A photograph of an industrial refinery at night, illuminated by warm lights against a dark, cloudy sky. The scene features complex piping, scaffolding, and large storage tanks.

EY Price Point: global oil and gas market outlook

Q2 | April 2022

The EY logo, consisting of the letters 'EY' in a bold, white, sans-serif font, with a yellow chevron shape above the 'Y'.

EY

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Q1 in review

After two years of oil and gas market reaction to a seemingly endless string of extraordinary events, we end the first quarter of this year facing the prospect of a complete reworking of the global supply-demand balance, trade flows and capital allocation. The possibility of escalating sanctions against the world's largest natural gas exporter and the second-largest crude oil exporter led oil prices to levels not seen since shortly before the world financial crisis and LNG prices to levels where they have never been. Although the number of countries officially banning the import of Russian oil is relatively small, the International Energy Agency has estimated that about 2.5 million barrels per day (mbpd) of output would come off the market in the near term and the potential for reputational damage has affected its marketability. The differential between Brent and Urals crude went from US\$3/bbl (where it had hovered for some time) to US\$30/bbl. As always, the shape of the forward curve gives us valuable clues about how long the short run is and where the market might land. JKM LNG futures for delivery in December 2023 are trading just over US\$1.50 higher than they were in early February, while April 2022 contracts have gone up over US\$10 at the same time. The crude oil market reveals a similar dynamic. In mid-March, the spread between April 2022 WTI futures and January 2024 contracts was US\$26. At the end of last year, that spread was US\$10. Time will tell how the situation on the ground unfolds, which sanction regime eventually comes to pass and what the market impact will be. The one thing we can be sure of is that assuming a return to business as usual is not an option.



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Q2 theme

The theme for this quarter is **rearrangement**. The loss, or potential loss, of Russian oil and gas supplies is forcing producers, refiners and traders to rethink the flow of crude oil and refined products from the wellhead to the gas pump in light of sanctions, potential sanctions and the risk of reputational damage. Countries, companies and consumers will all be searching for ways to adapt, and the outcome of the race to bring alternatives to market could alter the global energy landscape for years to come.

It is likely crude oil and LNG prices will remain elevated for some time. The process of diverting Russian oil through countries unwilling to sanction it will take time and there is little indication OPEC members are willing (or able) to increase production to make up for the loss of Russian crude. Spare capacity sat at 3.7 mbpd at the end of 2021, just above where it was in January 2020. Currently, sanctioned Venezuelan and Iranian production (about 3 mbpd below their peak) could fill the gap, but political and commercial obstacles remain. At today's prices, US shale production is attractive, but the fastest the industry has been able to grow is between 1mbpd and 2mbpd per year. The LNG infrastructure was already stretched before the war in Ukraine and there is little prospect of finding new supplies soon.

As the largest buyer of Russian energy, Europe will be the epicenter. There is a deeply embedded bias there in favor for renewable energy, and the current crisis is certain to result in an all-out effort to accelerate the build-out of wind and solar power. The capacity to add new green energy is limited though by the project pipeline and supply chains for solar panels and wind turbines, and it is likely that much of the shortfall will be made up with the new LNG infrastructure.



- ▶ Will sanctions against Russian oil and gas be relaxed, tightened or stay the same?
- ▶ Are potential suppliers of replacement oil and gas ready (or willing) to ramp up production?
- ▶ If oil prices remain high, will consumers respond by buying electric vehicles?
- ▶ How quickly can renewable energy fill the void left if Russian gas is taken out of the European market, and how much LNG capacity will be needed?

Unprecedented supply disruption

The war in Ukraine – and the official and unofficial sanctions – has thrown trade patterns into disarray. Any adjustments will take time and additional infrastructure investment.

LNG markets poised to expand

Reliance on Russian gas supplies is no longer viewed as an option. The demand for gas will not go away quickly and it is certain that LNG will have an expanded role in the supply mix in Europe.

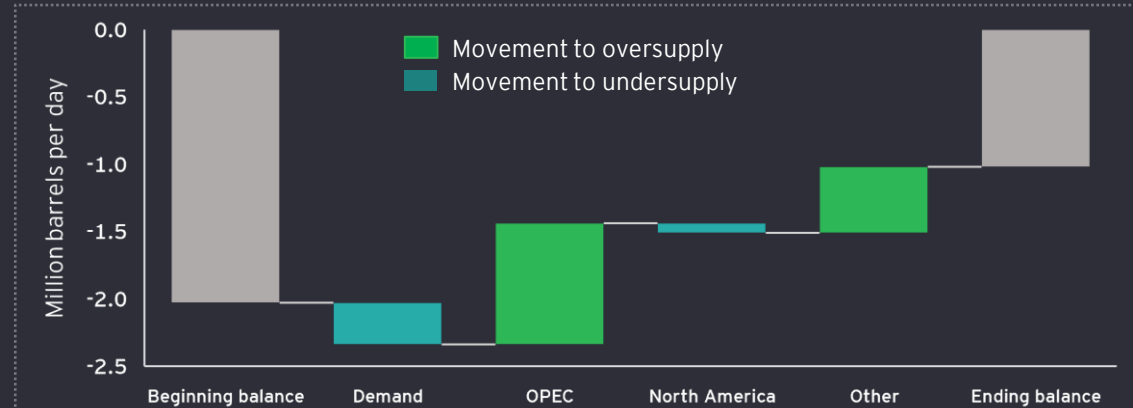
Fluid capital allocation

Making up for the loss of Russian oil, gas and coal has raised questions about what will fill the gap. The speed to market and the certainty of supply may trump sustainability in the short run.

Shifting product flows and margins

The flow of Russia's exports of refined products is notably different from crude oil. Product and geographic differentials will be volatile until the supply chains can be reconfigured.

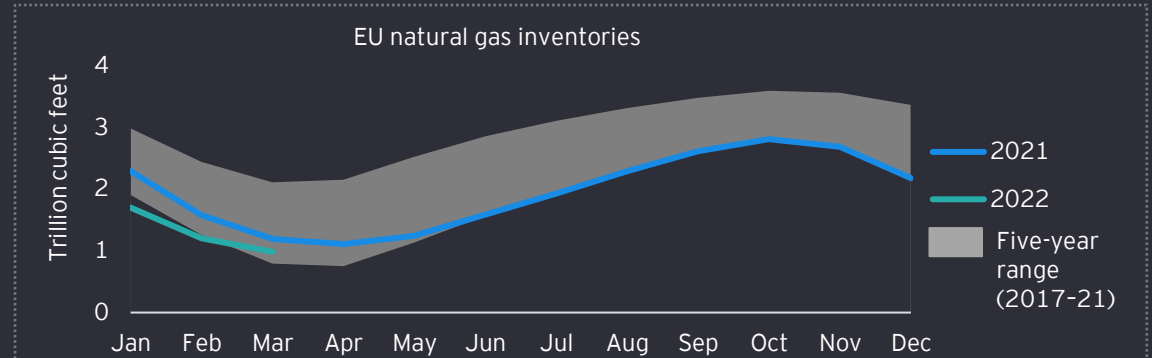
Supply-side concerns will dominate oil markets



Sources: US EIA; EY analysis.

- ▶ Oil market balance continues to lean toward undersupply. In the first quarter, global demand declined slightly by 0.3% from previous quarter. OPEC and other oil producers outside North America increased their production, while US output marginally declined.
- ▶ Going forward, supply concerns will almost certainly become the dominant narrative. Sanctions are expected to affect 4.8mbpd of oil exported from Russia and it remains to be seen what fraction of sanctioned volumes can be redirected to non-sanctioning countries.
- ▶ New production and inventories will be hard pressed to provide an adequate buffer. Spare OPEC production capacity has gradually fallen to 3.7 mbpd, and while the US, Canada and Brazil are expected to produce at record levels, other incremental supplies (such as Iraq and Venezuela) are problematic. The US and its allies have committed to release 60 million barrels from their emergency reserves, but commercial inventories ended 2021 below where they were at the start of the COVID-19 pandemic.
- ▶ Geopolitical upheaval and central bank policies engineered to fight inflation will impact the economic growth and oil demand. All of the major agencies – IEA, EIA and OPEC – have lowered their forecasts for 2022.

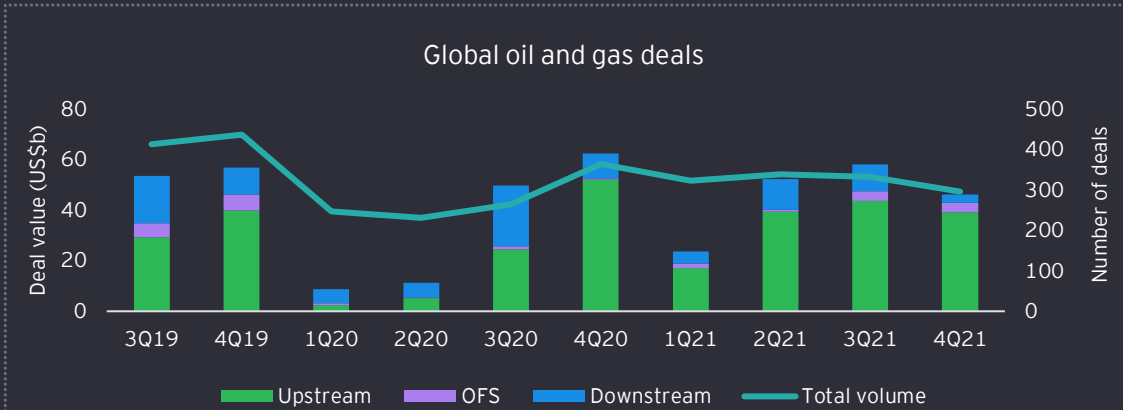
Gas inventories could become critical



Sources: US EIA; Gas Infrastructure Europe (GIE) Aggregated Gas Storage Inventory.

- ▶ Natural gas storage is the first line of defense against supply disruption, demand spikes and other market events, and the war in Ukraine has heightened Europe's focus on inventories. Inventories have been consistently low since mid-2021 and prices reflected severe stress on the LNG capacity well before the loss of Russian supplies became a risk. Stocks reached 1.2tcf in February, 0.4tcf below last year and 0.5tcf below the five-year (2017-21) average.
- ▶ Contributing factors include the decline in Europe's natural gas production, higher demand from the power sector because of lower-than-expected output from offshore wind facilities, lower-than-normal natural gas pipeline imports from Russia and limited LNG deliveries due to strong Asian demand.
- ▶ As spring approaches, the gas-injecting season is set to begin. In a normal year, demand would begin to taper and gas consumers and distributors would begin to accumulate supplies for the next heating season. This is no normal year; prices are at stratospheric levels and questions about the trade-off between supply security and cost are bound to arise. Anxiety will be a feature of the market landscape for some time and volatility is likely to continue.

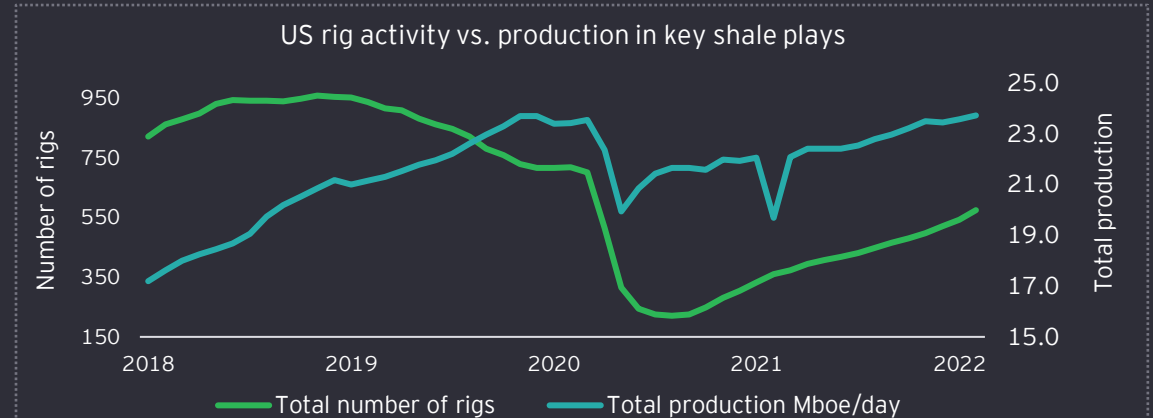
Energy transition drives M&A



Sources: Enverus; EY analysis.

- ▶ 2020 was a difficult year for deal activity. Pandemic-related uncertainties dominated the landscape, muddying valuations and interrupting the normal rhythm of dealmaking. The momentum built in the second half of 2020 continued into 2021, particularly in the upstream and OFS sectors. Upstream deal value increased by 66% in 2021, reaching US\$139 billion, while the OFS deal value more than tripled. North America remained the most active market, with the US alone accounting for more than 40% of total deal value.
- ▶ Improved market fundamentals supported deal activity in 2021 and stakeholder pressure to shrink carbon-intensive businesses led oil majors to divest assets and streamline their portfolios. In one of the largest deals of 2021, a major IOC sold its Permian assets to an independent for US\$9.5 billion as part of a strategy to reduce its greenhouse gas emissions.
- ▶ Asset turnover may be disrupted in 2022, as momentum toward energy decarbonization builds and commodity prices remain volatile. Central bank initiatives to control inflation are on the front burner and interest rate increases are almost certain. Deal activity will clearly be affected.

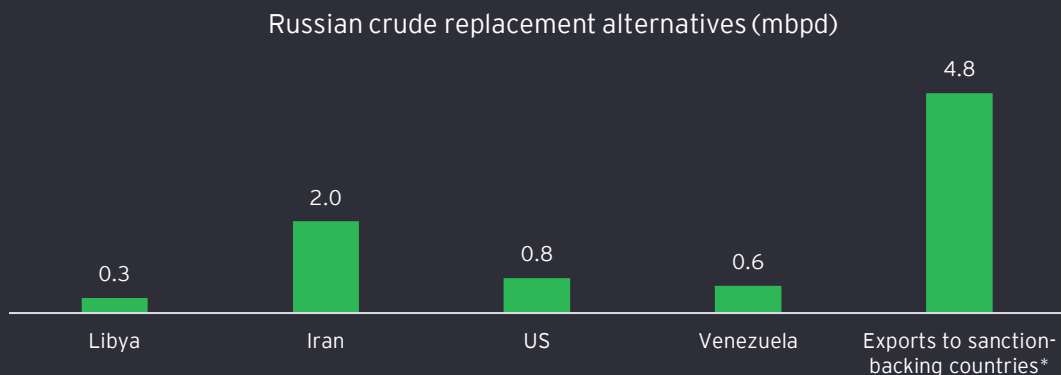
US shale could rebound



Source: DPR EIA.

- ▶ The war in Ukraine, the sanctions that have been put in place, other sanctions that might follow, and the potential for supply disruptions and elevated oil prices have producers thinking about how they might fill that gap. The economics of every resource have improved markedly and projects that had been shelved are being revived.
- ▶ Unconventional oil in the US is no exception. The number of working rigs in the shale fields has increased consistently since the lows experienced during the COVID-19 pandemic, with the active rig count climbing from 220 in August 2020 to 574 in February 2022. Offshore activity has also picked up, with the number of rigs increasing from 14 to 18 in December 2021.
- ▶ Notwithstanding returns that should be attractive, activity levels have lagged. Rig counts are just over half of what they were in late 2018, which is just over half of what they were in late 2014. An acceleration of activity is likely, but the extent is unclear. Majors are reluctant to expand their carbon footprint and independents are capital constrained. The shape of the forward curve and the ability to hedge will be critical.

Alternatives for Russian crude are scarce

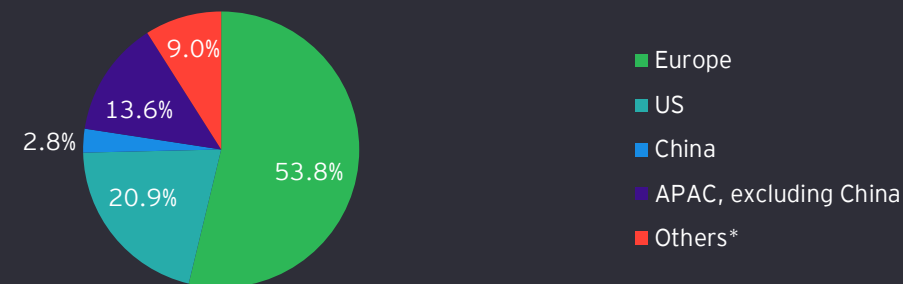


Sources: USA EIA; Kpler; *The Washington Post*; Countries declared spare capacities. * Sanction-backing countries include Denmark, Estonia, Lithuania, Greece, Spain, France, Slovakia, Finland, Poland, Germany, the US, Bulgaria and the Netherlands.

- ▶ Russia has been the world's second-largest oil exporter, providing about 7.2 mbpd to the world market with 4.8 mbpd going to countries backing Russian sanctions. It is difficult to know how much sanctions will impact the output or how much oil will be taken off of the market. Many of those sanctioned barrels will be redirected to countries not participating in sanctions. Those barrels will, in turn, displace oil that could, in theory, be redirected to countries that have agreed to sanctions. All of this will require reworking trade flows and investments in infrastructure necessary to move oil in new directions.
- ▶ Sources of replacement oil are fraught with limitations. OPEC's spare capacity is in line with historic norms and higher prices will be the only thing that brings that oil to the market. Releasing Iran and Venezuela from sanctions and bringing their oil to market carries a long-term geopolitical risk, and long-standing conflict makes supplies from Libya unreliable. Short cycle times and the ability to manage market risk make increased US shale production a likely outcome, but the dismantling of the service sector means it will take time to bring enough volume to market to make a difference.

Product markets will be reset

Share of Russian petroleum product exports by region

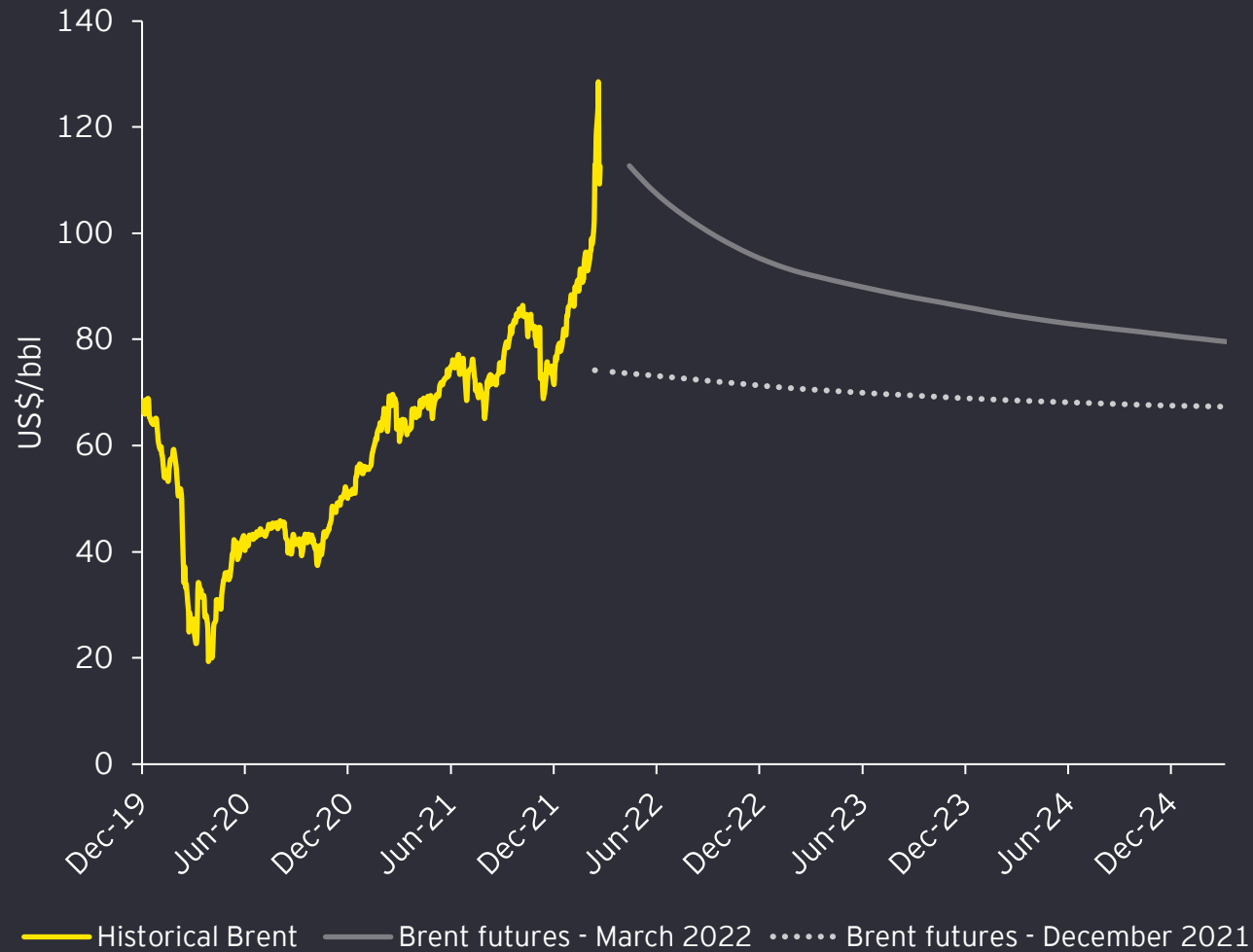


Source: BP Statistical Review, 2021. * Others include Africa, the Middle East, India, South America and Central America, Canada and CIS countries.

- ▶ In 2020, Russia exported 106.8 million tons of petroleum products, a little less than 10% of the global inter-area trade. Trade flows for Russian refined products are markedly different from those for crude oil. Overall, Russia's shares of the global trade in crude and products are roughly the same (12% and 10%, respectively). In contrast, 21% of Russia's product exports found their way to the US, while only 1% of Russian crude came to the US.
- ▶ Crack spreads, which had crept up from just over US\$20/bbl at the beginning of January to about US\$28/bbl just before the war in Ukraine, spiked to over US\$40/bbl in early March before settling in the US\$30 range. De-risking was the dominant theme in energy markets early in the war in Ukraine and the downstream segment was no exception.
- ▶ The world has no shortage of refining capacity, but there will be adjustments to crude inputs and product mixes to accommodate the disrupted trade flows. Going forward, refineries in China, Venezuela, South Korea and the US are expected to offset Russian exports. Uncertainties remain around how operational constraints, planned turnaround activities and civil unrest in countries such as Venezuela might affect ramping up.



Brent futures



Brent futures have increased, given the war in Ukraine.

Going forward, supply concerns will be highly scrutinized, given the sanctions on Russia and the related impacts on the supply chain, as well as the sources of replacement oil. Prices may continue to stay elevated, yet volatile, and continue to experience backwardation until the market can work through the current challenges and constraints.

Futures data is effective as of 11 March 2022.

Source: Bloomberg.

Oil price outlook

For WTI and Brent, banks and brokers (on average) forecast a wider range of oil prices throughout the forecast period.

Consultants focus primarily on the analysis of a long-term sustainable oil price, whereas banks and brokers balance their views on the basis of the current market conditions.

Given the war in Ukraine began on 24 February 2022, EY analysis is based on the following:

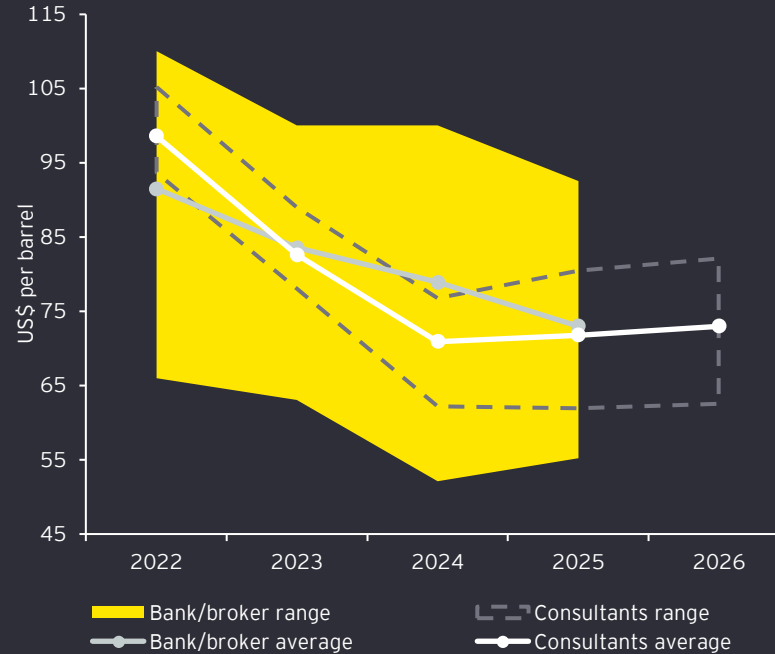
- ▶ For 2022 and 2023, banks and brokers and consultant estimates released since 24 February 2022.
- ▶ For 2024 onward, as a result of uncertainty as to whether current dynamics will sustain beyond the near term, estimates include those released since 1 January 2022 (excluding the IEA, which was published in October 2021).

Brent price estimates derived under the IEA's Stated Policies and Sustainable Development scenarios (inflation adjusted to reflect nominal pricing) are reflected within the consultant ranges from 2024 onward.

This data is effective as of 11 March 2022.

Brent

Bank/broker and consultant price estimates, ranges and averages



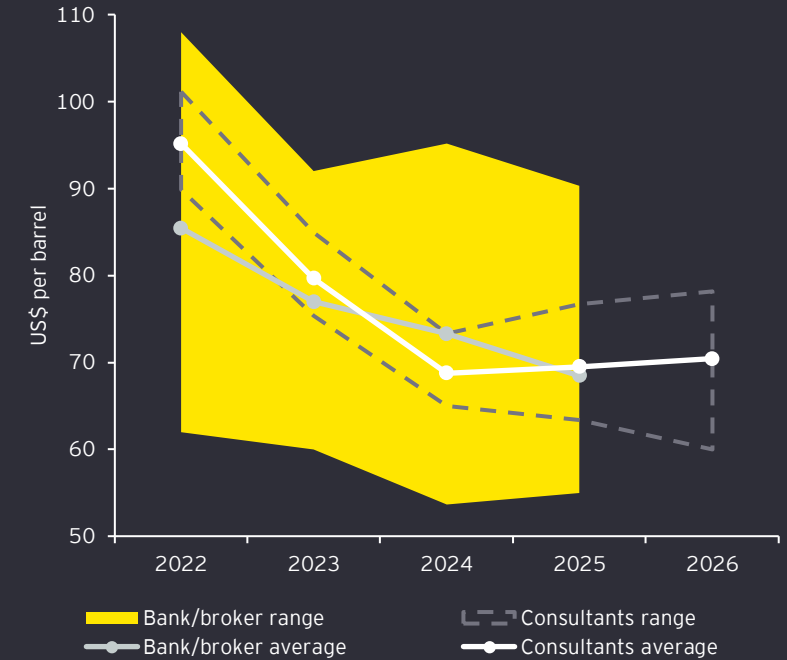
Brent: US\$73.0

Average price per bbl forecast in 2026 - consultants

Sources: Bloomberg; bank/broker reports; consultant websites and reports.

WTI

Bank/broker and consultant price estimates, ranges and averages



WTI: US\$70.4

Average price per bbl forecast in 2026 - consultants

Note: the wide range of long-term price estimates reflects the degree of uncertainty within the market. Both the lower and upper ends of the range provided are supported by the estimates of credible market participants. Given the width of the range, the average of estimates should be used as a starting point for the assessment or generation of estimates.

Gas price outlook

For Henry Hub and UK NBP, consultants (on average) forecast a wider range of gas prices throughout the forecast period.

Consultants focus primarily on the analysis of a long-term sustainable gas price, whereas banks and brokers balance their views on the basis of the current market conditions.

Given the war in Ukraine began on 24 February 2022, EY analysis is based on the following:

- ▶ For 2022 and 2023, banks and brokers and consultant estimates released since 24 February 2022.
- ▶ For 2024 onward, as a result of uncertainty as to whether current dynamics will sustain beyond the near term, estimates include those released since 1 January 2022 (excluding the IEA, which was published in October 2021).

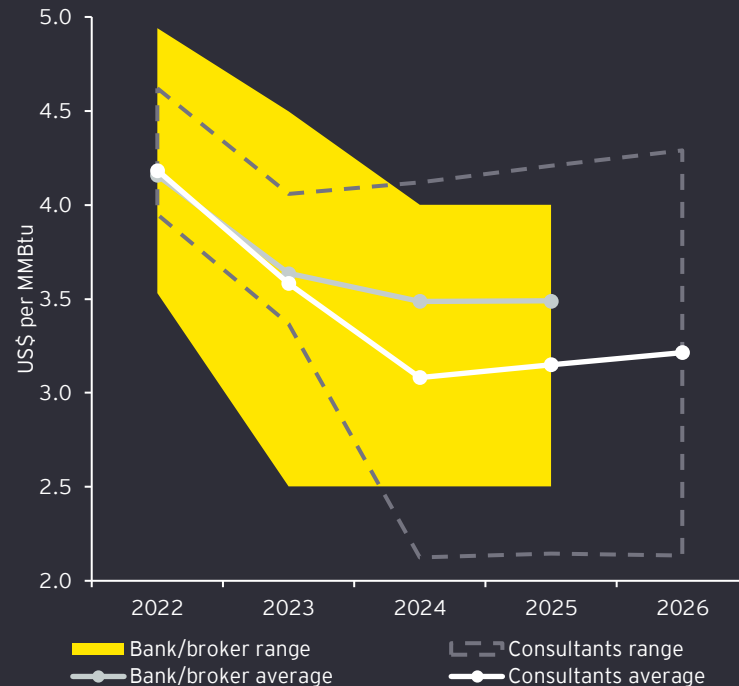
Henry Hub price estimates derived under the IEA's Stated Policies and Sustainable Development scenarios (inflation adjusted to reflect nominal pricing) are reflected within the consultant ranges from 2024 onward.

UK NBP price estimates are scarce, with only three forecasts released by banks and brokers and consultants.

This data is effective as of 11 March 2022.

Henry Hub

Bank/broker and consultant price estimates, ranges and averages



Henry Hub: US\$3.2

Average price per MMBtu forecast in 2026 - consultants

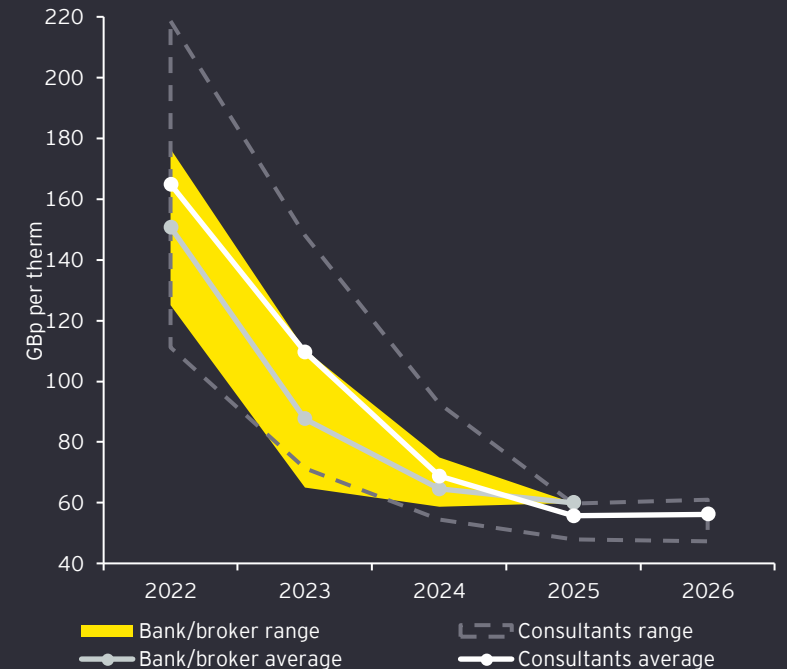
Sources: Bloomberg; bank/broker reports; consultant websites and reports.

Note: the wide range of long-term price estimates reflects the degree of uncertainty within the market. Both the lower and upper ends of the range provided are supported by the estimates of credible market participants. Given the width of the range, the average of estimates should be used as a starting point for the assessment or generation of estimates.

*NBP: National Balancing Point

UK NBP

Bank/broker and consultant price estimates, ranges and averages



UK NBP: £56.2

Average price per therm forecast in 2026 - consultants

Appendix

Brent oil price estimates

This data is effective as of 11 March 2022.

Bank/broker	2022 (US\$/bbl)	2023 (US\$/bbl)	2024 (US\$/bbl)	2025 (US\$/bbl)	2026 (US\$/bbl)
High	110.0	100.0	100.0	92.5	
Average	91.5	83.5	78.9	73.0	
Median	94.3	82.5	80.0	76.3	
Low	66.0	63.0	52.1	55.2	

Sources: Bloomberg; bank/broker reports.

* Certain price estimates included within the summary above may reflect real vs. nominal pricing as the bank and broker assumptions are not explicitly stated within Bloomberg or the respective reports.

Consultant	2022 (US\$/bbl)	2023 (US\$/bbl)	2024 (US\$/bbl)	2025 (US\$/bbl)	2026 (US\$/bbl)
High	105.2	89.0	76.7	80.4	82.1
Average	98.6	82.6	70.9	71.8	73.0
Median	99.6	83.3	71.1	72.7	74.1
Low	93.6	78.0	62.2	62.0	62.5

Sources: Consultant websites and reports; Oxford Economics.

Note: Due to the impact of the war in Ukraine, the price analysis for the years 2022 and 2023 only includes forecasts that were updated subsequent to 24 February 2022. For the long-term forecast (2024 onward), all of the estimates released since 1 January 2022 have been considered (excluding the IEA, which was published in October 2021).

Appendix

WTI oil price estimates

This data is effective as of 11 March 2022.

Bank/broker	2022 (US\$/bbl)	2023 (US\$/bbl)	2024 (US\$/bbl)	2025 (US\$/bbl)	2026 (US\$/bbl)
High	108.0	92.0	95.2	90.3	
Average	85.4	77.0	73.3	68.5	
Median	85.3	77.0	72.6	69.2	
Low	62.0	60.0	53.7	55.0	

Sources: Bloomberg; bank/broker reports.

*Certain price estimates included within the summary above may reflect real vs. nominal pricing as the bank and broker assumptions are not explicitly stated within Bloomberg or the respective reports.

Consultant	2022 (US\$/bbl)	2023 (US\$/bbl)	2024 (US\$/bbl)	2025 (US\$/bbl)	2026 (US\$/bbl)
High	101.2	85.0	73.3	76.7	78.2
Average	95.2	79.7	68.8	69.5	70.4
Median	95.1	80.6	68.0	68.6	70.0
Low	89.9	75.4	65.0	63.4	60.0

Sources: Consultant websites and reports; Oxford Economics; EY analysis.

Note: Due to the impact of the war in Ukraine, the price analysis for the years 2022 and 2023 only includes forecasts that were updated subsequent to 24 February 2022. For the long term forecast (2024 onward), all of the estimates released since 1 January 2022 have been considered.

Appendix

Henry Hub gas price estimates

This data is effective as of 11 March 2022.

Bank/broker	2022 (US\$/MMBtu)	2023 (US\$/MMBtu)	2024 (US\$/MMBtu)	2025 (US\$/MMBtu)	2026 (US\$/MMBtu)
High	4.9	4.5	4.0	4.0	
Average	4.2	3.6	3.5	3.5	
Median	4.1	3.7	3.5	3.7	
Low	3.5	2.5	2.5	2.5	

Sources: Bloomberg; bank/broker reports.

* Where brokers have reported figures in US\$/mcf, we have used a conversion ratio of 1.037 for mcf conversion to MMBtu.

** Certain price estimates included within the summary above may reflect real vs. nominal pricing as the bank and broker assumptions are not explicitly stated within Bloomberg or the respective reports.

Consultant	2022 (US\$/MMBtu)	2023 (US\$/MMBtu)	2024 (US\$/MMBtu)	2025 (US\$/MMBtu)	2026 (US\$/MMBtu)
High	4.6	4.1	4.1	4.2	4.3
Average	4.2	3.6	3.1	3.1	3.2
Median	4.1	3.5	3.1	3.2	3.3
Low	4.0	3.4	2.1	2.1	2.1

Sources: Consultant websites and reports; Oxford Economics.

Note: Due to the impact of the war in Ukraine, the price analysis for the years 2022 and 2023 only includes forecasts that were updated subsequent to 24 February 2022. For the long-term forecast (2024 onward), all of the estimates released since 1 January 2022 have been considered (excluding the IEA, which was published in October 2021).

Appendix

UK NBP gas price estimates

This data is effective as of 11 March 2022.

Bank/broker	2022 (£/therm)	2023 (£/therm)	2024 (£/therm)	2025 (£/therm)	2026 (£/therm)
High	176.6	110.3	75.0	60.0	
Average	150.8	87.6	64.6	60.0	
Median	150.8	87.6	60.0	60.0	
Low	125.0	65.0	58.7	60.0	

Sources: Bloomberg; bank/broker reports.

* Where brokers have reported figures in US\$/mcf, we have used a conversion ratio of 1.037 for mcf conversion to MMBtu and the broker's forecasted foreign exchange rates.

** Certain price estimates included within the summary above may reflect real vs. nominal pricing as the bank and broker assumptions are not explicitly stated within Bloomberg or the respective reports.

Consultant	2022 (£/therm)	2023 (£/therm)	2024 (£/therm)	2025 (£/therm)	2026 (£/therm)
High	218.7	148.1	92.6	59.8	61.0
Average	164.9	109.7	68.7	55.7	56.2
Median	164.9	109.7	59.0	59.3	60.4
Low	111.2	71.2	54.6	48.0	47.3

Sources: Consultant websites and reports; Oxford Economics.

* Where consultants have reported figures in US\$/MMBtu, we have used the particular consultant's forecast of the foreign exchange rate for the purpose of our conversion.

Note: Due to the impact of the war in Ukraine, the price analysis for the years 2022 and 2023 only includes forecasts that were updated subsequent to 24 February 2022. For the long term forecast (2024 onward), all of the estimates released since 1 January 2022 have been considered.

Key contacts

Important notice

Price outlook data included in this publication is effective as of 11 March 2022. Given the rapidly evolving nature of the market and the views of market participants, an analysis can quickly become outdated. It should be noted that the EY analysis is not for the purpose of providing an independent view of the outlook for oil and gas prices. Instead, we are collating the views of market participants.

Price outlook data should not be applied mechanistically. Instead, careful consideration should be given to the purpose of any value assessment, with price forecasts assessed in the context of other key assumptions, such as resources and reserves classifications, production rates, discount rates and cost escalation rates, together with an appreciation of the key sensitivities in any such analysis.



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