
Source: Kpler, Argus, OIES

# In Focus

European refinery margins are currently at their highest level since April 2020 driven by seasonal gasoline/High Sulphur Fuel Oil (HSFO) crack strength (**Figure 6**). However, these could come under pressure as EU/US driving season has come to an end (also reflected in Middle East OSP cuts for light crudes, e.g., Arab Extra Light). The gradual return of US refining capacity is likely to temper the recent rallying strength witnessed in gasoline cracks in Europe. This would put pressure on WAF grades, though Autumn refinery maintenance season, which will erode some spare refining capacity, could provide a floor for margins.

This is of course one of many scenarios that could play out in a rapidly changing market and a recovery which is impacted by shortages and bottlenecks. But regardless of the scenario that emerges, given the wide uncertainties surrounding the oil market, and the prevalence of the view that the market can only go in one direction for the foreseeable future, the shift in WAF trade flows and their pricing in the next few months will provide us with important clues regarding the strength of the demand recovery and its evenness. If our projection that the market may slip into surplus in Q12022 turns out to be correct, this is likely to be reflected in WAF differentials first, especially as they will face tough competition from key OPEC+ exporters with capacity to increase production and place more barrels in Asia, pushing WAF crudes towards Europe.

**Fig 6: NWE FCC margins**



Source: FGE, OIES

**Footnotes:**

- <sup>1</sup> Reuters, 'OPEC Sept oil output rises on Nigerian rebound, OPEC+ boost', September 30, 2021.
- <sup>2</sup> Argus, 'Viewpoint: European refiners face tough 2021', January 7, 2021.
- <sup>3</sup> Argus, 'West African crude flows to Asia slump', August 16, 2021.
- <sup>4</sup> Argus, 'Louisiana is becoming an outlet for WAF crude', August 27, 2021.
- <sup>5</sup> In the most recent auction held on September 24, 2021, PetroChina won a cargo of Forties at \$65/b.
- <sup>6</sup> Bloomberg, 'WAF CRUDE: China Holiday Week Hampers Sales for Nigeria, Angola', October 5, 2021.

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# Outlook

## Key insights

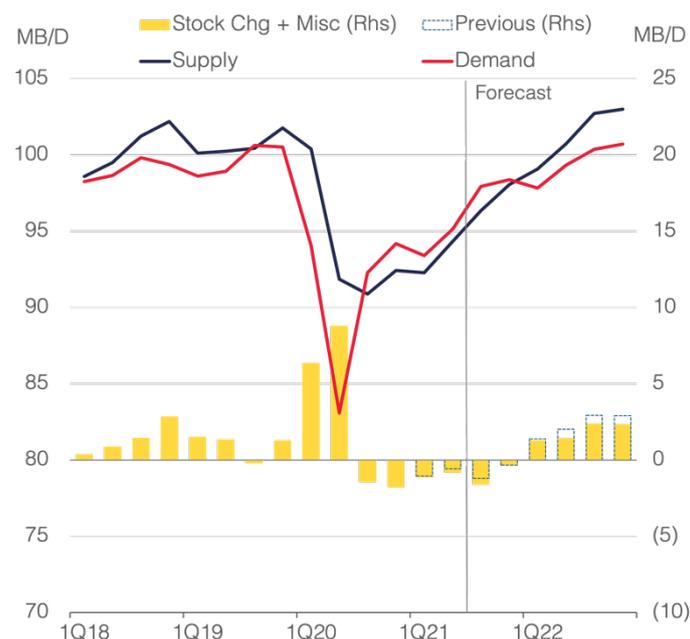
- **Our reference forecast for Brent is upgraded to \$69.4/b from \$68.9/b in 2021 and \$71.7/b from \$70.7/b in 2022.** The upper bound has moved to above \$80/b in our forecast horizon for the first time in 2021. Although futures Brent has broken the \$80/b mark recently, our monthly reference forecast sees Brent retreating back into the \$70s for the remainder of 2021 and falling to the low-\$70s in Q1 2022 as market balances shift from deficit to surplus. In H2 2022, our reference forecast reverts to the high \$70s and the upper bound moves back into the \$80/b and \$85/b range, as surpluses begin to ease keeping an upward pressure on our outlook.
- **Risks around the outlook are now balanced.** New supply/demand risks build on the upside offsetting pandemic-driven demand risks and bottleneck pressures. On the supply-side, supply constraints both from OPEC+ and non-OPEC could limit supply growth in 2022 and push the annual price higher by \$4.2/b. On the demand-side, potential near-term oil-switching in power generation, lift upside demand risks in 2022 to \$4.3/b from \$3.5/b last month.
- **Global oil demand growth in 2021 is lowered to 5.3 mb/d from 5.5 mb/d and is slightly upgraded in 2022 to 3.35 mb/d from 3.28 mb/d.** The spread of the Delta variant remains a concern, particularly in Asia, but the peak impact of the virus has already passed with oil demand expected to continue growing until year end. Risks around the demand outlook are now balanced, with near-term upside pressures and higher immunity levels offsetting pandemic concerns and softer growth in Asia.
- **Global oil supply growth is lowered to 1.4 mb/d from 1.6 mb/d in 2021 and to 6.1 mb/d from 6.4 mb/d in 2022.** Global supply continues to battle widespread outages and low investment, with the non-OPEC supply revival remaining muted in 2021. But supply growth is still expected to pick up in Q4 and well into H1 2022, as restrained production (both voluntary and involuntary) returns, before growth decelerates in H2.
- **The market deficit in 2021 is estimated at -1.0 mb/d, followed by a 1.8 mb/d surplus in 2022.** Risks around the outlook are skewed on the upside and are mainly confined on the supply side, expected to further narrow the projected surpluses in 2022.

### Brent price outlook



Source: OIES

### Global balance



Source: OIES



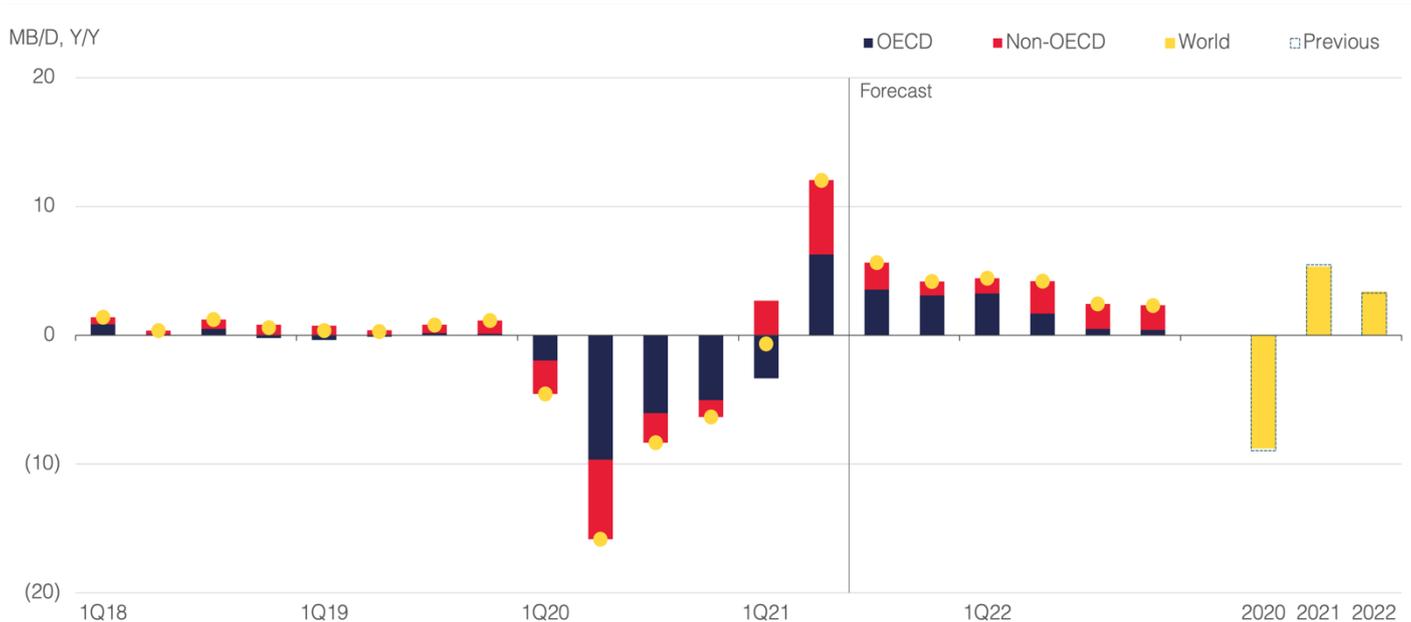
# Outlook

## Demand

### Expectations of strong oil demand rebound in H2 2021 revised downwards

Delta variant outbreaks in Asia and bottlenecks and inflationary pressures have caused a downward revision in the growth outlook of key oil importing countries.

#### Global oil demand



Source: OIES

#### Global oil demand

MB/D

	Total	Y/Y	vs 4Q19 <sup>1</sup>
<b>2020</b>	90.9	(8.8)	(6.3)
± prev	+0.09	+0.18	
<b>2021</b>	96.2	5.3	(2.1)
± prev	-0.06	-0.16	
<b>2022</b>	99.6	3.3	0.2
± prev	+0.01	+0.07	

<sup>1</sup> Compared to Q4 in each year.

### Global oil demand is set to grow by 5.3 mb/d in 2021 and 3.3 mb/d in 2022

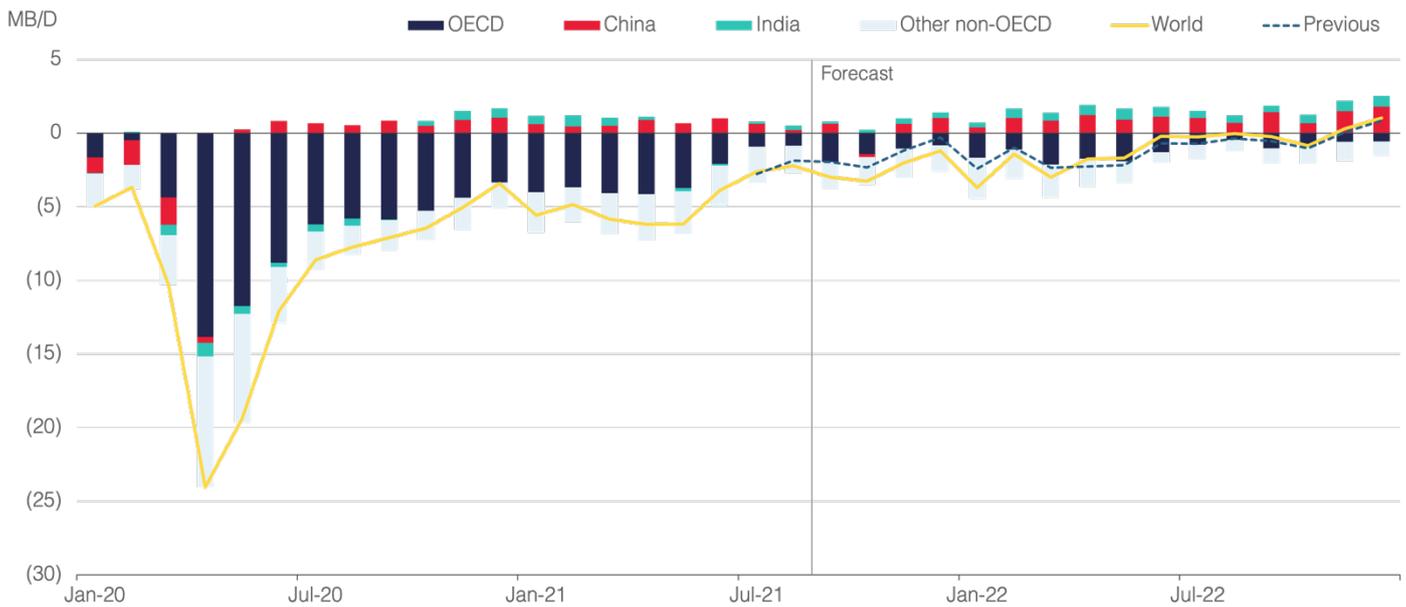
We now expect global oil demand in H2 2021 to grow by 3.9 mb/d compared to 5.1 mb/d expected ending-Q2, largely due to the greater Delta variant-driven restrictions dampening Q3 demand growth in Asia. The expected rebound in Q4 however remains strong and only marginally lower than expectations ending-Q1 2021 (-0.125 mb/d).

# Outlook

## Risks around the demand outlook are now broadly balanced

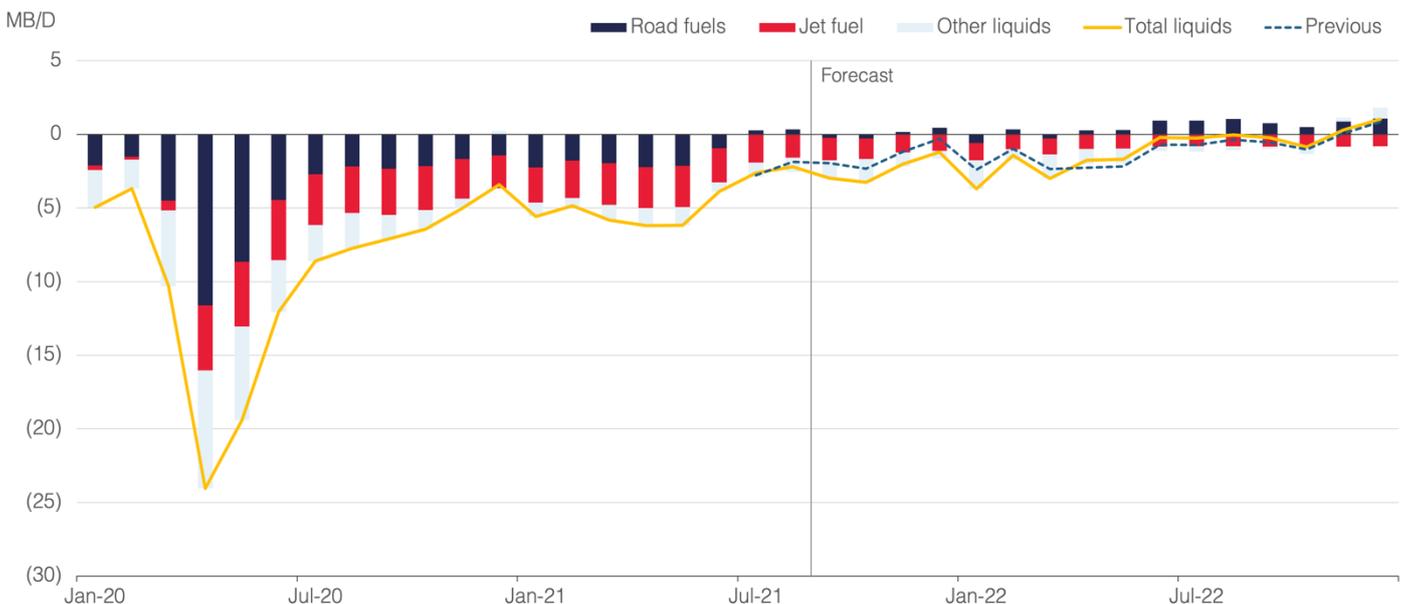
A colder-than-average winter could cause oil-switching into the power sector offsetting some of the softness in Asian oil demand growth.

### Global oil demand by region vs Dec 19



Source: OIES

### Global oil demand by sector vs Dec 19



Notes: Other liquids include fuels for other transport, commercial/residential use, industry and other uses. Source: OIES

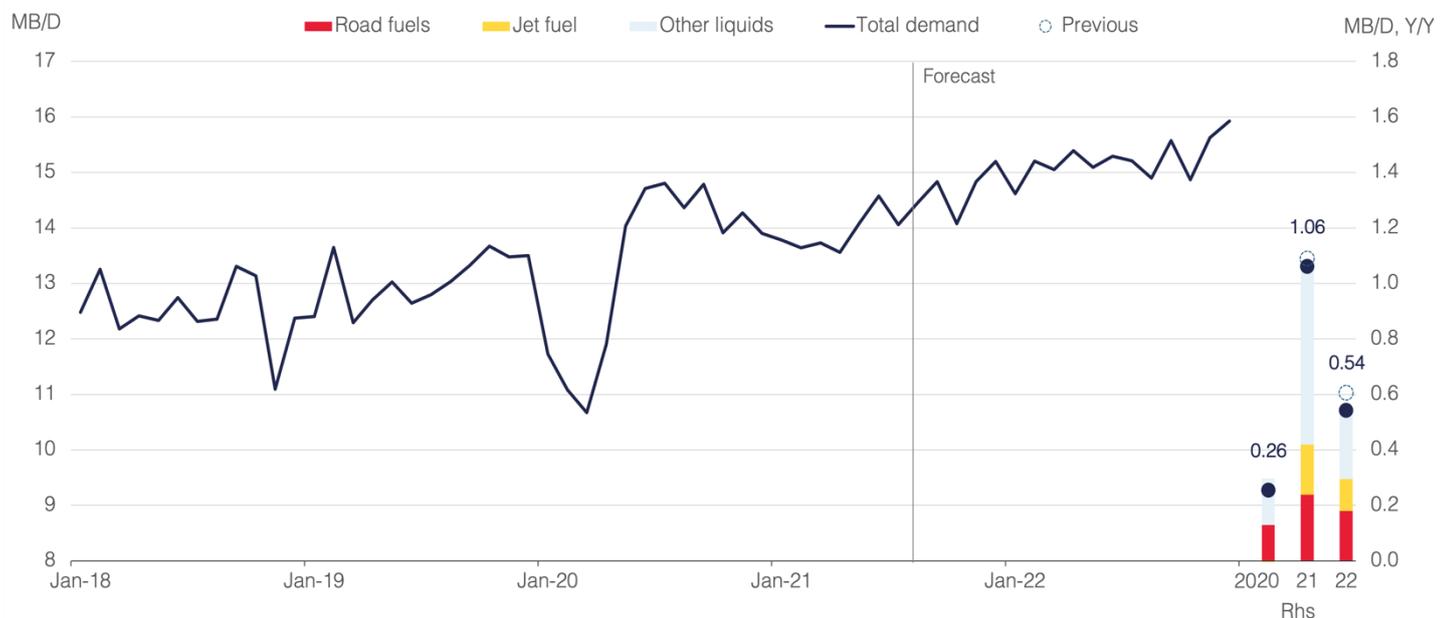
# Outlook

## China

### China's implied oil demand growth likely to remain muted

With government efforts to cool the real estate sector combined with policy-induced power outages, China's oil demand growth is likely to remain muted.

#### China implied product demand



Notes: Other liquids include fuels for other transport, commercial/residential use, industry and other uses. Source: OIES

#### China oil demand

MB/D

	Total	Y/Y	vs 4Q19 <sup>1</sup>
<b>2020</b>	13.8	0.3	0.8
± prev		+0.04	
<b>2021</b>	14.9	1.1	0.8
± prev		-0.03	
<b>2022</b>	15.4	0.5	1.7
± prev		-0.06	

<sup>1</sup> Compared to Q4 in each year.

### Product demand growth estimated at 1.1 mb/d in 2021, softening to 0.5 mb/d in 2022

Just as product demand in China is susceptible to policy whims and COVID outbreaks, domestic refining throughput continues to adjust to the newly introduced consumption tax and to changes in the demand outlook. Refiners will need to balance expectations of stronger distillate demand for additional back up diesel generation and industrial use, suggesting lower jet fuel production and exports, but gasoline use has risen the most this year.

# Outlook

## Crude imports expected to pick up on restocking

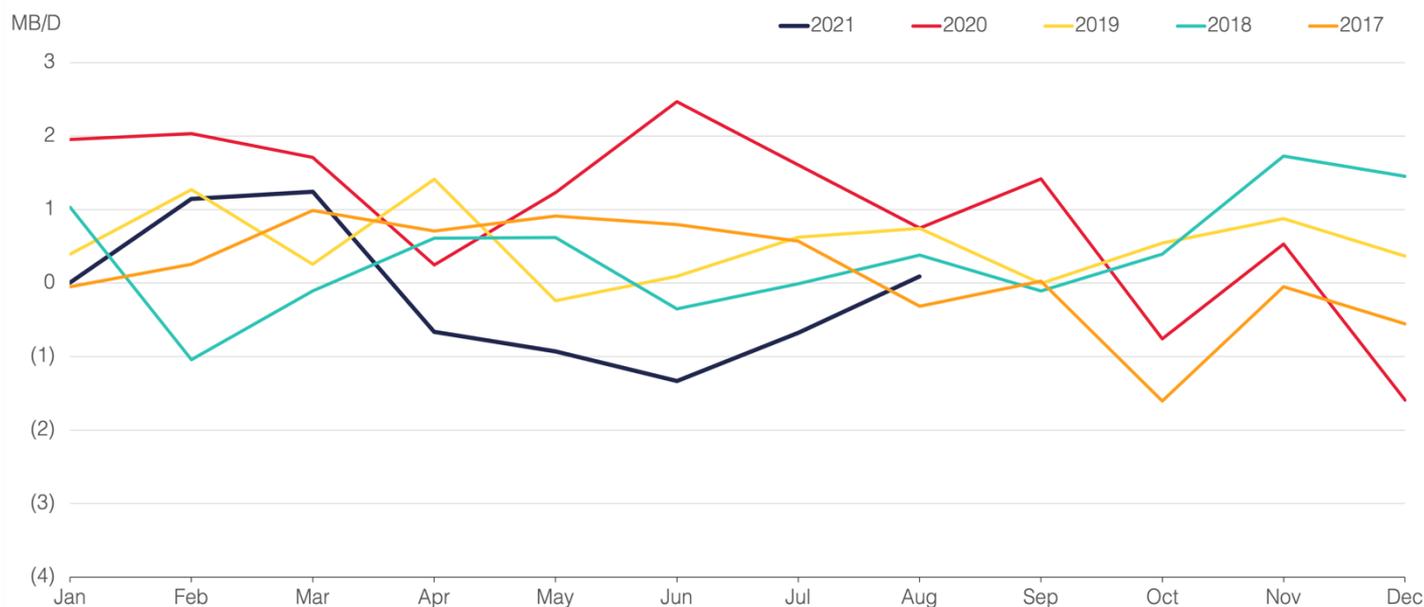
Independent refiners are reducing purchases and drawing down stocks, but they will return to the market to ensure supplies for the Chinese New Year and Winter Olympics.

### China crude imports



Source: China customs, OIES

### China implied stocks



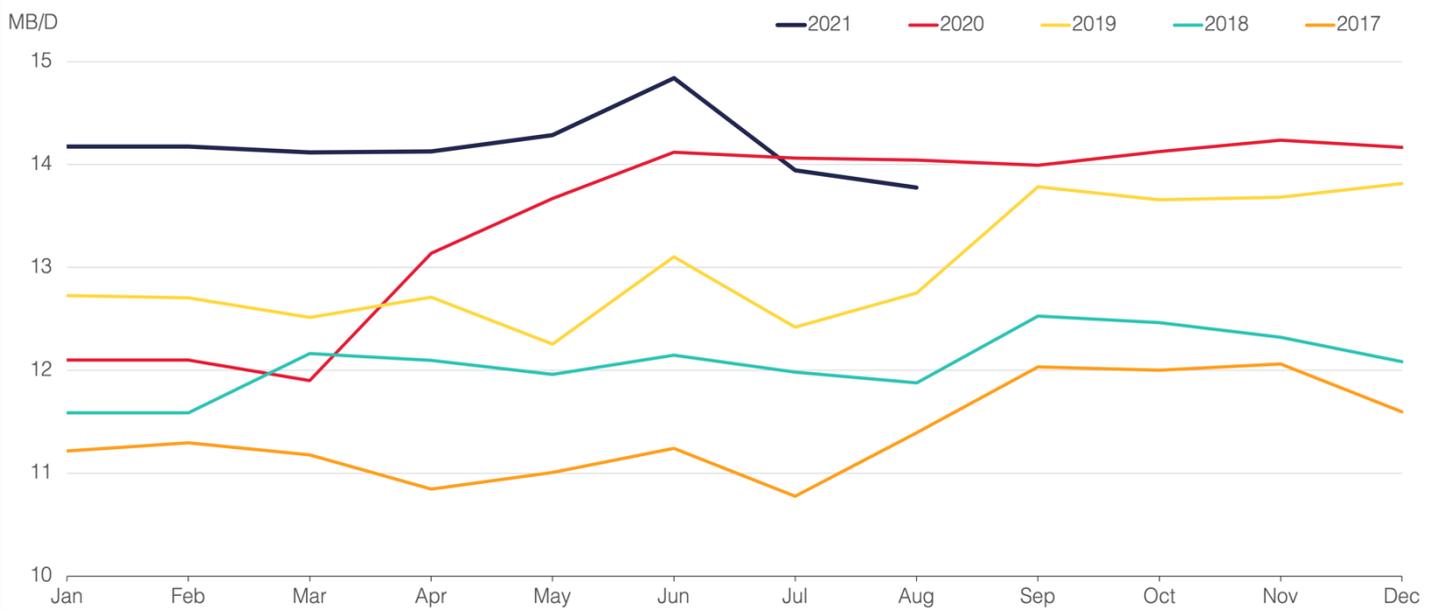
Source: China customs, OIES

# Outlook

## Refinery runs to rise only gradually

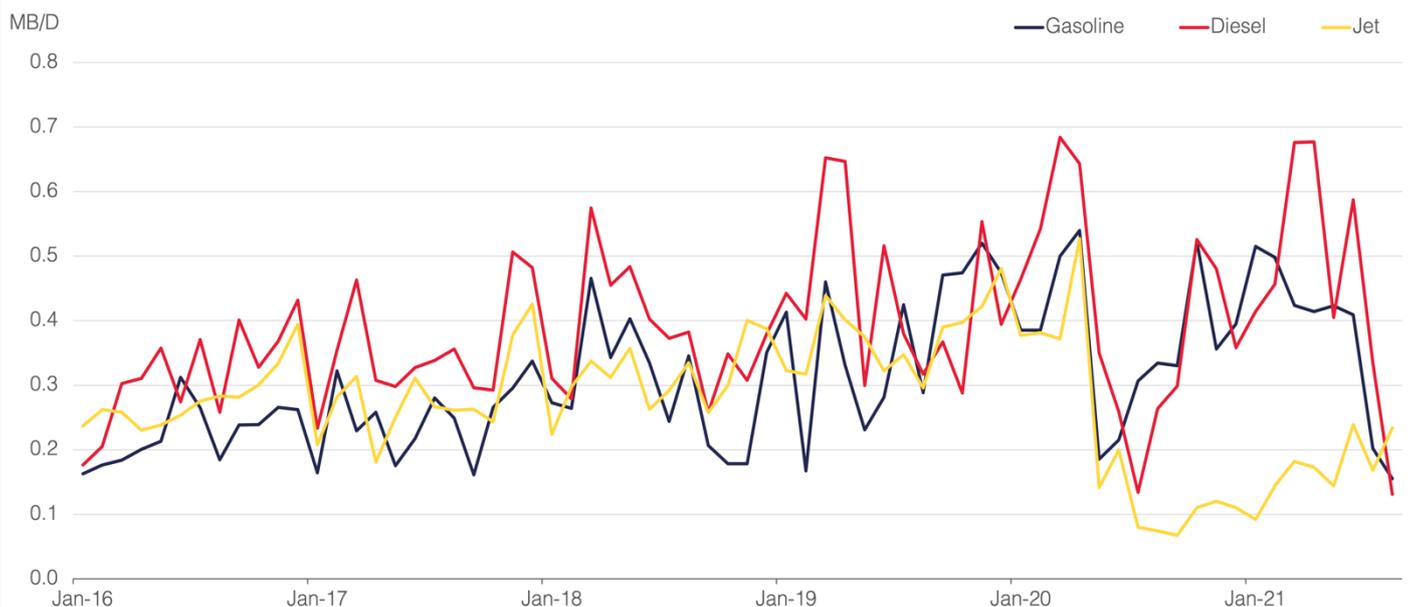
Given the uncertain outlook for demand, the power rationing in many of China's coastal provinces and limitations on exports quotas, refinery runs will increase only gradually.

### China refinery runs



Source: NBS, OIES

### China product exports



Source: China customs, OIES



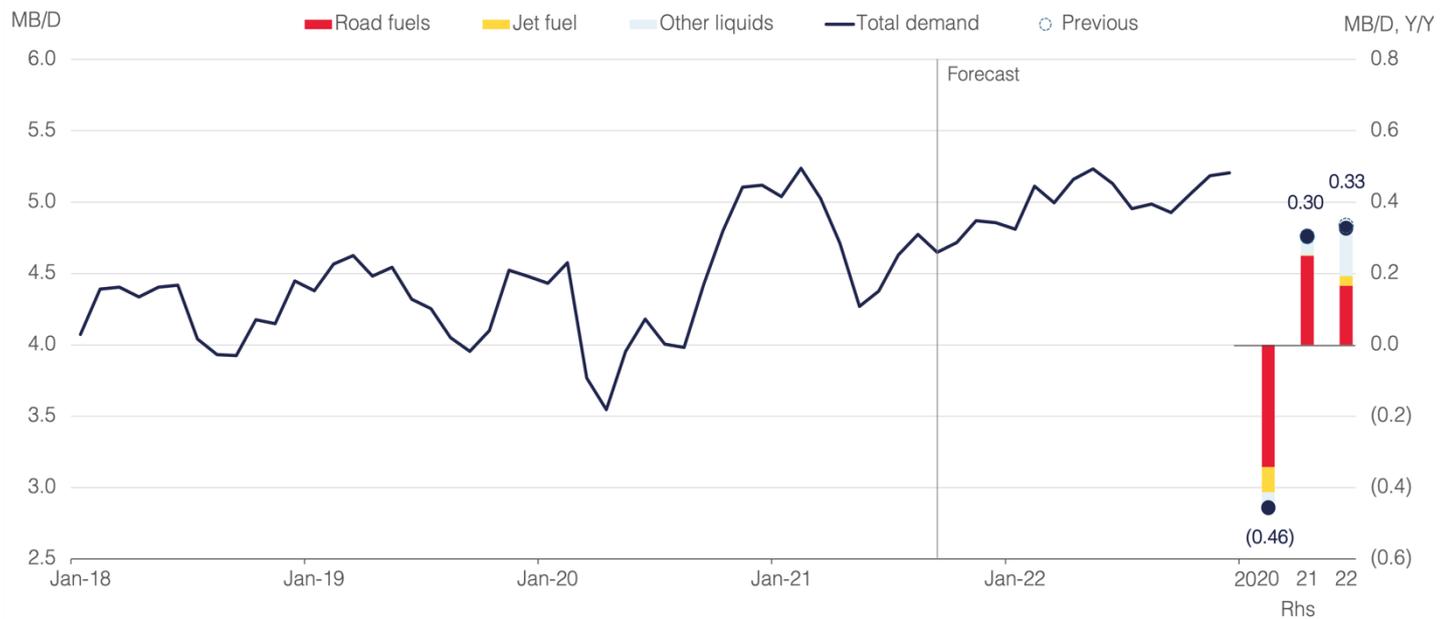
# Outlook

## India

### India’s oil demand recovery to pick-up pace in Q4

India’s oil demand rebound from the 2021 lockdown will be weaker than in 2020, as the recovery across products remains prone to setbacks.

#### India implied product demand



Notes: Other liquids include fuels for other transport, commercial/residential use, industry and other uses. Source: OIES

#### India oil demand

Year	Total	Y/Y	vs 4Q19 <sup>1</sup>
2020	4.5	(0.5)	0.0
2021	4.8	0.3	(0.1)
2022	5.2	0.3	0.3

<sup>1</sup> Compared to Q4 in each year.

### India’s oil demand growth is estimated at 0.3 mb/d in both 2021 and 2022

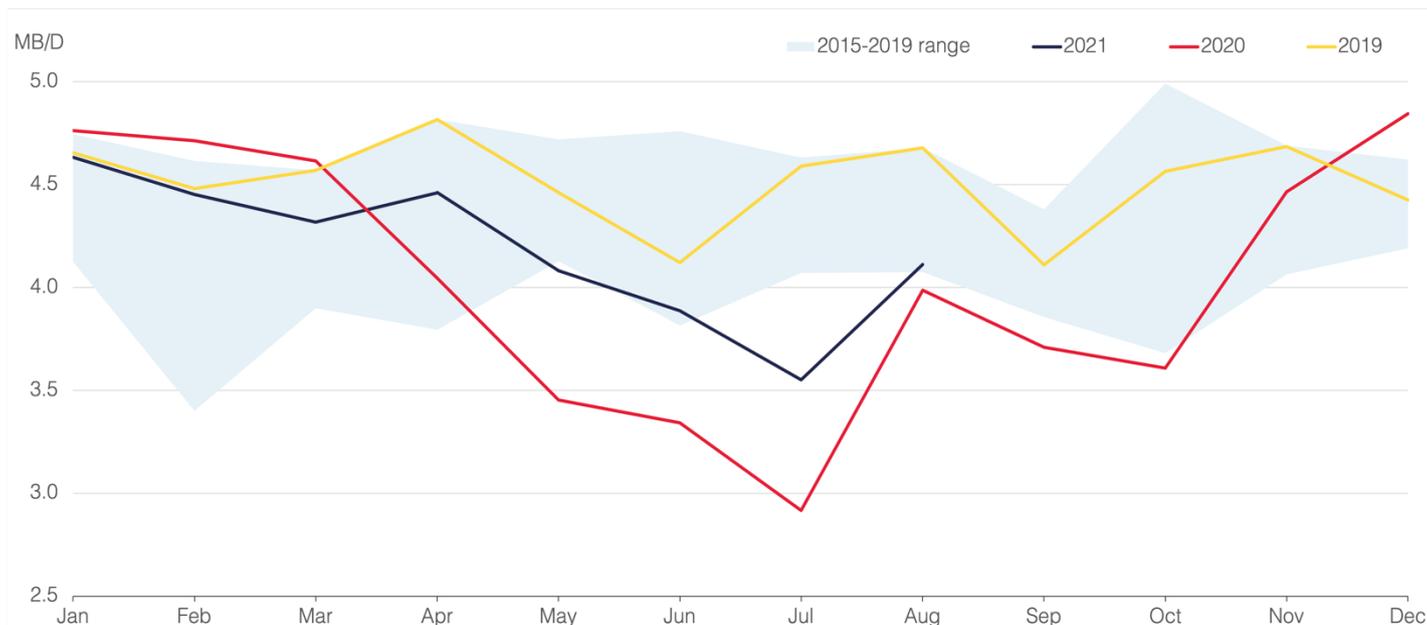
Slow vaccine progress and the fact that the demand recovery in 2021 comes on the back of successive economic shocks lead our expectations of a slower recovery this year, with India’s oil demand between Q2 and Q4 rebounding by 0.6 mb/d, compared to 1.5 mb/d in the same period last year. India’s demand is still expected to recover to pre-pandemic levels in Q1 2022 driven largely by gasoline sales.

# Outlook

## India's crude imports jump as demand rebounds from low levels in May

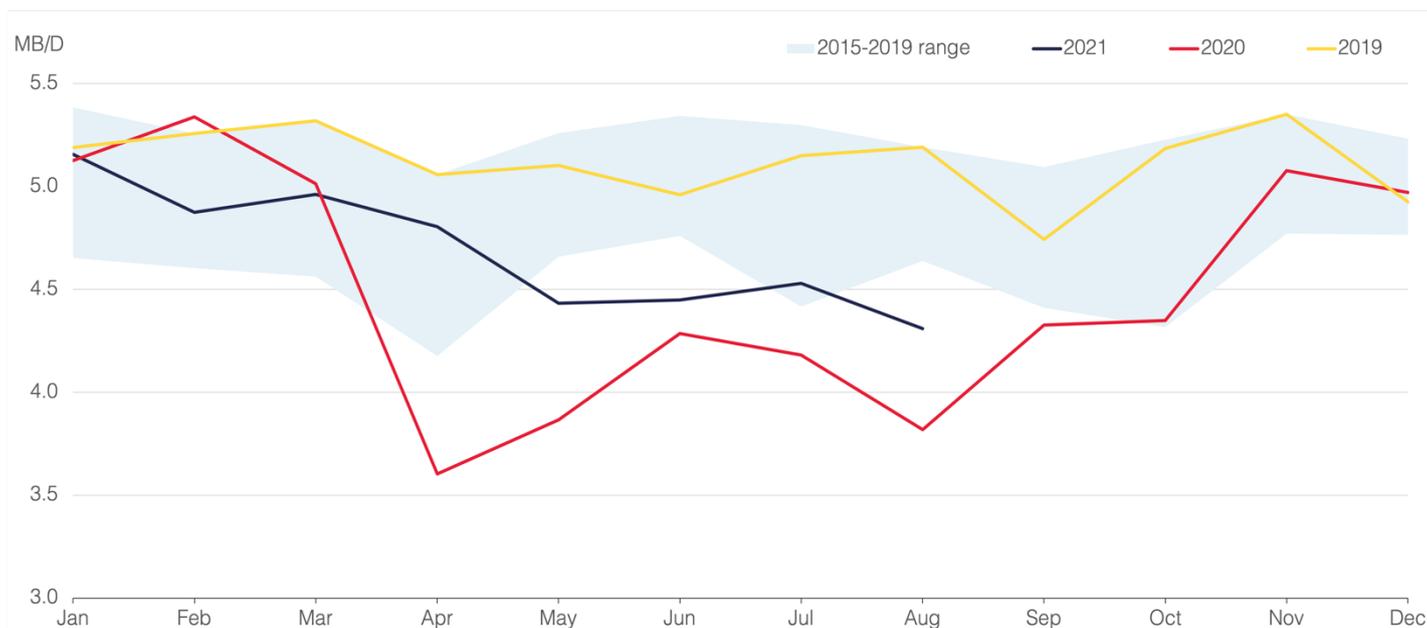
Refinery runs remain constrained by the uneven recovery across products and maintenance at some refineries.

### India crude imports



Source: PPAC, OIES

### India refinery runs



Source: PPAC, OIES



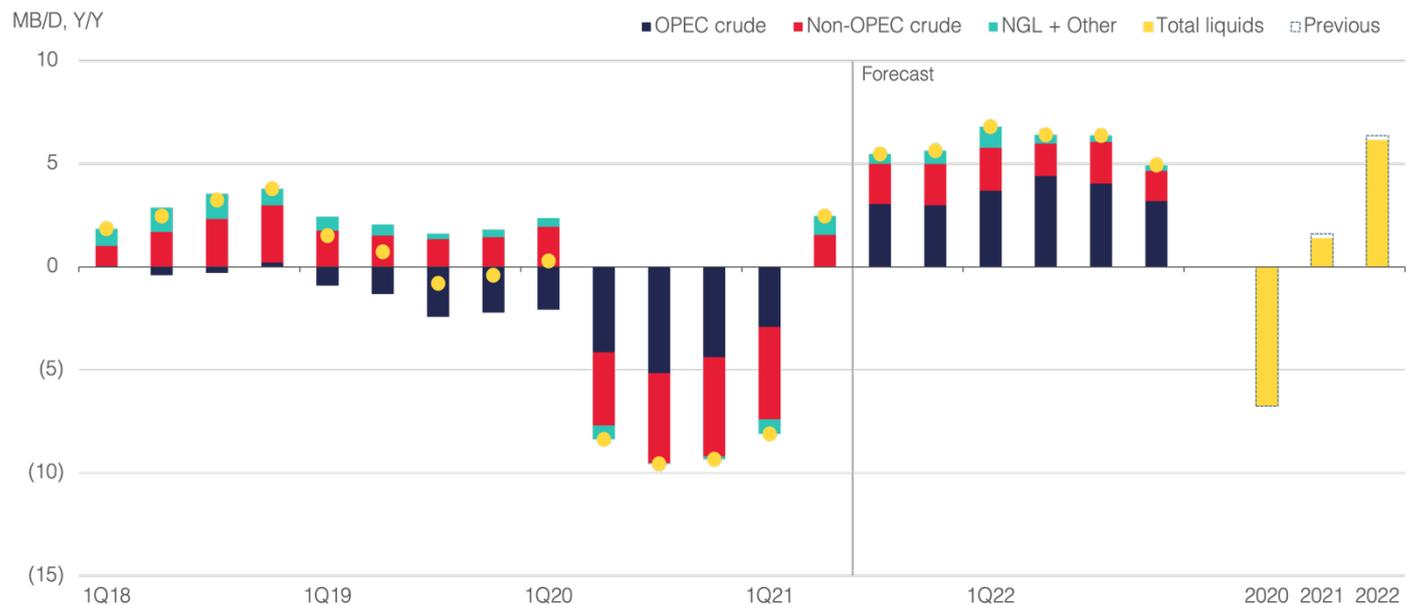
# Outlook

## Supply

### Supply outlook is downgraded but remains solid

Unplanned production outages reversed supply growth in Q3 but these are temporary and global supplies are set to resume from Q4 particularly as OPEC+ ease their cuts.

#### Global oil supply



Source: OIES

#### Global oil supply

MB/D

	Total	Y/Y	vs 4Q19 <sup>1</sup>
<b>2020</b>	93.9	(6.7)	(9.3)
± prev	0.00	+0.01	
<b>2021</b>	95.2	1.4	(3.7)
± prev	-0.23	-0.23	
<b>2022</b>	101.4	6.1	1.2
± prev	-0.47	-0.24	

<sup>1</sup> Compared to Q4 in each year.

### Global supply growth is lowered to 1.4 mb/d in 2021 and 6.1 mb/d in 2022

Unplanned production outages across producers mainly in the US, Mexico, Kazakhstan, and Nigeria have more than offset OPEC+ supply hikes in August/September (-0.63 mb/d), with global supply expected to resume to growth from October onwards. As a result, global supply growth is now lowered by 0.2 mb/d in both 2021 and 2022, with non-OPEC crude accounting for the entire downward revisions.



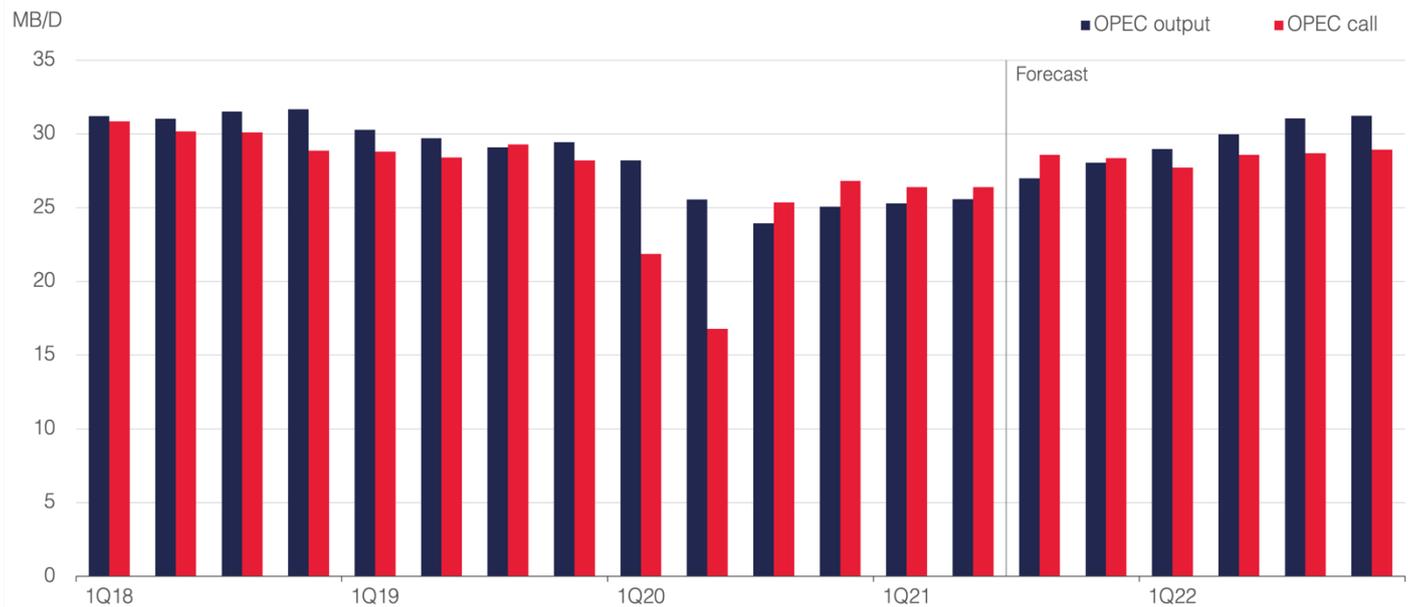
# Outlook

## OPEC

### OPEC+ sticks to its plan

OPEC+ production returns based on the set monthly increments, but it is becoming increasingly clear that most producers will struggle to reach their targets.

#### OPEC supply



Notes: Assumes 100% compliance with OPEC+ deal. Source: OIES

#### OPEC supply

MB/D

	Output	Call	± dif.
<b>2020</b>	25.7	22.7	3.0
± prev	0.00	+0.10	
<b>2021</b>	26.5	27.4	(1.0)
± prev	-0.01	+0.15	
<b>2022</b>	30.3	28.5	1.8
± prev	-0.03	+0.45	

### The OPEC call is raised to 27.4 mb/d in 2021 and to 28.5 mb/d in 2022

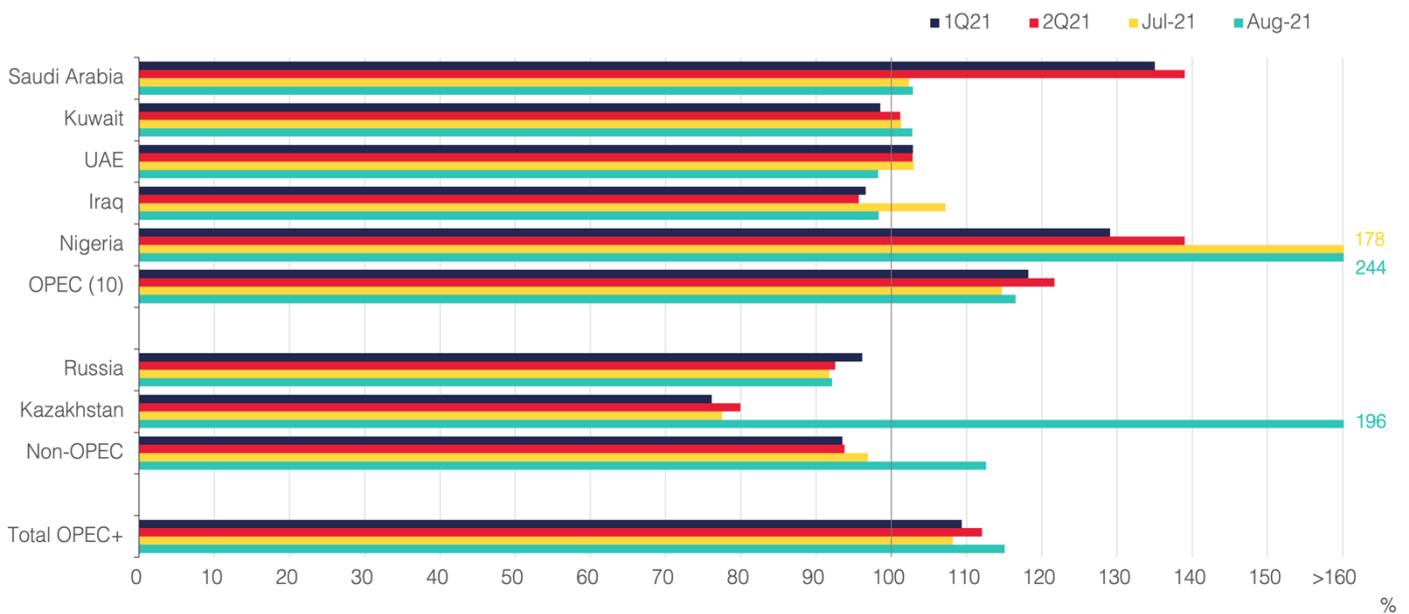
As the last phase of the OPEC+ deal progresses, only a handful can respond by uplifting production targets, which means that any deviations from set targets to the upside are difficult to reach and 'involuntary' compliance is set to rise.

# Outlook

## OPEC+ compliance becomes involuntary for most producers

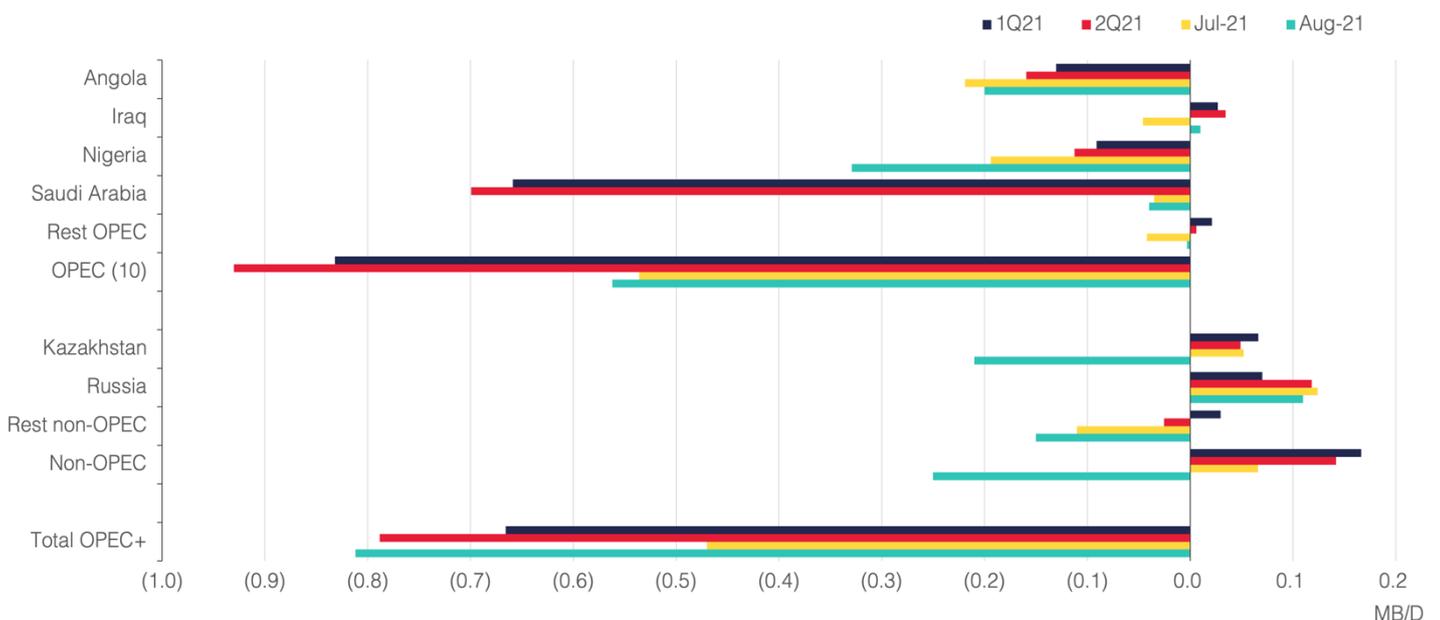
OPEC+ compliance remained strong at 115% in August with this trend expected to persist throughout as producers struggle to keep up with rising targets.

### OPEC+ output compliance



Source: OIES

### OPEC+ over/under production



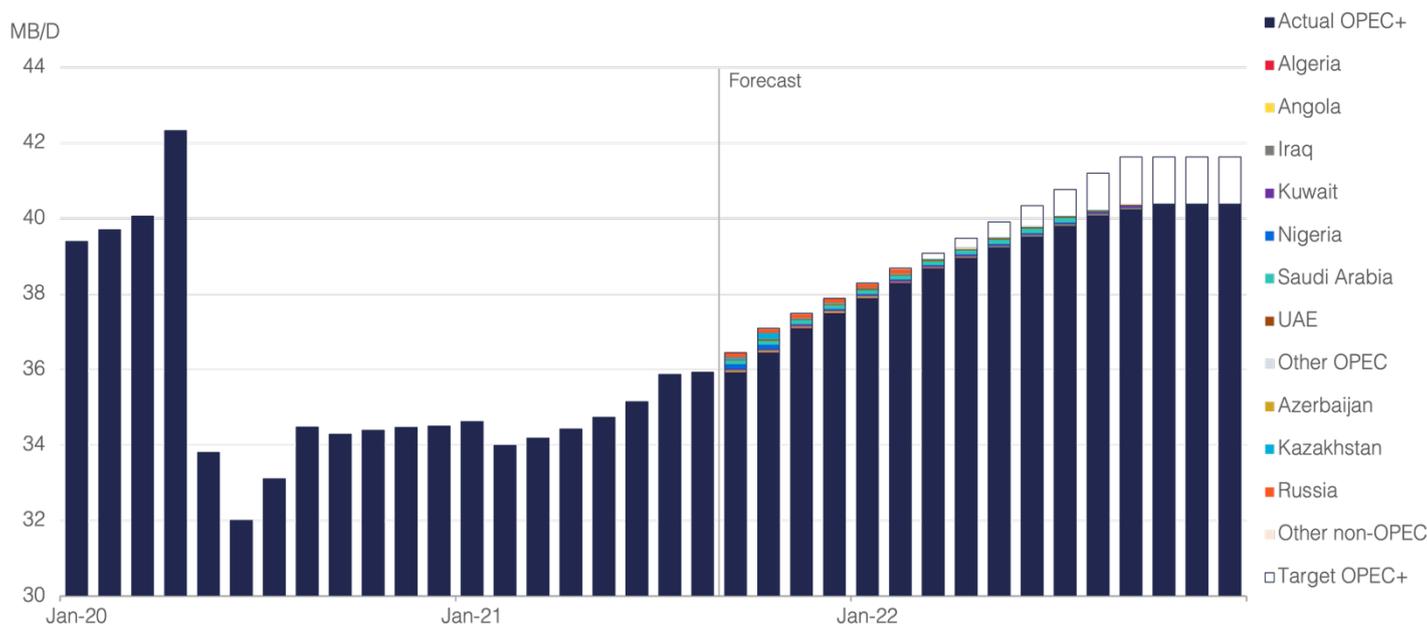
Source: OIES

# Outlook

## Actual OPEC+ barrels returning in 2022 lowered further

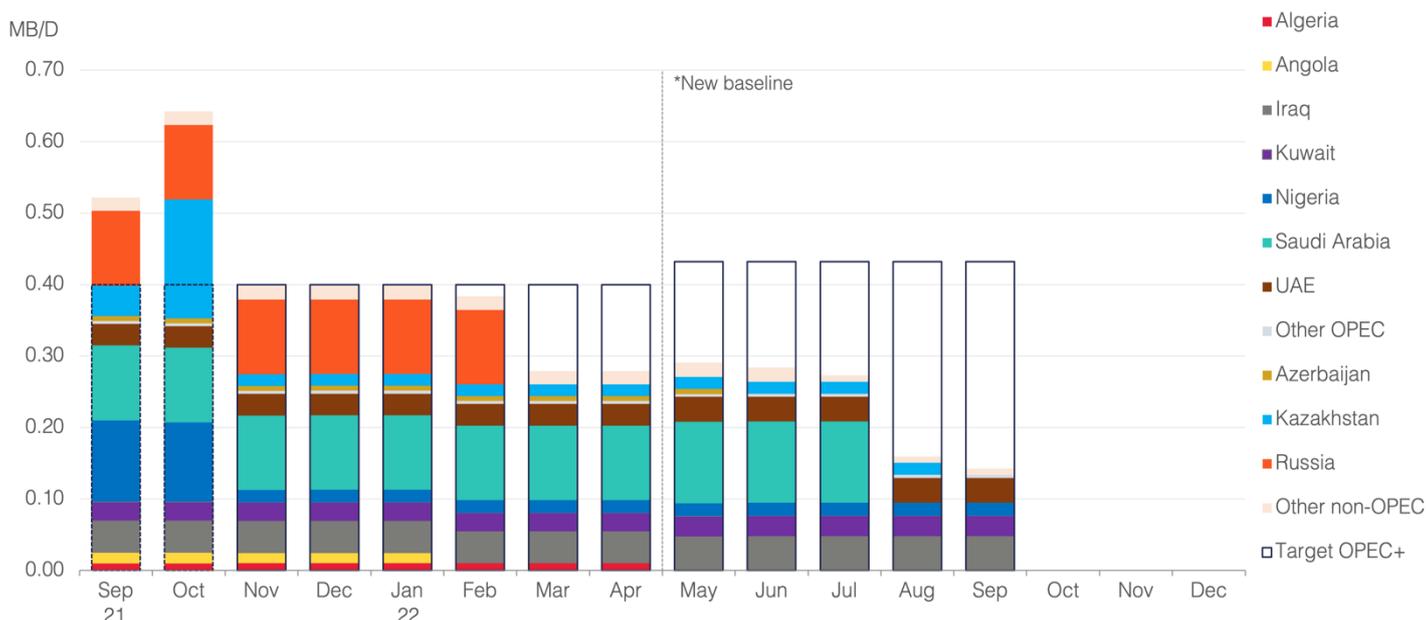
OPEC+ output in September/October is expected to recover as outages are reversed but overall figure in 2022 is lowered to 1.3 mb/d below the 5.76 mb/d target.

### Target versus projected OPEC+ production



Notes: Projected OPEC+ production levels consider implied production capacity and maximum historical production levels sustained over a period of 3 to 6 months. Source: OIES

### Target vs projected OPEC+ production increases by country



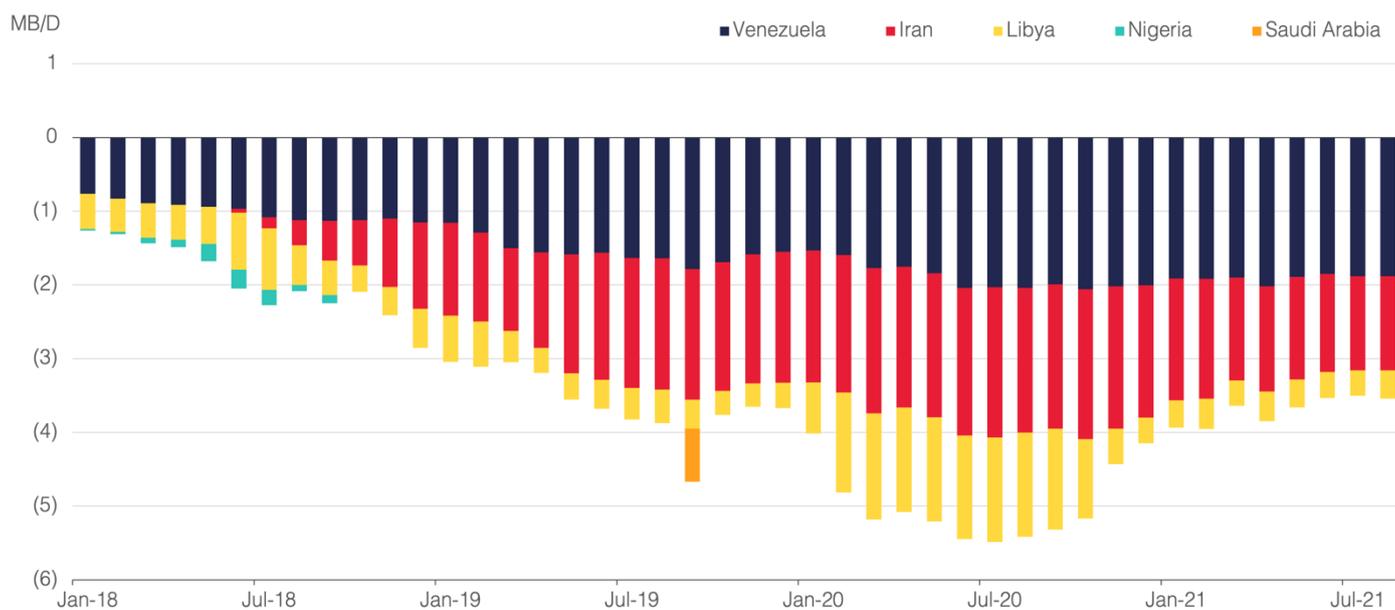
Notes: Projected OPEC+ production levels consider implied production capacity and maximum historical production levels sustained over a period of 3 to 6 months. Source: OIES

# Outlook

## Expectations of a speedy Iran nuclear deal dwindle

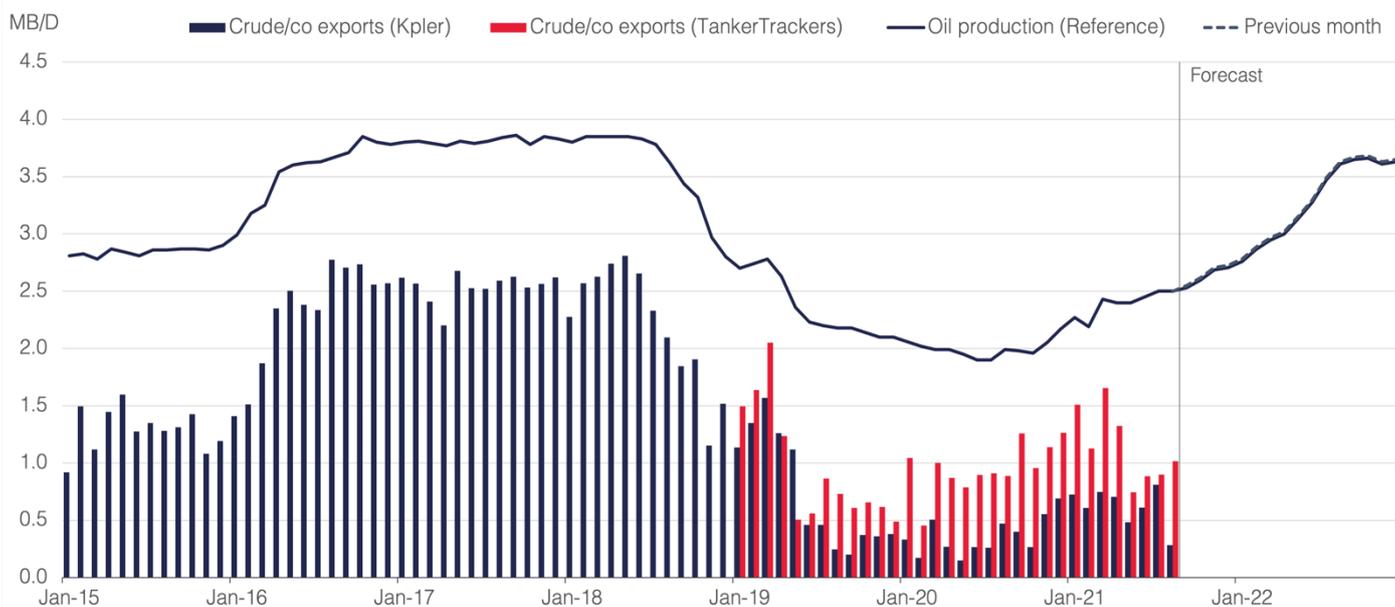
The revision in expectations as to how quickly Iran can ramp up its production is a key change in market dynamics.

### OPEC geopolitical supply disruptions



Source: OIES

### Iran oil exports and production



Source: Kpler, TankerTrackers, OIES

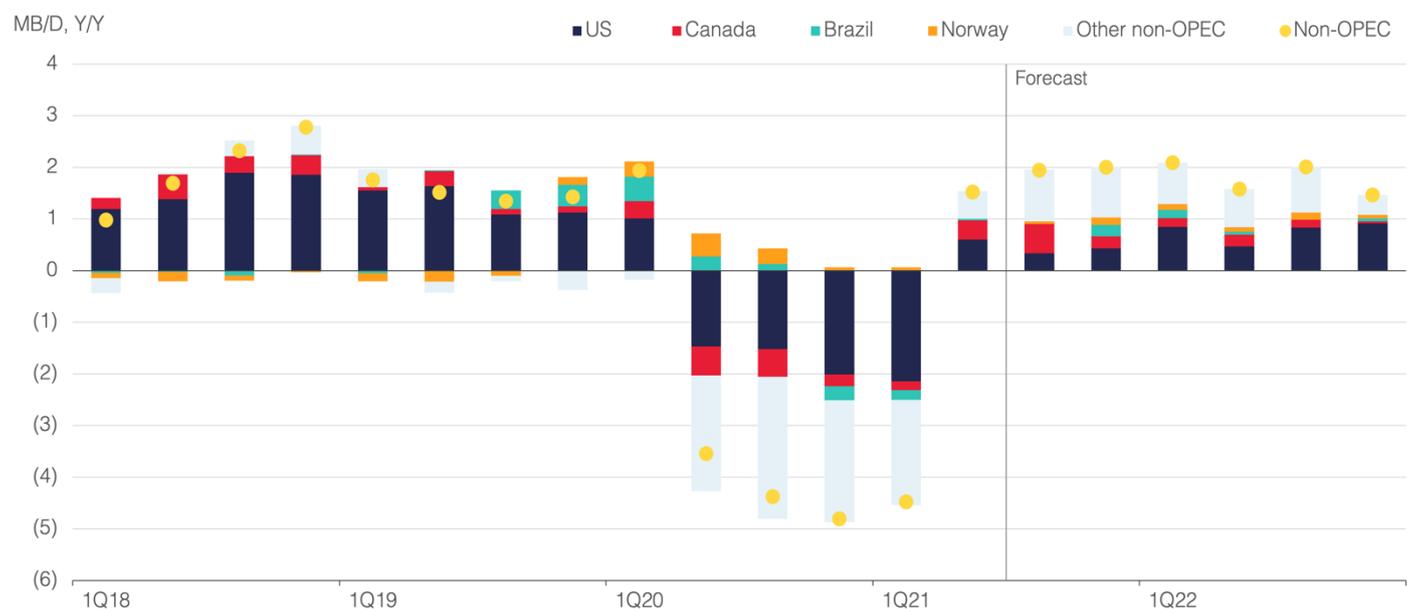
# Outlook

## Non-OPEC

### Non-OPEC supply response to elevated prices remains modest

Non-OPEC supply growth remains concentrated in a few countries with overall growth downgraded due to unplanned outages and low investment.

#### Non-OPEC supply



Notes: Crude oil only. Source: OIES

#### Non-OPEC supply<sup>1</sup>

MB/D

	Total	Y/Y	US	Y/Y
<b>2020</b>	51.2	(2.7)	11.3	(1.0)
± prev	-0.01	-0.01	0.00	0.00
<b>2021</b>	51.4	0.2	11.1	(0.2)
± prev	-0.20	-0.19	-0.04	-0.04
<b>2022</b>	53.2	1.8	11.9	0.8
± prev	-0.43	-0.23	-0.08	-0.04

<sup>1</sup> Includes crude oil and condensates only.

### Non-OPEC crude supply to grow by 0.3 mb/d in 2021 and by 1.8 mb/d in 2022

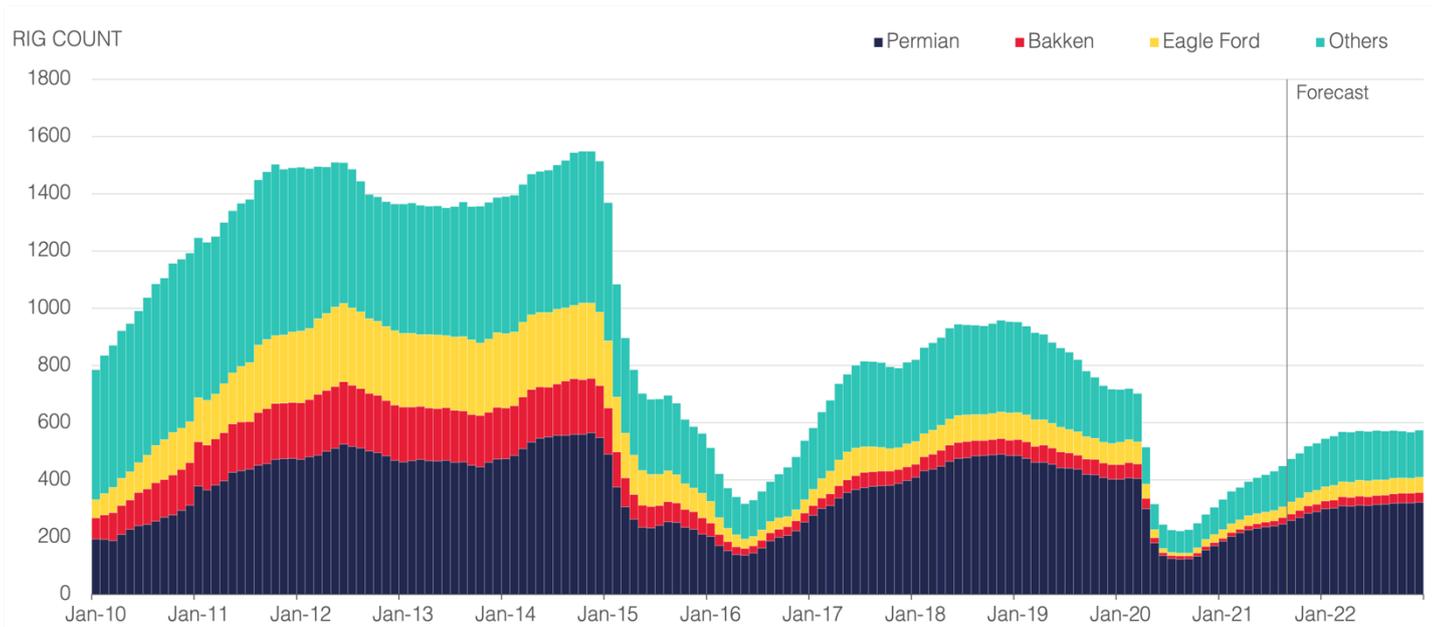
Non-OPEC supply growth in 2021 is downgraded again by 0.19 mb/d due to the impact of Hurricane Ida on US supply growth that wiped out the entire expected y/y gains in USGC for the year as a whole, and as crude production in Brazil and other non-OPEC (including non-OPEC+) continues to undershoot the forecast (-0.2 mb/d). The losses carry on in 2022 (-0.23 mb/d).

# Outlook

## US shale recovery resumes but at a slow pace

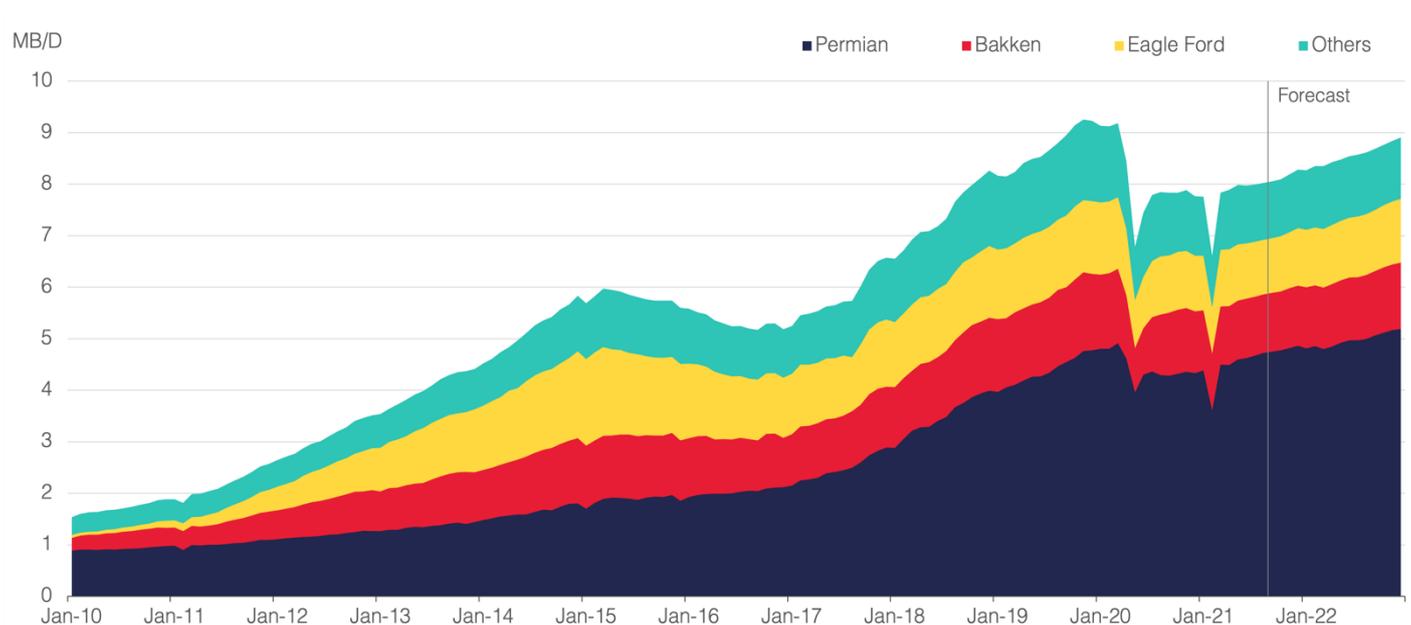
We now see US shale production resuming across all basins to year-end, with growth accelerating and mainly concentrated in the Permian.

### US shale drilling activity by play



Source: OIES

### US shale production by play



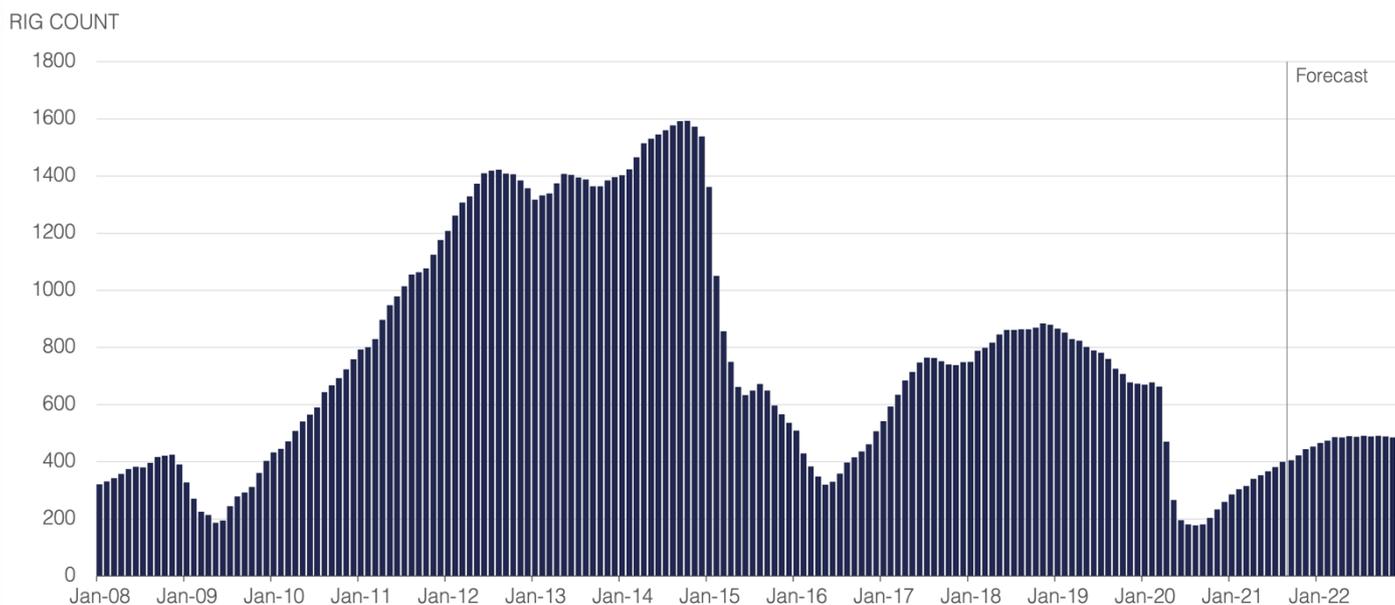
Source: OIES

# Outlook

## US to underpin non-OPEC supply growth in 2022

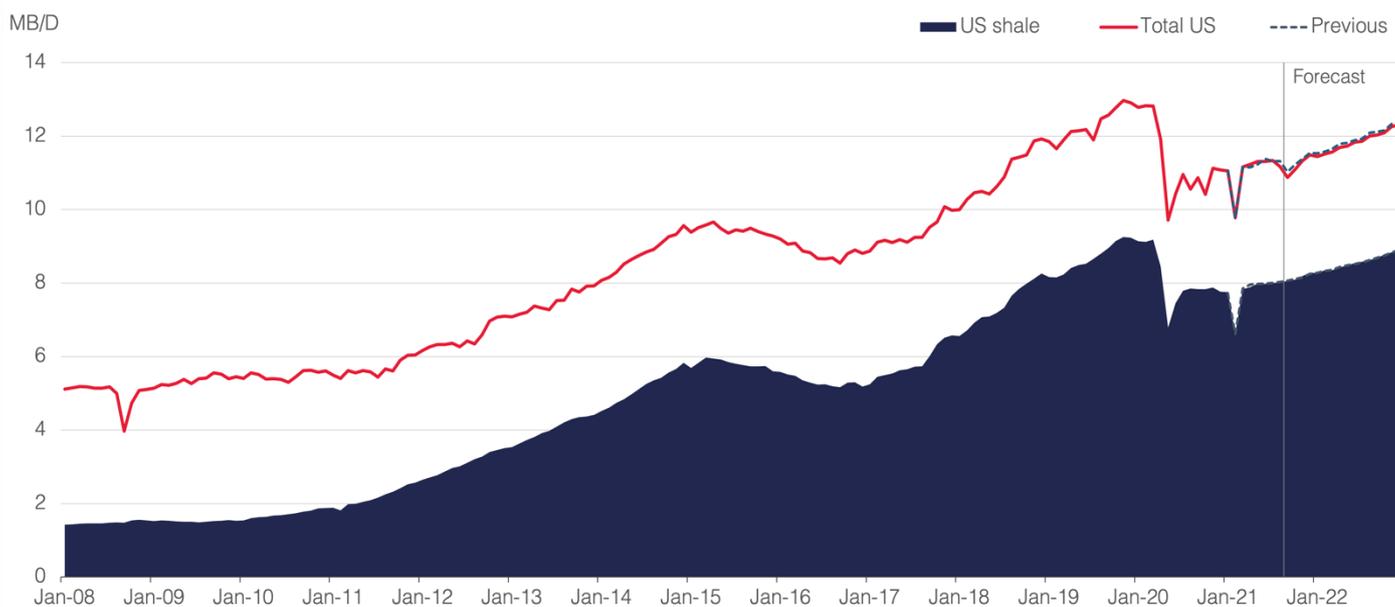
Following the hit by Hurricane Ida, US crude supply is expected to grow only by a modest 0.24 mb/d in H2 2021 but solid growth of 0.8 mb/d expected in 2022.

### US drilling activity, oil-directed



Source: OIES

### US supply



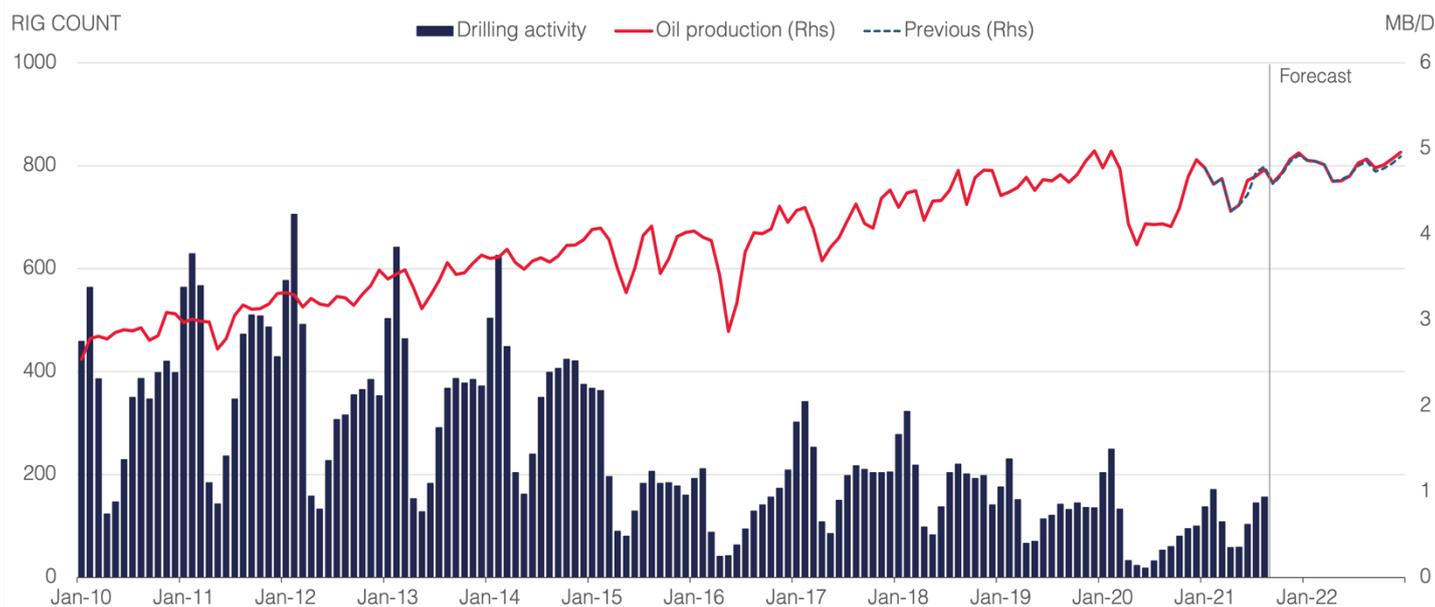
Notes: Crude oil only. Source: OIES

# Outlook

## Non-OPEC supply revival outside OPEC+ disappoints in 2021

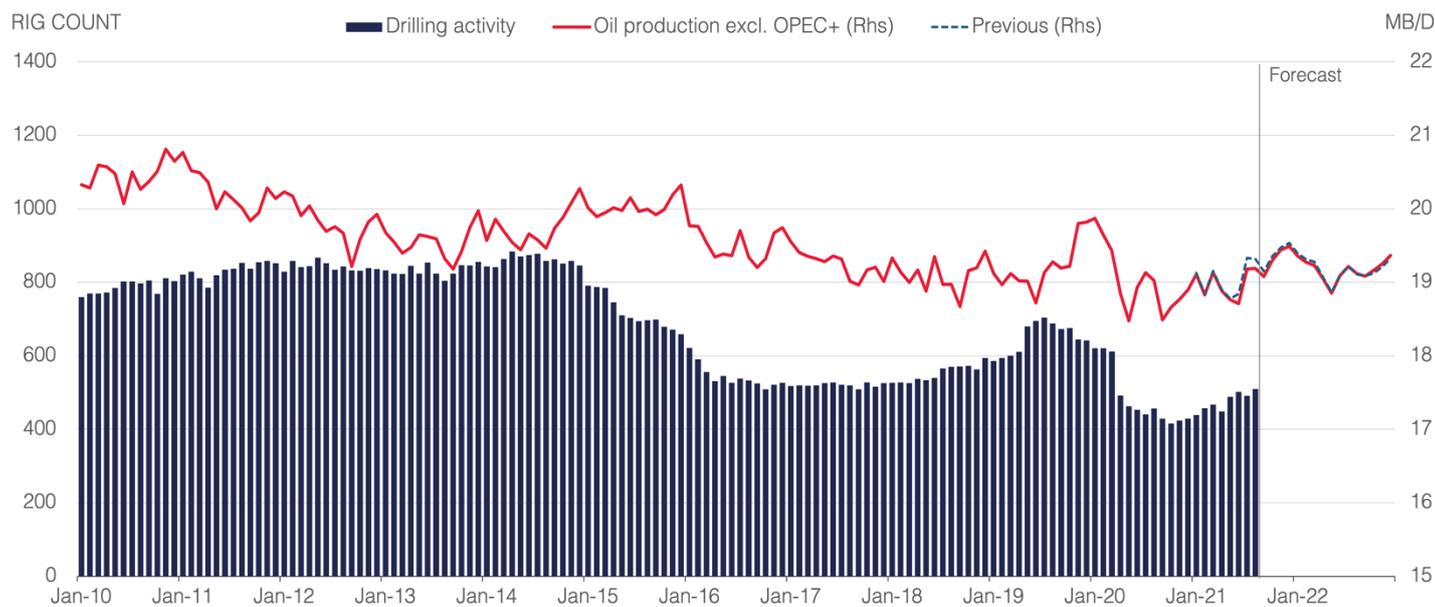
Canada is seen returning to record-highs by year end, but supply growth elsewhere underperforms, with y/y growth in Brazil and Norway gaining slightly in 2022.

### Canada supply



Source: Baker Hughes, OIES

### Non-OPEC supply outside NAM



Source: Baker Hughes, OIES



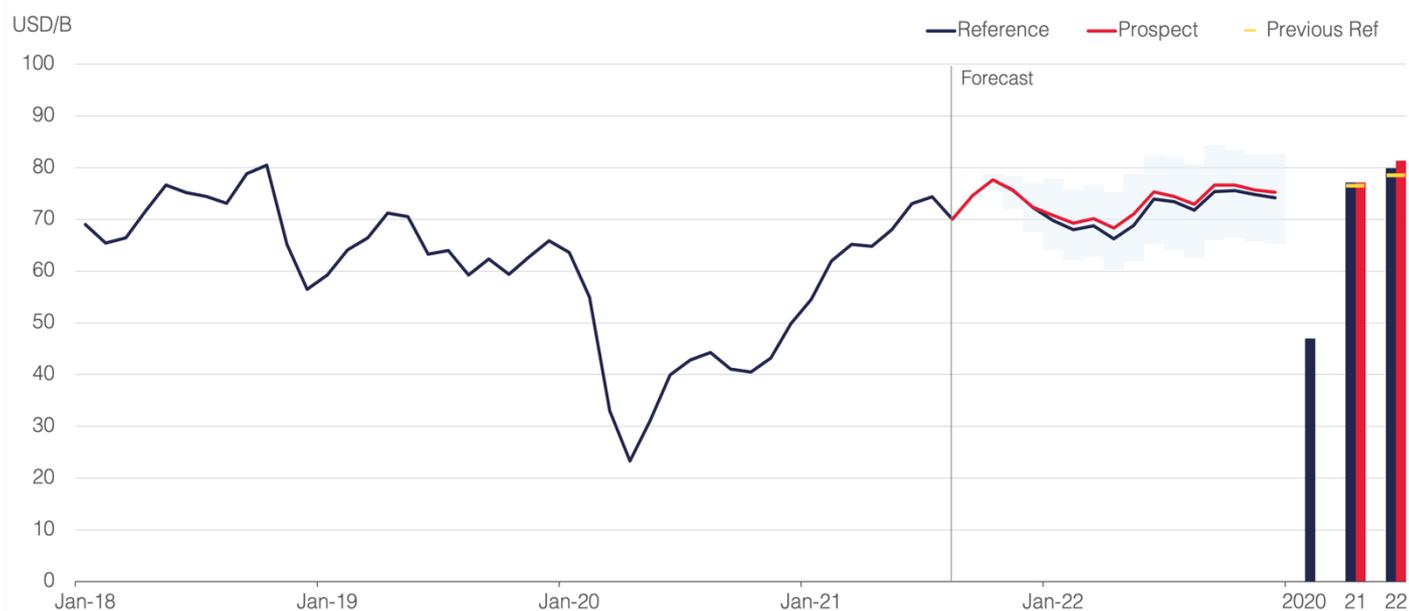
# Outlook

## Price Outlook

### Oil price upper bound moves above \$80/b

Although futures Brent has broken the \$80/b mark recently, our monthly reference forecast sees Brent retreating back into the \$70s for the remainder of 2021.

#### Brent price outlook



Source: OIES

#### Key assumptions

		2021	2022
<b>Geopolitics</b> MB/D	<b>IRN</b>	2.47	3.30
	<b>VEN</b>	0.56	0.64
	<b>LBY</b>	1.15	1.18
<b>Supply</b> %, Compliance <sup>1</sup>	<b>OPEC+</b>	100	100
	<b>GDP<sup>2</sup></b>	5.8	4.7

<sup>1</sup> Average OPEC+ compliance. <sup>2</sup> Based on Oxford Economics.

### Our Brent price outlook is upgraded to \$69.4/b in 2021 and \$71.7/b in 2022

Absent any surprises, the outlook reflects the realization that the recent supply outages tightening the market are temporary, and market balances are expected to progressively shift from deficit to surplus as restrained supplies (both voluntary and involuntary) find their way back into the market. This is expected to push prices back to the low \$70s in Q1 2022 before rebounding from Q2 onwards.



# Outlook

## Balance of Risks

### Risks to the outlook are now broadly balanced

Risks around the outlook are now balanced as supply/demand risks build in both directions, subjecting prices to heightened volatility moving forward.

#### Balance of risks



Notes: Brent price. Source: OIES

#### Balance of risks

USD/B	2021	2022
<b>Reference</b>	<b>69.4</b>	<b>71.7</b>
Supply risks <sup>1</sup>	0.6	0.6
Demand risks <sup>1</sup>	(0.6)	(0.5)
Geopolitical risks <sup>1</sup>	(0.5)	0.6
<b>Balance or risks</b>	<b>(0.5)</b>	<b>0.7</b>

<sup>1</sup> On balance.

### New supply/demand risks build on the upside, pushing risks into balance

On the supply-side, persistent supply bottlenecks both from OPEC+ and non-OPEC could limit supply growth in 2022 by 0.6 mb/d to 5.5 mb/d from 6.1 mb/d in our reference case and push the annual price higher by \$4.2/b. On the demand side, near-term oil-switching pressures for power generation, conditional on winter demand, lift upside demand risks to \$1.6/b in Q4 2021 and \$4.8/b in Q1 2022 before easing to \$4/b in the remainder of the year.



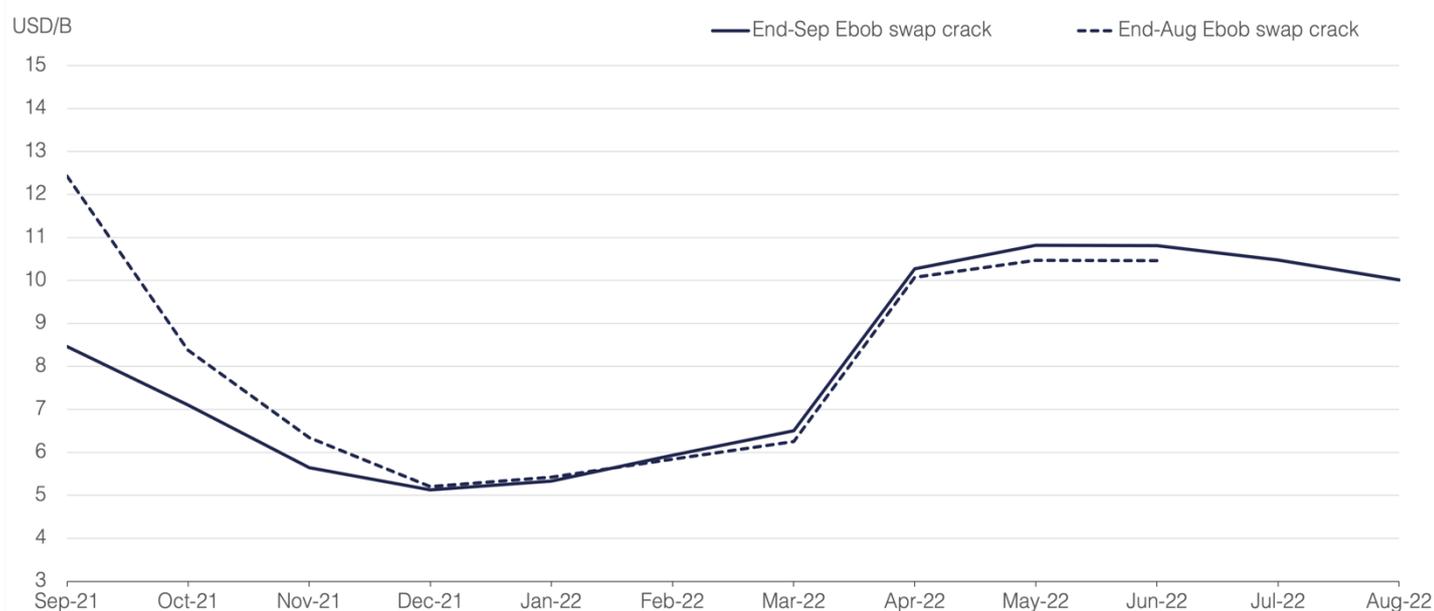
# Outlook

## Cracks

### Overall product margins pick up

UK fuel disruptions unlikely to impact wider European markets, while the start of transition to lower premium winter grades pushed lower prompt gasoline cracks.

#### European gasoline (Ebob) cracks



Source: OIES

#### Key product cracks forward curves<sup>1</sup>

USD/B

	Gasoline	Naphtha	Gasoil	FO 3.5%
<b>Oct-21</b>	7.10	0.65	10.42	(10.45)
± prev	-1.28	-0.48	+2.22	+0.27
<b>Nov-21</b>	5.64	0.71	10.70	(10.43)
± prev	-0.70	-0.03	+2.45	+0.49
<b>Dec-21</b>	5.13	0.75	11.00	(10.33)
± prev	-0.07	+0.42	+2.50	+0.65

<sup>1</sup> NWE as they appear on the graphs. OIES estimates.

### Major upward shift in the gasoil crack and jet differentials

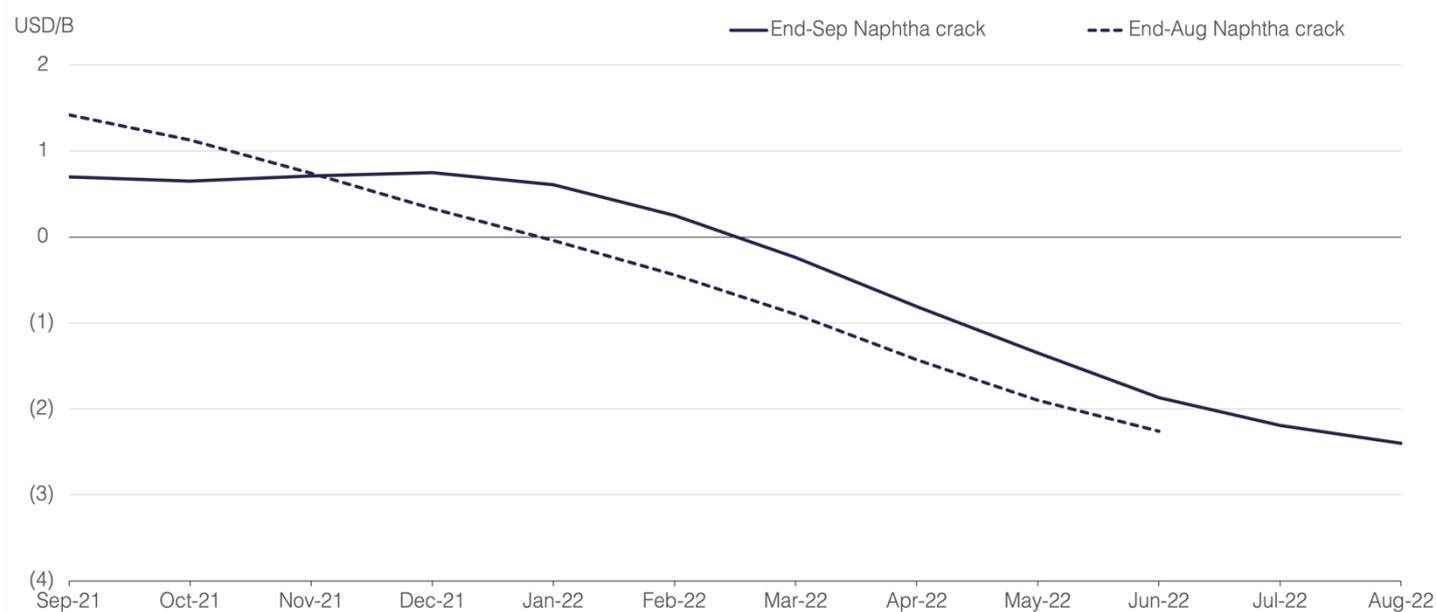
European autumn refinery maintenance is well under way, supporting the overall margins, especially distillates. European seasonal demand for heating picked up, while diesel demand in India is expected to rise in Q4 with the end of the monsoon season. At the same time, supply of gasoil from China is constrained by the lack of export quotas. Jet is supported by the rise in air passenger demand as the US ease flight restrictions.

# Outlook

## Prompt naphtha crack eased off on good European supplies

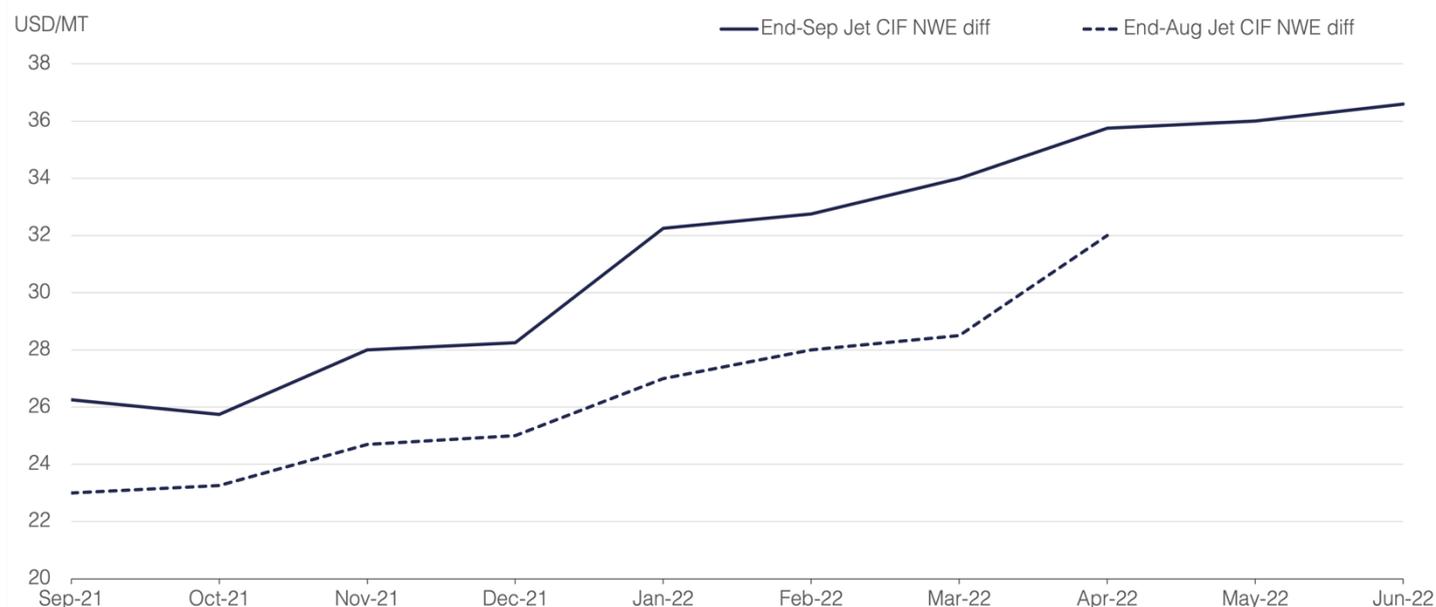
Record high gas prices are supporting LPG as refineries are running more own gas, favouring naphtha as cracker feedstock, and supporting the forward curve.

### European naphtha CIF NWE cracks



Source: OIES

### Jet CIF NWE swap diffs to gasoil



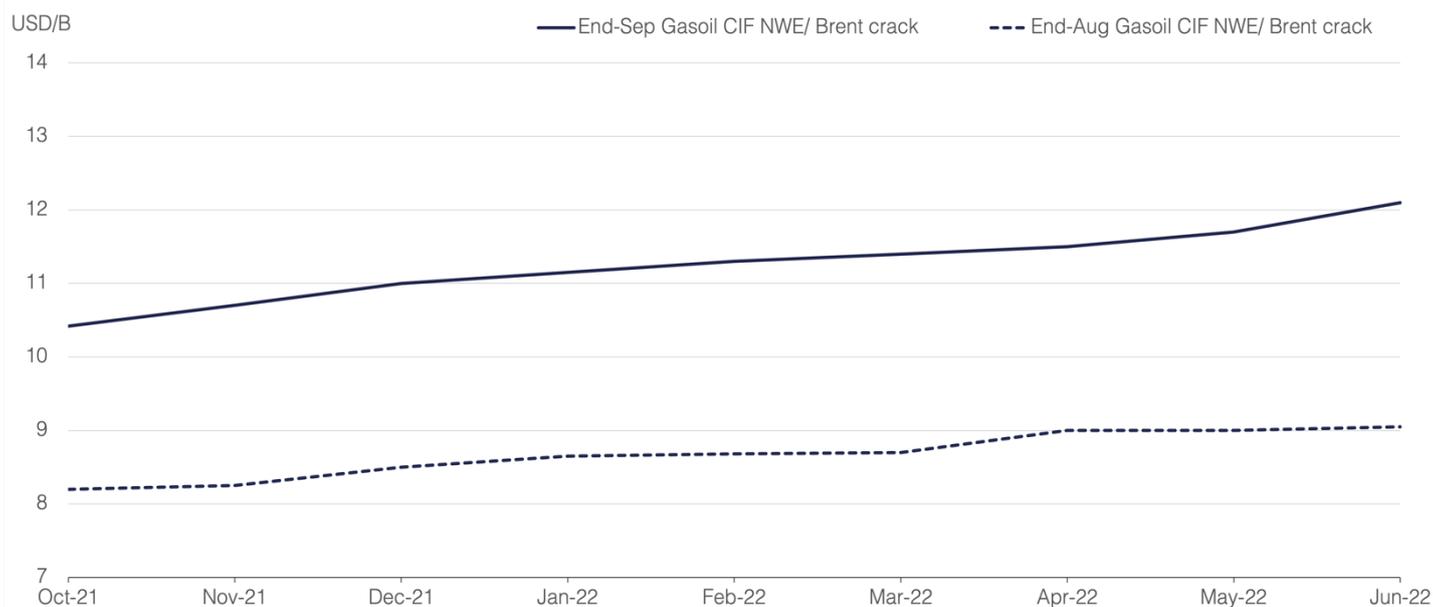
Source: OIES

# Outlook

## Stronger FO cracks down the forward curve

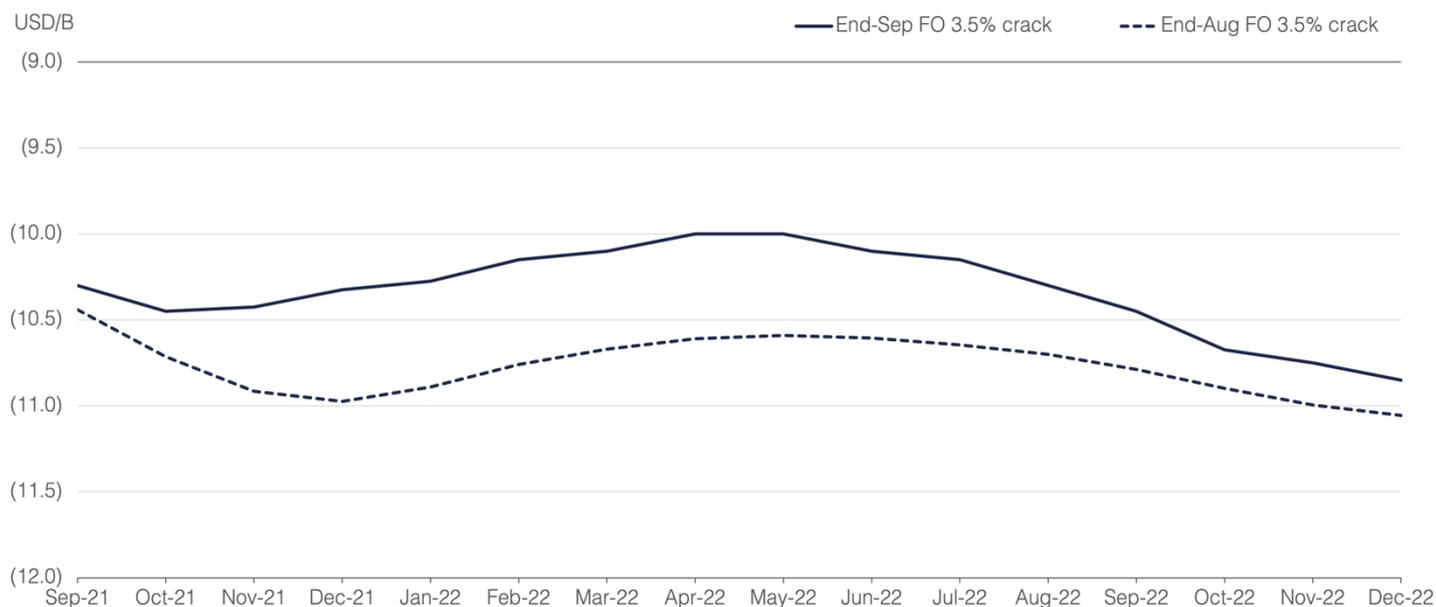
Prompt fuel oil crack eased on strong backwardation in crude oil, but the rest of the curve picked up on strong utility demand for power gen amid multi-year low levels of stocks.

### Gasoil CIF NWE / Brent crack



Source: OIES

### Fuel oil barges NWE 3.5% crack



Source: OIES



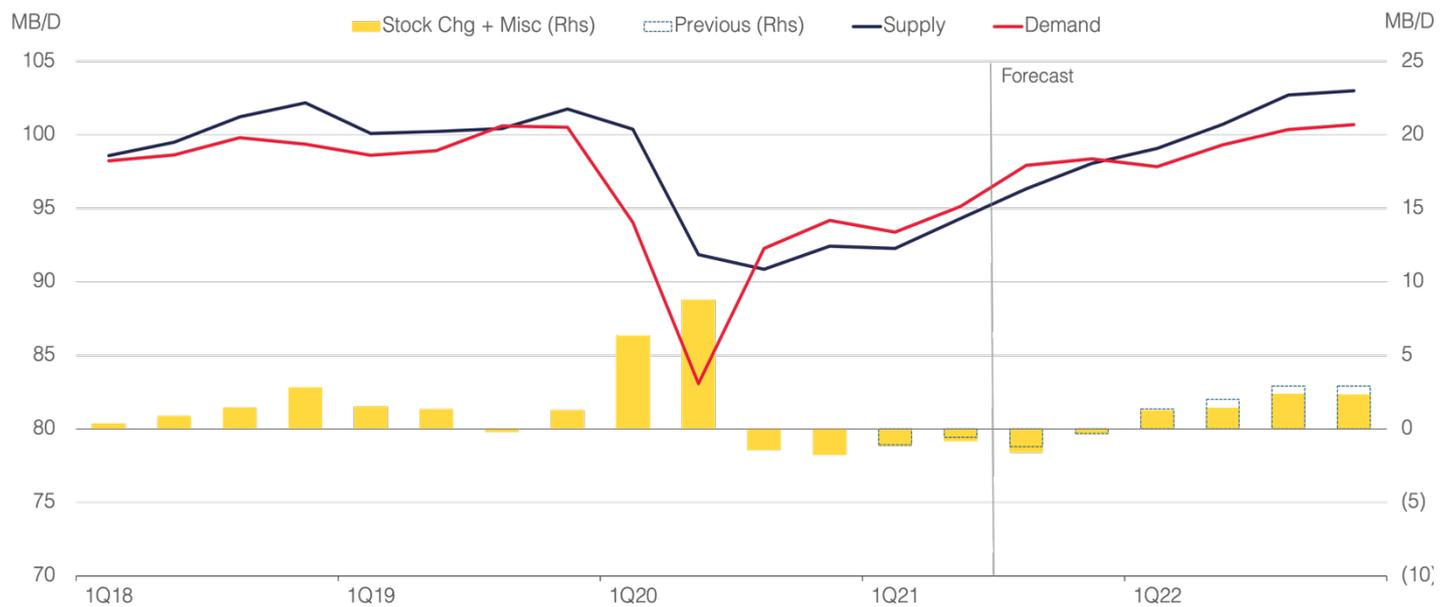
# Outlook

## Global Balance

### Supply bottlenecks begin to weigh on market surpluses in 2022

Market deficits persist in Q3 and Q4 of this year, before progressively shifting into smaller surpluses in 2022 as supply pressures begin to build from Q2 2022 onwards.

#### Global balance



Source: OIES

#### Global balance

MB/D

	Demand	Supply	Balance
<b>2020</b>	90.9	93.9	3.0
± prev	+0.09	0.00	+0.10
<b>2021</b>	96.2	95.2	(1.0)
± prev	-0.06	-0.23	-0.16
<b>2022</b>	99.6	101.4	1.8
± prev	+0.01	-0.47	-0.47

### We now project a -1.0 mb/d deficit in 2021 and a 1.8 mb/d surplus in 2022

As upside pressures build on both the supply and demand side of the market, analysis shows that favourable market conditions in 2022 could eliminate the projected surplus, leading to a balanced market (+0.03 mb/d). Accordingly, unfavourable supply/demand conditions could widen the surplus for the year by another 1 mb/d (2.9 mb/d). This wide band highlights the heightened uncertainty in 2022.



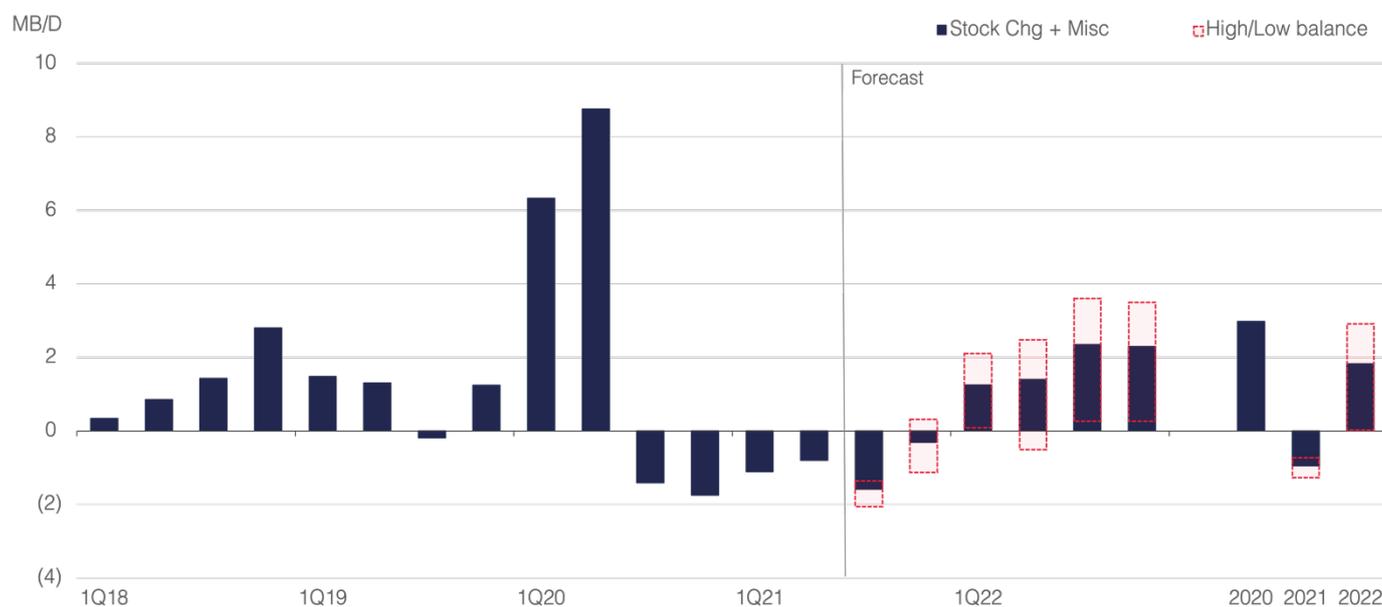
# Outlook

## Global balance risks

### Market uncertainty widens

Risks around the outlook are skewed on the upside, with supply/demand pressures expected to further narrow the projected surpluses in 2022.

#### Global balance risks



Source: OIES

Global balance			
MB/D			
	Reference	Low	High
<b>2020</b>	3.0	3.0	3.0
± ref			
<b>2021</b>	(1.0)	(1.3)	(0.7)
± ref		-0.32	+0.21
<b>2022</b>	1.8	0.0	2.9
± ref		-1.80	+1.08

## Favourable supply/demand conditions in 2022 could eliminate the projected surplus

Bullish scenarios in 2022 include a high demand recovery case where global demand grows by 4.1 mb/d (versus 3.4 mb/d in our reference), no Iranian deal and global supply grows by 5.5 mb/d (versus 6.1 mb/d in our reference). Pessimistic scenarios include a low demand recovery case where growth in 2022 averages 3 mb/d, a faster Iranian return case and higher global supply growth to 6.6 mb/d.

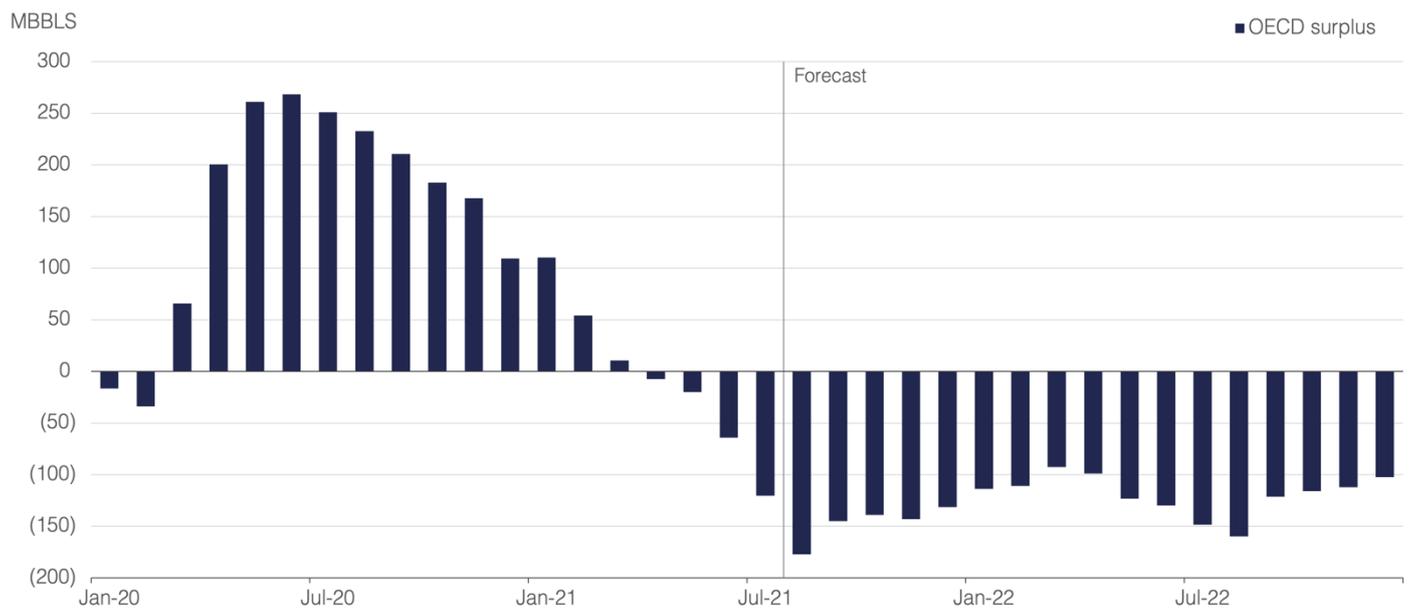


# Outlook

## Large draws of OECD stocks to ease

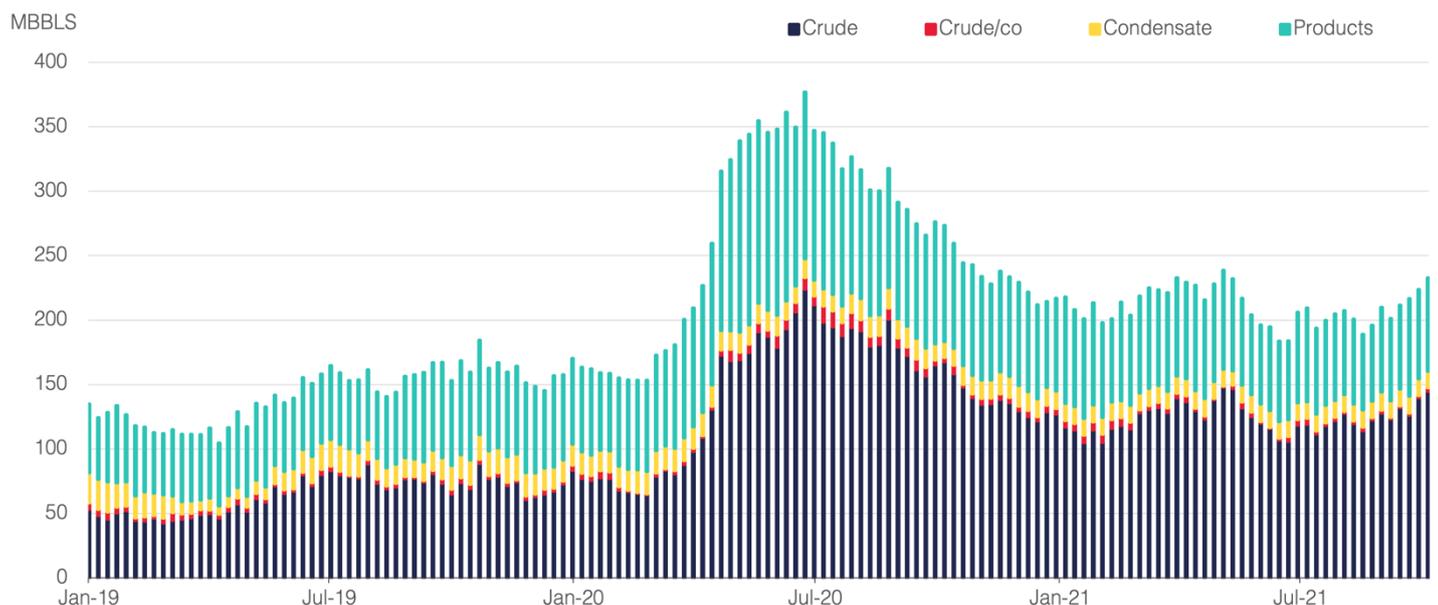
As OECD stocks continue to draw substantially, we expect the large declines to begin normalizing as the stocks surplus is being depleted and supply returns.

### OECD commercial stocks vs 2015-2019 average



Source: OIES

## Global floating storage



Source: Kpler, OIES



# Tables

## Oil prices

	2019	2020	1Q21	2Q21	Forecasts							
					3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022
<b>Price outlook</b>												
USD/b												
Brent price	64.0	42.3	60.6	68.6	73.0	75.2	69.4	68.8	69.7	73.5	74.9	71.7
Brent prospect	64.0	42.3	60.6	68.6	73.0	75.2	69.4	70.1	71.6	74.7	75.8	73.0
<b>Price drivers</b>												
USD/b												
Geopolitics	2.3	-0.6	-0.7	-0.6	-0.1	-0.7	-0.5	-0.9	0.6	1.3	1.5	0.6
Supply	4.0	10.2	4.6	-1.1	0.3	0.7	0.6	1.7	1.5	0.0	-0.9	0.6
Demand	-9.0	-21.2	5.7	8.2	-0.3	-0.6	-0.6	1.3	-0.1	-1.7	-1.7	-0.5
Speculative	-5.3	-10.1	6.4	1.6	-	-	-	-	-	-	-	-
<b>Price risks</b>												
USD/b												
Balance of risks	-	-	-	-	-0.2	-0.6	-0.5	2.1	2.1	-0.5	-1.1	0.7
Brent low	-	-	-	-	72.8	71.7	68.4	63.0	62.5	64.2	65.8	63.9
Brent high	-	-	-	-	73.1	78.0	70.1	76.8	78.8	82.4	82.9	80.2

## Global balance

	2019	2020	1Q21	2Q21	Forecasts							
					3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22	2022
<b>Global balance</b>												
mb/d												
OECD	47.9	42.2	42.3	43.9	46.0	46.1	44.6	45.6	45.6	46.5	46.5	46.0
Non-OECD	51.8	48.7	51.1	51.2	52.0	52.3	51.6	52.3	53.7	53.9	54.2	53.5
<b>Total Demand</b>	<b>99.7</b>	<b>90.9</b>	93.4	95.1	97.9	98.4	<b>96.2</b>	97.8	99.3	100.4	100.7	<b>99.6</b>
(y/y chg.)	0.7	-8.8	-0.7	12.0	5.6	4.2	5.3	4.4	4.2	2.4	2.3	3.3
OPEC	29.6	25.7	25.3	25.6	27.0	28.0	26.5	29.0	30.0	31.0	31.2	30.3
Non-OPEC	53.9	51.2	50.8	51.2	51.4	52.4	51.4	52.9	52.8	53.4	53.8	53.2
Of which:												
US	12.3	11.3	10.7	11.3	11.1	11.3	11.1	11.5	11.7	12.0	12.2	11.9
Brazil	2.8	2.9	2.8	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.0
Canada	4.6	4.4	4.7	4.4	4.7	4.8	4.7	4.8	4.6	4.8	4.9	4.8
Norway	1.4	1.7	1.8	1.7	1.7	1.9	1.8	1.9	1.8	1.9	1.9	1.9
Others	32.7	30.8	30.8	30.9	30.8	31.3	31.0	31.6	31.6	31.7	31.7	31.7
<b>Total crude</b>	<b>83.5</b>	<b>76.9</b>	76.0	76.8	78.4	80.4	<b>77.9</b>	81.8	82.7	84.4	85.1	<b>83.5</b>
NGLs	13.6	13.6	13.3	13.9	13.9	14.0	13.8	14.0	14.1	14.2	14.2	14.1
Biofuels/Misc.	3.5	3.4	2.9	3.7	4.0	3.6	3.6	3.3	3.8	4.1	3.7	3.7
<b>Total Supply</b>	<b>100.6</b>	<b>93.9</b>	92.3	94.3	96.3	98.1	<b>95.2</b>	99.1	100.7	102.7	103.0	<b>101.4</b>
(y/y chg.)	0.3	-6.7	-8.1	2.5	5.5	5.6	1.4	6.8	6.4	6.4	4.9	6.1
<b>Global Balance</b>	<b>1.0</b>	<b>3.0</b>	-1.1	-0.8	-1.6	-0.3	<b>-1.0</b>	1.3	1.4	2.4	2.3	<b>1.8</b>
Memo:												
OPEC call	28.7	22.7	26.4	26.4	28.6	28.4	27.4	27.7	28.6	28.7	28.9	28.5

Notes:

- 1/ OPEC estimates are based on current membership throughout. Assumes 100% compliance with OPEC+ deal.
- 2/ Non-OPEC crude supply includes crude oil, condensate and processing gains. OPEC includes crude oil only.
- 3/ NGLs and biofuels/misc. are global estimates and are excluded from OPEC, non-OPEC and country-specific crude supply estimates.
- 4/ Global balance is equivalent to global stock change.
- 5/ The OPEC Call equals the arithmetic difference between total demand and non-OPEC crude plus NGLs and other liquids.



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