

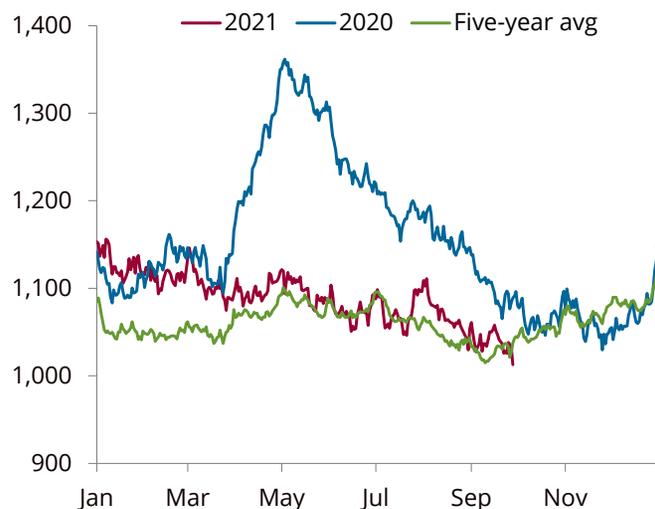
## Oil Market Outlook



# Oil fundamentals are sound, with hefty stockdraws continuing

## Global crude oil on water

mb

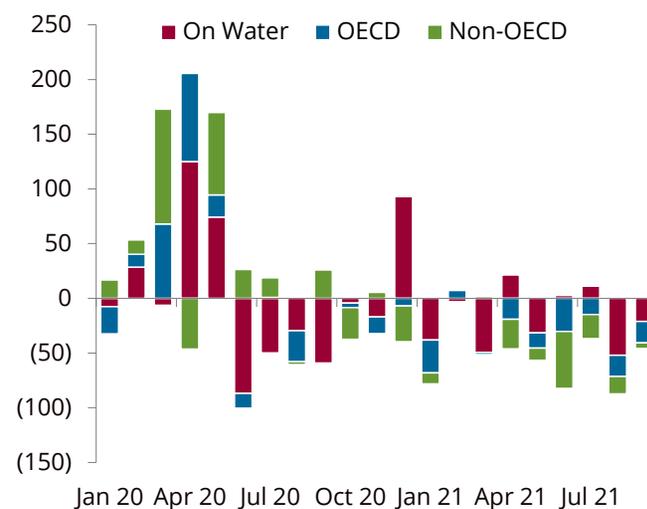


Global crude oil on water remains in line with the five-year average but has fallen by over 70 mb in the last two months.

Source: Kpler, EIA, PAJ, Energy Aspects

## Global crude stockdraws

mb

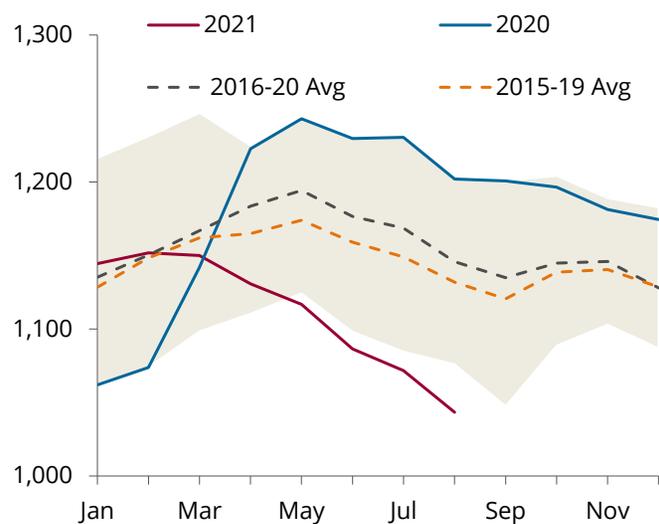


Crude stock continue to draw in all areas and are now 100 mb below January 2020 levels.

## OECD crude stocks are below the five-year minimum

### OECD crude stocks

mb

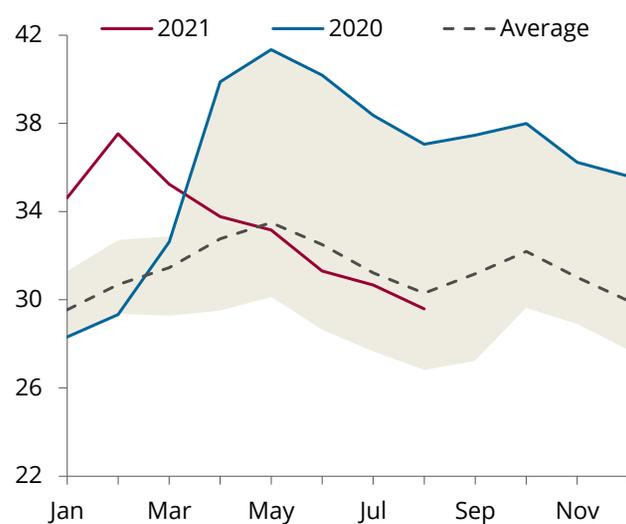


Crude stocks have plummeted to below the five-year minimum, led by the US and Europe.

Source: IEA, Energy Aspects

### OECD crude stocks forward cover

#

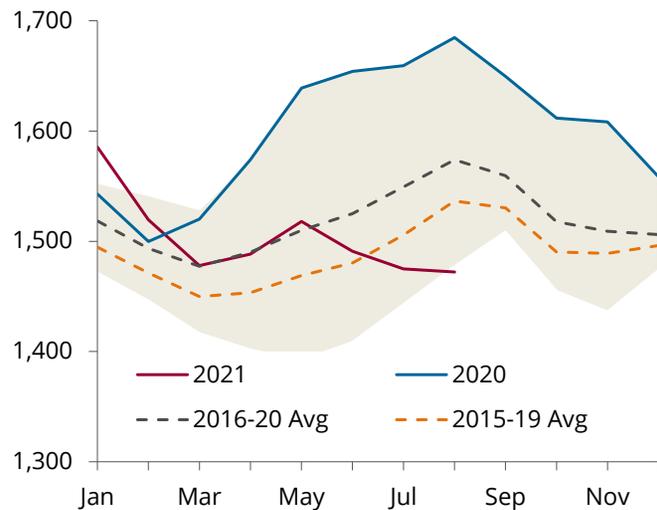


Even adjusting for lower runs, OECD crude stocks are below the five-year average.

# OECD products stocks have plummeted on low refinery runs

## OECD products (ex other oils) stocks

mb

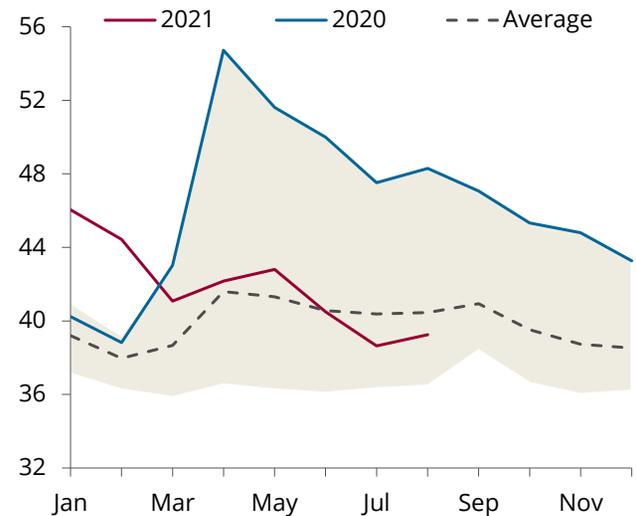


Product stocks have also fallen below the five-year minimum as demand recovered but runs lagged.

Source: IEA, Energy Aspects

## OECD products (ex other oils) stocks forward cover

#

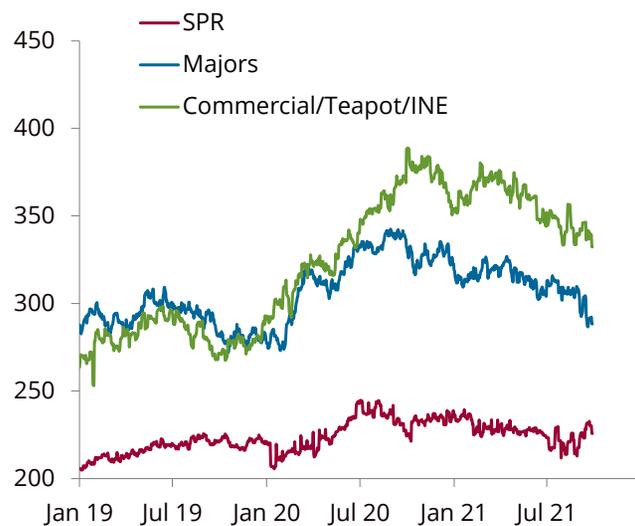


Stocks are less tight on a forward cover basis, but they still are below the five-year average.

## China releases SPR to tamp down inflation, but stocks are low

### Chinese crude storage by type

mb

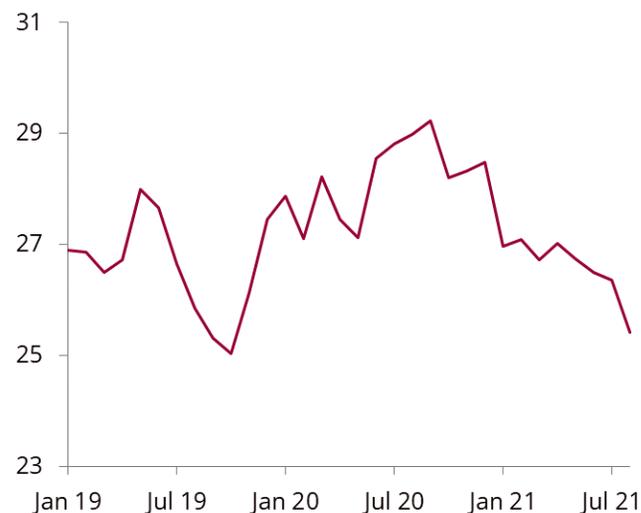


Crude stocks have been drawing since August 2020 across all tank sites, with majors' stocks below 2019 levels.

Source: Kpler, Energy Aspects

### Chinese majors' days of cover

# days

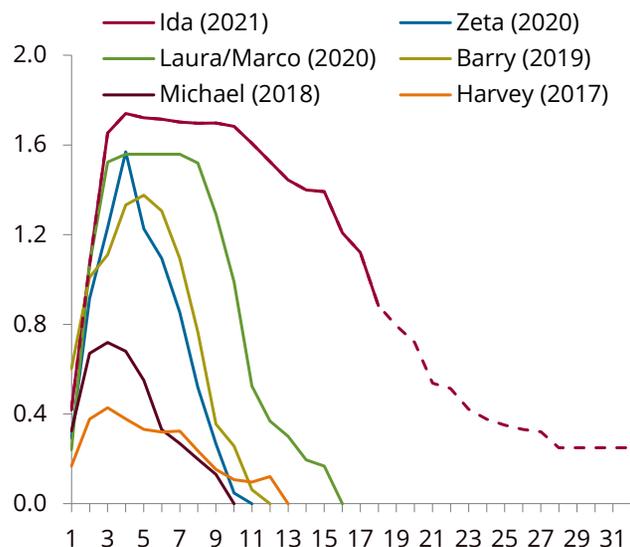


We expect more SPR releases in early 2022, but Chinese buying will pick up soon as the country's stocks are low.

# Ida effects are leading to huge hydrocarbon losses

## GoM crude lost from selected storms

mb/d

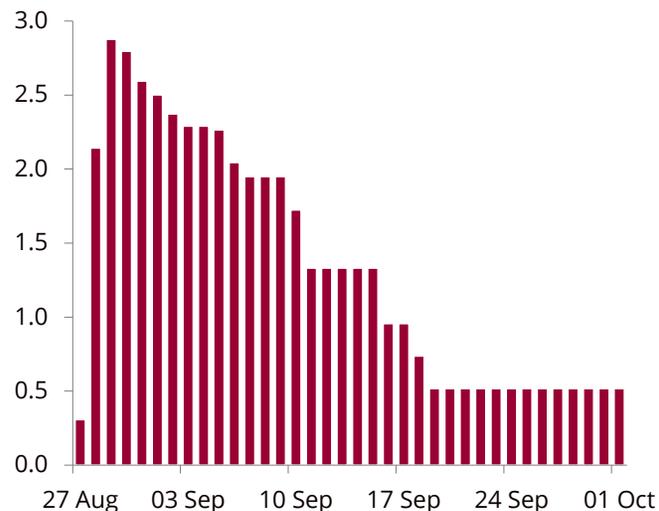


Prolonged outage at WD-143 will result in 55–60 mb of total crude lost—one of the largest hurricane losses in history.

Source: BSEE, Energy Aspects

## USGC unplanned CDU outages

mb/d

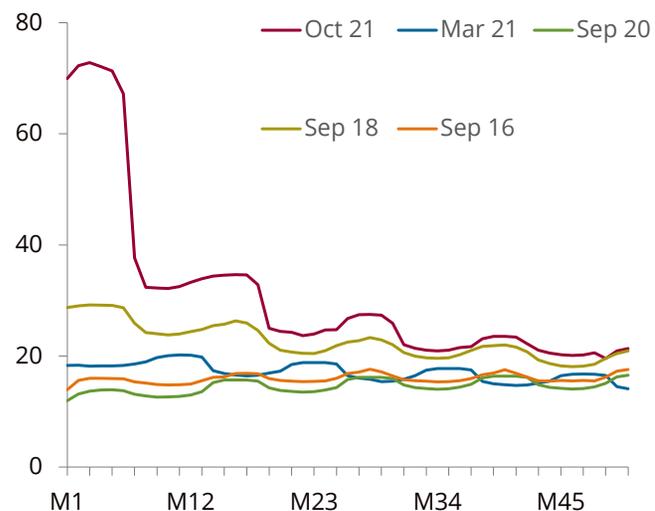


Refinery shutdowns are likely to be prolonged given power outages. Total demand loss is expected to be above 50 mb.

## Soaring gas prices are boosting liquids demand at the margin

### TTF forward curve

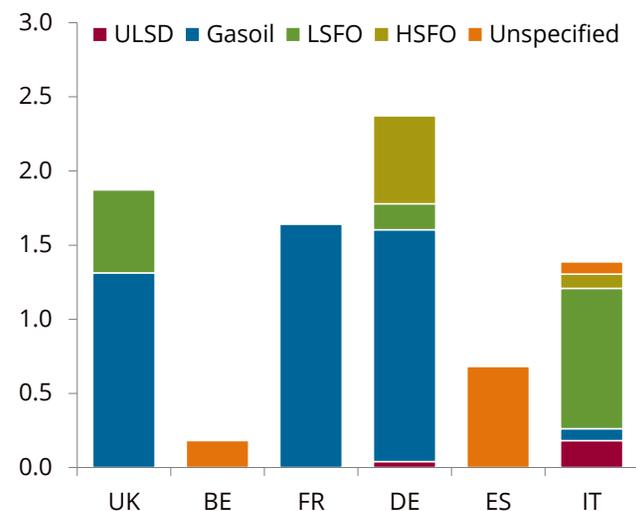
€/MWh



Soaring gas prices could lead to 0.45 mb/d of incremental liquids demand y/y this winter.

### Oil-fired capacity by fuel in Europe

GW



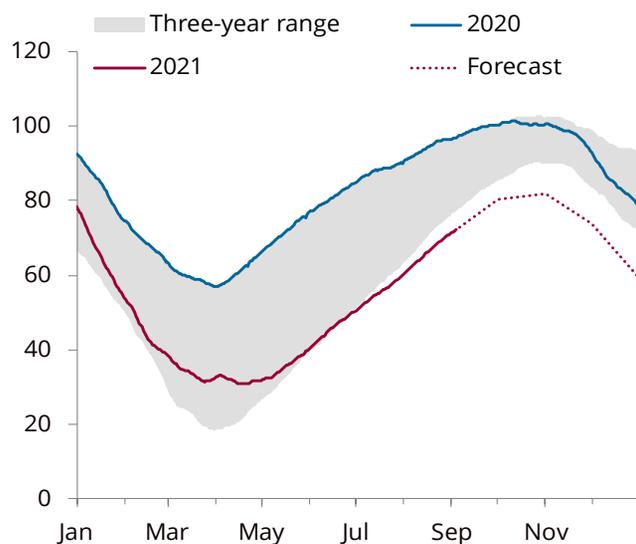
There are limits to gas-to-oil switching in Europe, amounting to no more than 0.16–0.24 mb/d of liquids.

Source: Bloomberg, Company websites, Government websites, Energy Aspects

# TTF tightness driven by storage adequacy concerns and supply issues

## European gas storage

bcm

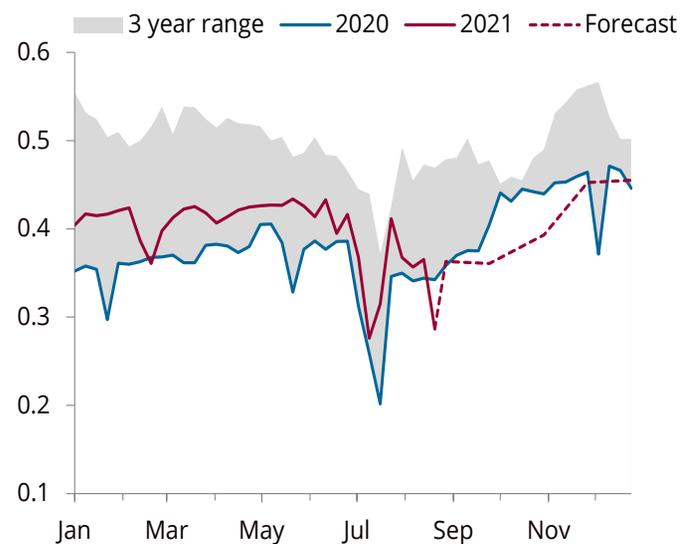


With Ukrainian storage also around 12 bcm lower y/y, aggregate storage in Europe is 28 bcm lower y/y in total.

Source: Energy Aspects

## Imports of Russian gas into the EU market

bcm/d

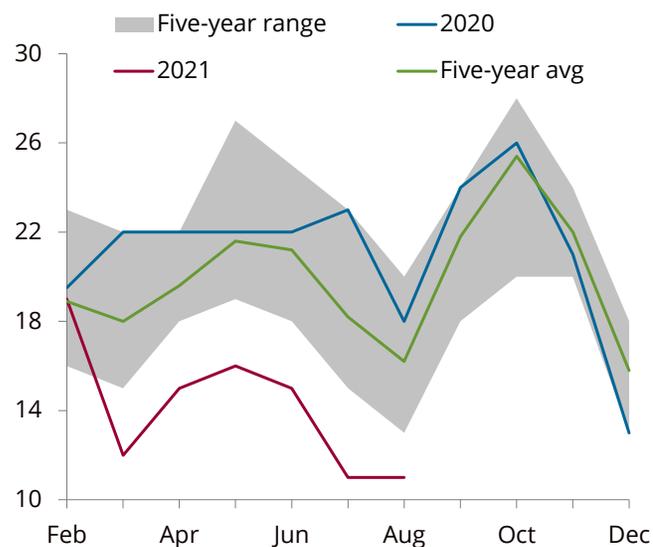


Russian gas supplies fell after a 25 bcm reduction in Ukraine transit capacity. Net flows stronger given limited backflows.

# Power crisis in China: buy energy at any cost

## Coal stocks at major Chinese power utilities

days

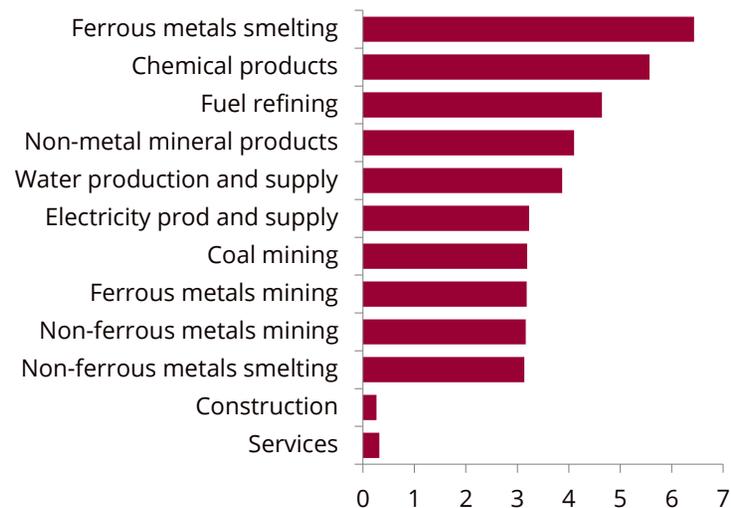


Sharply lower coal stocks have spurred a power crisis in China, with the government now ready to secure energy at any cost.

Source: Wind, Energy Aspects

## Power usage to unit of GDP produced by sector

Economy-wide average = 1

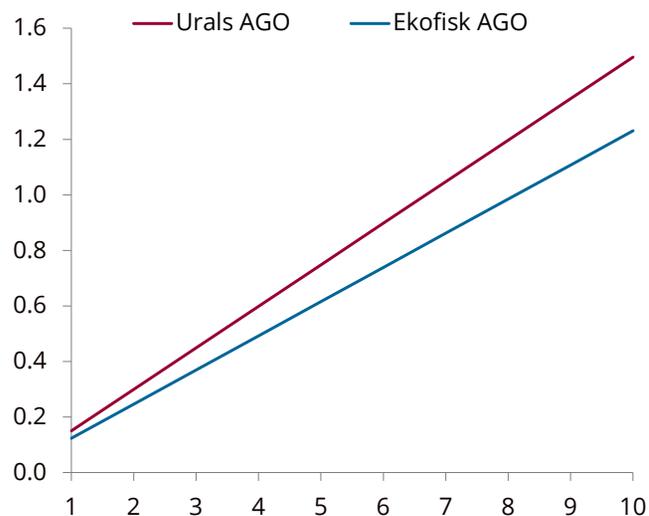


But power curbs on some energy-intensive sectors will continue to meet China's emissions targets.

# Gas prices are eating into refinery profitability

## Desulphurisation hydrogen cost vs natural gas

\$/bbl; \$/mmbtu

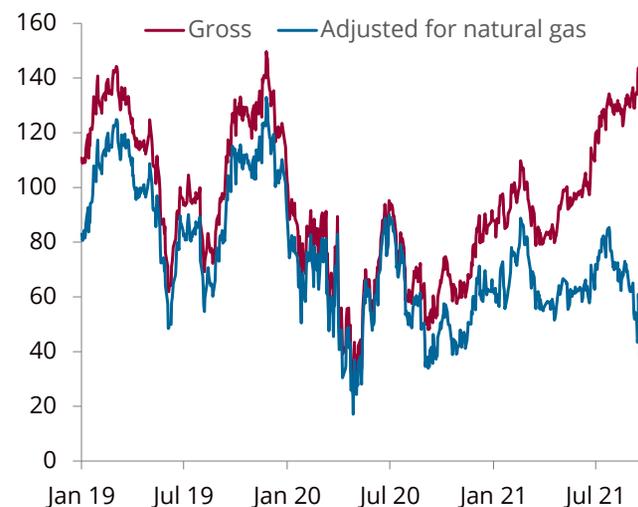


The surge in gas prices is eroding complex margins by raising the cost of hydrogen production.

Source: Argonne National Laboratory, Energy Aspects

## Hydrocracking unit margins

\$/tonne

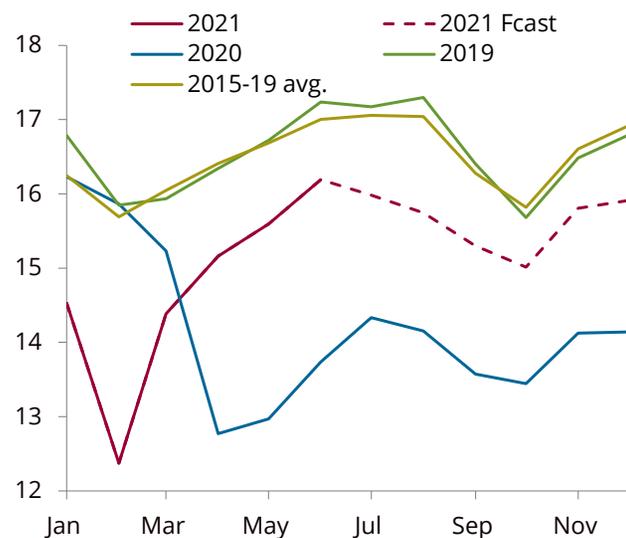


Rising cost of hydrogen production suppresses hydrocracking unit margins, depending on spot gas value exposure.

## So the rise in runs will be modest despite strong margins

### US refinery runs and forecast

mb/d

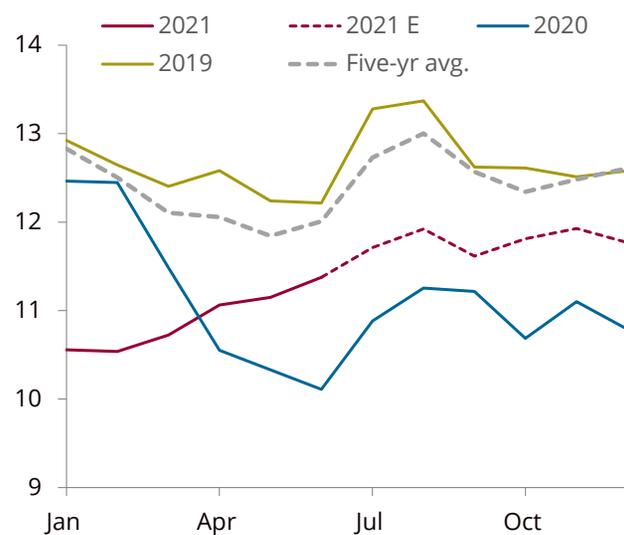


US demand continues to track favourably and closer to 2019 levels, but a rise in Covid cases is a potential downside risk.

Source: Energy Aspects

### European refinery runs

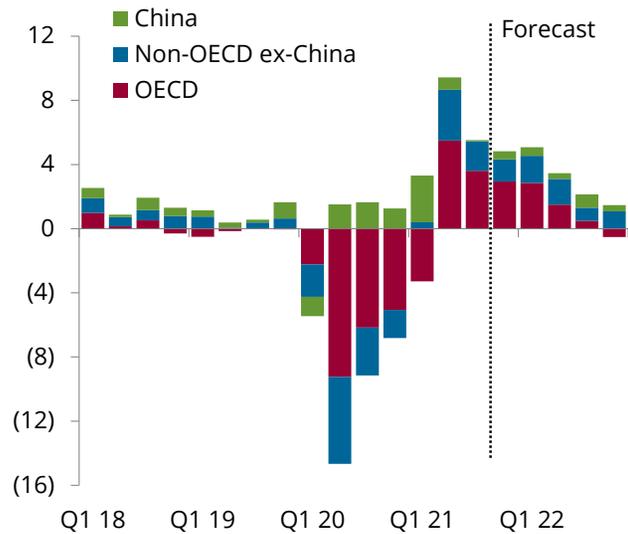
mb/d



Stronger margins after Ida should shore up European runs in Q4 21, which we lifted by 0.3 mb/d from previous estimates.

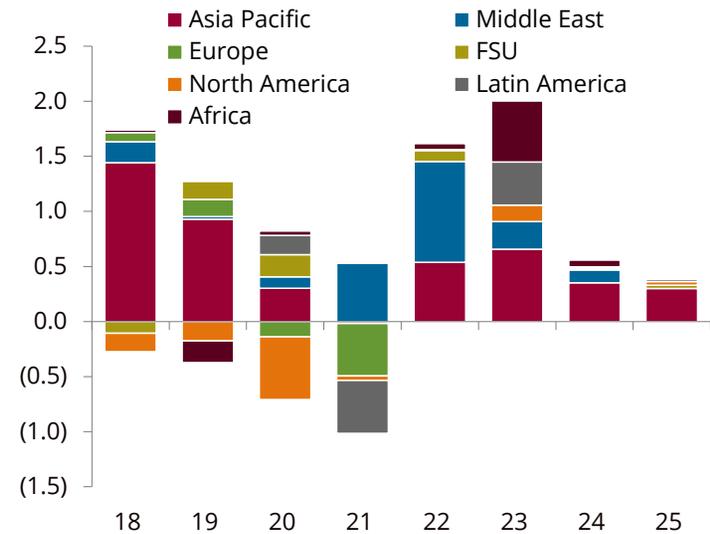
# Global oil demand closing in on 100 mb/d from September

**Global oil demand, y/y**  
mb/d



Asian oil demand is struggling, but vaccination rollouts will unleash significant pent-up demand in H2 22.

**Global refinery start-ups, y/y**  
mb/d



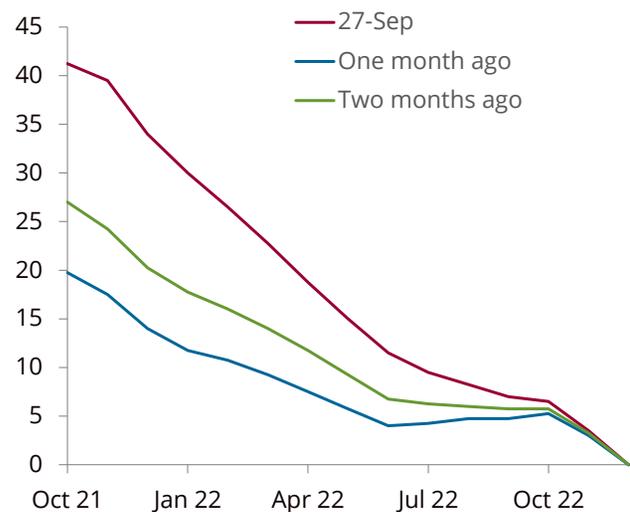
Gross capacity will fall by 0.47 mb/d in 2021 and then rise by 1.60 mb/d in 2022, led by east of Suez refiners.

Source: Energy Aspects

# Atlantic basin diesel markets rebalance on supply-led tightness and slow exports

## ICE gasoil structure vs Dec-22

\$/t

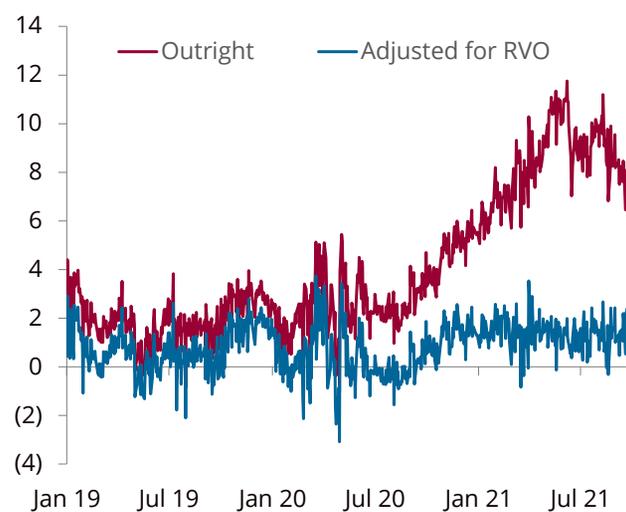


The backwardation in ICE gasoil timespreads has widened drastically as markets price in some gas-to-liquids switching.

Source: EIA, PAJ, Platts, Refinitiv, Kpler, Energy Aspects

## Heating Oil vs ICE gasoil (HOGO), M1

\$/bbl

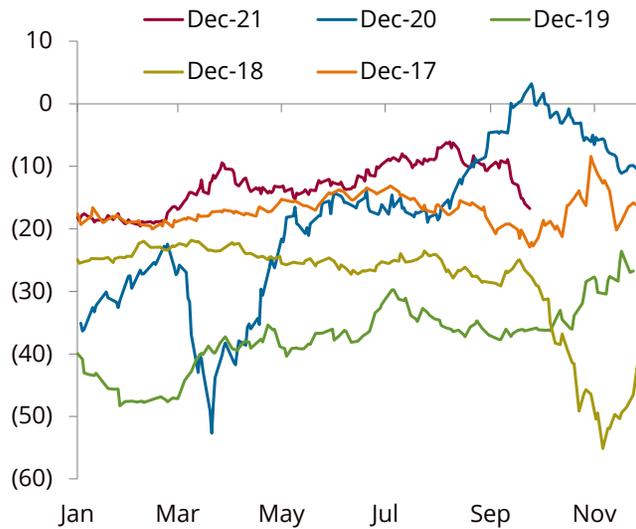


Low USEC stocks keep HO supported, ICE gasoil will have to rise in tandem if imports are to be sustained.

# RBOB–HO spread to widen further as distillate tightens heading into winter

## Dec-21 RBOB–HO spread

c/gal

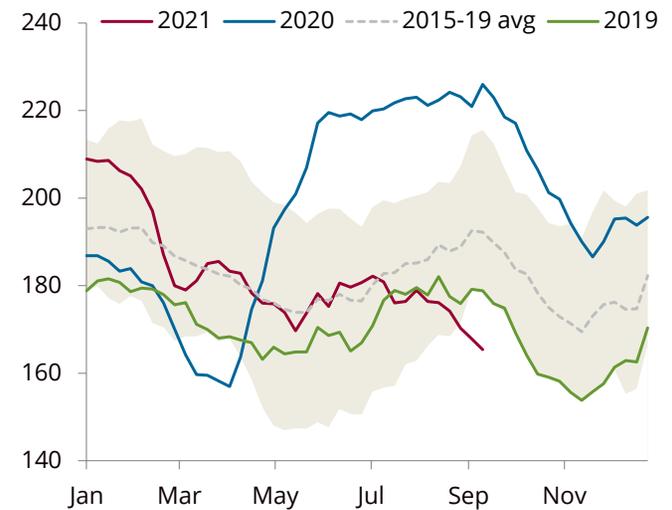


RBOB–HO spread to widen on risk of larger-than-usual seasonal demand drop-off after summer and stronger diesel demand.

Source: Refinitiv, EIA, Energy Aspects

## Global high-frequency diesel stocks

mb

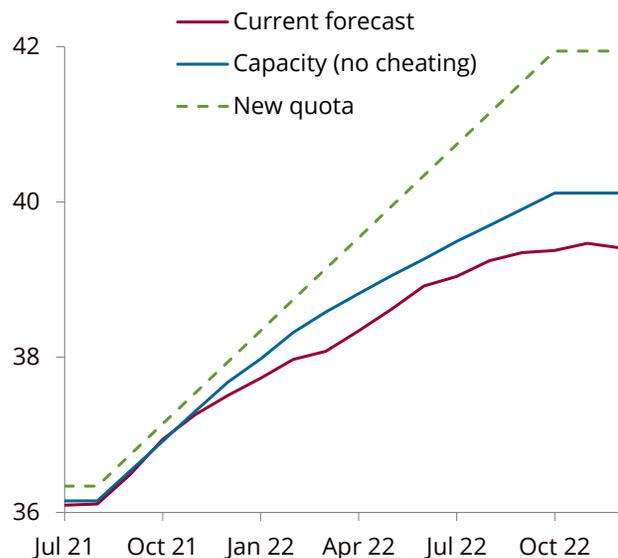


Distillate fundamentals firm on capped European output, low inventories in PADD 1 and uncertainties in Chinese exports.

# OPEC+ is only gradually restoring supply

## OPEC+ production (ex exempt countries)

mb/d

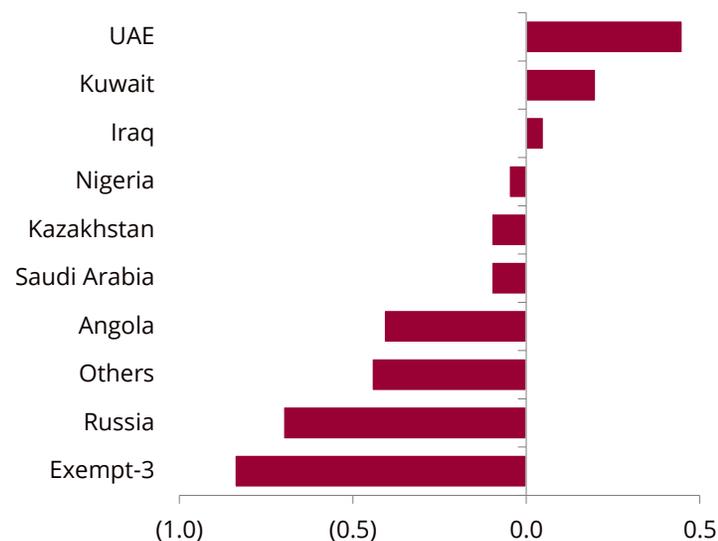


OPEC+ deal now runs to end-2022. Actual production will rise by less than quotas, with option to pause output three times.

Source: Energy Aspects

## Change in production capacity since October 2018

mb/d

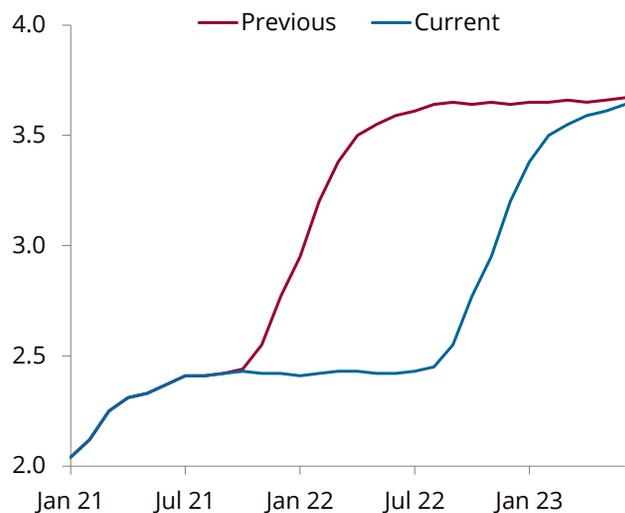


Several countries received higher baselines from May 2022, but monthly quota increases will still be around 0.4 mb/d.

# Impact of stalling Iran nuclear talks

## Iran crude production forecast

mb/d

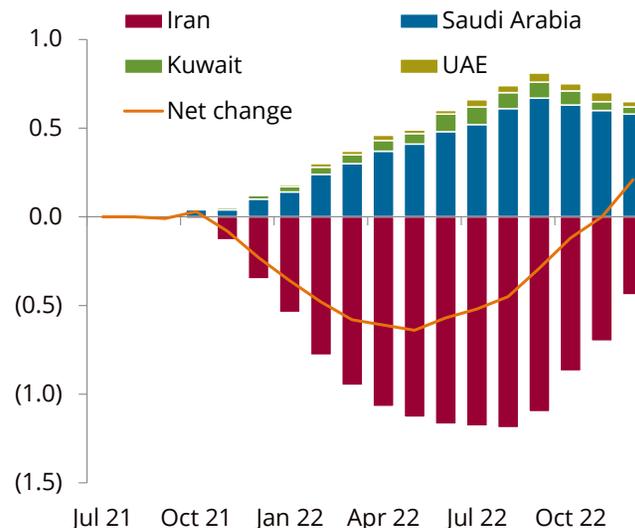


Base case in our balances now shows a post-sanctions Iranian recovery starting in H2 22. Diplomatic timeline is uncertain.

Source: Energy Aspects

## Country-level adjustments to OPEC supply

mb/d

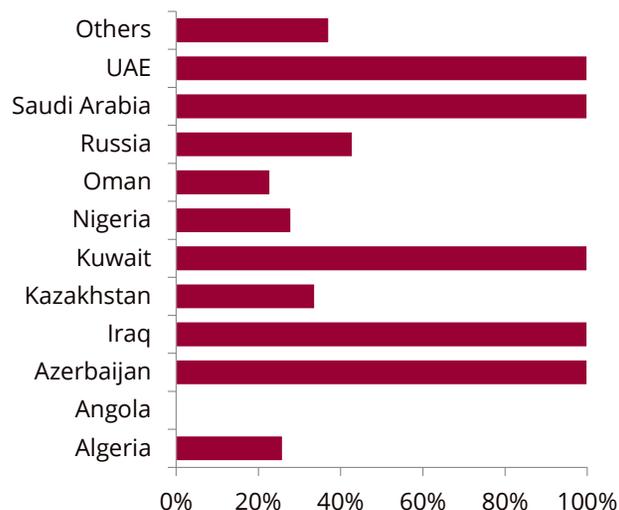


GCC producers will ramp up more quickly to partly offset this delay, but net impact still tightens 2022 balances by 0.4 mb/d.

# The focus will shift to spare capacity in 2022

## Ability to use share of 5.8 mb/d quota increase

%

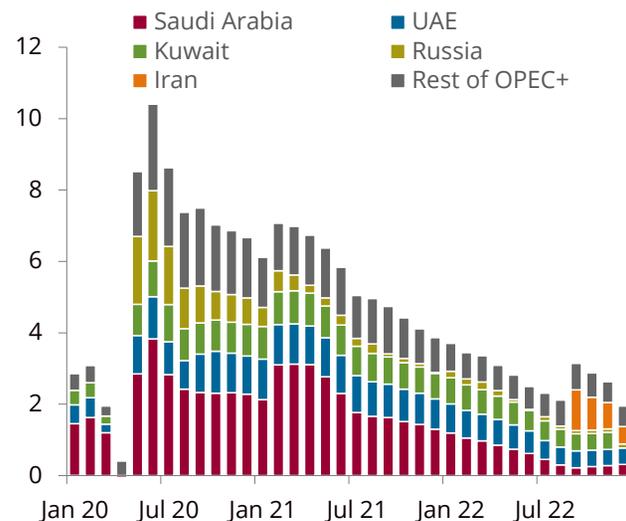


Even with higher baselines, a growing number of members will not be able to produce at their full quotas.

Note: Production capacity offline because of sanctions, conflict and other involuntary causes excluded from spare capacity  
Source: Energy Aspects

## Available OPEC+ spare capacity

mb/d

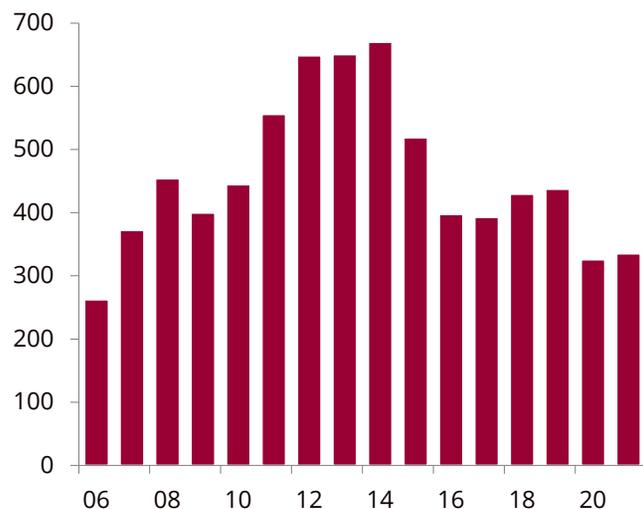


OPEC+ has enough spare capacity to add more supply in H2 21, but this buffer will become increasingly thin next year.

## Industry has limited appetite to restore global upstream investment

### Global Capex

\$ billion

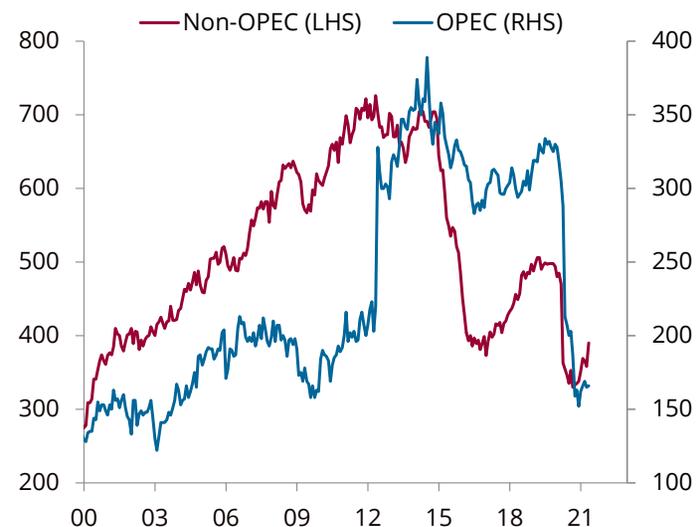


The supply response to low spending will make itself felt faster than the previous slowdown during the 2014–16 downturn.

Source: Company reports, Baker Hughes, Energy Aspects

### Global rig count

#

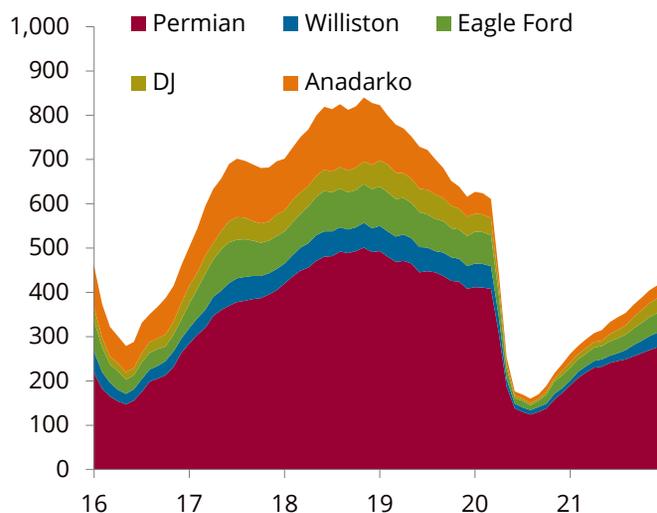


The global rig count still has not stabilised, with December 2020 rigs at 490, the lowest since 2000.

# US crude output growth muted in 2021 but set for strong growth in 2022

## US rig count

#

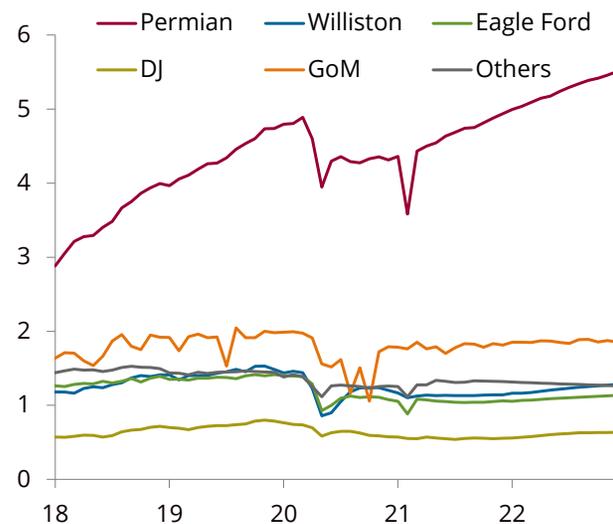


Rig counts remain well below early-2020 levels, so continued efficiency gains will be key for producers to do more with less.

Source: Baker Hughes, Energy Aspects

## US crude production forecast

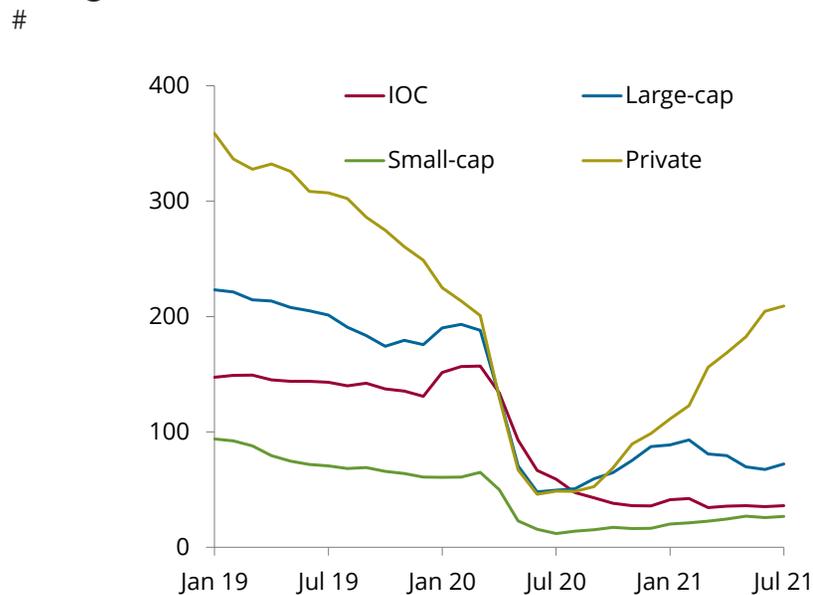
mb/d



US 2022 crude production will average 11.9 mb/d (exit rate of 12.3 mb/d)—0.2 mb/d lower than prior forecast.

## Private operators are adding rigs fastest, while large caps are the most efficient

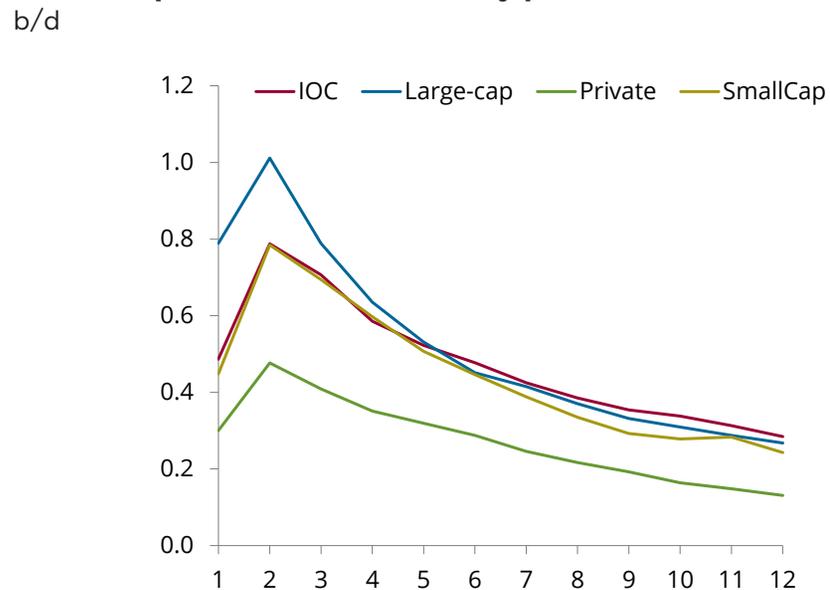
### US rig count



IOCs, large caps have kept oil rigs largely flat in 2021. Private producers have been adding rigs over the same time frame.

Source: Enverus, Baker Hughes, Energy Aspects

### US shale production declines by producer class



In the Permian, large caps have the most prolific wells among their peers, based on 2020 type curves.

# Capital discipline will limit growth

## Permian completions by operator type

%



Large-cap completions have remained stable on a percentage basis, while privates have risen against small caps and IOCs.

Source: Enverus, Energy Aspects

## US large-cap Capex

\$ billion

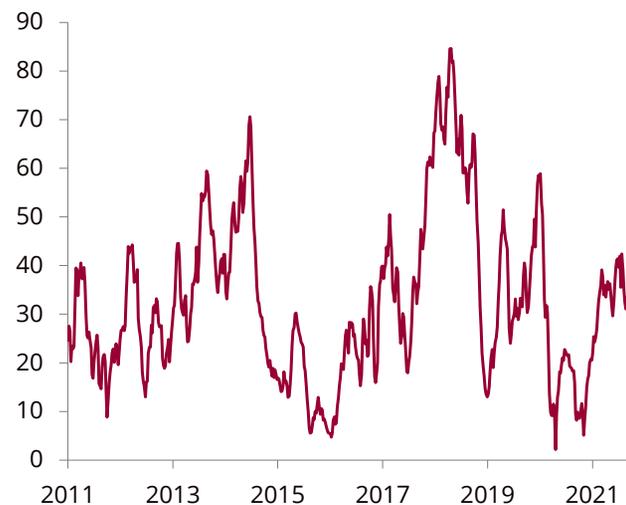


Capital discipline will limit upside in 2021, but higher prices could push 2022 Capex to near 2017 levels.

## There is more upside to oil prices despite the recent rally

### Brent and WTI net spec length

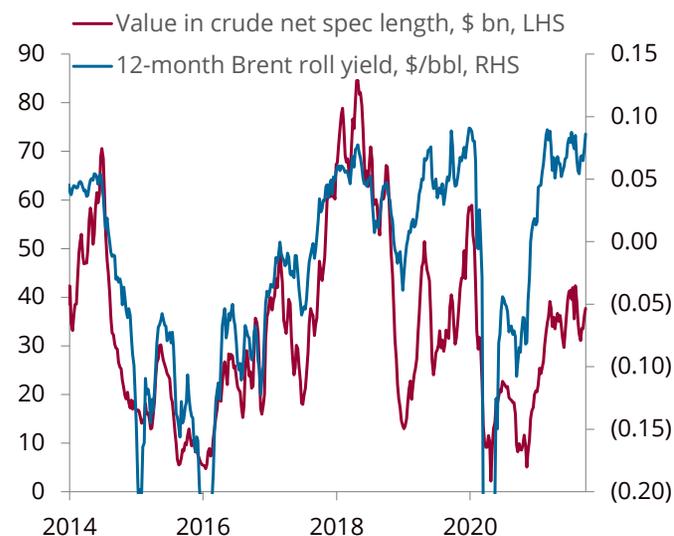
\$ billion



Speculative capital deployed in oil is still \$40bn lower than 2018, \$30bn lower than 2014 and \$20bn lower than 2019.

Source: CFTC, CIE, Energy Aspects

### Net spec length and roll yield



Roll yields offer significant return for oil investors, many of whom are positioned in gas and power instead.

# Energy transition: global E&P Capex is being constrained by ESG mandates

## Global E&P spending

\$ billion

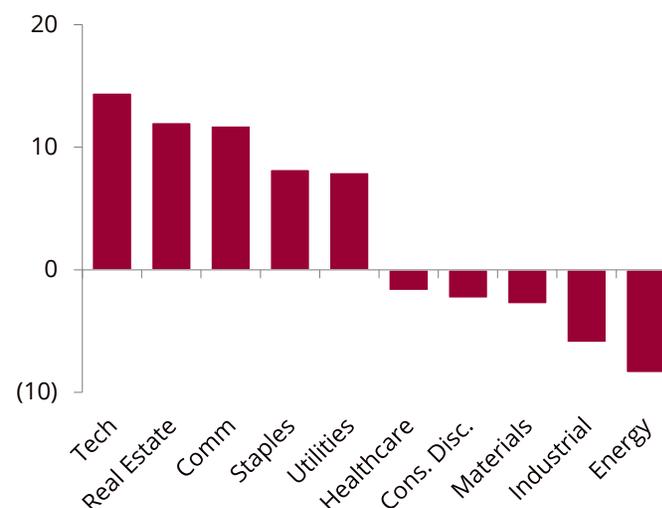
Regions	2022E	2021E	2020A	2019A	2018A	2017A
Middle East	44	41	39	51	56	47
Asia-Pacific	76	71	68	76	67	54
FSU	36	32	32	36	34	37
Europe	7	7	7	8	7	6
Africa	18	15	15	19	18	13
Latin America	25	21	18	39	27	29
IOC International Capex	56	51	49	70	83	95
<b>Total International (a)</b>	<b>262</b>	<b>236</b>	<b>228</b>	<b>298</b>	<b>292</b>	<b>282</b>
US Independents	65	60	61	90	95	75
IOC North America	24	21	21	30	24	17
Canada	13	12	12	16	16	16
Mexico	9	9	5	5	4	5
<b>Total North America (b)</b>	<b>111</b>	<b>101</b>	<b>99</b>	<b>141</b>	<b>139</b>	<b>113</b>
<b>Total World (a+b)</b>	<b>374</b>	<b>338</b>	<b>327</b>	<b>439</b>	<b>432</b>	<b>395</b>

Capex directed toward fossil fuel development is expected to remain constrained despite the uptick in oil prices.

Source: Company reports, Bloomberg, Energy Aspects

## ETF flows by subsector

\$ billion

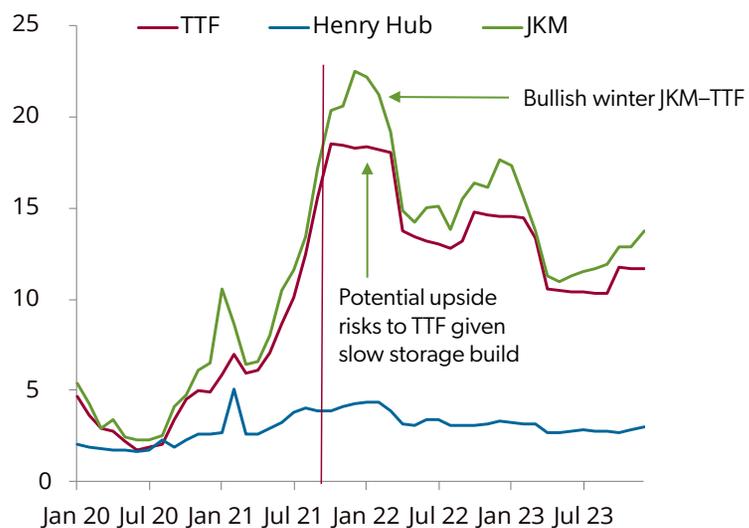


ESG mandates are limiting the investment flow from generalist/institutional investors into energy.

## Two related bull runs: Global gas and EU emissions prices

### Global gas prices

\$/mmbtu

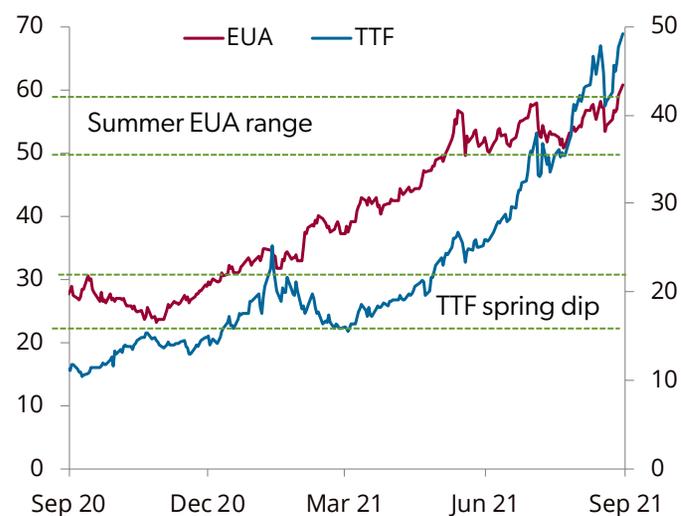


Early retirement of coal plants will keep gas prices high, especially in winter.

Source: Refinitiv, Energy Aspects

### Daily EUA and TTF price moves

€/t (LHS); €/MWh (RHS)



Bull runs have taken place in both markets, although at slightly different times.

**Reports and publications**

**Crude oil**

**Oil products**

*Light ends, Middle distillates, Fuel oil*

**Global arbs and trade flows**

**LPG & NGLs**

**Natural Gas & Power**

*European Gas, North America Gas, Global LNG, US Power*

**Emissions**

**Macro energy**

**Long-term energy market outlook**

**LONDON**  
Canary Wharf

**NEW YORK**  
One World Trade Center

**HOUSTON**  
Louisiana St

**SINGAPORE**  
One Raffles Place

[www.energyaspects.com](http://www.energyaspects.com)

**Data service and forecasts**

**Crude oil data and forecasts**

**Oil products data and forecasts**

**Long-term data and forecasts**

**Global trade flows data**

**Refinery data**

**Refinery margin forecasts**

**LPG & NGLs data**

**Natural gas data and forecasts**

**Emissions data**



Our general disclaimer (“Disclaimer”) is an essential part of this Publication and can be located in [www.energyaspects.com/disclaimer](http://www.energyaspects.com/disclaimer)

We ask our clients to familiarise themselves with the Disclaimer when reading this Publication.

The current version of the Disclaimer is deemed to be incorporated in this Publication as though it was set out in its entirety herein.

Copyright © 2021 Energy Aspects Ltd. All Rights Reserved  
NO PART OF THIS PUBLICATION MAY BE REPRODUCED IN ANY  
MANNER WITHOUT THE PRIOR WRITTEN PERMISSION OF  
ENERGY ASPECTS

Energy Aspects Ltd is registered in England No. 08165711.  
Registered office: 25 Canada Square, London E14 5LQ, United  
Kingdom

[analysts@energyaspects.com](mailto:analysts@energyaspects.com)

LONDON | NEW YORK | HOUSTON | SINGAPORE

