



THE OXFORD
INSTITUTE
FOR ENERGY
STUDIES

Short-Term
Outlook

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In Focus

US shale: A disruptive force?

Bassam Fattouh and Andreas Economou argue that as US shale production recovers from its lows in 2020, the longer lags between the price, rig count and output, among other factors, imply that US shale will not disrupt oil balances in 2021. But as we enter 2022, the US shale response becomes a major source of uncertainty amid an uneven recovery across shale plays and players alike. As in previous cycles, US shale will remain a key factor shaping market outcomes.

2020 was a particularly tough year for US shale producers. The sharp fall in oil prices and WTI futures trading at a negative price on April 20th worsened the prospects for an already heavily challenged sector. Investors' sentiment was already shifting as the industry continued to burn cash and accumulate debt. The environmental record of the US shale industry has also come under close scrutiny. The mantra of growing production at any cost fell out of favour and the focus shifted towards returns, reducing debt and returning money to shareholders through dividends and buybacks.

Unlike the 2014–2016 price cycle, the production response has been sharp and fast: US shale output fell from its peak of 9.2 mb/d in November 2019 to 6.8 mb/d in May 2020, a staggering 2.4 mb/d drop, as producers were forced to shut in wells; rig count in 2020 fell to 393 rigs, at their lowest annual average level since 2008 and a y/y decline of 449 rigs; well completions declined by 75 per cent within a quarter (June vs March 2020); and the total number of North American E&P bankruptcies exceeded 250 for the first time since 2015, with producer bankruptcies in 2020 totaling 46, second only to 2016 when filings reached 70.¹ RBN Energy estimates that in the first half of 2020, the 36 E&P companies they track reported \$45 billion in losses (including impairments).²

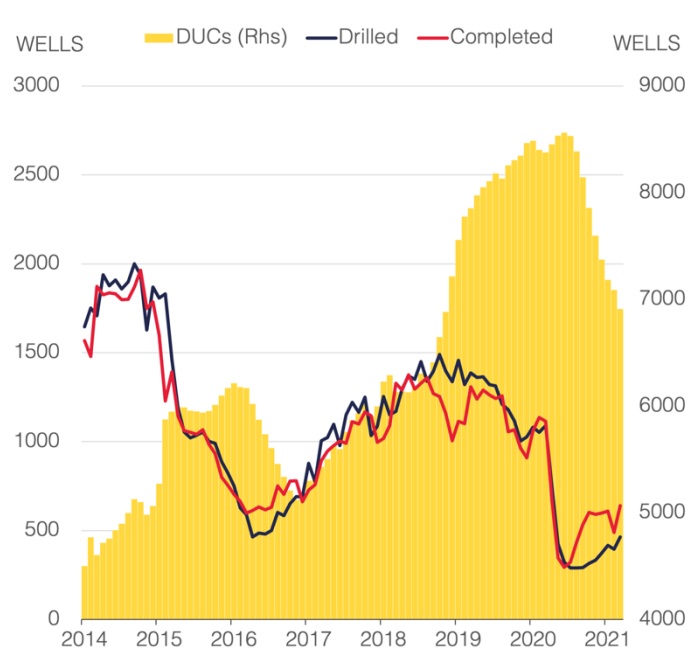
A slow recovery

As prices started recovering in May 2020, shut-in wells were brought back into production and output recovered, though the rig count did not stabilize until later in the year, hitting its lowest monthly average since January 2007, 222 rigs in August. To preserve cash flows, the industry resorted to completing the unusually high inventory of Drilled but Uncompleted (DUCs) wells which provided support for fracking activity. DUCs peaked at 8,564 in June 2020 but were drawn down during the rest of the year and into 2021 reaching 6,912 in March 2021 (Figure 1). By Q4 2020, the 36 E&Ps that RBN tracks reported a net loss of nearly \$2 billion, but impairments excluded, they generated a net operating profit of \$2.45 billion and \$13.8 billion in cash flows.²

Despite the improvement in prices and a rise in activity, by December 2020, US shale output was still lower by 1.4 mb/d, rig activity by 57 per cent, and well completion

by 34 per cent compared to December 2019. US E&P capex budgets were severely curtailed from around \$74 billion in 2019 to \$38 billion in 2020.³ More importantly, there has been a shift in perceptions about this sector's behaviour. There is a widely held belief that US shale producers have endorsed the principle of 'capital discipline'. Despite the rise in oil prices above breakeven costs and better prospects for the sector, the improved cash flows were used to reduce debt and return money to shareholders. Dividend payments jumped in Q4 2020, stock buybacks increased and along with the reduction in capex, these contributed to stock price recovery. Rystad Energy estimates that the proportion of operators that balanced their spending reached a record high of 90 per cent while fourth-quarter capital expenditure amounted to just 55 per cent of cash flow.⁴ So far, this view of 'capital discipline' seems to be supported by the capex guidance of US E&P where capex budgets are expected to increase marginally in 2021 from 2020 levels and many majors and independents expect production to remain flat or increase marginally from 2020.³

Fig 1: Wells drilled, completed and DUCs



Source: EIA, OIES

In Focus

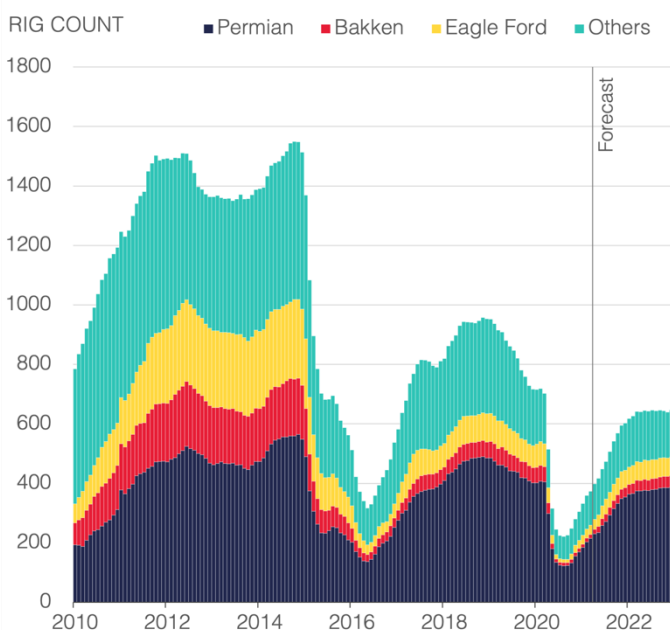
Limited increase in 2021

The rise in oil prices in 2021 has lifted activity. In Q1 2021, the rig count continued to increase, rising to 374 in March, an increase by 152 rigs since the August 2020 low, and despite the sharp fall in frack spreads to 41 in mid-February due to the extreme weather conditions, frack spreads reached the 200 mark as operators continued to drawdown the inventory of DUCs.

Based on our US supply forecasting model, assuming an average WTI price at \$59/b in 2021 and \$62/b in 2022, the rig count is projected to rebound to 602 by December 2021, which is 115 rigs below December 2019 levels (Figure 2). Our projections are adjusted for more stringent capex budgets.

The relationship between the rig count and the increase in output is complex and it is shaped by many factors including assumptions about productivity gains and the completion of new wells. Also, there are lags involved, though these are much shorter than seen in conventional fields. Historical data show that the rig count-output lags are in the range of 3 to 8 months (5 months on average), but in the period from January 2020 to March 2021 these lags have become longer by 3 months on average. In terms of output, our model projects that exiting 2021 US shale production will increase by 0.4 mb/d compared to December 2020, to 8.2 mb/d vs 7.8 mb/d, but *growth on annual terms* will still contract by 0.38 mb/d and for 2021 as a whole US shale output will average 1 mb/d below 2019 levels (Figure 3).

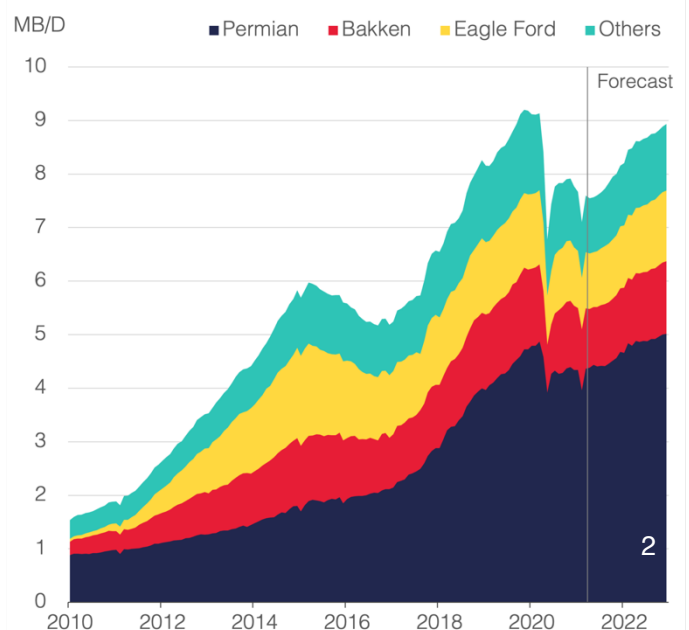
Fig 2: Drilling activity by play



Source: EIA, OIES

However, this does not take into account potential productivity gains and cost reductions due to factors such as lower services costs, upgrading, and the drawdown of DUCs. In terms of productivity innovations such as drilling of multiple wells from a single pad, longer laterals, improvements in drilling managements, and digital data can help boost yields. One particular area where costs are expected to fall is simultaneous fracking which will reduce completion times and costs. To examine this scenario, we compare the productivity gains since the trough in activity in August 2020 with those that followed the low cycle in 2016 and find that on average across all US shale basins productivity increased by 15 per cent in the period September 2020 to March 2021, though the data could be distorted by high grading. Assuming that this rate of increase in productivity persists, our estimate of output growth would increase by 0.1 mb/d and the y/y contraction would decrease to 0.3 mb/d compared to our base of 0.38 mb/d. If we take into account that not all drilled wells are completed as shale operators switch from DUC-driven completions to drilling-production operations and that some of the drilled wells are used to replenish DUCs, then the y/y contraction could reach 0.51 mb/d. Considering also the risks pertaining to capital constraints, in which a high case sees positive free cash flows persisting well into 2022 and a low case sees free cash flows declining from H2 2021 onwards before turning negative in 2022, the range of y/y US shale production contraction in 2021 extends from 0.2 mb/d to 0.61 mb/d (Figure 4).

Fig 3: US shale production by play



Source: EIA, OIES

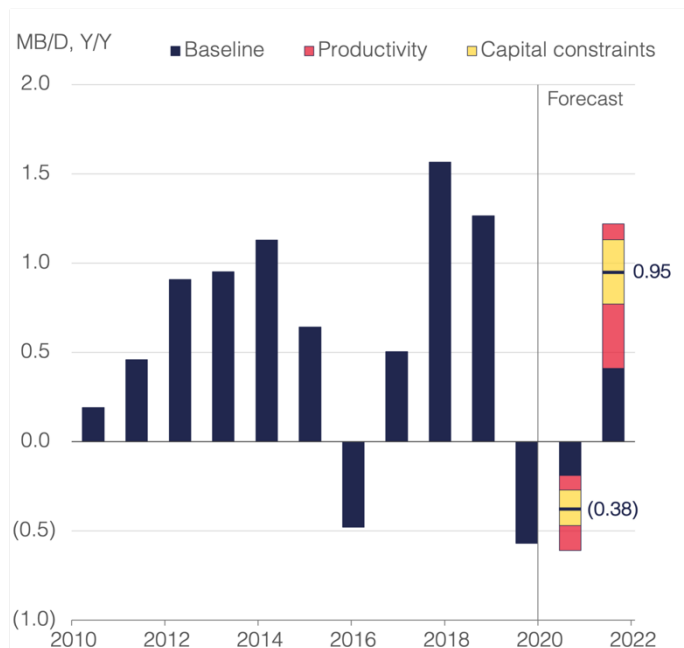
In Focus

But 2022 could be another story

While the range of US shale growth estimates is relatively narrow for 2021, the picture becomes increasingly uncertain as we enter 2022. This is due to a number of reasons. First, the latest Dallas Fed Energy Survey shows a moderate increase in breakeven costs, but it is still below the current oil price which means that at current prices, cash flow will continue to improve, increasing the incentive to increase capital spending and production. In fact, depending on oil prices, some operators could repair their balance sheets and push output higher. Rystad estimates that at \$60/b, shale operators would generate enough free cash to meet more than \$170bn of debt obligations over the next five years.⁵ The Dallas Fed Energy Survey shows that the index for the expected level of capital expenditures for 2021 came in at 49.5, signalling firms may have increased their capital spending plans for 2022. Interestingly, firms are facing less uncertainty around their outlook in Q1 2021 compared to the previous quarter with the index of aggregate uncertainty registering the lowest reading since its inception in Q1 2017.

Second, the cost of refinancing debt through the high-yield bond market has fallen and this has provided opportunities for shale players to lower their borrowing costs.⁶ Alongside productivity gains, this could lead some producers to fund expanded drilling programmes. Also, as DUCs have been rapidly shrinking, producers have the incentive to increase their drilling activity.

Fig 4: US shale production growth



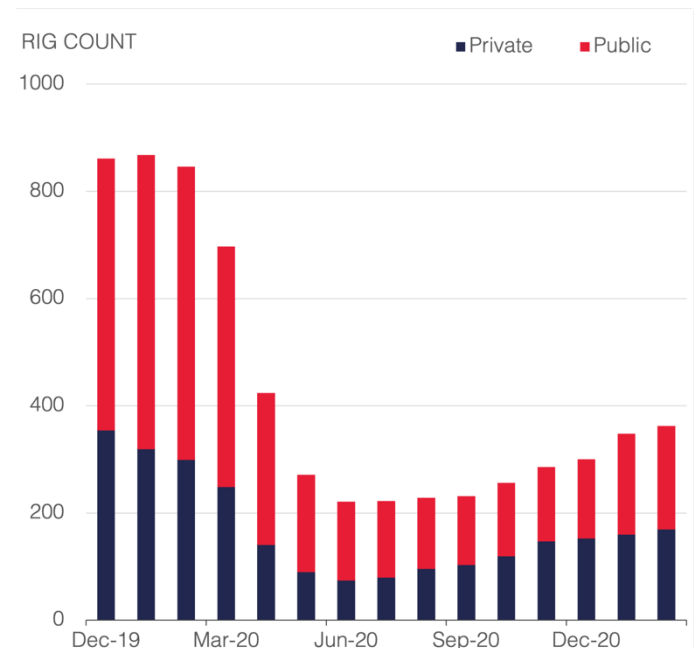
Source: OIES

Third, in 2020 many shale producers hedged their production and therefore would not have benefited from the upside potential even if they had increased their output. As these hedges unwind, US shale producers may decide to hedge a smaller proportion of their output to benefit from a potential upside. Also given the forward curve is in backwardation, US shale producers may not have the incentive to engage in full hedging, though with prices further along the forward curve rising, some hedging may still take place.

Lastly, operators' strategies are also diverse. The majors and the publicly listed companies are likely to continue to show restraint under pressure from investors, but the private operators are under no such pressure and they are a force to be reckoned with as they operate half the share of the horizontal rig count as of December 2020 (**Figure 5**). These companies are already leading the recovery, increasing their activity, adding rigs and completing wells, with some trying to ramp activity to exit. The temptation for other publicly held shale companies to follow suit and reinvest their cash to increase production is strong.

The wider uncertainty in 2022 is reflected in our model results. Assuming similar relationships to previous cycles and relaxing the capex constraint, we expect the rig count to rebound to 647 by year-end 2022, remaining 70 rigs or 10 per cent below December 2019 levels (see **Figure 2**). For 2022 as a whole, we project rig count to average 640 compared to 842 in 2019.

Fig 5: Drilling activity by player



Source: Enverus, OIES

In Focus

Our base case sees output recovering to 8.93 mb/d in December 2022, 0.77 mb/d higher than December 2020 but still 0.25 mb/d below December 2019 (see **Figure 3**). Exiting 2022, production is projected to rebound above December 2019 levels only in the Permian (+0.29 mb/d) while the other two key plays will decline. These include the Bakken (-0.13 mb/d), Eagle Ford (-0.08 mb/d), as well as other shale regions (-0.32 mb/d).

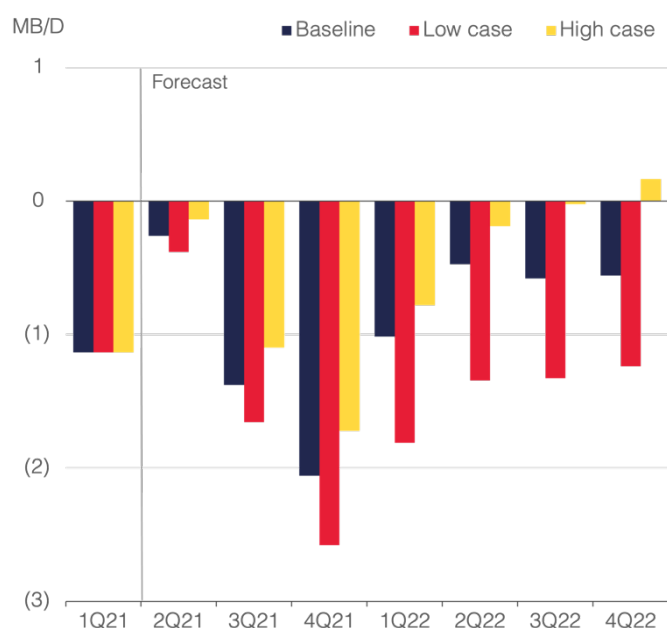
For 2022 as a whole, US shale production is seen growing y/y by 0.95 mb/d. On the downside, lower productivity gains and persistent capital constraints as per the scenarios described above could limit y/y growth to 0.41 mb/d. On the upside, higher productivity gains and increases in capital spending could boost y/y growth to 1.22 mb/d (see **Figure 4**). However, this could induce a slowdown in the oil price which will moderate growth in output as a response. But the oil price is not the only factor that could moderate growth in 2022. The respondents in the latest Dallas Fed Energy Survey highlight other headwinds. One key concern is federal regulations, particularly those related to the federal leasing ban. Another is the potential response of OPEC+ to a major increase in US shale activity. One survey respondent argued that ‘while the price increases have been welcome news, OPEC+ is a sword of Damocles: if U.S. operators raise capital expenditures, OPEC+ will open its taps and flood the market. There is a tense détente currently’.

Uncertainty persists

The US shale is not expected to disrupt oil balances in 2021, with the market deficit on annual terms remaining confined in a narrow range of 1 mb/d and 1.44 mb/d (**Figure 6**). But in 2022, the range of uncertainty around US shale widens and the risks to the market rebalancing become more apparent. Unless demand underperforms relative to current expectations, an increase in US shale output of 0.95 mb/d could be absorbed, though this would reduce the overall supply deficit to 0.66 mb/d. If the US shale growth hits the upper bound of 1.22 mb/d y/y and demand recovery turns out to be slower than expected, then US shale could disturb the rebalancing, flipping the market into a surplus in Q4 2022 (+0.17 mb/d) and shrinking the market deficit for 2022 as a whole to 0.21 mb/d (see **Figure 6**). On the other hand, if US shale growth fails to meet expectations and hits the lower bound then the market could remain undersupplied by up to 1.43 mb/d.

Beyond 2022, the outlook becomes even more uncertain, especially if private operators continue to increase their share of activity, productivity gains accelerate, cashflows improve, and US shale operators repair their balance sheets. All these will test the ‘capital discipline’ principle. On the other hand, regulatory risks and financing pressure will persist. As in previous cycles, the US shale response remains a major source of uncertainty and will continue to be a key factor shaping market outcomes for years to come.

Fig 6: Global balance by US shale growth



Footnotes:

- 1 Haynes & Boone, *Oil Patch Bankruptcy Monitor*, December 31, 2020.
- 2 Nick Cacchione, *Coming Out of the Dark - Clouds on E&Ps' Horizon Dissipate as Industry Fortunes Brighten*, RBN Energy, April 4, 2021.
- 3 RBC Capital Markets, *Global Oil & Gas: Budget & Activity for 2021*, March 24, 2021.
- 4 Argus, *Producers plan more from less despite rising cash flow*, March 22, 2021.
- 5 Financial Times, *'Oil price rally tests drilling discipline in US shale industry'*, March 25, 2021.
- 6 Financial Times, *'Risky oil companies snap up \$20bn in junk bond record'*, March 25, 2021.

Bassam Fattouh

Dr. Bassam Fattouh is the Director of the Oxford Institute for Energy Studies.

Andreas Economou

Andreas Economou is a Senior Research Fellow at the Oxford Institute for Energy Studies.

Source: OIES

Outlook

Key insights

- Our reference forecast for Brent is relatively unchanged to \$62.4/b in 2021 and upgraded to \$66.9/b in 2022.** Despite the sharp rise in COVID cases in India and elsewhere, confronted by the gradual unwinding of the OPEC+ output cuts in May/July, oil prices appear well bounded in the \$60/b and \$70/b range throughout 2021 and 2022. The Brent Prospect continues to converge towards the Reference price in 2021, suggesting that the risks around the outlook are more broadly balanced.
- The risks to our reference outlook in the very-near term are near balance but market uncertainties persist beyond 2021 pertaining to the supply side.** The balance of risks suggests that prices are currently at the low-end of the risk spectrum. Beyond 2021, risks are skewed on the downside related mainly to OPEC+ exit strategy and the Iranian return, albeit the latter remains less disruptive for now.
- Global oil demand growth in 2021 is downgraded by 0.15 mb/d to 5.7 mb/d and upgraded in 2022 by 0.11 mb/d to 2.9 mb/d.** The global oil demand

recovery is moving at two speeds with the rebound in the OECD (particularly the US) and China gaining traction – although in OECD Europe and Japan the pace is softer – while the rest non-OECD underperform due to renewed COVID waves, severe delays in vaccinations and deeper economic impacts of the pandemic.

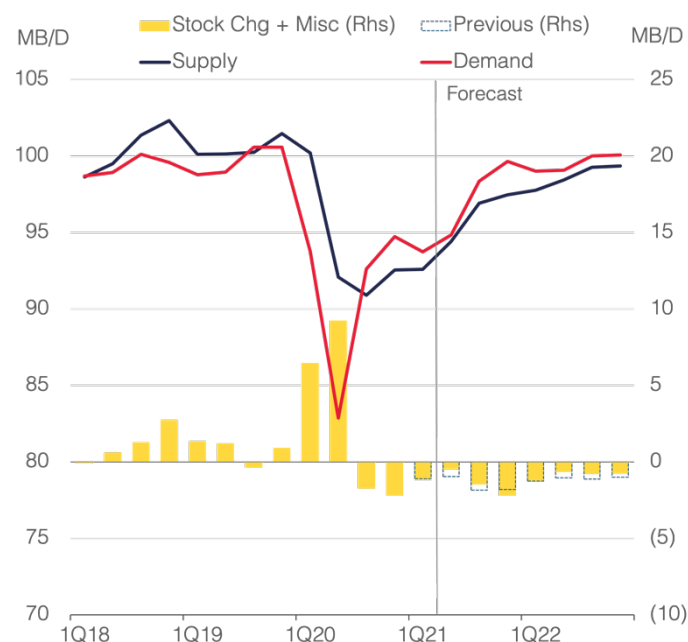
- Global oil supply growth in 2021 is unchanged at 1.4 mb/d and increases to 3.4 mb/d in 2022, to average 1.8 mb/d below 2019 levels.** OPEC+ is set to lift output in May despite demand headwinds, while non-OPEC supply growth remains constrained by the slow recovery in US activity and renewed slips in Canada and Brazil and is set to grow modestly in 2021 by 0.4 mb/d.
- The market is expected to fall into a 1.3 mb/d deficit in 2021 and a 0.8 mb/d deficit in 2022.** Despite preliminary estimates suggesting a crude driven build in OECD stocks for March, less visible stocks elsewhere drew significantly, especially in China.

Brent price outlook



Source: OIES

Global balance



Source: OIES



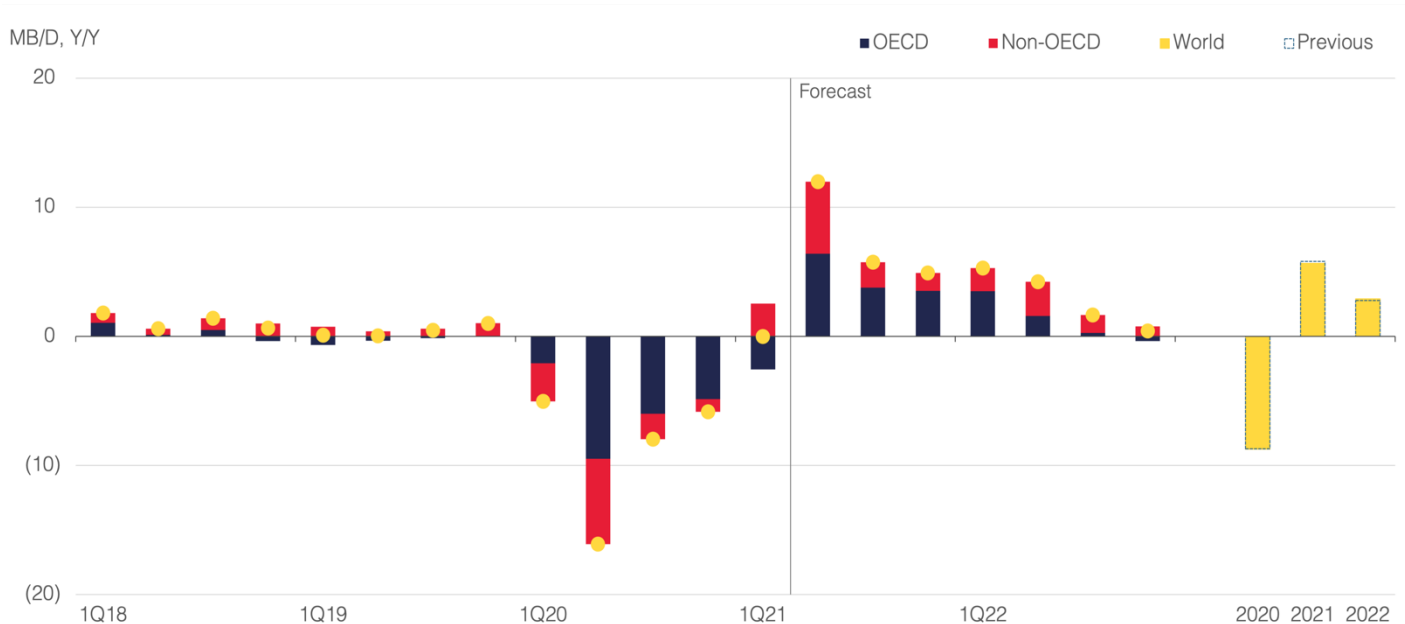
Outlook

Demand

Global oil demand recovery is moving at two speeds

OECD and China's demand rebound gains traction, but the rest non-OECD continue to battle challenges with rising virus cases, vaccinations and deeper economic impacts.

Global oil demand



Source: OIES

Global oil demand

MB/D

	Total	Y/Y	vs 4Q19 ¹
2020	91.0	(8.7)	(5.8)
± prev	-0.01	-0.04	
2021	96.6	5.7	(0.9)
± prev	-0.15	-0.15	
2022	99.5	2.9	(0.5)
± prev	-0.04	+0.11	

¹ Compared to Q4 in each year.

Global oil demand growth in 2021 is downgraded by 0.15 mb/d to 5.7 mb/d

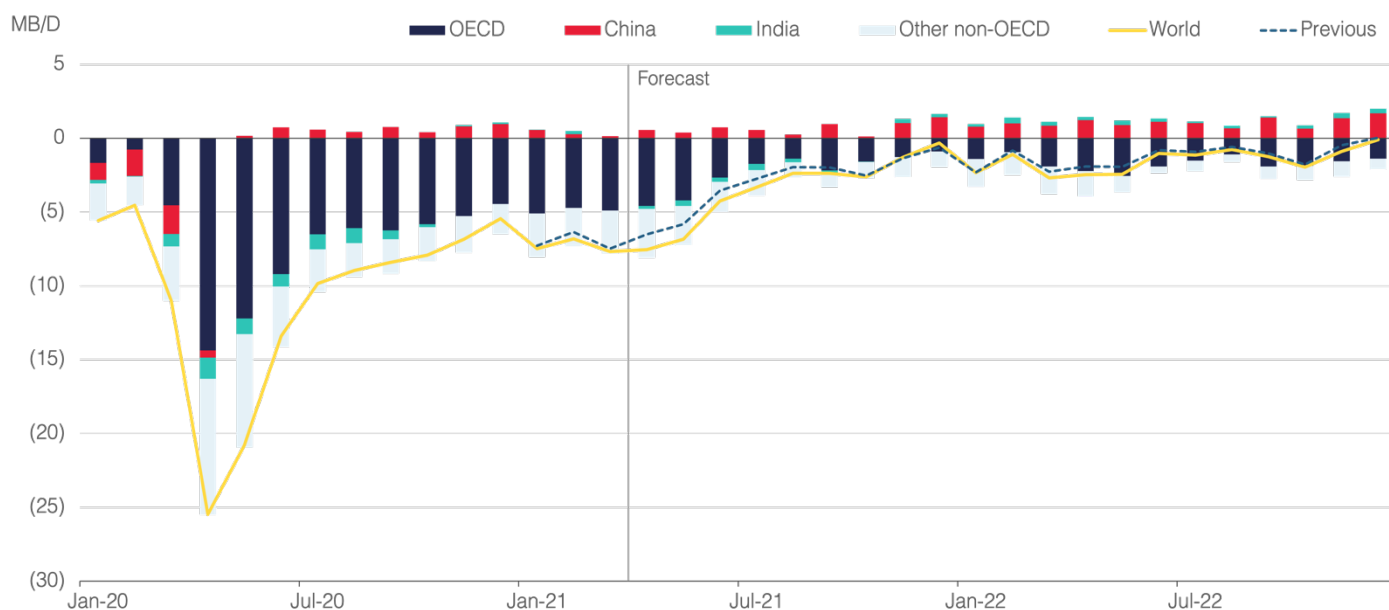
Despite the renewed COVID outbreaks in many countries and in particular India, our demand outlook is little affected due to the stronger US economic restart, the sustained momentum in China and the strengthening confidence over the past month on the successful roll-out of vaccination programmes.

Outlook

Jet fuel demand succumbs to the latest headwinds

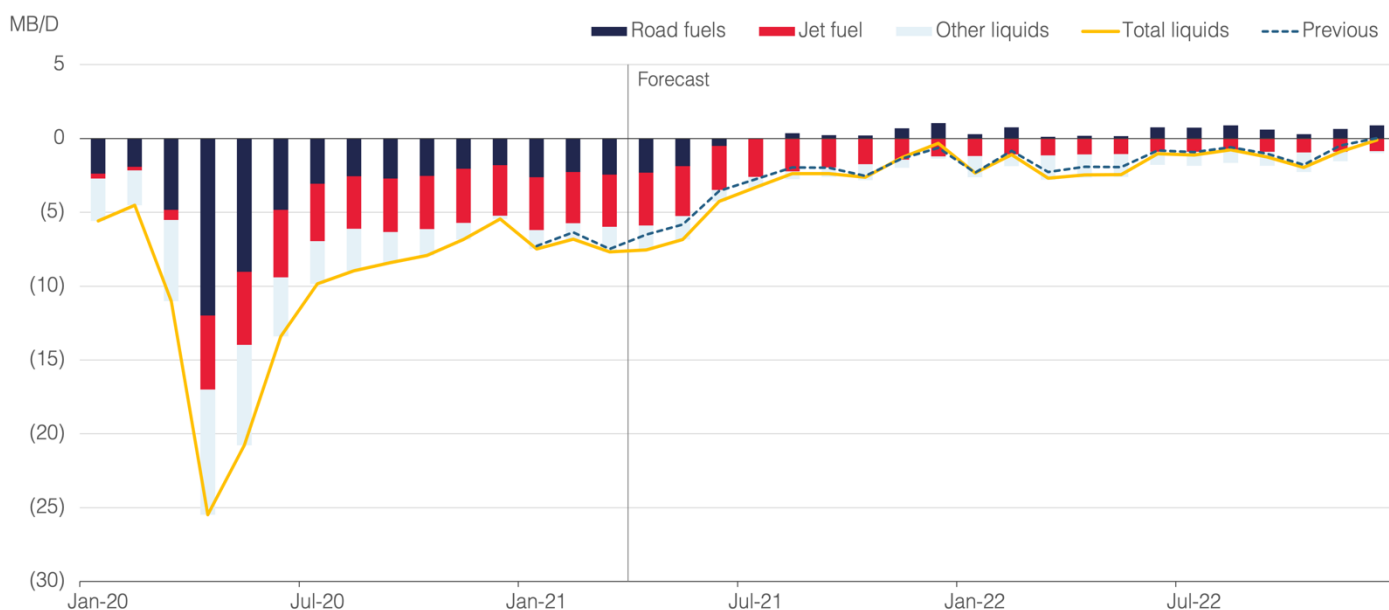
Demand for jet fuel in Q2 2021 is downgraded by 0.4 mb/d as travel restrictions are extended and it is now seen 1.2 mb/d below pre-pandemic levels ending-2021.

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



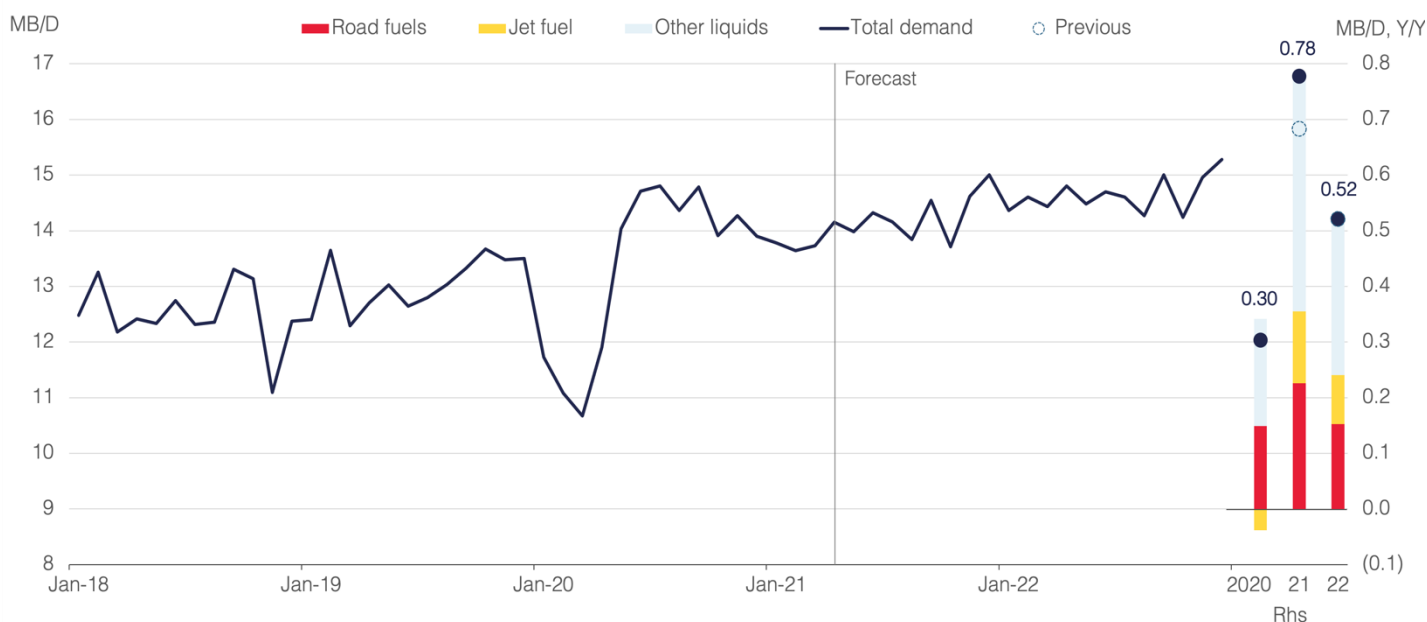
Outlook

China

Strong economic activity leading to a large uptick in oil demand

Upside potential to China's product demand this year given the rebound in industrial activity and looming increase in domestic tourism.

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 ¹
2020	13.3	0.3	0.5
± prev	0.00	0.00	
2021	14.1	0.8	0.9
± prev	+0.09	+0.09	
2022	14.6	0.5	1.3
± prev	+0.10	0.00	

¹ Compared to Q4 in each year.

China's product demand growth is upgraded to 0.8 mb/d in 2021

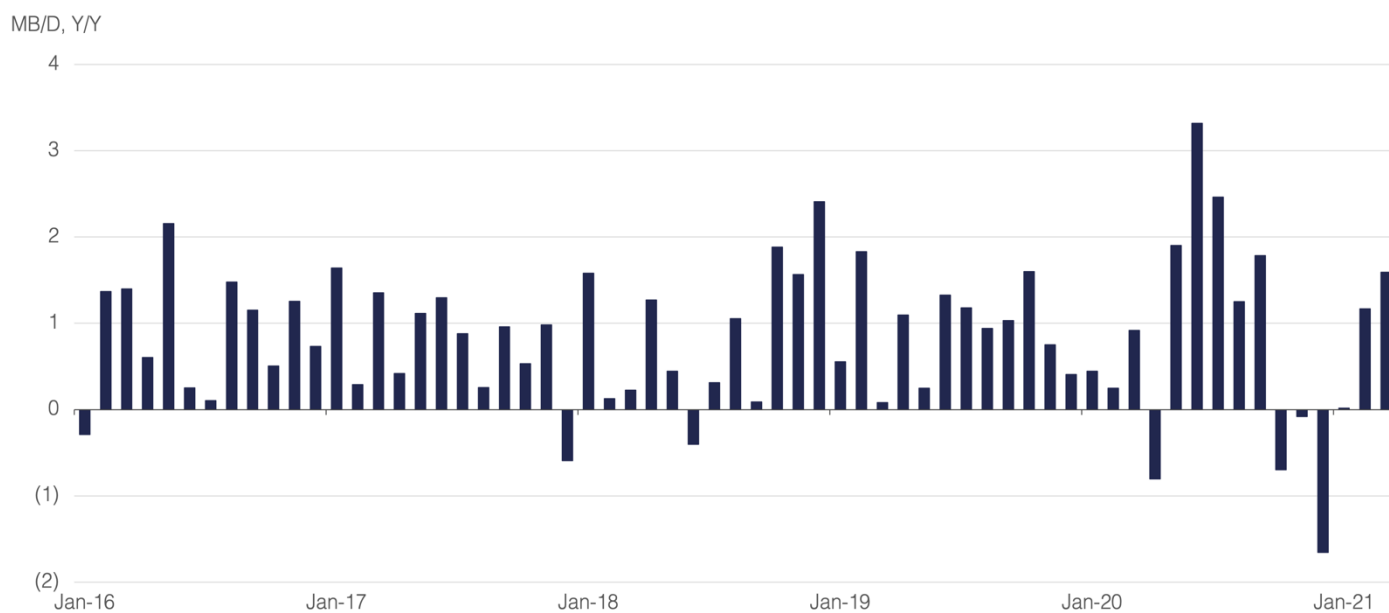
China's oil majors expect demand to peak in Q3 2021 before softening. The May day holiday will see an increase in road travel while diesel use in construction and logistics is set to grow strongly.

Outlook

Crude inventories drawing sharply, suggesting higher imports in Q3

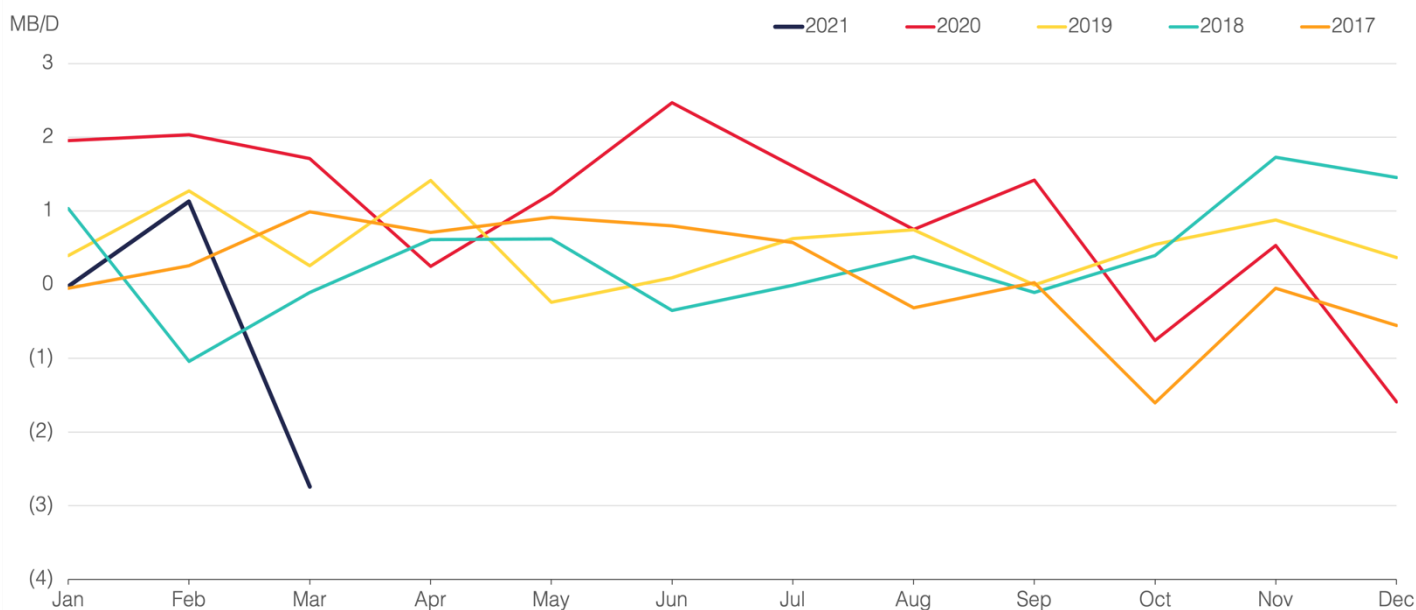
The Shandong independents are looking to re-stock for June/July arrivals due to strong margins, while a new round of import licenses will help spur more buying.

China crude imports



Source: China customs, OIES

China implied stocks



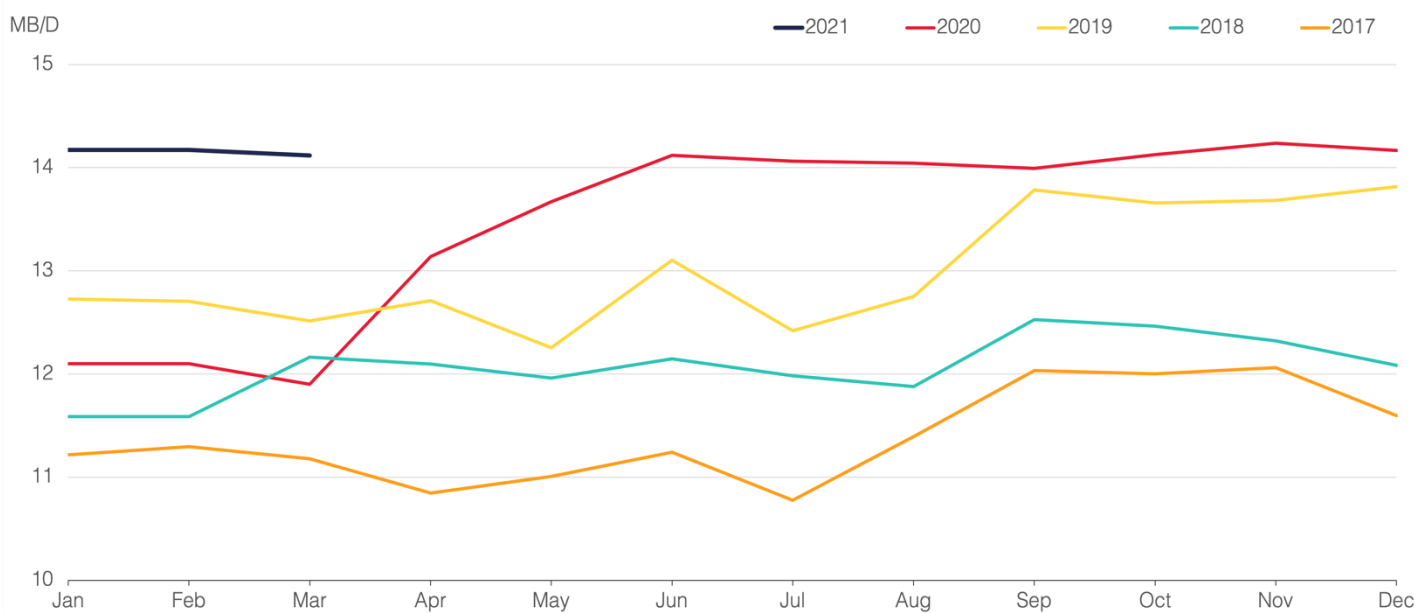
Source: China customs, OIES

Outlook

Peak maintenance and high runs led to large product outflows

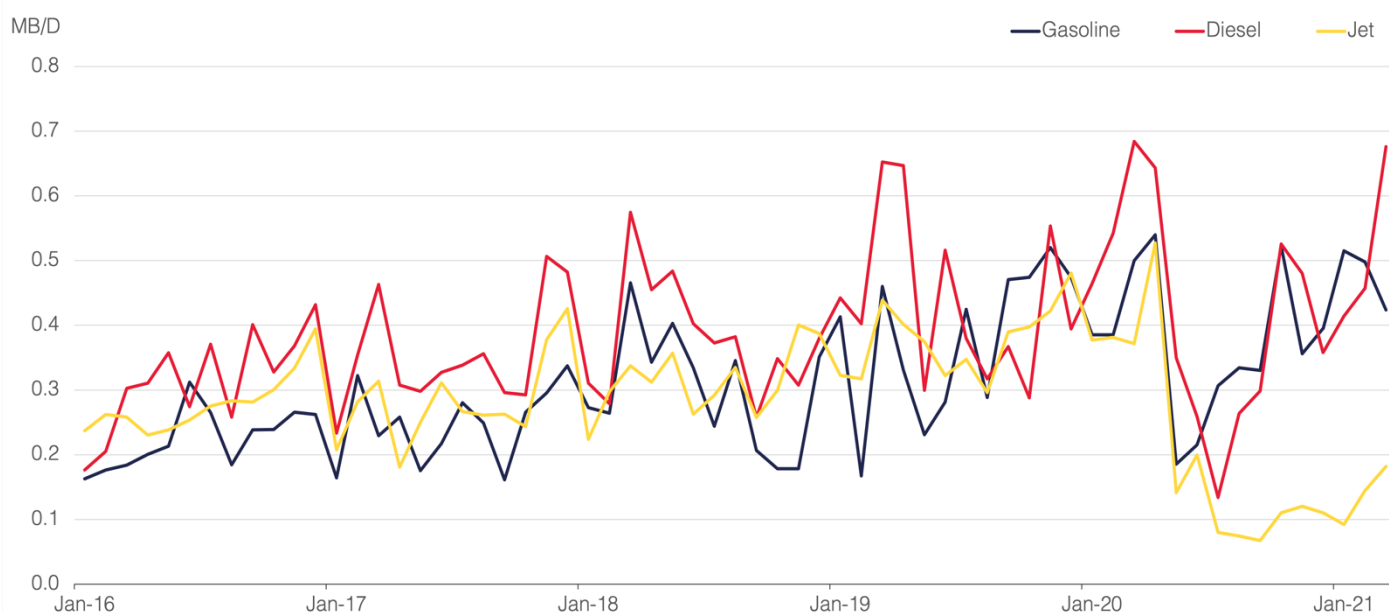
Outflows could start to soften as demand recovers; a crackdown on tax evasion could impact flows of blendstocks such as mixed aromatics and light cycle oil to China.

China refinery runs



Source: NBS, OIES

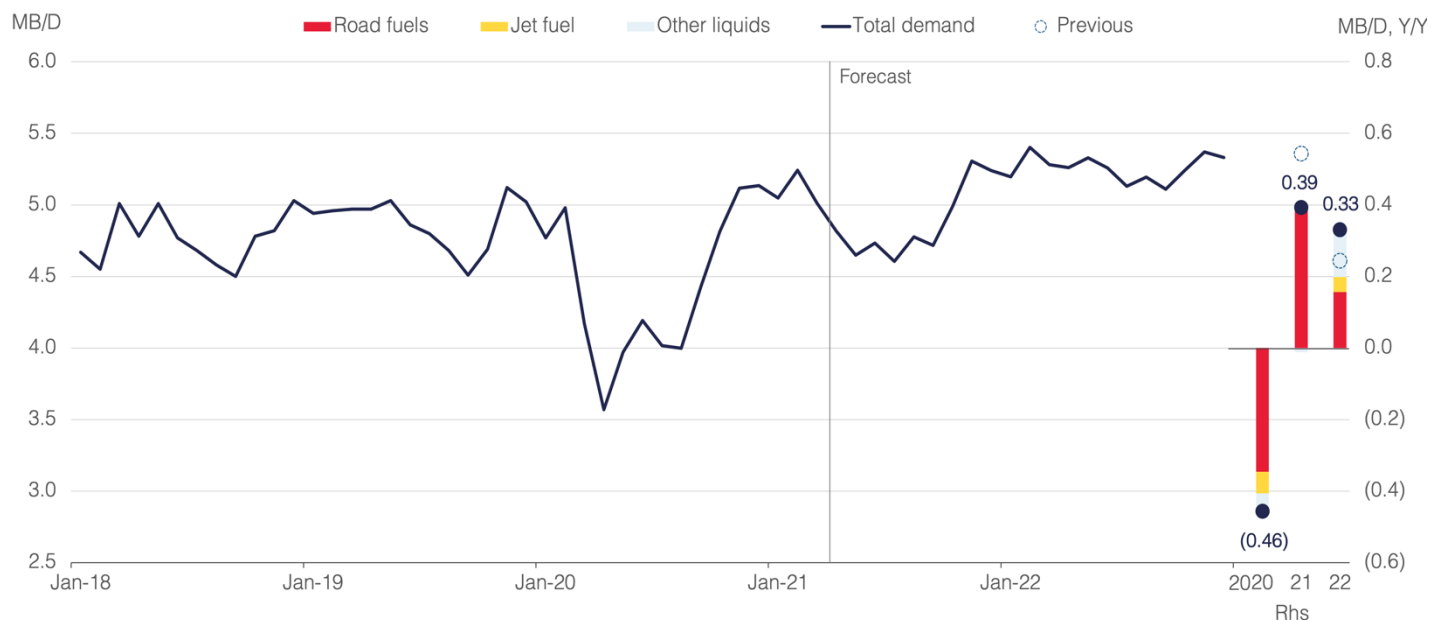
China product exports



Source: China customs, OIES

India
India demand recovery continues to be impacted by pandemic

A rise in new COVID infections to record levels and continuation of regional lockdowns into May will continue to weigh on India's demand recovery.

India implied product demand


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

India oil demand

MB/D

	Total	Y/Y	vs 4Q19 ¹
2020	4.5	(0.5)	0.0
± prev	+0.10	-0.01	
2021	4.9	0.4	0.1
± prev	-0.05	-0.15	
2022	5.3	0.3	0.3
± prev	+0.04	+0.09	

¹ Compared to Q4 in each year.

India's product demand growth in 2021 is lowered by 0.15 mb/d to 0.39 mb/d

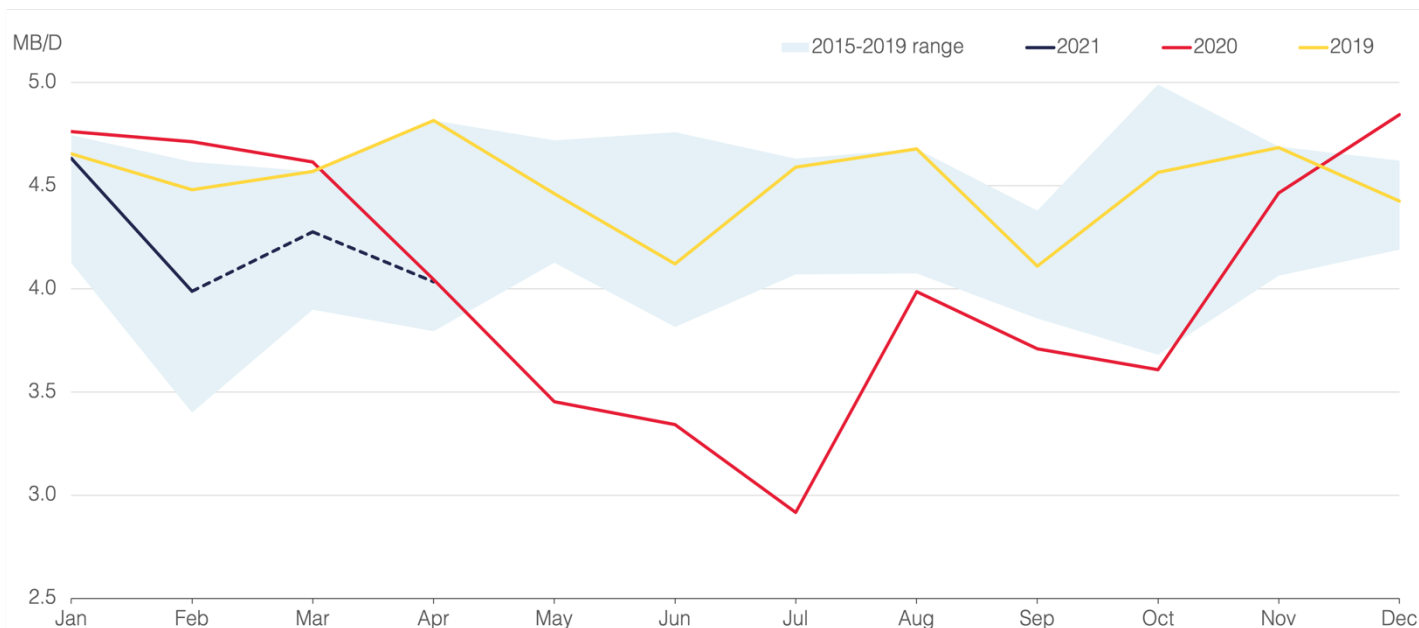
Downgrades to India's GDP growth for 2021 have so far been marginal, with most daily new infections concentrated in a few of the largest states. But the extension of regional lockdowns into May, reimposition of international travel restrictions, likelihood of a rise in new infections across other states and the imposition of a more stringent national lockdown which has been strongly resisted by the central government could further alter the outlook.

Outlook

India's crude imports fell but runs held on higher outflows

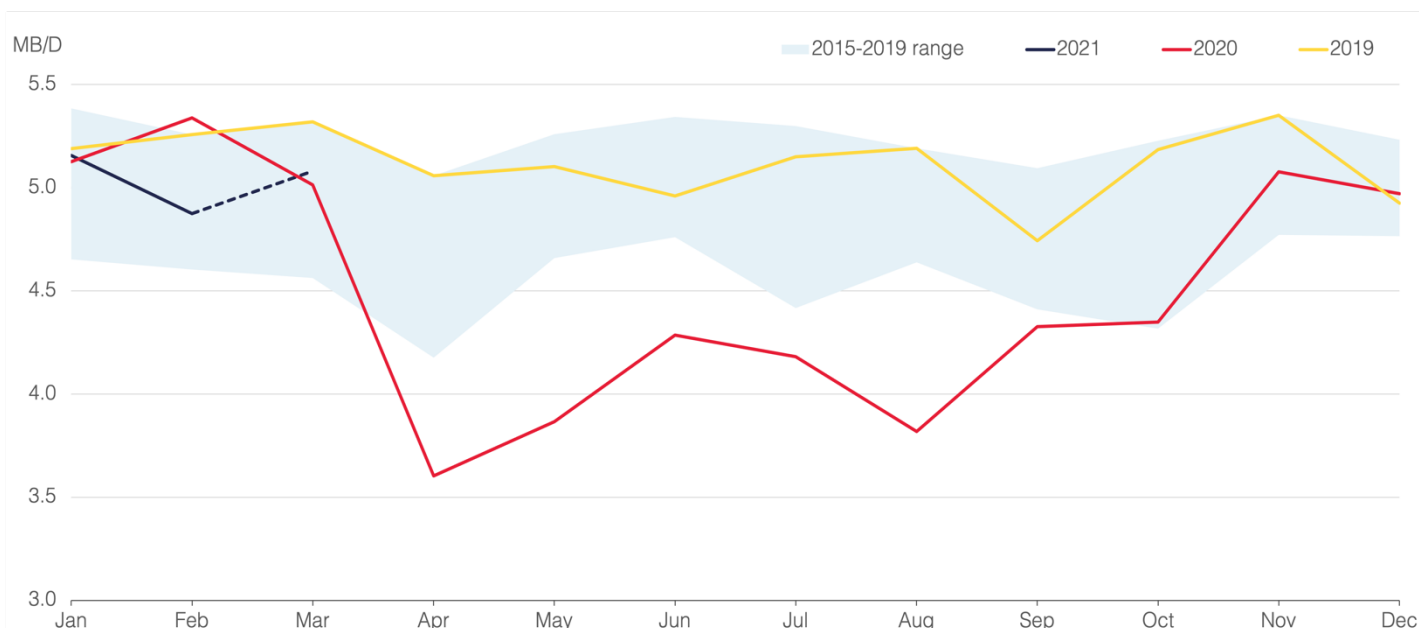
Lower domestic demand pushes more cargoes for export, but some of the demand loss could be partially offset as India moves into the agricultural season.

India crude imports



Notes: Data for March/April are based on Kpler and OIES estimates. Source: PPAC, Kpler, OIES

India refinery runs



Notes: Data for March are based on Kpler and OIES estimates. Source: PPAC, Kpler, OIES

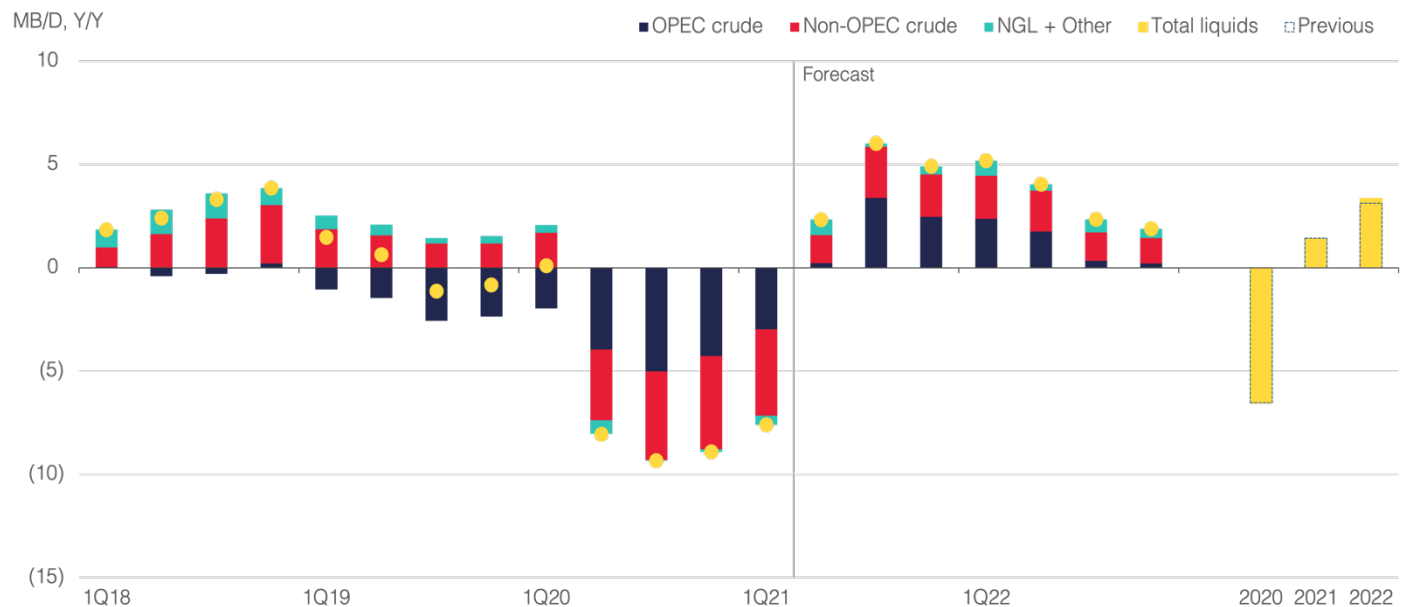
Outlook

Supply

Near-term supply rebound progresses absent any surprises

Absent any unexpected large shocks on the demand side, global oil supply is expected to increase gradually, with OPEC+ leading the increase.

Global oil supply



Source: OIES

Global oil supply

MB/D

	Total	Y/Y	vs Dec-19 ¹
2020	93.9	(6.6)	(8.9)
± prev	-0.01	0.00	
2021	95.3	1.4	(4.0)
± prev	-0.02	-0.01	
2022	98.7	3.4	(2.1)
± prev	+0.22	+0.24	

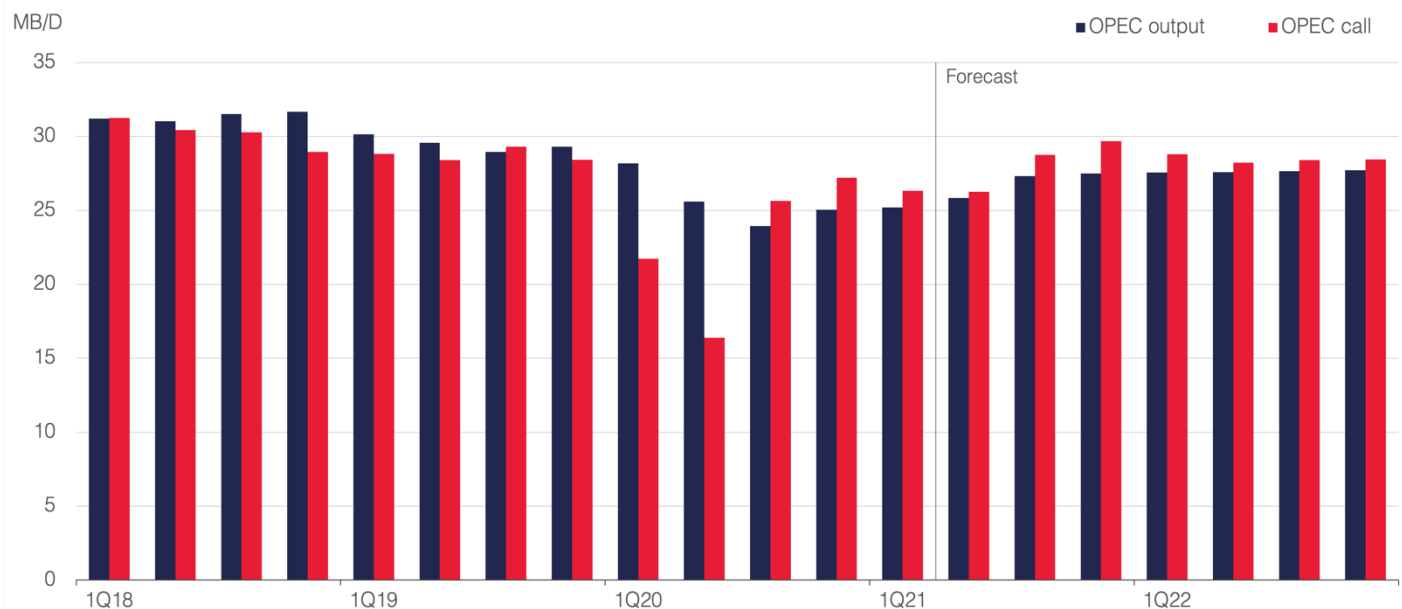
¹ Compared to December in each year.

Global supply growth in 2021 is unchanged at 1.4 mb/d, but for 2022 the outlook is upgraded to 3.4 mb/d

The upward revision of 0.3 mb/d for 2022 comes mainly from the US (+0.27 mb/d), Iran (+0.12 mb/d) and Norway (+0.04 mb/d) and is offset by Canada (-0.11 mb/d) on slower than expected growth in oil sands.

OPEC
OPEC+ set to lift output in May despite headwinds

OPEC+ producers will begin lifting their output from May, despite flagging the latest demand risks, as expectations of a strong demand recovery in H2 persist.

OPEC supply


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

OPEC supply

MB/D

	Output	Call	± dif.
2020	25.7	22.7	2.9
± prev	+0.01	+0.02	
2021	26.5	27.8	(1.3)
± prev	+0.17	+0.04	
2022	27.6	28.5	(0.8)
± prev	+0.20	-0.06	

The call on OPEC crude in 2021 stands at 27.8 mb/d and at 28.5 mb/d in 2022

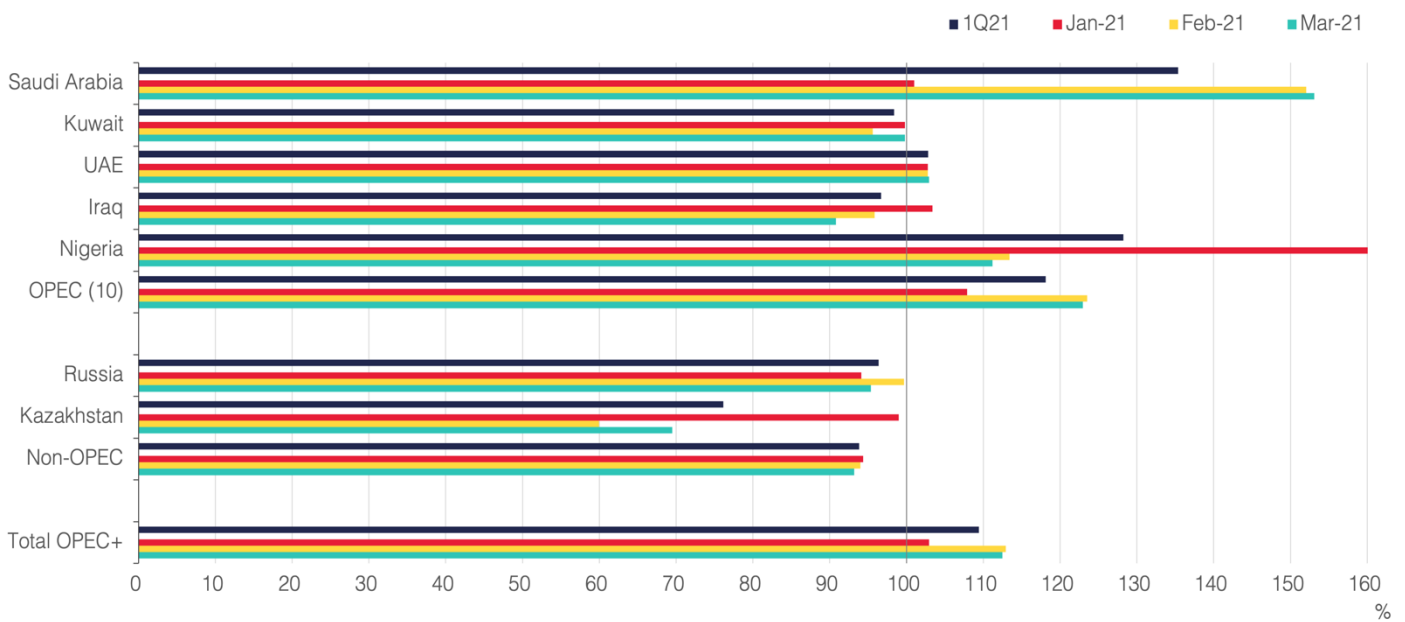
Absent any unexpected large shocks on the demand side, we assign little probability to a reversal of the latest OPEC+ decision.

Outlook

As OPEC+ targets are lifted, compliance issues ease

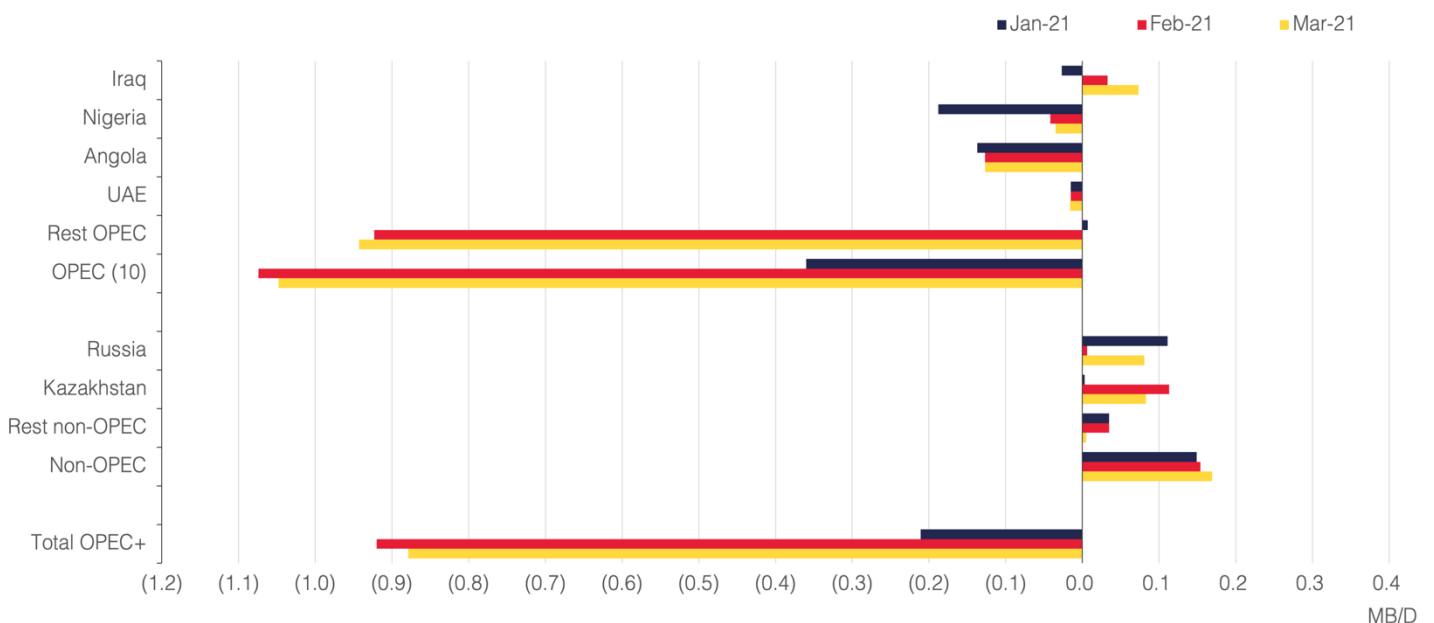
OPEC+ compliance in March remained high at 112%, setting compliance in Q1 2021 at 109% including the extra Saudi cuts and at 100% without the extra cuts.

OPEC+ output compliance



Source: OIES

OPEC+ over/under production



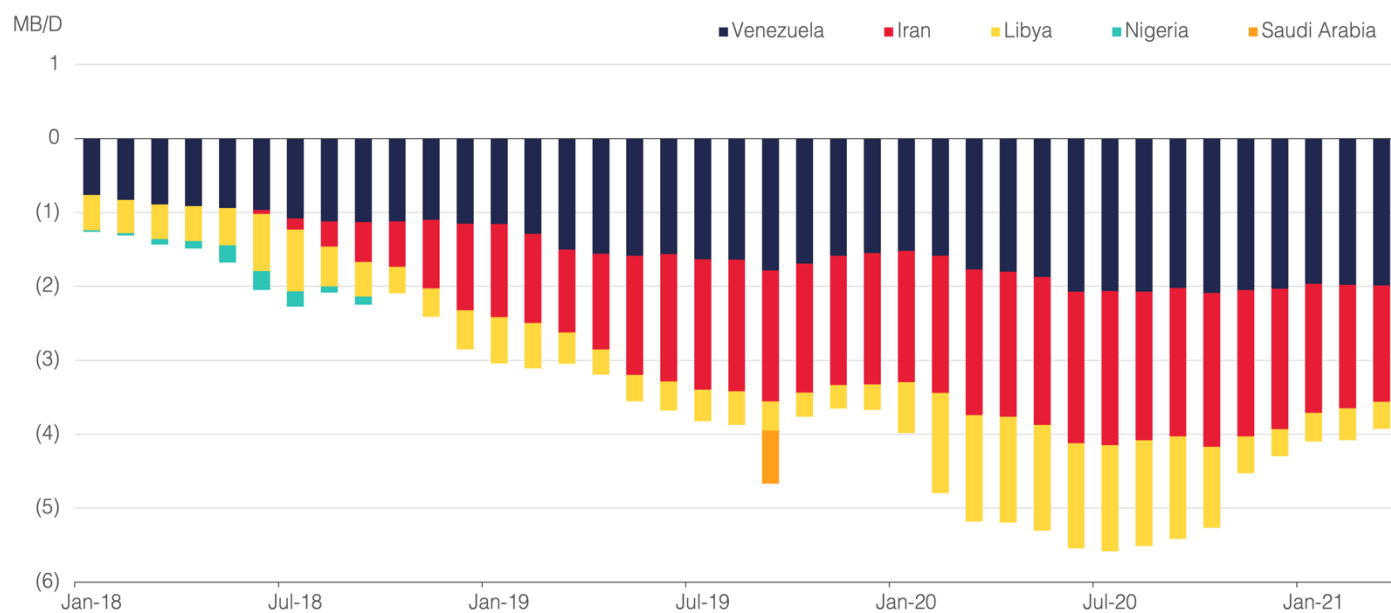
Source: OIES

Outlook

Iranian production gaining but not yet a disruptive factor

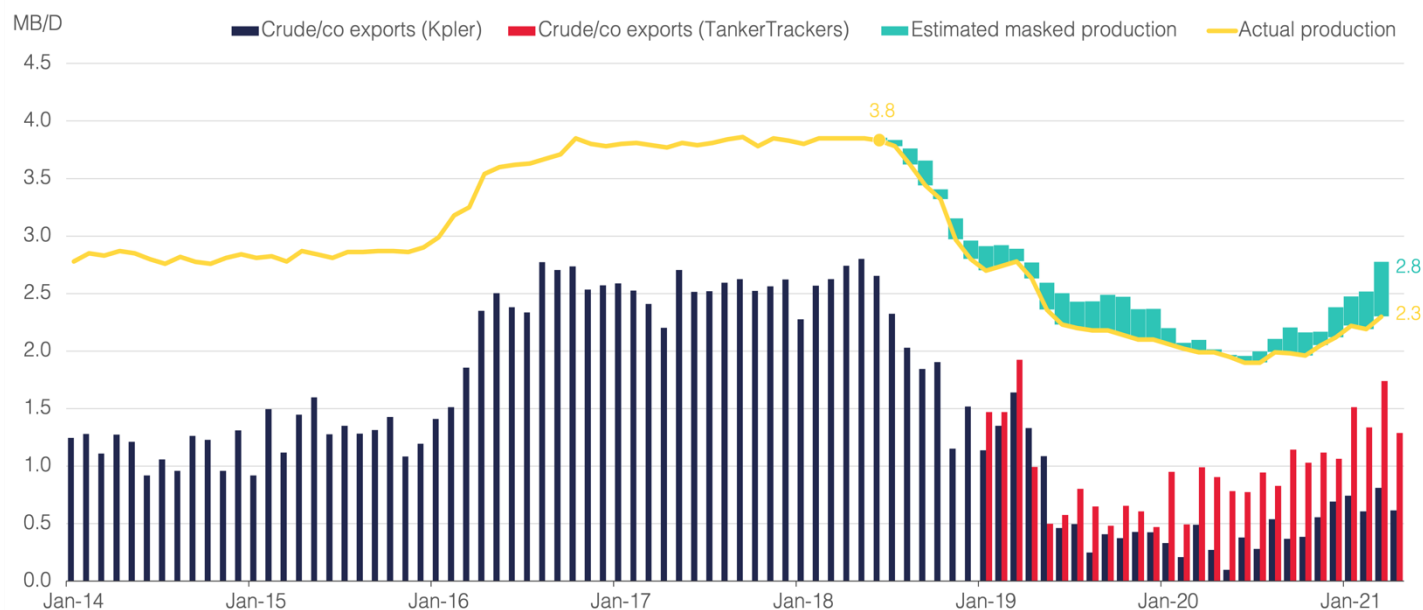
Despite March output reported at 2.3 mb/d, Iran’s production may be higher by some 0.5 mb/d, meaning less barrels returning if sanctions are lifted.

OPEC geopolitical supply disruptions



Source: OIES

Iran oil exports and production



Source: Kpler, TankerTrackers, OIES

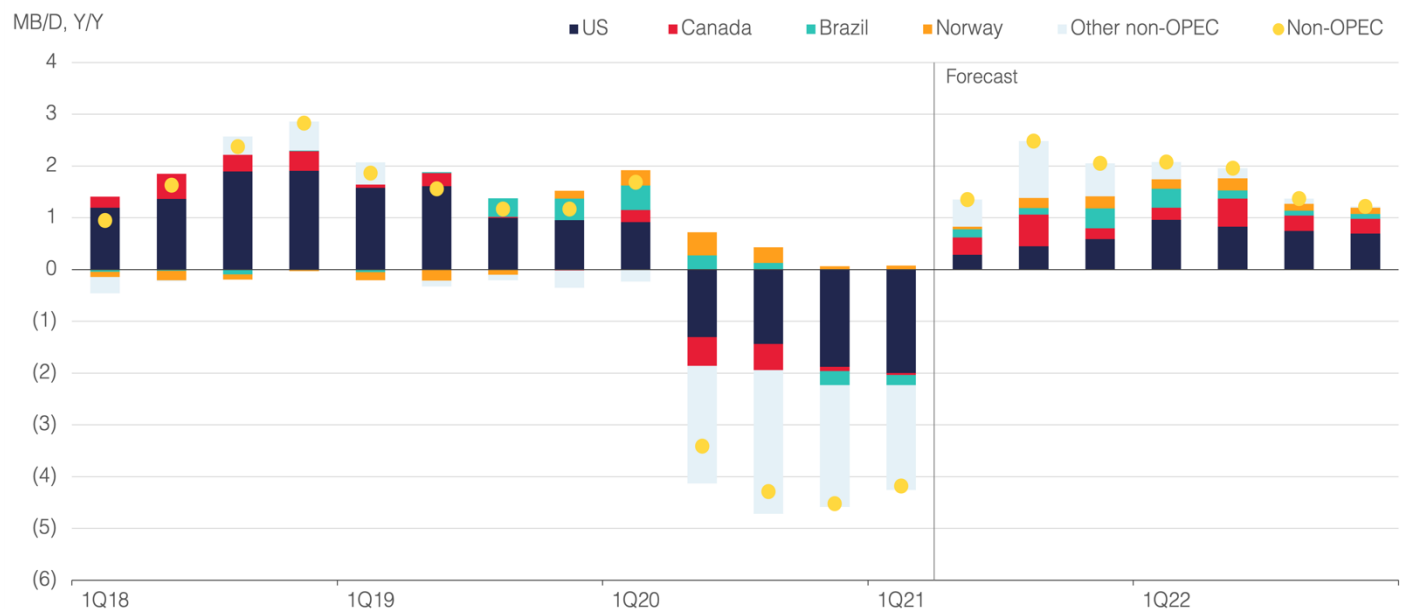
Outlook

Non-OPEC

Non-OPEC supply growth remains modest in 2021

Despite recent optimism, non-OPEC outlook in 2021 remains constrained by the slow recovery in US activity and renewed slips in Canada and Brazil.

Non-OPEC supply



Notes: Crude oil only. Source: OIES

Non-OPEC supply¹

MB/D

	Total	Y/Y	US	Y/Y
2020	51.2	(2.6)	11.3	(0.9)
± prev	+0.01	+0.01	+0.01	+0.01
2021	51.6	0.4	11.2	(0.2)
± prev	-0.09	-0.10	+0.01	0.00
2022	53.3	1.7	12.0	0.8
± prev	+0.13	+0.22	+0.27	+0.26

¹ Includes crude oil and condensates only.

Non-OPEC supply is seen growing by 0.4 mb/d in 2021 and 1.7 mb/d in 2022

Outside North America, supply growth in 2021 continues to be led by Norway (+0.14 mb/d), Brazil (+0.12 mb/d) and Guyana (+0.1 mb/d), but risks around the outlook remain significant especially for Brazil where the pandemic continues to rage causing project delays.

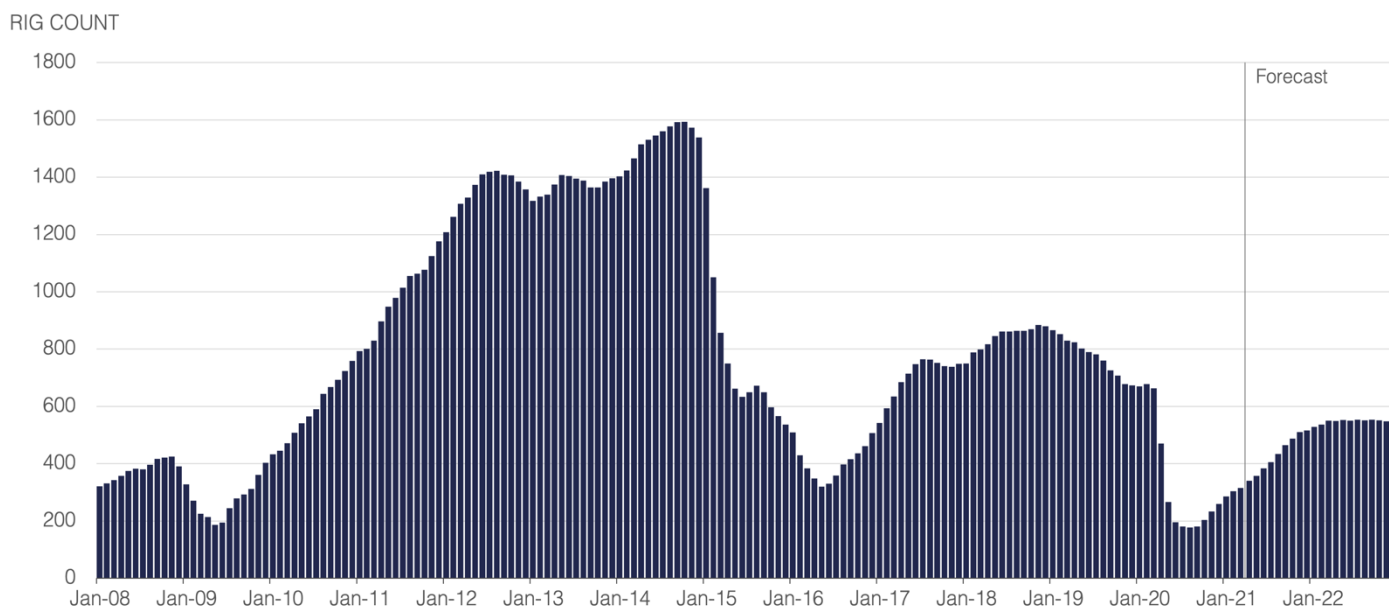


Outlook

US growth is confined in a narrow range in 2021

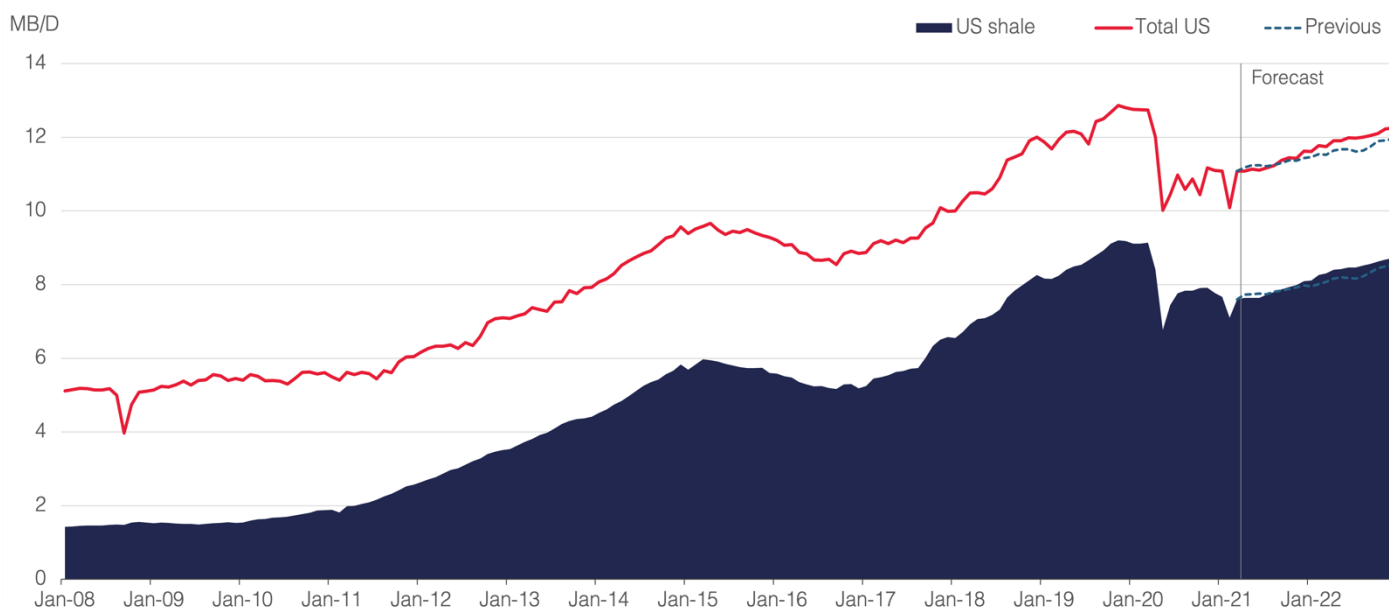
US activity continues to increase but momentum eases as most shale producers stick to the mantra of capital discipline so far.

US drilling activity



Source: Baker Hughes, OIES

US supply



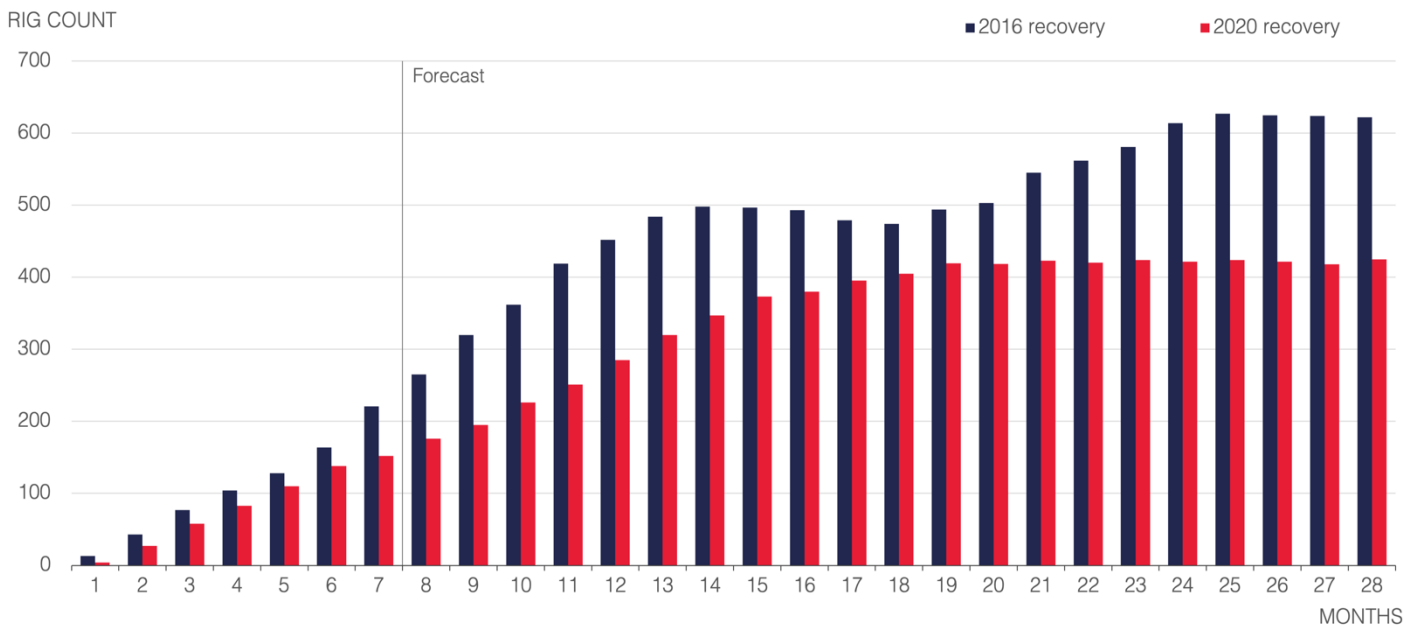
Notes: Crude oil only. Source: OIES

Outlook

US recovery far from previous cycles

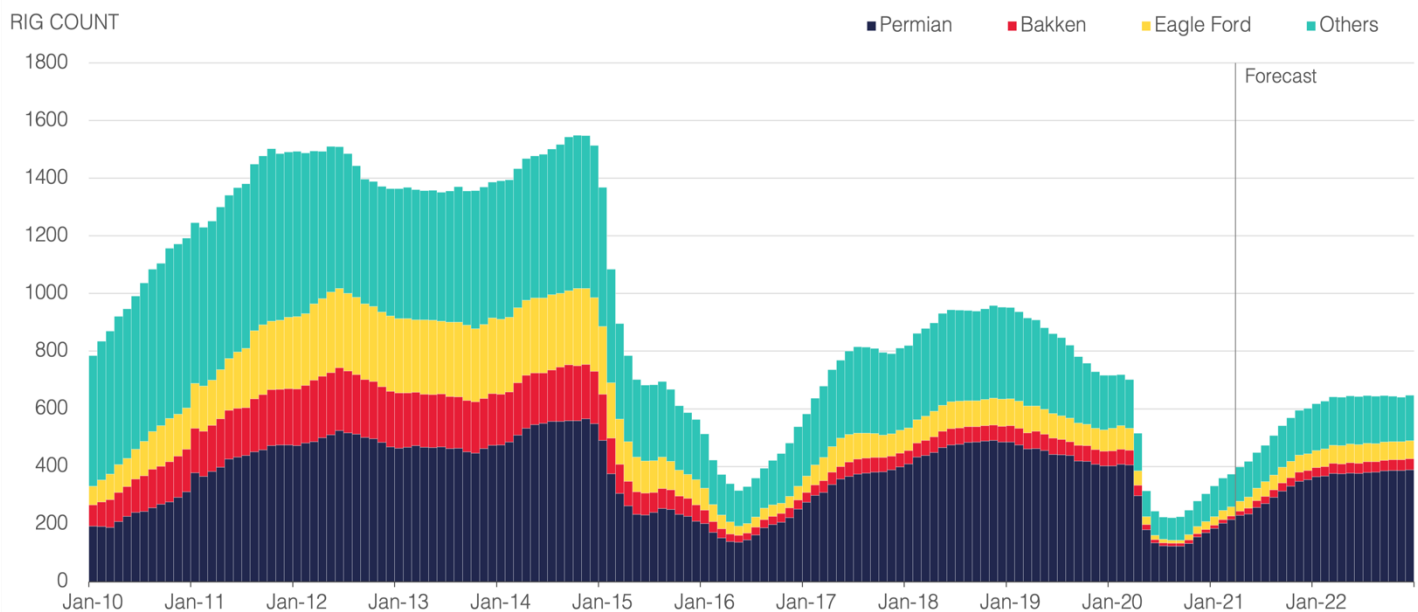
US drilling activity has been recovering faster than anticipated, but the pace of recovery is still 30% lower than the rebound from the 2016 low cycle.

US shale rig count recovery



Notes: The cycle lows reached in May 2016 and August 2020. Source: OIES

US shale drilling activity by play



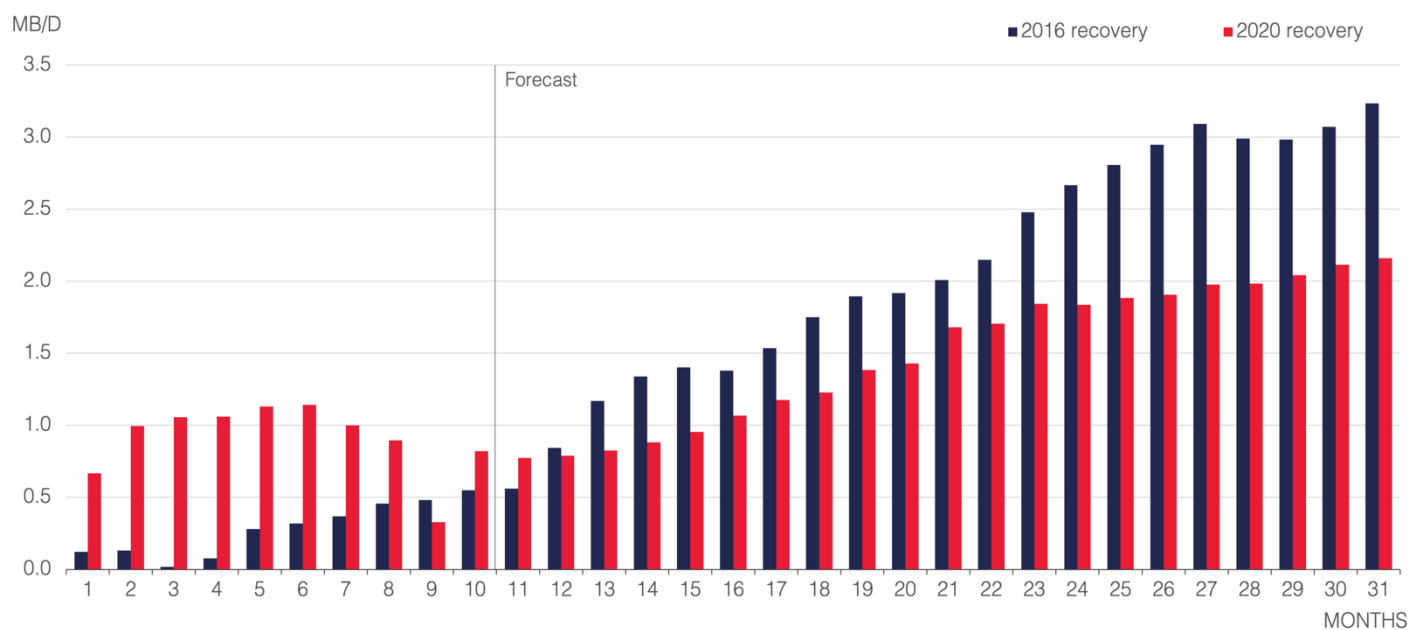
Notes: Crude oil only. Source: EIA, OIES

Outlook

US shale production rebound is uneven across plays and players

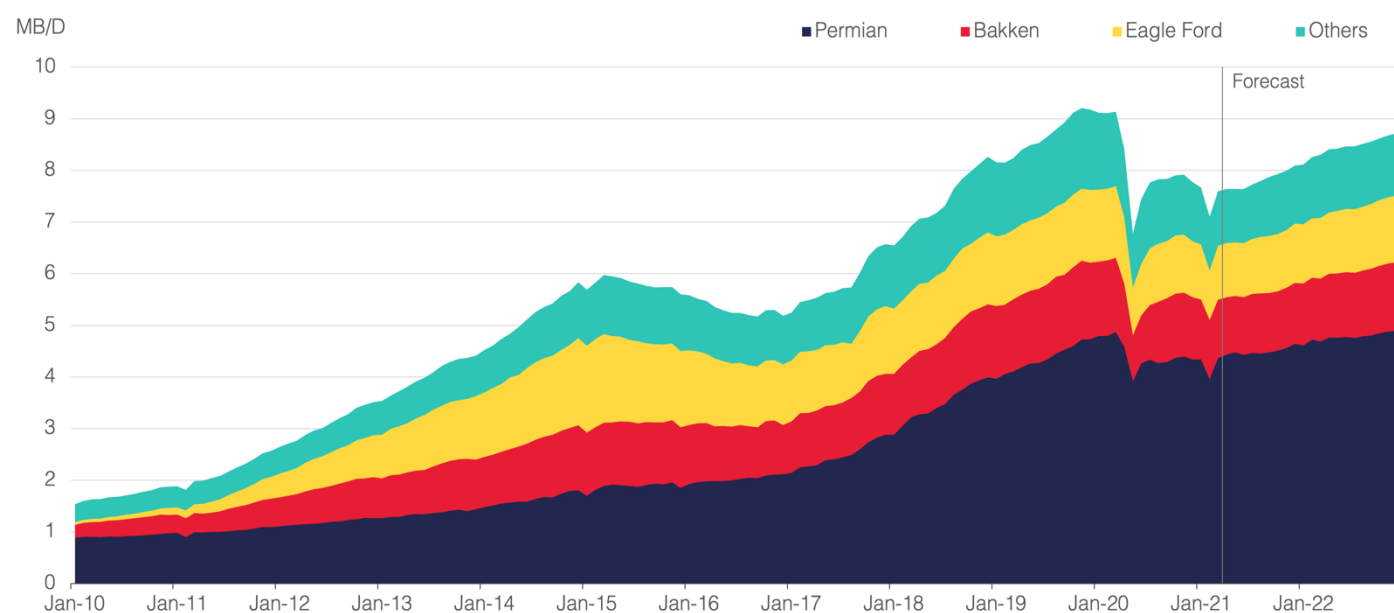
Permian leads the US return, but other basins lag behind with total US shale production by December 2022 estimated at 0.46 mb/d below December 2019 levels.

US shale production recovery



Notes: The cycle lows reached in September 2016 and May 2020. Source: OIES

US shale production by play



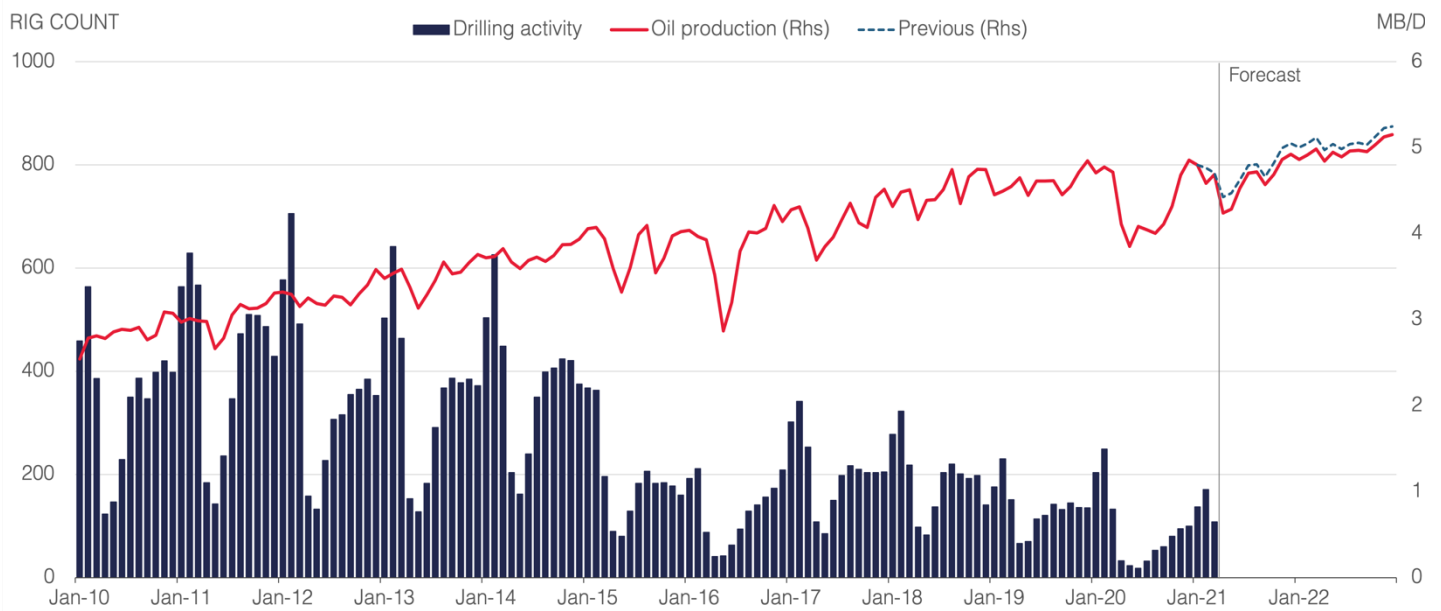
Notes: Crude oil only. Source: EIA, OIES

Outlook

Canada cutbacks lower outlook

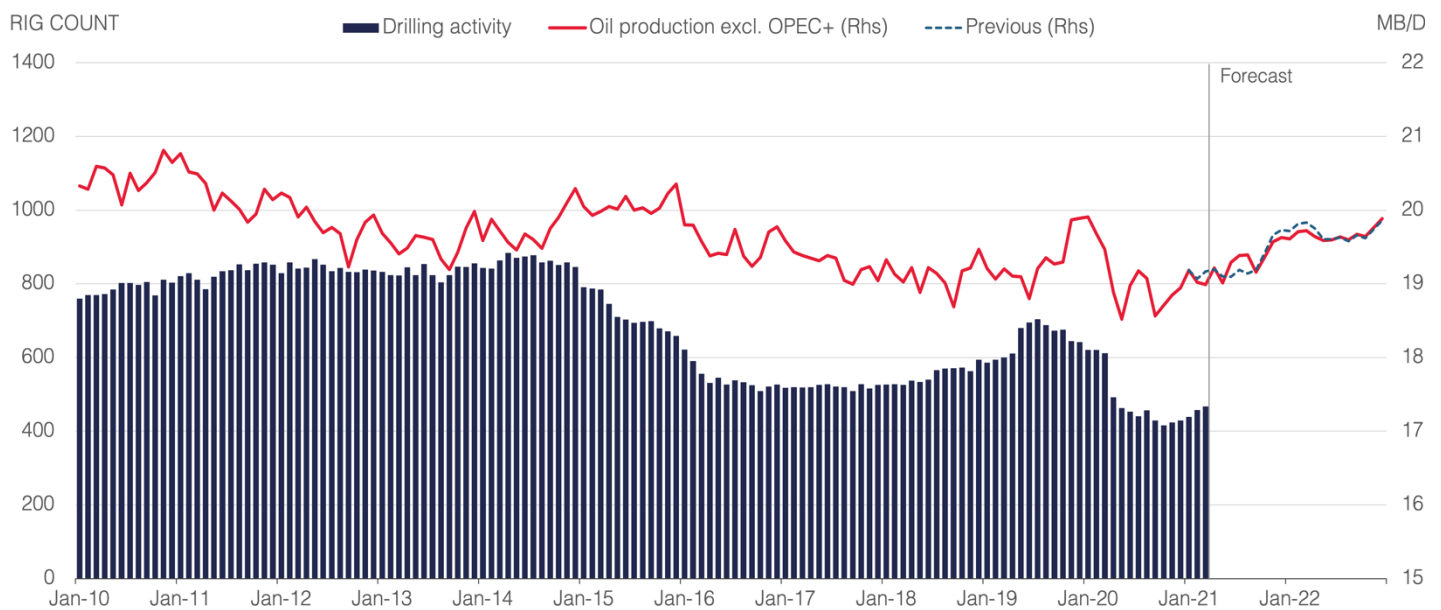
Canadian output in 2021 is revised lower by 0.11 mb/d, but production is still expected to recover 0.12 mb/d above pre-pandemic levels in Q4.

Canada supply



Source: Baker Hughes, OIES

Non-OPEC supply outside NAM



Source: Baker Hughes, OIES



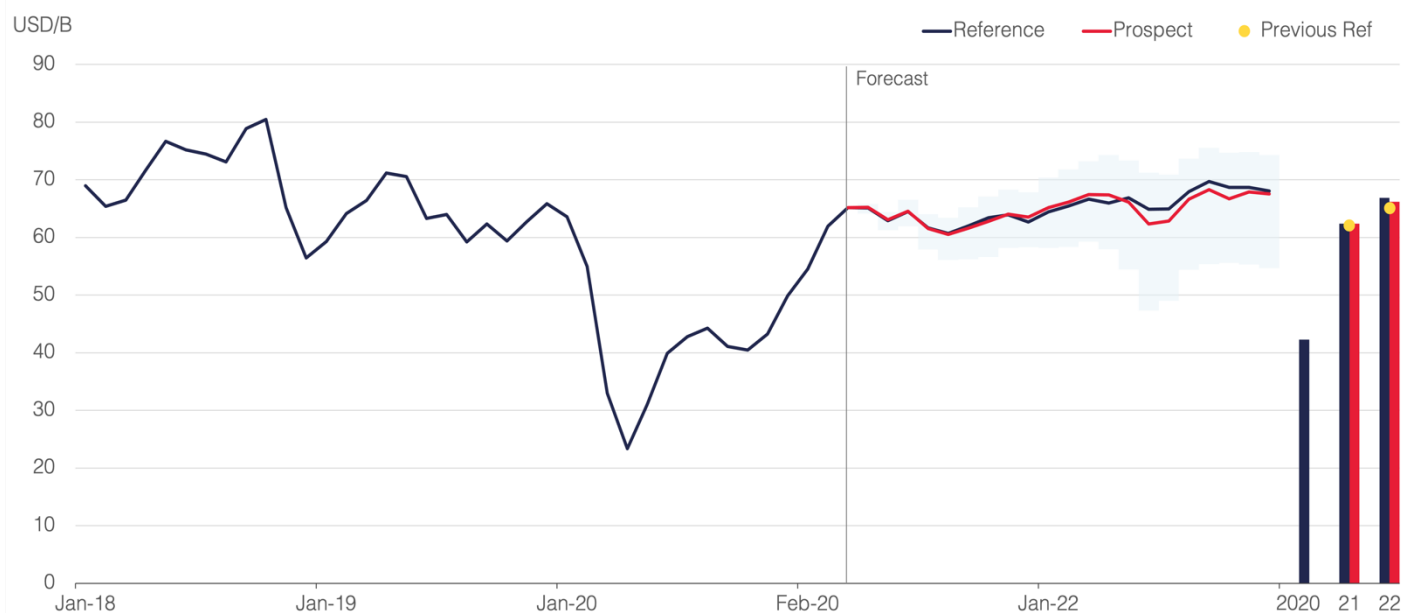
Outlook

Price Outlook

Oil prices well bounded between \$60/b and \$70/b

Oil prices in 2021 are now bounded within the \$59/b and \$65/b range, before the bound expands to \$55/b and \$73/b in 2022, on annual terms.

Brent price outlook



Source: OIES

Key assumptions

		2021	2022
Geopolitics MB/D	IRN	2.43	2.55
	VEN	0.56	0.61
	LBY	1.21	1.30
Supply %, Compliance ¹	OPEC+	100	100
	GDP²	6.1	4.3

¹ Average OPEC+ compliance. ² Based on IMF WEO.

Our Brent price forecast in 2021 is unchanged at \$62.4/b and lifted in 2022 to \$66.9/b

The Brent prospect has now fully converged to the reference price in 2021 and remains \$1/b lower in 2022, suggesting that the risks to the outlook are more broadly balanced. Depending on OPEC+ output policy after April 2022, the Brent price in 2022 averages from a low case of \$62/b reflecting a full OPEC+ output return to a high case of \$67/b reflecting the extension of the OPEC+ restraints to year-end.



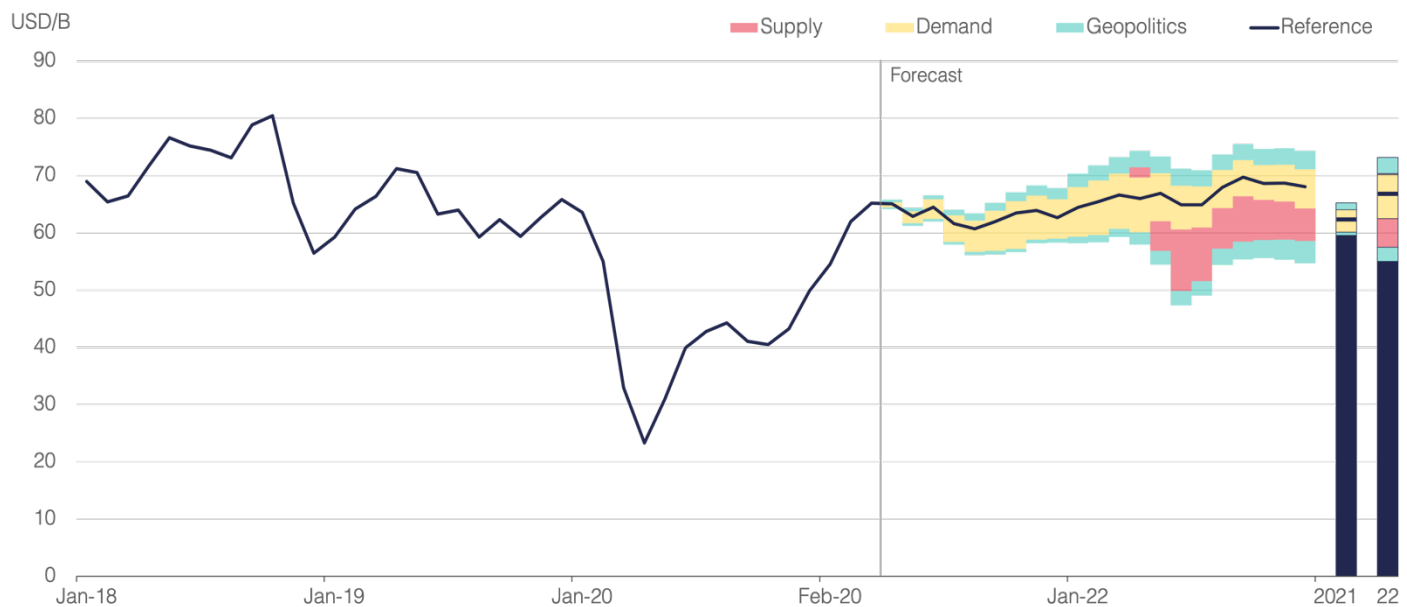
Outlook

Balance of Risks

Risks continue to weigh to the downside, but balance improves

The balance of risks around the outlook is now more broadly balanced in 2021, but supply-driven concerns in 2022 pertaining to the OPEC+ exit strategy loom.

Balance of risks



Notes: Brent price. Source: OIES

Balance of risks

USD/B

	2021	2022
Reference	62.4	66.9
Supply risks ¹	0.0	(4.8)
Demand risks ¹	(1.8)	(1.0)
Geopolitical risks ¹	0.6	0.3
Balance or risks	(1.1)	(5.5)

¹ On balance.

The balance suggests that the new pandemic wave has pushed prices at the low-end of the risk spectrum

On balance, the risks around our outlook have significantly eased in 2021, with the potential for demand to further surprise this year limited to -\$3.5/b to the downside and \$1.7/b to the upside.



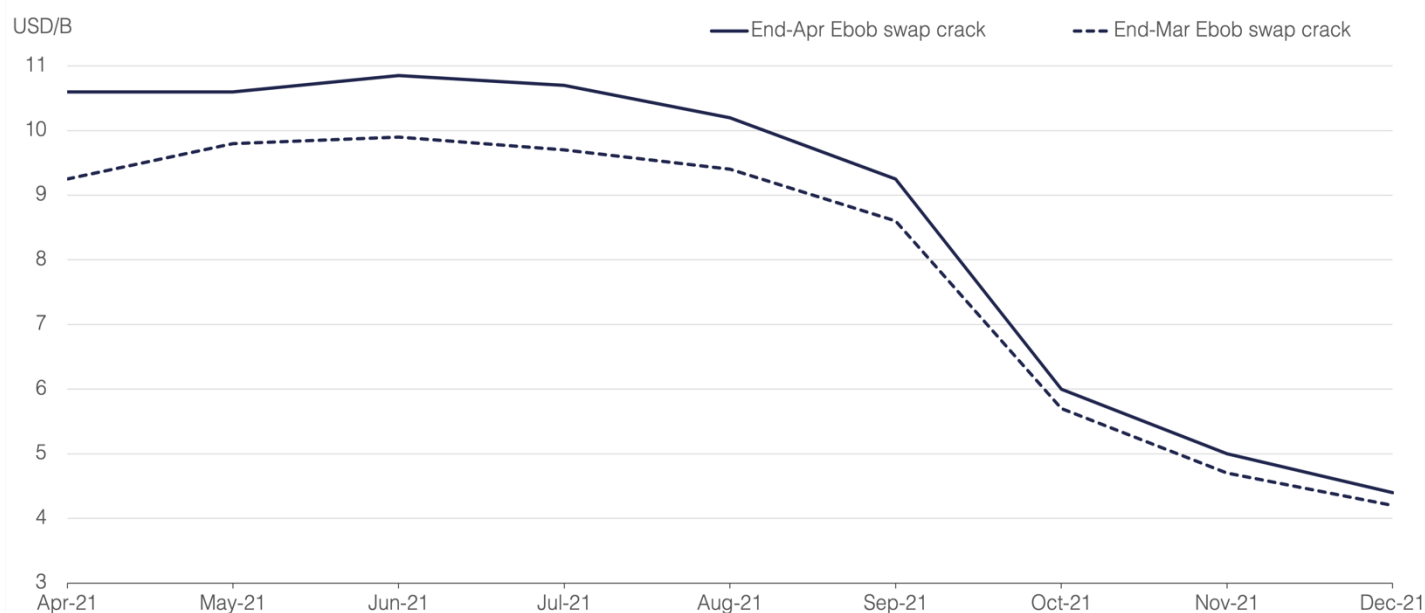
Outlook

Cracks

Product margins still missing a material improvement

Overall product margins remain little changed in the near-term with a slight pick-up in optimism towards the end of the year.

European gasoline (Ebob) cracks



Source: OIES

Key product cracks forward curves¹

USD/B

	Gasoline	Naphtha	Gasoil	FO 3.5%
Apr-21	10.60	(1.50)	4.10	(8.65)
± end-Mar	+1.35	-0.10	-0.40	+0.05
May-21	10.60	(2.20)	4.90	(8.60)
± end-Mar	+0.80	-0.50	-0.25	-0.20
Jun-21	10.85	(2.65)	5.75	(8.40)
± end-Mar	+0.95	-0.65	+0.25	0.00

¹ NWE as they appear on the graphs. OIES estimates.

Clean products improve marginally

Gasoline cracks have marginally improved in April, supported by an uptick in Europe and the US, while the impact of the latest wave of COVID in India remains a concern. Naphtha cracks were weaker, due to lower Asia and Latin America demand on high outright prices and an uptick in US naphtha production in April.

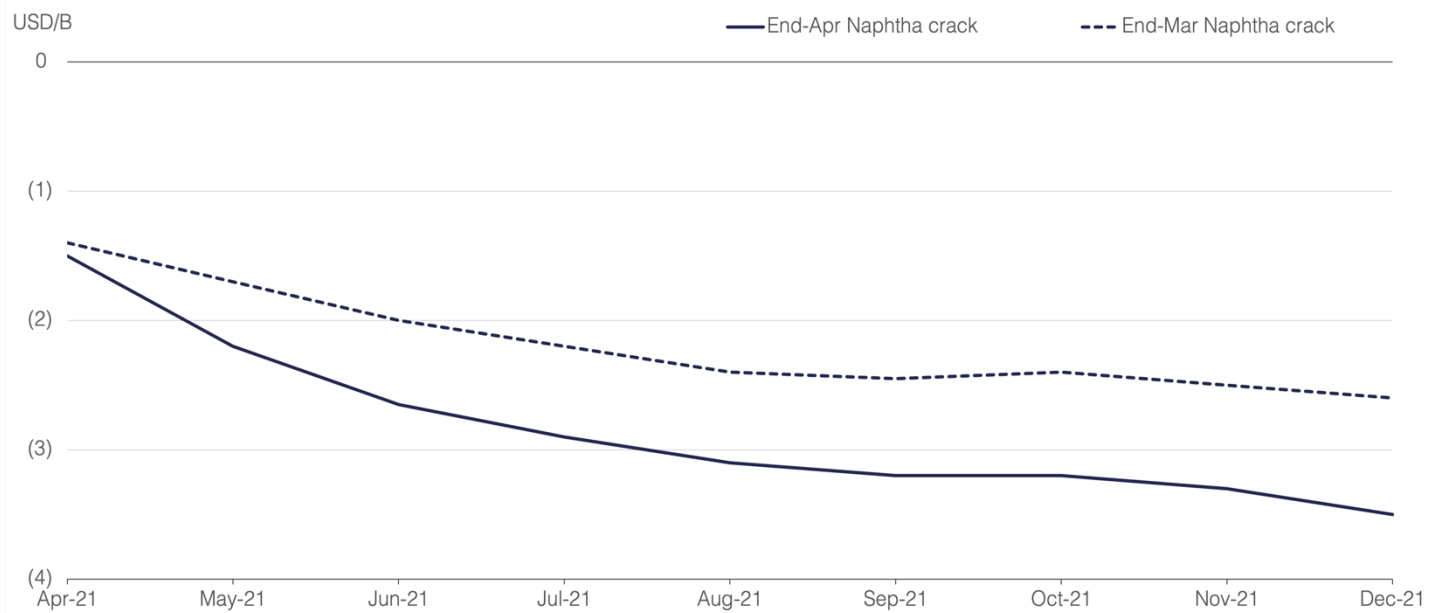


Outlook

Jet cracks receive a boost

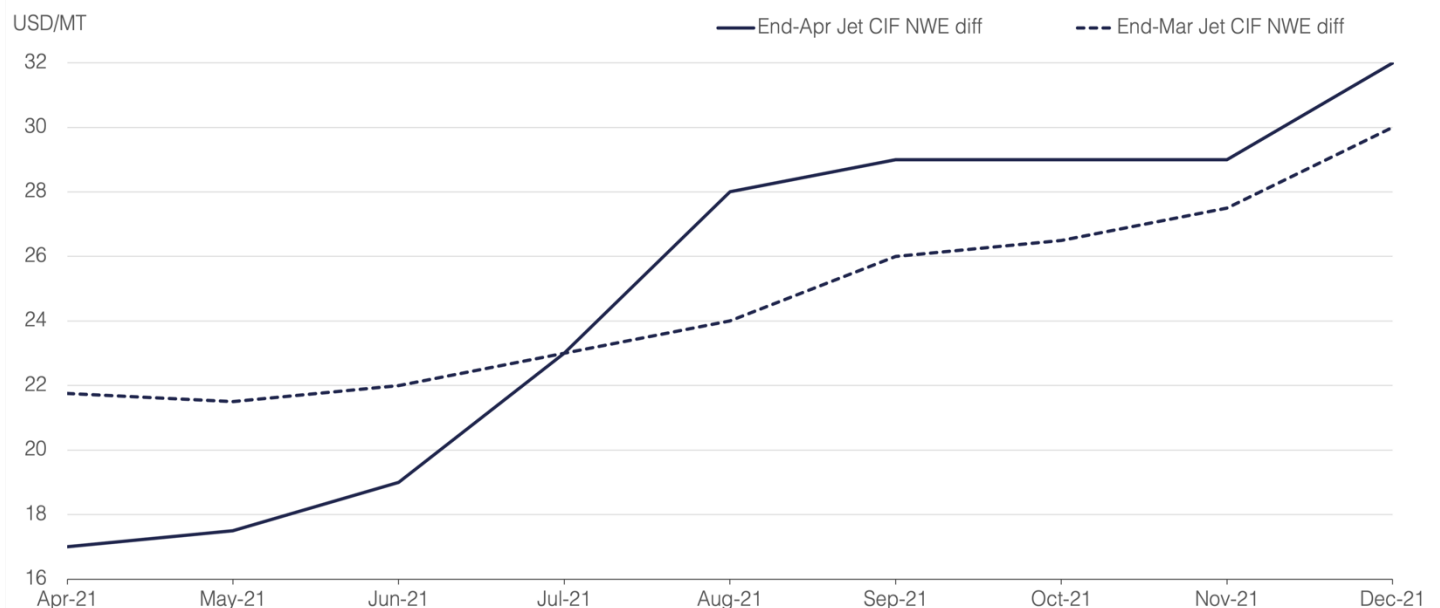
The EU announcement to allow fully vaccinated US tourists to travel in the summer and the number of US passenger flights hitting a post-pandemic high supported jet.

European naphtha CIF NWE cracks



Source: OIES

Jet CIF NWE swap diffs to gasoil



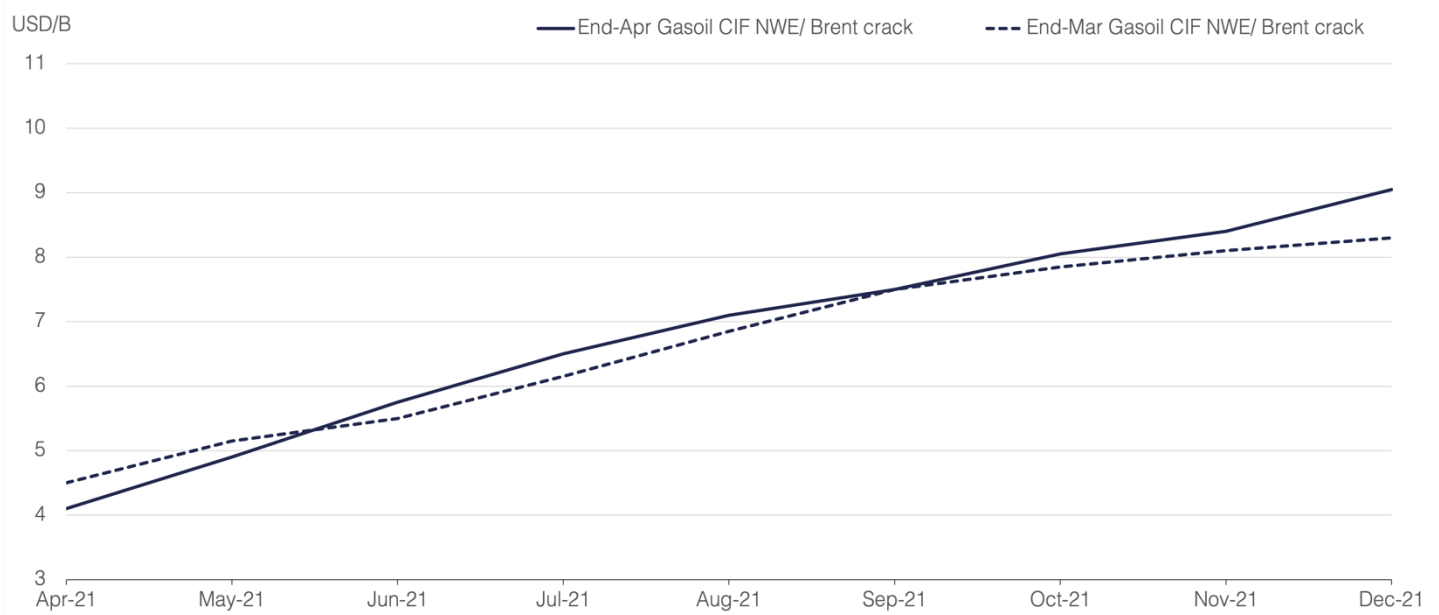
Source: OIES

Outlook

Gasoil and FO cracks largely unchanged

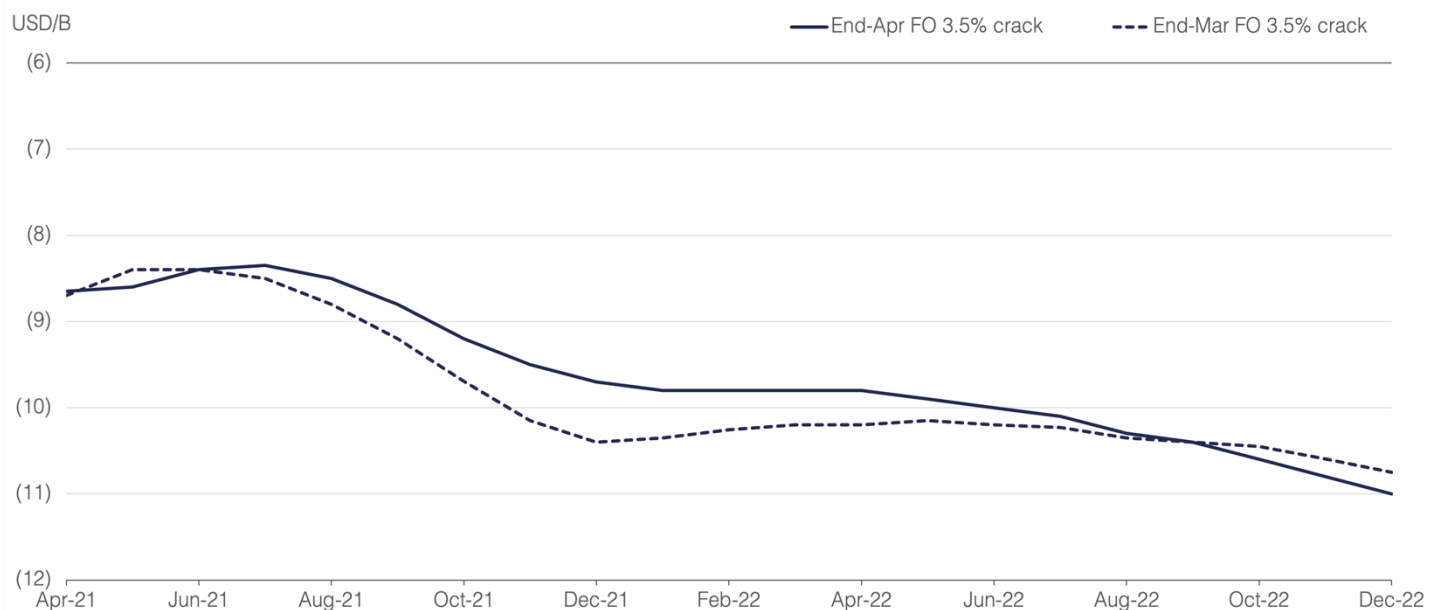
Gasoil remains largely unchanged, as good supplies from the US and China were offset by high stocks in EU and Singapore; FO small lift at the front end of the curve.

Gasoil CIF NWE / Brent crack



Source: OIES

Fuel oil barges NWE 3.5% crack



Source: OIES



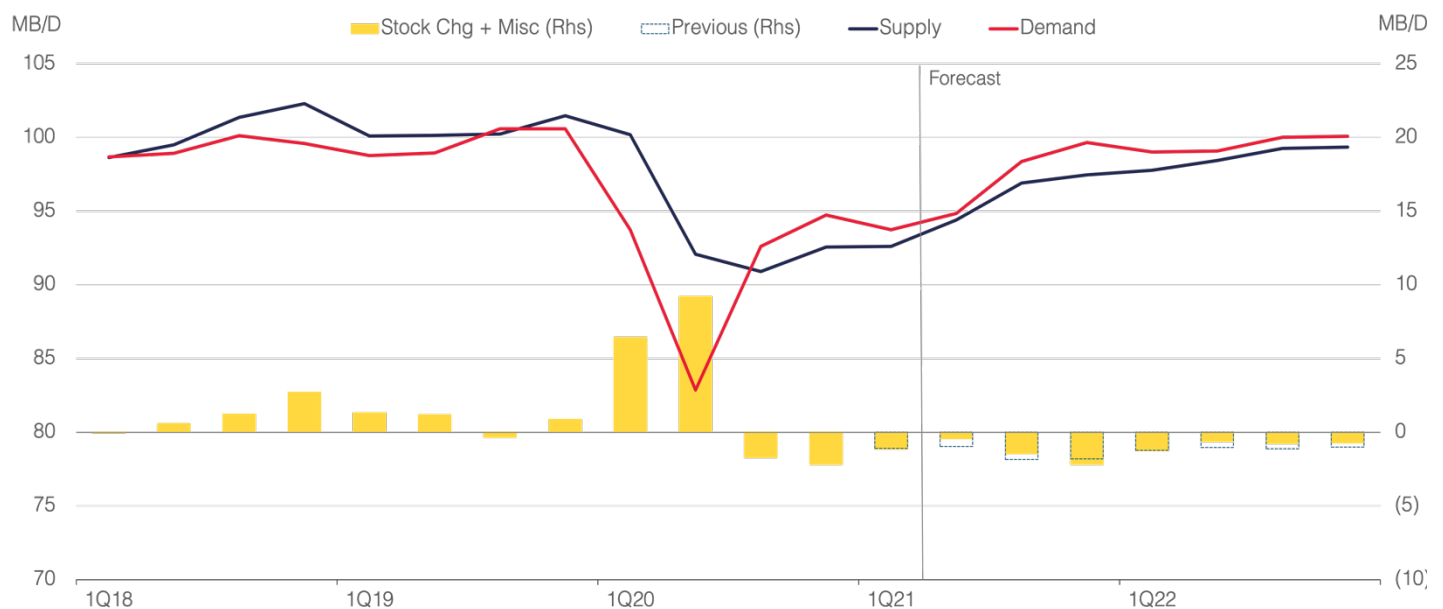
Outlook

Global Balance

Despite recent headwinds, market deficits persist

OPEC+ continues to manage the market, but the extent of the global oil demand rebound in H2 will shape market outcomes in 2021 and beyond.

Global balance



Source: OIES

Global balance			
MB/D			
	Demand	Supply	Balance
2020	91.0	93.9	2.9
± prev	-0.01	-0.01	-0.01
2021	96.6	95.3	(1.3)
± prev	-0.15	-0.02	+0.13
2022	99.5	98.7	(0.8)
± prev	-0.04	+0.22	+0.26

We now project a 1.3 mb/d market deficit in 2021 and a 0.8 mb/d deficit in 2022

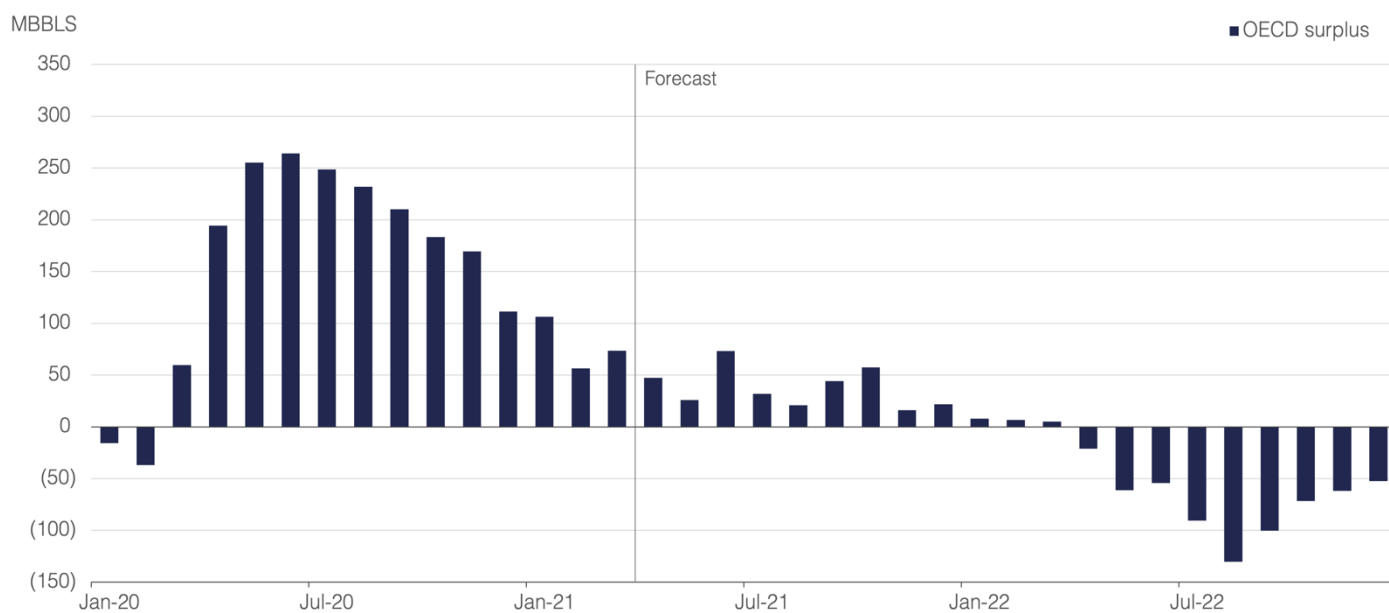
Global balance assumes 100% OPEC+ compliance with the latest output cut deal, that sees the return of 2.14 mb/d of OPEC+ production back into the market in May-July. We assume no immediate return of OPEC+ production after April 2022.

Outlook

OECD stock draws flip on higher crude

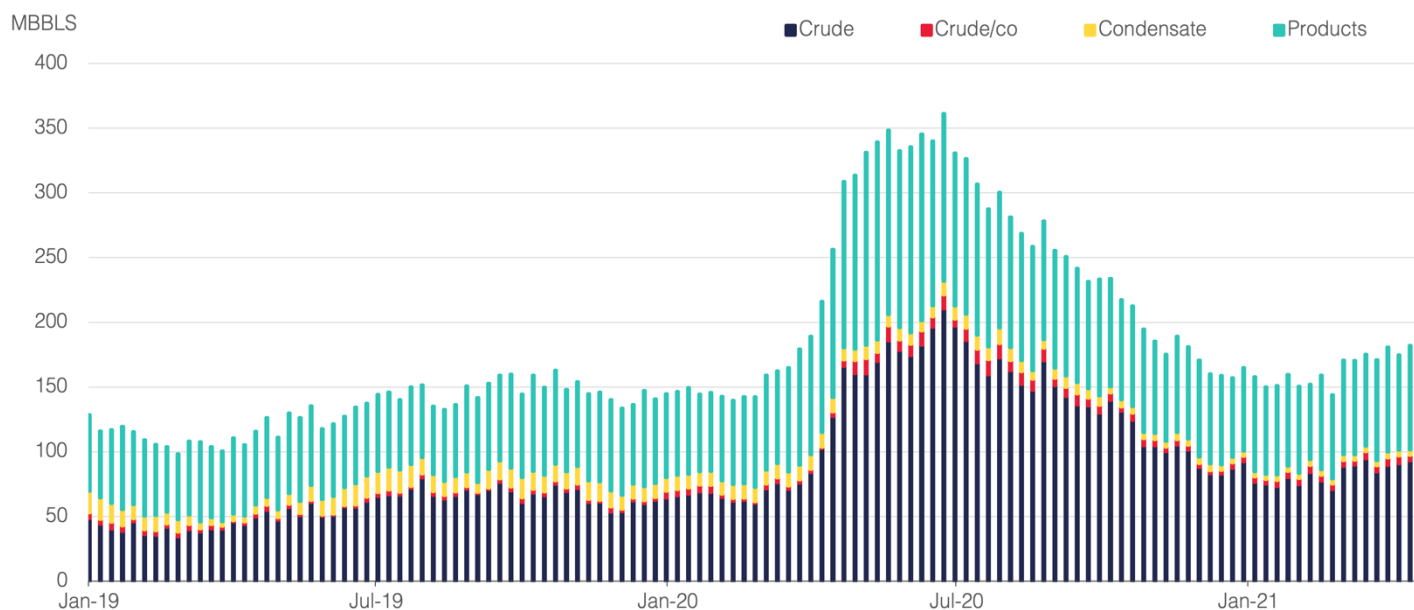
Despite the recent build in OECD stocks, the global picture paints a different story, where implied stocks in non-OECD and in particular China draw heavily.

OECD commercial stocks vs 2015-2019 average



Source: OIES

Global floating storage



Source: Kpler, OIES



Tables

Oil prices

	2019	1Q20	2Q20	3Q20	4Q20	2020	1Q21	Forecasts					
								2Q21	3Q21	4Q21	2021	2022	
Price outlook													
USD/b													
Brent price	64.0	50.5	31.4	42.7	44.5	42.3	60.6	64.2	61.4	63.3	62.4	66.9	
Brent prospect	64.0	50.5	31.4	42.7	44.5	42.3	60.6	64.3	61.2	63.5	62.4	66.2	
Price drivers													
USD/b													
Geopolitics	2.3	1.3	1.0	-0.8	-2.1	-0.6	-0.7	0.2	0.6	1.1	0.6	0.3	
Supply	4.0	-0.6	6.4	8.5	2.6	10.2	4.6	-0.1	-0.1	-0.1	-0.1	-4.8	
Demand	-9.0	-8.7	-27.6	6.9	0.9	-21.2	5.7	-0.5	-2.5	-2.4	-1.8	-1.0	
Speculative	-5.3	-4.1	1.1	-3.3	0.4	-10.1	6.4	-	-	-	-	-	
Price risks													
USD/b													
Balance of risks	-	-	-	-	-	-	-	-0.3	-1.9	-1.2	-1.1	-5.5	
Brent low	-	-	-	-	-	-	-	62.5	56.7	57.7	59.4	55.0	
Brent high	-	-	-	-	-	-	-	65.6	64.2	67.7	64.5	73.2	

Global balance

	2019	1Q20	2Q20	3Q20	4Q20	2020	1Q21	Forecasts					
								2Q21	3Q21	4Q21	2021	2022	
Global balance													
mb/d													
OECD	47.7	45.5	37.6	42.3	43.0	42.1	42.9	44.0	46.0	46.6	44.9	46.1	
Non-OECD	52.0	48.3	45.3	50.3	51.7	48.9	50.8	50.9	52.3	53.1	51.8	53.4	
Total Demand	99.7	93.7	82.9	92.6	94.7	91.0	93.7	94.8	98.4	99.6	96.6	99.5	
(y/y chg.)	0.4	-5.0	-16.1	-8.0	-5.8	-8.7	0.0	12.0	5.8	4.9	5.7	2.9	
OPEC	29.5	28.2	25.6	23.9	25.0	25.7	25.2	25.8	27.3	27.5	26.5	27.6	
Non-OPEC	53.8	55.1	49.8	49.4	50.5	51.2	50.9	51.2	51.9	52.5	51.6	53.3	
Of which:													
US	12.2	12.7	10.8	10.8	10.9	11.3	10.7	11.1	11.3	11.5	11.2	12.0	
Brazil	2.8	3.0	2.9	3.0	2.8	2.9	2.8	3.1	3.2	3.2	3.1	3.2	
Canada	4.6	4.7	4.0	4.1	4.6	4.4	4.7	4.4	4.7	4.8	4.6	5.0	
Norway	1.4	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.9	2.0	1.9	2.0	
Others	32.8	32.9	30.4	29.9	30.4	30.9	30.8	30.9	31.0	31.1	30.9	31.1	
Total crude	83.3	83.3	75.4	73.4	75.5	76.9	76.1	77.0	79.2	80.0	78.1	80.9	
NGLs	13.6	13.9	13.4	13.6	13.7	13.6	13.5	13.9	13.8	13.9	13.8	14.1	
Biofuels/Misc.	3.6	3.0	3.3	3.9	3.4	3.4	2.9	3.6	3.8	3.5	3.5	3.7	
Total Supply	100.5	100.2	92.1	90.9	92.6	93.9	92.6	94.4	96.9	97.5	95.3	98.7	
(y/y chg.)	0.0	0.1	-8.1	-9.3	-8.9	-6.6	-7.6	2.3	6.0	4.9	1.4	3.4	
Global Balance	0.8	6.4	9.2	-1.7	-2.2	2.9	-1.1	-0.4	-1.4	-2.2	-1.3	-0.8	
Memo:													
OPEC call	28.7	21.7	16.4	25.7	27.2	22.7	26.3	26.3	28.8	29.7	27.8	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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STUDIES

Editor

Andreas Economou
Senior Research Fellow

Research Contributors

Bassam Fattouh
Director OIES

Adi Imsirovic
Senior Research Fellow

Michal Meidan
Director, China Energy Programme

Ahmed Mehdi
Research Associate

Anupama Sen
Senior Research Fellow



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