

ERCE

Independent Energy Experts

Energy Review Q3 2022



Authors:

Zhamal Orazbayeva
Head of Economics
Principal Economist
Tel (direct): +65 6332 5161
Mob: +65 8879 0123
zorazbayeva@erce.energy

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1 Executive Summary

All prices are in U.S. dollars as at 30th June 2022

Welcome to the ERCE Energy Review for Q3 2022

Status Quo. Brent prices continued to rise in April 2022 and peaked at c.\$123/bbl in the beginning of June, driven by tightening oil products markets, near-term global oil supply risks amid continued geopolitical tensions in Europe, as well as expectations of a recovery in demand after Chinese authorities started to ease COVID-19 lockdown measures. The start of the summer driving season in the Northern Hemisphere provided further support. Prices eased to c.\$111/bbl by July 2022.

Short-term. In the short-term, consensus on oil prices hinges on the forces of supply and demand. While Russia shut in nearly 1 mb/d in April, other supply continued to grow. OPEC agreed to boost production by 648,000 bpd in August and is set to hold its next meeting on August 3, which will determine September production plans. According to IEA, world oil demand growth is forecast to slow on a more tempered economic expansion and higher prices. While China started to ease COVID-19 lockdown measures, in the beginning of July, fresh cases and the official response to them have deepened fears that China may be set to return to the kinds of strict restrictions seen earlier this year.

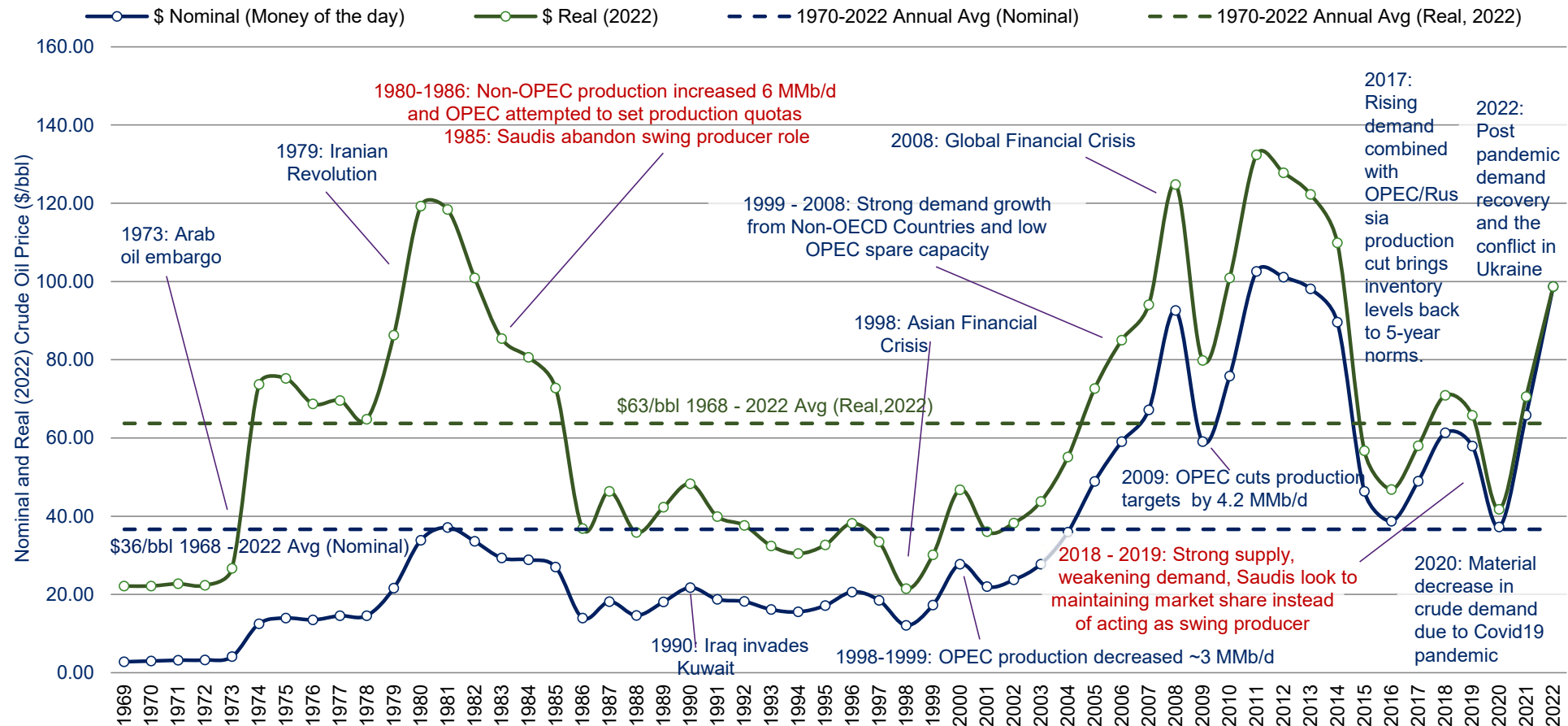
Medium-term. The medium-term outlook is based on economic growth concerns and adequate supply reaction. According to IMF, the war in Ukraine has triggered a costly humanitarian crisis that demands a peaceful resolution. At the same time, economic damage from the conflict will contribute to a significant slowdown in global growth in 2022 and add to inflation. According to various media, market worries that rising interest rates to curb inflation would spark a recession and dent oil demand.

Long-term. In the long term, peak oil demand and energy transition remain as main factors. So far oil demand growth has not slowed down, except for the hit it took during the height of the COVID-19 pandemic. While some projections indicate that oil demand might have already peaked (according to the IEA's Net Zero Scenario, which assumes a strong stance toward achieving climate policies), others find demand peaking within the next five to 10 years (such as BP's New Momentum, and Equinor's Reforms). A very few, most notably OPEC, expect oil demand to plateau by 2040. While energy transition remains in focus, the rhetoric has now changed to include a focus on resilience and energy security.

Welcome to the **ERCE Energy Review**. This report reviews current oil and gas prices and looks at some of the global macro indicators influencing oil price trends. In addition, we provide our current oil price decks and review oil price assumptions presented by other petroleum consultants and analysts. The report is based on publicly available information.

Long Term Crude Oil Price - Annual Average (1970 – 2022)

Oil Price History: Long-Term Crude Oil Price (Real Vs. Nominal)

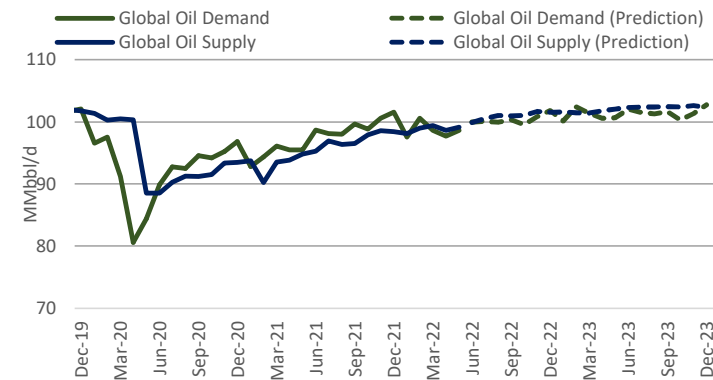


- Nominal - economic value expressed in historical nominal monetary terms, also known as “money-of-the-day”.
- Real - Economic value that has been adjusted from a nominal value to remove the effects of general price level changes over time (using the CPI from U.S. Bureau of Labour Statistics) and is thus measured in terms of the general price level in some reference year (the base year in this case is 2022).
- The Long-Term Crude Oil Price is based on the Annual Imported Crude Oil Prices into the US.

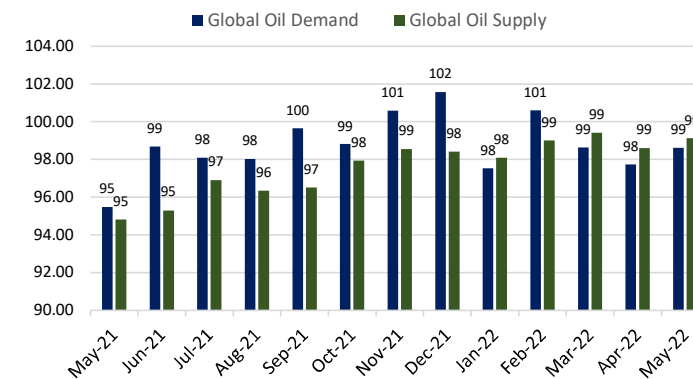
Global Oil Demand

- According to IEA, world oil demand is forecast to reach 101.6 mb/d in 2023, surpassing pre-pandemic levels. While higher prices and a weaker economic outlook are moderating consumption increases, a resurgent China will drive gains next year, with growth accelerating from 1.8 mb/d in 2022 to 2.2 mb/d in 2023.
- In contrast to 2022 when the OECD led the expansion, non-OECD economies are set to account for nearly 80% of growth next year. OPEC expects the pace of oil demand growth to halve next year as inflation and conflict grip the global economy.
- In the April 2022 World Economic Outlook, the International Monetary Fund global growth is projected to slow from an estimated 6.1% in 2021 to 3.6% in 2022 and 2023. This is 0.8 and 0.2 percentage points lower for 2022 and 2023 than projected in January. Beyond 2023, global growth is forecast to decline to about 3.3% over the medium term.
- Just days after China relaxed some Covid controls, virus cases in different parts of the country have put new regions on alert. The number of cities restricting local movement due to COVID-19 more than doubled in a week to 11 as of beginning of July.
- Global air travel during the third quarter of the year is set to reach 65% of levels achieved before the pandemic in 2019. Produced for the World Travel Market (WTM), the new forecast warns that tourism's revival is patchy, with some parts of the world doing much better than others and some types of travel, particularly beach holidays, being much more popular than urban city visits and sightseeing.
- During the Independence Day holiday, the Transportation Security Administration (TSA) screened more than 11.3 MM travellers from June 30 through and including July 4. The weekend travel volume represents 93% of volume for the same 5-day pre-pandemic holiday period in 2019.

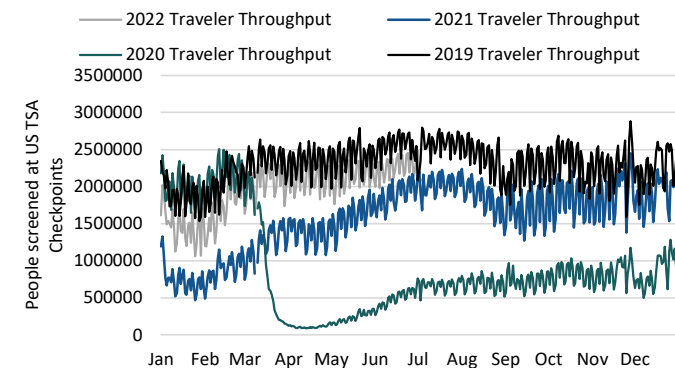
Global Demand Vs Global Supply: Actuals and Prediction



Global Demand Vs Global Supply: Monthly Breakdown



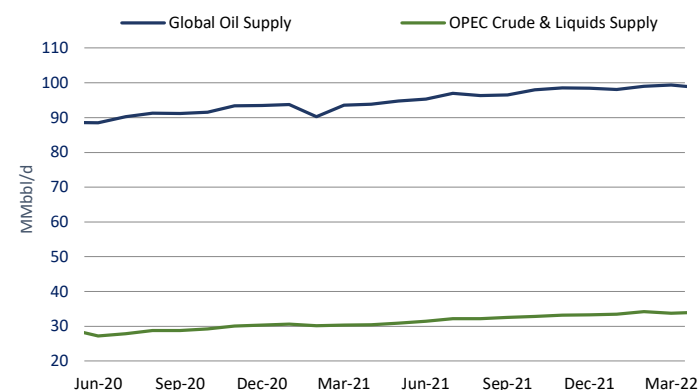
TSA Checkpoint Numbers



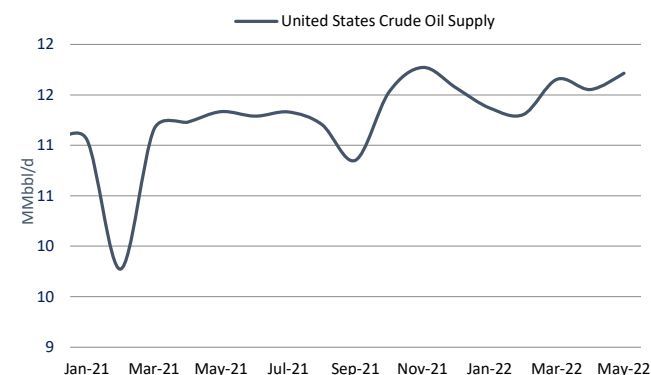
Global Oil Supply

- According to the International Energy Agency (IEA), global oil supply may struggle to keep pace with demand next year, as tighter sanctions force Russia to shut in more wells and a number of producers bump up against capacity constraints. Russia shut in nearly 1 MMb/d in April, driving down the world oil supply.
- EU countries have agreed to ban 90% of the bloc's imports of Russian crude and oil products, to be phased out over the next six to eight months.
- However, non-OPEC+ is expected to lead world supply growth through next year, adding 1.9 mb/d in 2022 and 1.8 mb/d in 2023.
- As for OPEC+, total oil output in 2023 may fall as embargoes and sanctions shut in Russian volumes and producers outside the Middle East suffer further declines. Assuming Libya rebounds from a steep drop, the bloc's production could increase 2.6 mb/d this year, eroding its spare capacity cushion.
- According to OPEC, the main drivers of liquids supply growth in 2022 are expected to be the US, Brazil, Canada, Kazakhstan, Guyana and China, while declines are expected mainly in Russia, Indonesia and Thailand.
- Oil inventories are rising and IEA Strategic Petroleum Reserve releases have helped reverse persistent declines in OECD industry stocks. Preliminary data show global oil stocks increased by 77 mb in April and made further gains in onshore stocks in May, yet oil prices continued their upward trajectory.

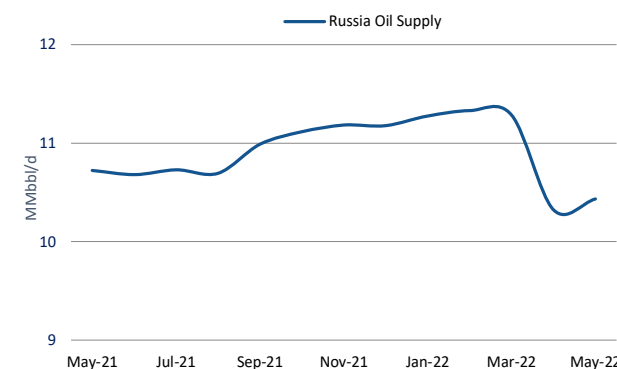
Global Vs. OPEC Crude Oil and Liquid Fuels Supply



US Crude Oil Supply

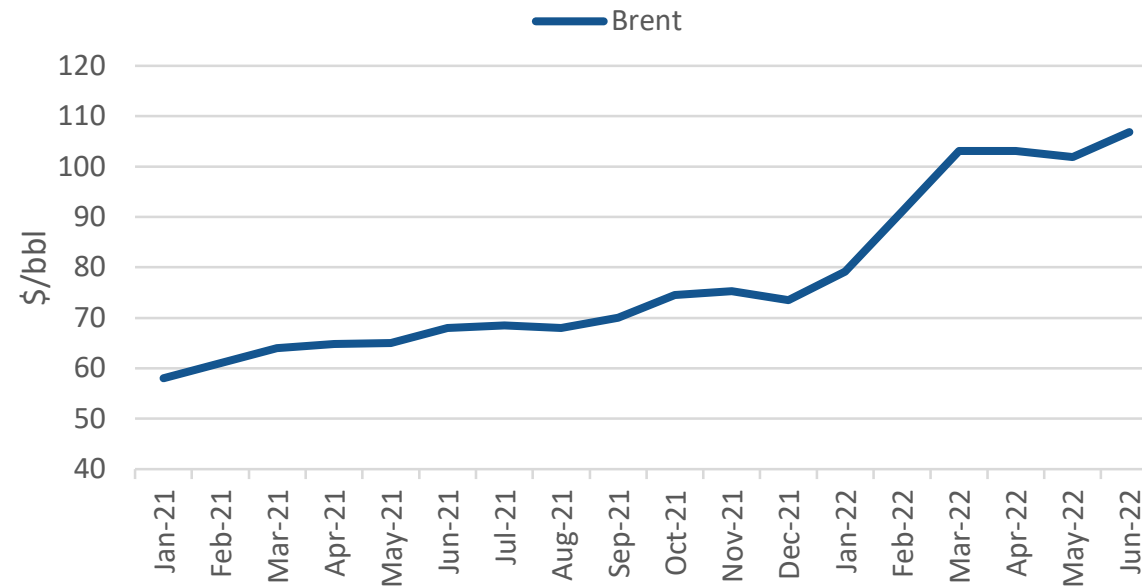


Russian Oil Supply



Oil price forecast (Reuters poll)

Reuters Oil Price Poll (2022 average forecasts)



- The chart above shows the forecasted 2022 average oil prices of the participants surveyed by Reuters in the respective months since 2021.
- The Reuters poll in Jun-22, showed that a survey of 34 economists and analysts forecast Brent crude would average \$106.82 a barrel in 2022, the highest prediction for the year so far, versus a \$101.89 consensus in May.
- According to Reuters, oil prices are expected to stay above \$100 a barrel this year as Europe and other regions struggle to wean themselves off Russian supply, though economic risks could slow the climb.

In the absence of guidance from a client in relation to oil price assumptions, ERCE would assume the oil price scenarios presented in the following slide. These oil price scenarios are derived in context of the information available in the public domain and should not be construed as oil price forecasts, predictions or projections by ERCE.

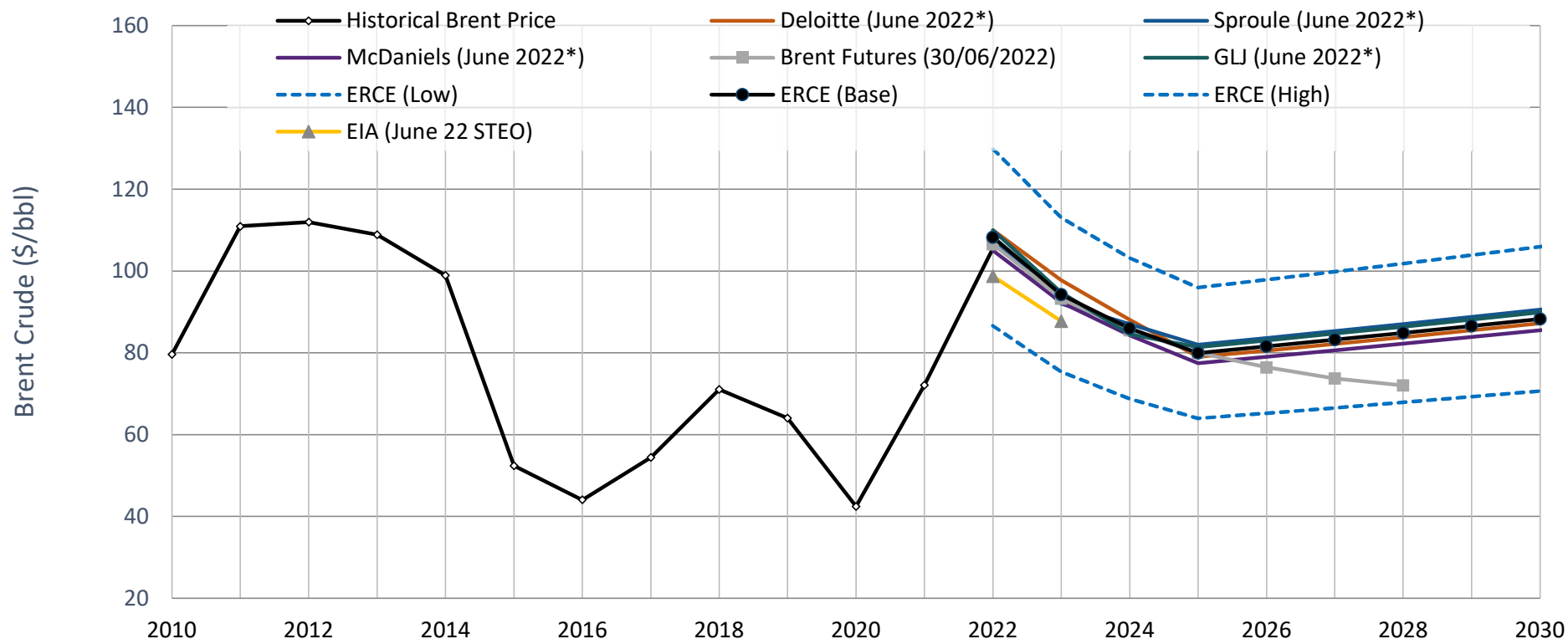
The low and high oil price paths depicted in the following slide(s) are not intended to provide lower and upper bounds for future oil prices but rather to allow the analysis of possible future world oil market conditions that differ significantly from those assumed in the base case.



ERCE Oil and Gas Price Forecast

Brent Crude Oil Price Deck

Nominal Brent Crude Forecast by Consultants, Lenders Vs. Brent Historical and Futures Curve



Brent Nominal (\$/bbl)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
ERCE (June 2022*)	108	94	86	80	82	83	85	87	88	90	+2.0% pa
Sproule (June 2022*)	108	92	87	82	84	85	87	89	91	92	+2.0% pa
GLJ (June 2022*)	110	95	85	81	83	85	86	88	90	92	+2.0% pa
Deloitte (June 2022*)	110	98	88	79	81	82	84	86	87	89	+2.0% pa
McDaniels (June 2022*)	105	92	84	77	79	81	82	84	86	87	+2.0% pa
Average	108	94	86	80	82	83	85	87	88	90	
Brent Futures (30/06/2022)	107	93	86	80	76	74	72				
EIA (June 22 STEO)	99	88									

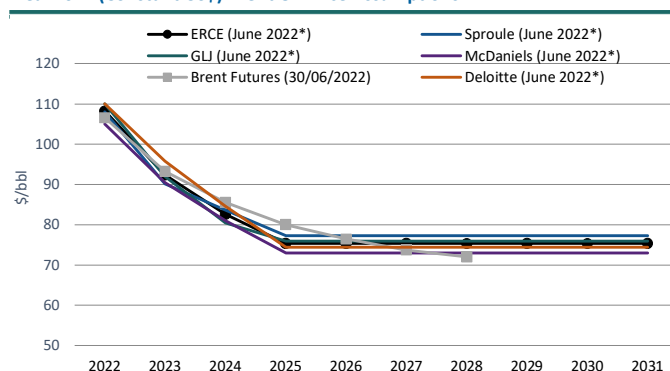
Inflation Assumptions: Sproule: 2%. GLJ: 3% in 2023 and 2% thereafter. Deloitte: 2%. McDaniel: 2%. ERCE: 2%

Source: Sproule, GLJ, McDaniel, Deloitte, Intercontinental Exchange, Reuters, EIA, ERCE Estimates. Note: *publication date. Note: ERCE's low and high case is calculated based on a standard deviation of the forecasts and Coefficient of Variation – Range increases for the first five years. Note: *Estimates for 2022 are for the remaining year's balance.

ERCE Brent Oil Price Assumptions

Brent Real (\$/bbl)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
ERCE (June 2022*)	108	92	83	75	75	75	75	75	75	75	75
Sroule (June 2022*)	108	90	84	77	77	77	77	77	77	77	77
GLJ (June 2022*)	110	92	80	76	76	76	76	76	76	76	76
Deloitte (June 2022*)	110	96	85	74	74	74	74	74	74	74	74
McDaniels (June 2022*)	105	91	81	73	73	73	73	73	73	73	73
Average	108	92	82	75	75	75	75	75	75	75	75

Real 2022 (Constant US\$) Brent Oil Price Assumptions



ERCE (Low Case) Brent Assumptions (\$/bbl)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant \$, 2022)	87	74	66	60	60	60	60	60	60	60	60
Nominal (\$ of the day)	87	75	69	64	65	67	68	69	71	72	+2.0% pa

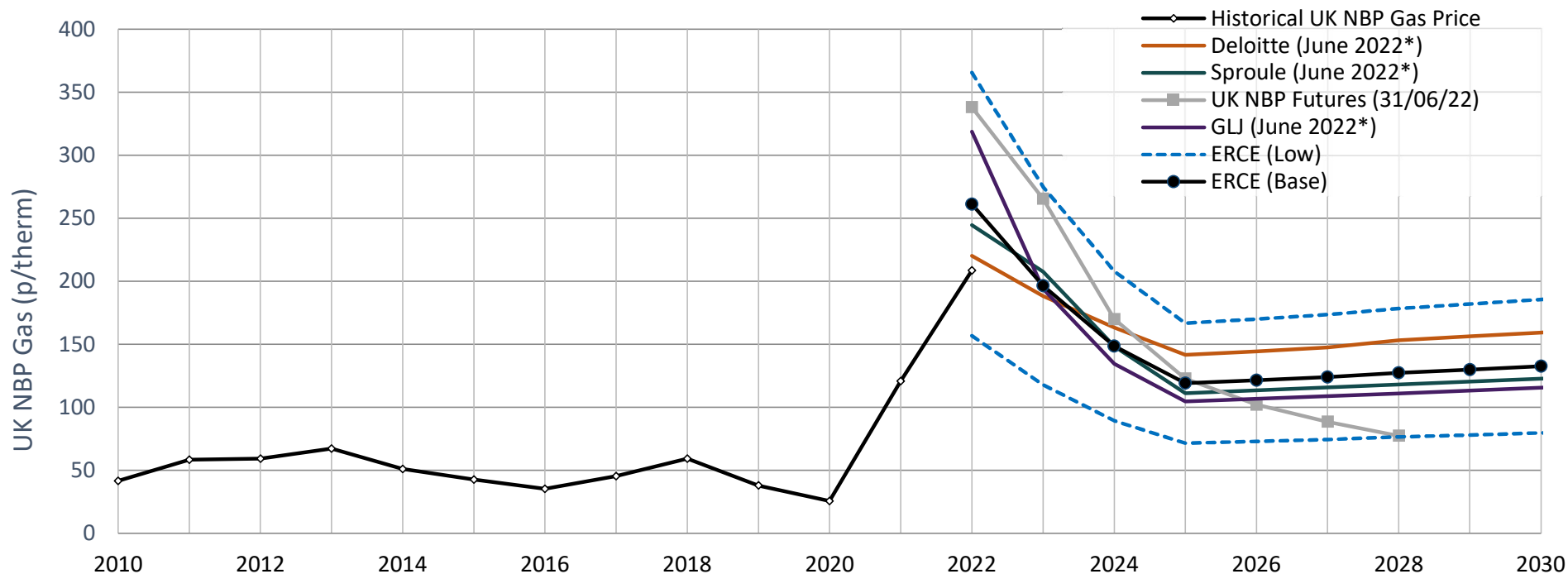
ERCE (Base Case) Brent Assumptions (\$/bbl)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant \$, 2022)	108	92	83	75	75	75	75	75	75	75	75
Nominal (\$ of the day)	108	94	86	80	82	83	85	87	88	90	+2.0% pa

ERCE (High Case) Brent Assumptions (\$/bbl)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant \$, 2022)	130	111	99	90	90	90	90	90	90	90	90
Nominal (\$ of the day)	130	113	103	96	98	100	102	104	106	108	+2.0% pa

Note: ERCE's low and high case is calculated based on a standard deviation of the forecasts and Coefficient of Variation – Range increases for the first five years. Note: *publication date. Source: Sroule, GLJ, McDaniel, Deloitte, Intercontinental Exchange, ERCE Estimates. Note: *Estimates for 2022 are for the remaining year's balance.

UK NBP Gas Price Deck

Nominal UK NBP Gas Price Forecast by Consultants, Vs. UK NBP Historical and Futures Curve



UK NBP Gas Price (Nominal) (p/therm)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
ERCE (June 2022*)	261	196	149	119	121	124	127	130	132	135	+2.0% pa
Sproule (June 2022*)	244	207	148	111	113	116	118	120	123	125	+2.0% pa
Deloitte (June 2022*)	220	188	163	142	144	147	153	156	159	163	+2.0% pa
GLJ (June 2022*)	319	194	134	104	107	109	111	113	115	118	+2.0% pa
Average	261	196	149	119	121	124	127	130	132	135	
UK NBP Futures (30/06/22)	338	265	170	123	102	88	77				

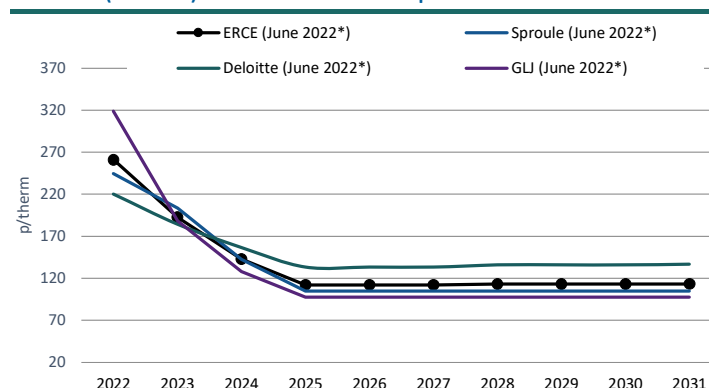
Inflation Assumptions: Sproule: 2%. GLJ: 3% in 2023 and 2% thereafter. Deloitte: 2%. McDaniel: 2%. ERCE: 2%

Source: Sproule, GLJ, Deloitte, Intercontinental Exchange, Reuters, ERCE Estimates. Note: *publication date. Note: ERCE's low and high case is calculated based on a standard deviation of the forecasts and Coefficient of Variation – Range increases for the first five years. Note: *Estimates for 2022 are for the remaining year's balance.

UK NBP Gas Price Assumptions

UK NBP Gas Price (Real) (p/therm)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
ERCE (June 2022*)	261	193	143	112	112	112	113	113	113	113	113
Sproule (June 2022*)	244	203	142	105	105	105	105	105	105	105	105
Deloitte (June 2022*)	220	184	157	133	133	133	136	136	136	137	137
GLJ (June 2022*)	319	188	128	97	97	97	98	97	98	98	98
Average	261	192	142	112	112	112	113	113	113	113	113

Real 2022 (Constant) UK NBP Gas Price Assumptions



ERCE (Low Case) NBP Gas Price Assumptions (p/therm)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant, 2022)	157	116	86	67	67	67	68	68	68	68	68
Nominal (\$ of the day)	157	118	89	71	73	74	76	78	79	81	+2.0% pa

ERCE (Base Case) NBP Gas Price Assumptions (p/therm)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant, 2022)	261	193	143	112	112	112	113	113	113	113	113
Nominal (\$ of the day)	261	196	149	119	121	124	127	130	132	135	+2.0% pa

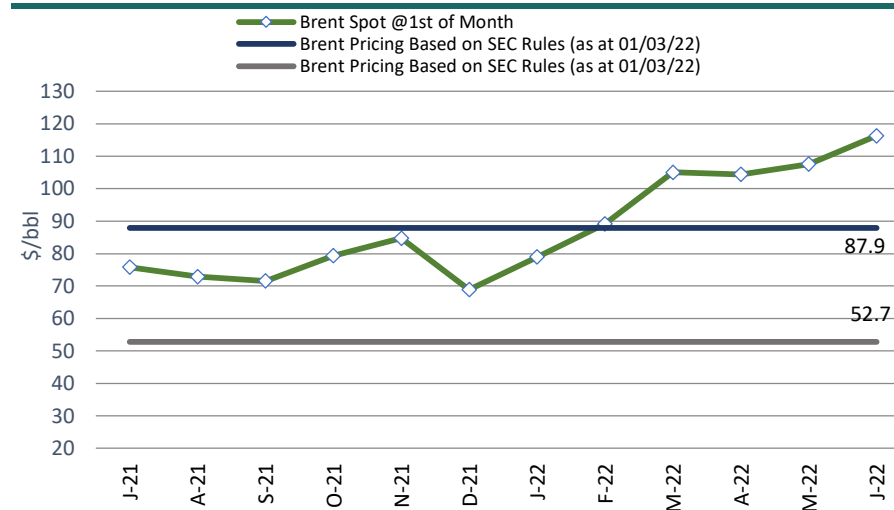
ERCE (High Case) NBP Gas Price Assumptions (p/therm)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032+
Real (Constant, 2022)	365	270	200	157	157	157	158	158	158	159	159
Nominal (\$ of the day)	365	275	208	167	170	173	178	182	185	190	+2.0% pa

Note: ERCE's low and high case is calculated based on a standard deviation of the forecasts and Coefficient of Variation – Range increases for the first five years. Note: *publication date. Sproule, GLJ, Deloitte, Intercontinental Exchange, ERCE Estimates. Note: *Estimates for 2022 are for the remaining year's balance.

Oil Price as Defined by SEC Regulations

Rolling 12M	Brent Spot @1st of Month	Rolling 12M	Brent Spot @1st of Month
Date	(\$/stb)	Date	(\$/stb)
01-Jun-22	116	01-Jun-21	70
02-May-22	108	03-May-21	68
01-Apr-22	104	01-Apr-21	65
01-Mar-22	105	01-Mar-21	64
01-Feb-22	89	01-Feb-21	56
03-Jan-22	79	04-Jan-21	51
01-Dec-21	69	01-Dec-20	47
01-Nov-21	85	02-Nov-20	39
01-Oct-21	79	01-Oct-20	41
01-Sep-21	72	01-Sep-20	46
02-Aug-21	73	03-Aug-20	44
01-Jul-21	76	01-Jul-20	42
12M Arith. Avg	87.9	12M Arith. Avg	52.7

Brent Pricing - SEC Regulations



- Shown for reference purposes only, the data above indicates the current Brent price as defined by SEC regulations.
- This is calculated by taking the 12-month unweighted arithmetic average of 1st-day-of-the-month Brent prices.
- Definition 22.V (31 December 2009): "Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be the average price during the 12-month period prior to the ending date of the period covered by the report, determined as an unweighted arithmetic average of the first-day-of-the-month price for each month within such period, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions."



Crude Oil and Natural Gas Trading Prices

All prices are in U.S. dollars as at 30th June 2022

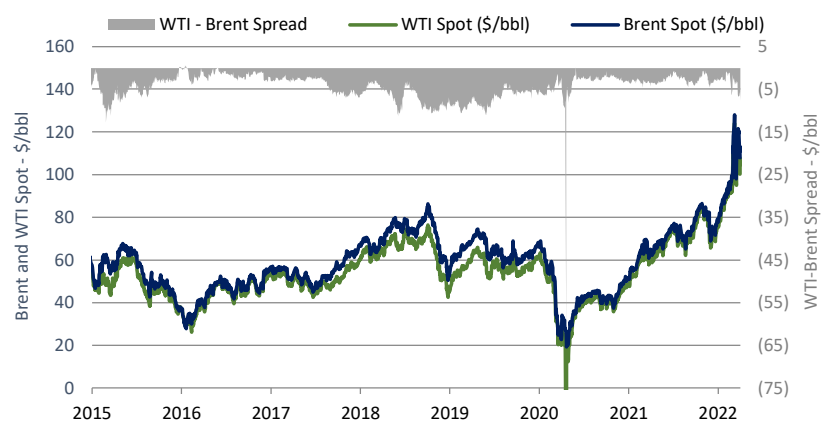
Brent and WTI Crude Spot Price Review

Brent and WTI Crude Oil Spot Price: Current Vs. Historical	Brent		WTI	
	\$/bbl	%Chg vs Current	\$/bbl	%Chg vs Current
30-Jun-22	115	-	106	-
1M Ago	122	↓ -6%	115	↑ 0%
3M Ago	113	↑ 1%	108	↑ 6%
6M Ago	79	↑ 45%	77	↑ 50%
1Yr Ago	75	↑ 53%	73	↑ 56%
YTD Low	79	↑ 45%	76	↑ 51%
YTD High	128	↓ -10%	124	↓ -15%
2022 YTD Average	105	↑ 9%	100	↑ 15%
1H2022 Avg	105	↑ 9%	100	↑ 15%
2H2021 Avg	76	↑ 50%	74	↑ 56%
1H2021 Avg	65	↑ 76%	62	↑ 85%
2H2020 Avg	44	↑ 159%	42	↑ 175%

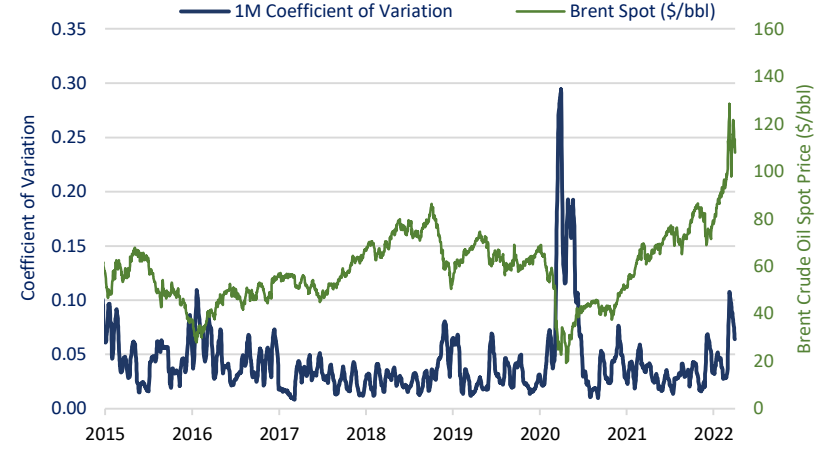
Brent Crude Daily Spot Price (2015 to 2022 YTD)



WTI-Brent Spot Price and Spread (2015 to 2022 YTD)



Brent Crude Oil Spot Price Volatility (Coefficient of Variation - 1M)

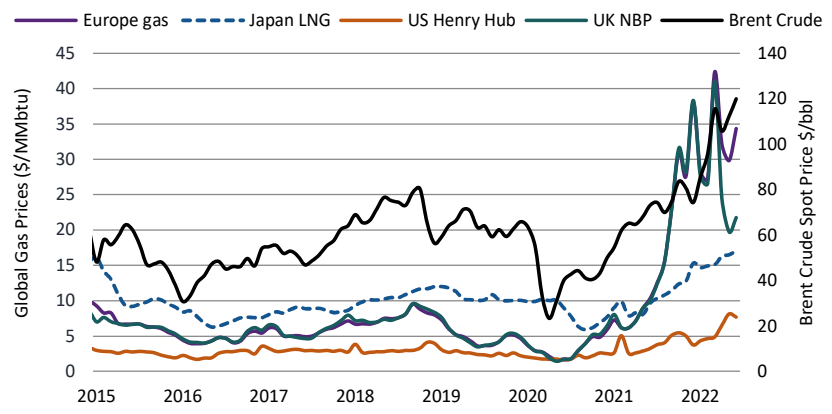


Oil prices are most often referenced to the Brent oil price in the UK, or the WTI oil price in the U.S. These oil prices are determined on the futures market (electronic financial exchange). Some of the factors that influence oil prices include demand/supply dynamics, storage levels and costs, interest rates, insurance costs, marginal cost of supply, foreign exchange rates, potential geopolitical risks disrupting supply, the ability to deal with the supply shock (OPEC spare capacity and inventory levels) and the markets views and future expectations of all of this and more. Commodity prices are notoriously volatile creating instability in global commodity markets. Empirical support for this argument typically relies upon the standard deviation of price or the coefficient of variation as a measure of volatility. High price volatility has been used to rationalise commodity stabilisation programmes, such as price supports, buffer stock programs and producer subsidies.

Source: Intercontinental Exchange, ERCE Estimates.

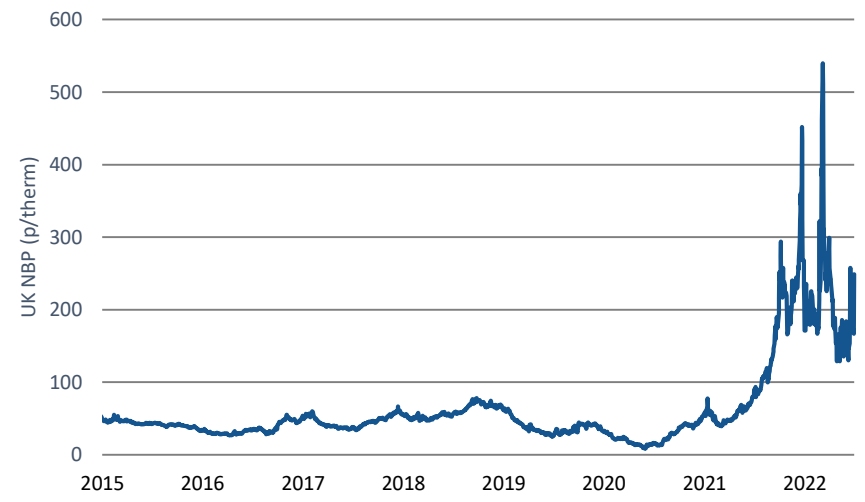
Global and UK Natural Gas Spot Prices

Global Gas Prices (From 2015) Monthly Average Prices



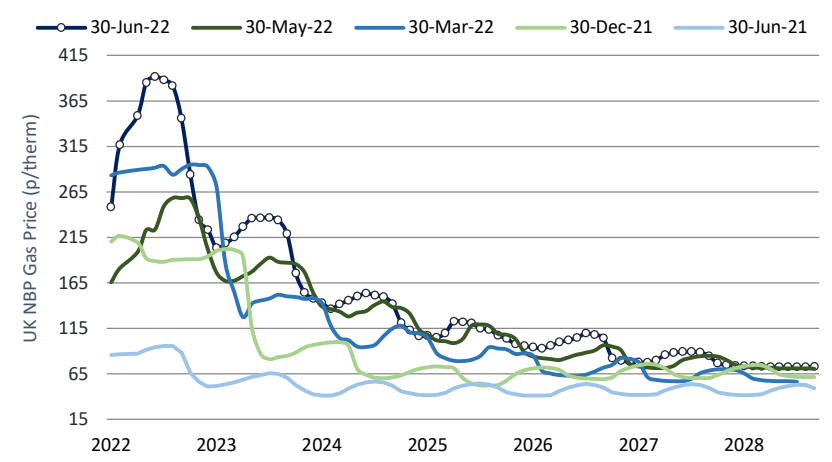
Global Gas: Monthly Average Spot Prices	Jun-21 (\$/MMBtu)	Jun-22 (\$/MMBtu)	YoY Change % Chg
UK NBP	10.0	21.8	↑ 117%
US Henry Hub	3.2	7.7	↑ 137%
Japan LNG	9.6	17.1	↑ 78%
Brent Crude (\$/stb)	73.1	120.1	↑ 64%

UK Natural Gas NBP Daily Spot Price



UK NBP Futures Prices (p/therm)	2022	2023	2024	2025	2026	2027
30-Jun-22	338	265	170	123	102	88
30-May-22	207	204	153	118	93	81
30-Mar-22	289	196	118	94	73	67
30-Dec-21	197	127	76	63	66	67
30-Jun-21	66	51	48	47	47	47

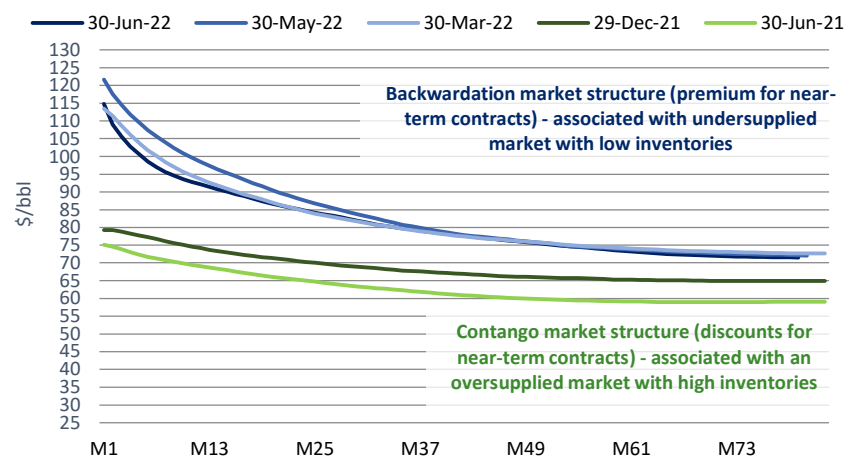
UK Natural Gas NBP Futures Curve (Current Vs 1M, 3M, 6M and 1Yr Ago)



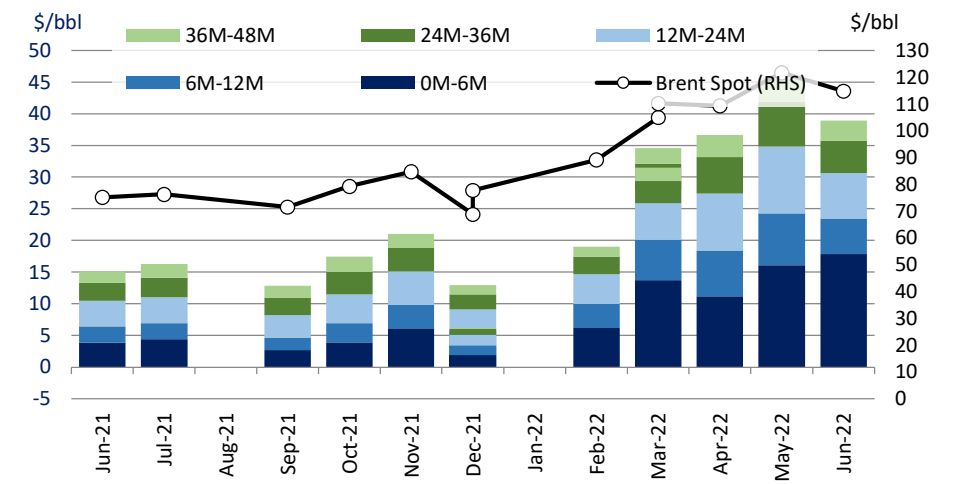
The Gas Spot Price is the current price in a marketplace at which natural gas can be traded for immediate delivery. Gas prices in the UK are commonly referenced to the UK National Balancing Point (NBP) price. In this model, gas anywhere in the national transmission system within the UK counts as NBP gas which allows simplification of trading as buyers and sellers are united in the same marketplace. The UK gas market is supplied from a wide range of sources including the liquefied natural gas tankers, imports piped from Norway and continental Europe, storage and the UK's own natural gas production. Japan LNG is the average import price into Japan, CIF.

Brent Crude Oil Futures Review

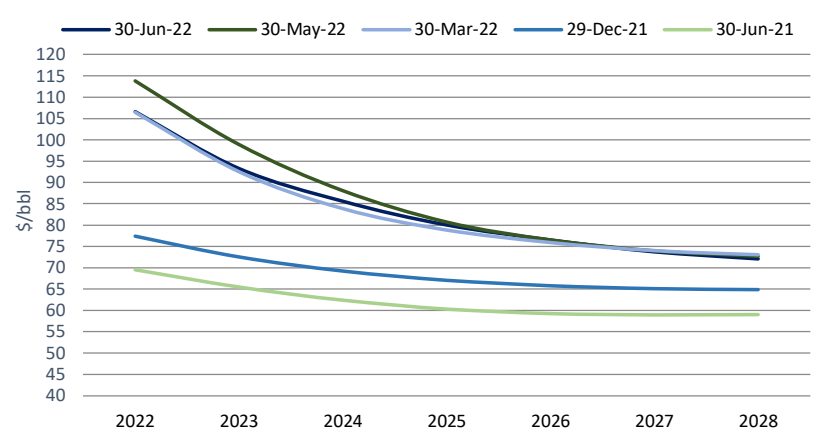
Brent Crude Futures Curve: Current, 1M, 3M, 6M and 1Yr Ago



Brent Futures Curve Spread (12M Ago to Current)



Brent Curve: Annual Averages - Current, 1M, 3M, 6M and 1Yr Ago



Annual Averages of Brent Futures Contracts (Current Vs 1M, 3M, 6M and 1Yr Ago)

US\$/stb	2022	2023	2024	2025	2026	2027	2028
30-Jun-22	107	93	86	80	76	74	72
30-May-22	114	99	88	81	76	74	73
30-Mar-22	106	93	84	79	76	74	73
29-Dec-21	77	73	69	67	66	65	65
30-Jun-21	70	65	62	60	59	59	59

The 'spot price' of an asset is the price of buying or selling the asset today. The 'futures price' of an asset is the price of entering into a contract today to buy or sell the asset on some agreed future date. The set of prices for all future dates is then called the 'futures curve'. **The futures curve is not a forecast of future spot prices by the market.** A commodity futures contract is a binding agreement that gives one the right to purchase that commodity at a predefined price on a predefined date in the future. Under a futures contract, both the buyer and the seller are obligated to fulfil their side of the transaction on the specified date. The futures curve shows the price at which it is possible to buy/sell futures contracts for a forward date at a price agreed today (or on a particular date in the past).

Brent Crude Oil Spot Price Heat Map

Brent Crude Spot Price Monthly Average (\$/bbl)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1990	21	20	18	17	16	15	17	27	35	36	33	28
1991	24	20	19	19	19	18	19	20	21	22	21	18
1992	18	18	18	19	20	21	20	20	20	20	19	18
1993	17	18	19	19	19	18	17	17	16	17	15	14
1994	14	14	14	15	16	17	18	17	16	16	17	16
1995	17	17	17	19	18	17	16	16	17	16	17	18
1996	18	18	20	21	19	18	20	21	23	24	23	24
1997	24	21	19	18	19	18	18	19	18	20	19	17
1998	15	14	13	14	14	12	12	12	13	13	11	10
1999	11	10	13	15	15	16	19	20	23	22	25	25
2000	26	28	27	23	28	30	29	30	33	31	33	26
2001	26	28	25	26	28	28	25	26	26	21	19	19
2002	19	20	24	26	25	24	26	27	28	28	24	28
2003	31	33	31	25	26	28	28	30	27	30	29	30
2004	31	31	34	34	38	35	38	43	43	50	43	40
2005	45	45	53	52	49	54	58	64	63	59	55	57
2006	63	60	62	70	70	69	74	73	62	58	59	62
2007	54	58	62	67	67	71	77	71	77	82	92	91
2008	92	95	104	109	123	132	133	113	97	72	52	40
2009	43	43	47	50	57	69	64	73	68	73	77	74
2010	76	74	79	85	76	75	76	77	78	83	85	91
2011	97	104	115	123	115	114	117	110	113	110	111	108
2012	111	119	125	120	110	95	103	113	113	112	109	109
2013	113	116	108	102	103	103	108	111	112	109	108	111
2014	108	109	107	108	110	112	107	102	97	87	79	62
2015	48	58	56	60	64	61	57	47	48	48	44	38
2016	31	32	38	42	47	48	45	46	47	50	45	53
2017	56	56	53	54	51	48	49	52	56	58	63	64
2018	69	66	67	72	77	76	75	74	79	81	66	58
2019	60	64	67	72	70	63	64	60	62	60	63	65
2020	64	55	34	27	32	41	43	45	42	42	44	50
2021	55	62	66	65	68	73	74	71	75	84	81	75
2022	86	94	112	106	112	118						

Yearly Avg	Yearly Chg (\$)	Yearly % Chg
24	5	30%
20	(4)	-15%
19	(1)	-4%
17	(2)	-12%
16	(1)	-7%
17	1	8%
21	4	21%
19	(2)	-7%
13	(6)	-33%
18	5	40%
29	11	60%
24	(4)	-14%
25	1	2%
29	4	16%
38	9	32%
54	16	42%
65	11	20%
72	7	11%
97	24	34%
61	(35)	-37%
80	18	29%
111	32	40%
112	0	0%
109	(3)	-3%
99	(10)	-9%
52	(47)	-47%
44	(9)	-17%
55	11	26%
72	17	30%
64	(7)	-10%
43	(21)	-33%
71	28	64%
105	34	48%

Monthly Chg: Increase (+) Count	21	20	19	21	19	15	21	19	20	16	12	14
Monthly Chg: Decrease (-) Count	12	13	14	12	14	18	11	13	12	16	20	18
Delta: Increase Less Decrease Count	9	7	5	9	5	(3)	10	6	8	-	(8)	(4)
Average MoM Chg (\$)	0.3	1.0	0.8	1.0	0.8	0.3	0.8	(0.0)	0.1	(0.5)	(1.5)	(1.3)

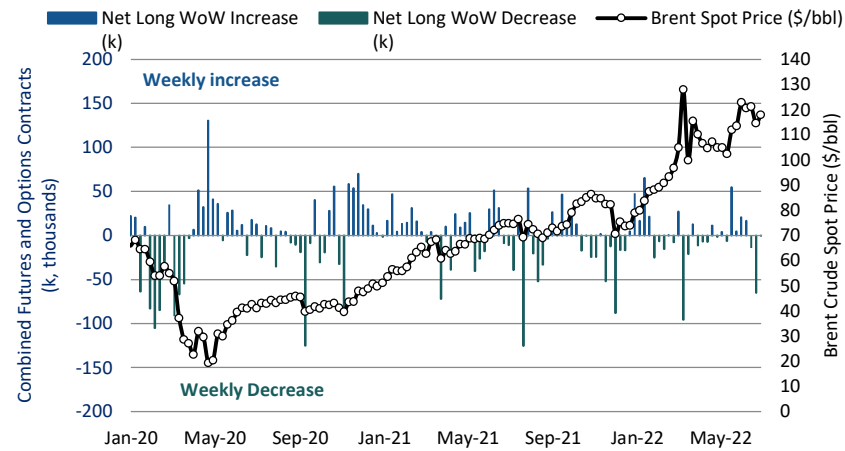
20
15
5
2.5

Source: Intercontinental Exchange, ERCE Estimates

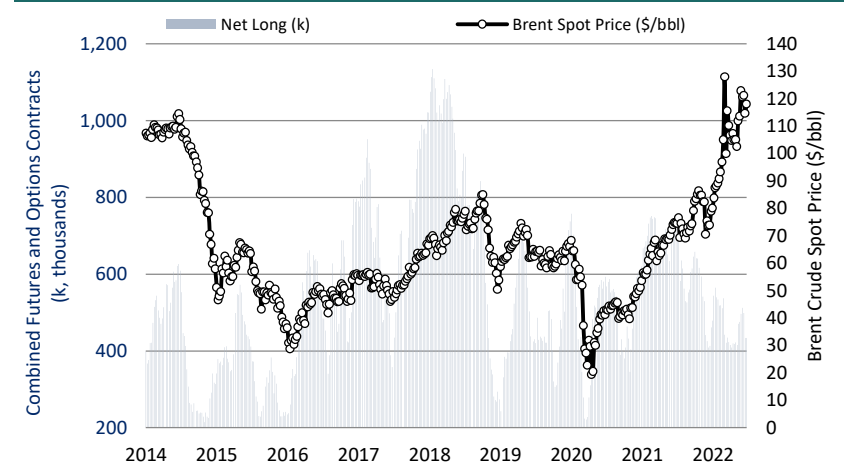
Commitment of Traders Report: Money Managers' Positions on Brent and WTI Futures and Options

Hedge funds and other money managers sold the equivalent of 71 million barrels in the six most important petroleum futures and options contracts in the week to June 21. The rate of selling was the fastest since the week ending March 8, shortly after the invasion, based on position records from ICE Futures Europe and the U.S. Commodity Futures Trading Commission.

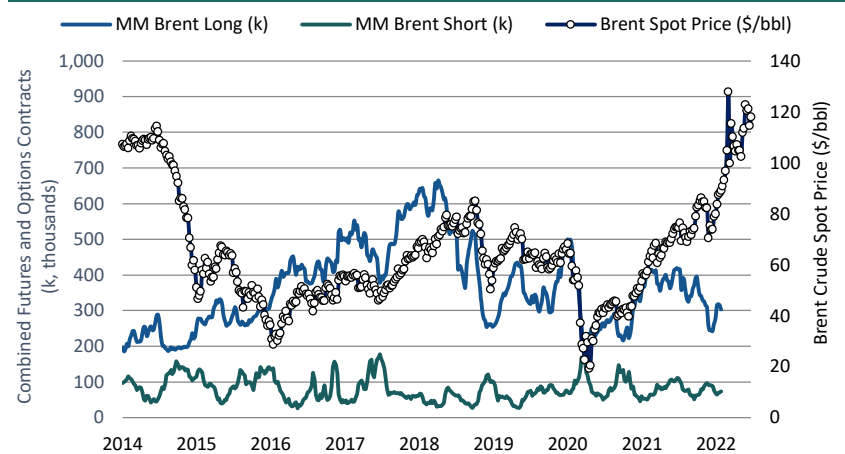
Money Managers' Net Long Position of Brent & WTI: Week on Week Chg



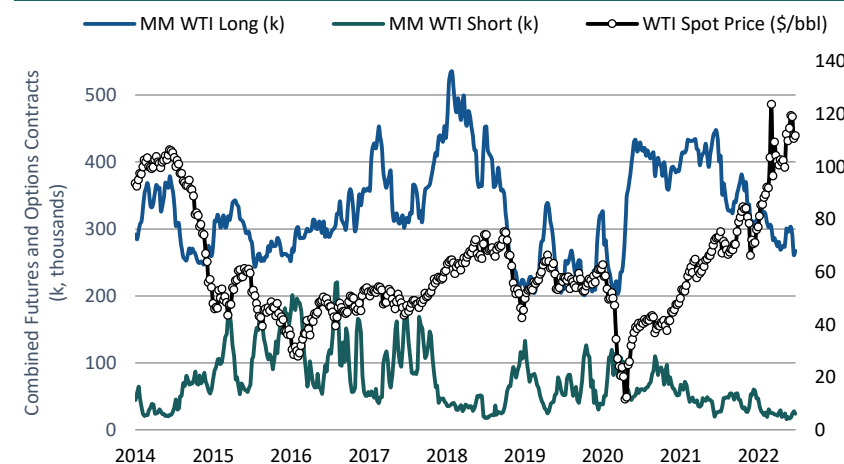
Money Managers' Net Long Position of Brent & WTI Vs Brent Crude Oil Price



Money Managers Positions on Brent Crude Contracts



Money Managers Positions on WTI Crude Contracts

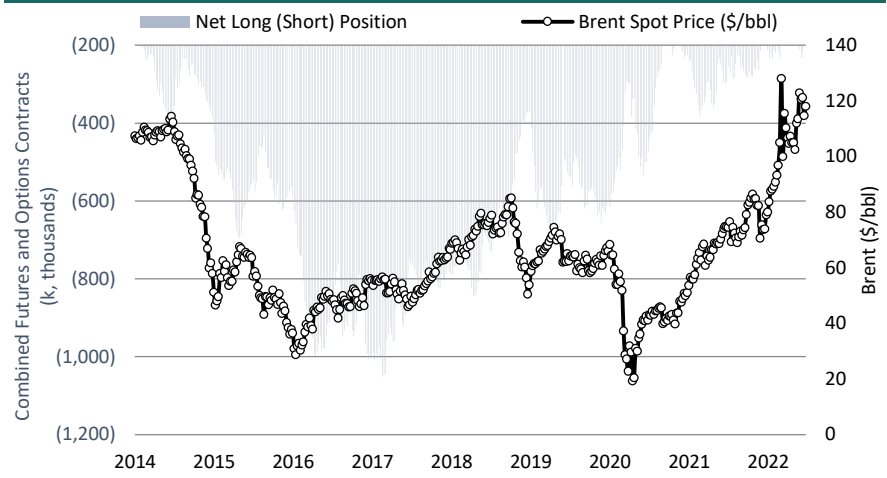


Source: Commodity Futures Trading Commission, ICE, NYMEX, Reuters, ERCE Estimates. Note: each contract represents 1,000 bbls. Longs are bets on higher prices while shorts are wagers on price drops. The net position is the difference between the two.

Producers' Positions on Oil Contracts

The Commitment of Traders (COT) report is released on a weekly basis and provides a glimpse in to positions of commercial users, large institutional traders and speculators of commodities, giving information about the trend and the strength of the commitment traders have towards that trend.

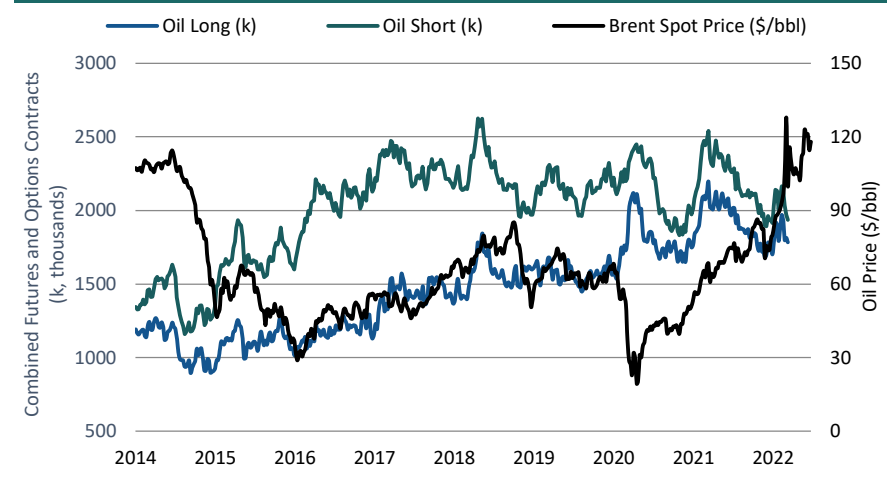
Producers' Net Short Position of Brent & WTI Vs Brent Crude Oil Price



The net long or short positions for each available futures contract and the various types of traders can be derived from the COT report.

- **Managed Money (Non-Commercial Traders)** – entities managing futures on behalf of clients and include hedge funds, pension funds, commodity trading advisors. Most attention is focused to this category as this group trades in the futures market for investment and growth.
- **Producer/Merchant/Processor/User (Commercial Traders)** – entities with exposure to underlying physical market for the commodity which use the futures market to hedge the risks associated with such exposure. Commercial traders are mostly hedging and will often be positioned in the opposite direction of the non-commercial investors or speculator.

Producers' Net Long (Short) Position of Brent & WTI Vs Brent Crude Oil Price



If traders are overwhelmingly long or increasing their long positions then we will have a bullish bias on that market.

Similarly, if traders are short or increasing their short positions then we will have a bearish bias.

The change in long or short positions can reveal a little bit about the trend in investor sentiment. Declines in long positions and increases in short positions indicate that there is some decline in bullish sentiment, and vice versa.

Source: Commodity Futures Trading Commission, ICE, NYMEX, Reuters, ERCE Estimates. Note: each contract represents 1,000 bbls. Longs are bets on higher prices while shorts are wagers on price drops. The net position squares off the two.

Historical (5-year) Foreign Exchange (Spot) Rates

GBP/USD Chart



EUR/USD Chart



CAD/USD Chart



NOK/USD Chart



Source: Bank of England, Yahoo Finance, Bank of Canada

Historical (5-year) Foreign Exchange (Spot) Rates

USD/AUD Chart



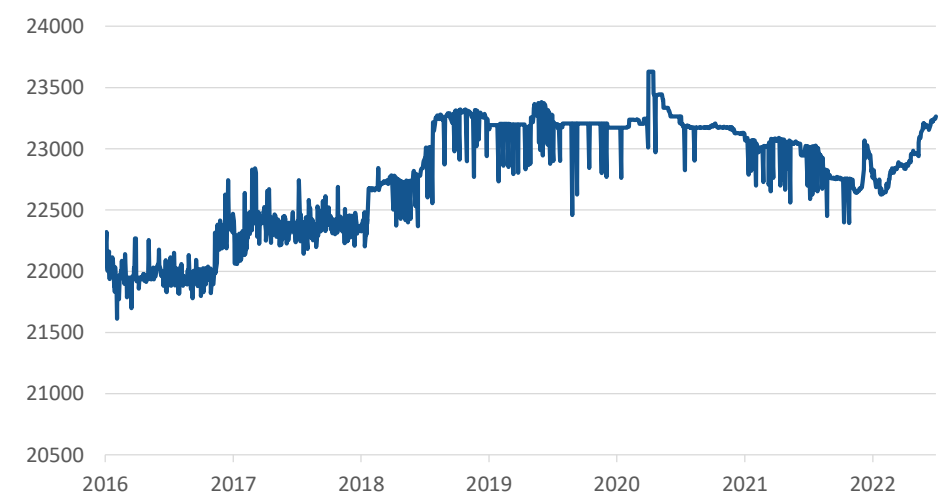
USD/RUB Chart



USD/IDR Chart



USD/VND Chart



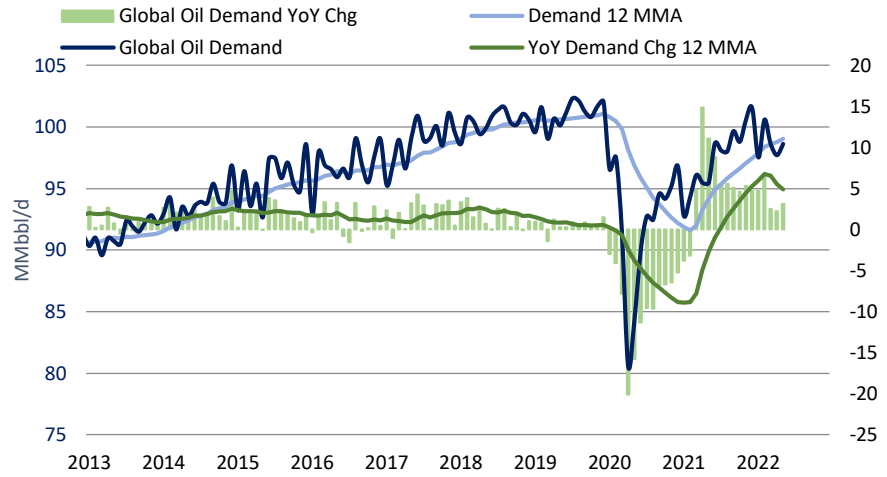
Source: Bank of England, Yahoo Finance, Bank of Canada



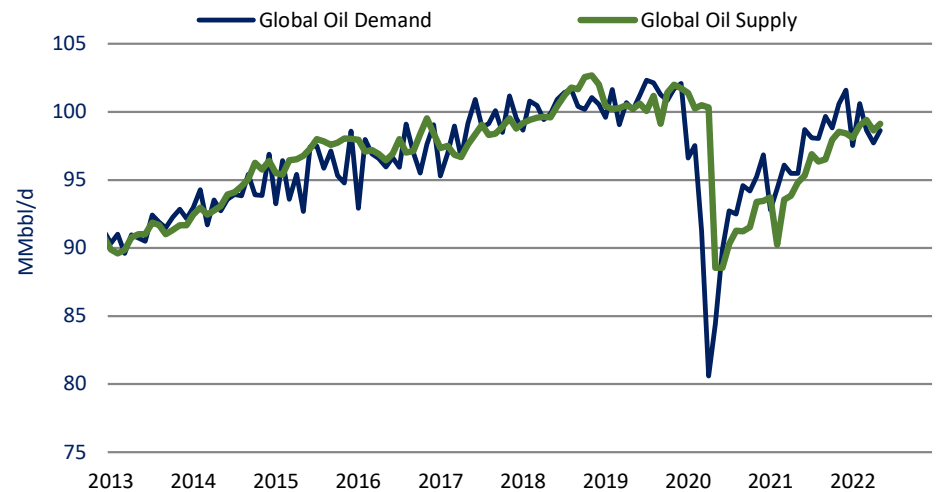
Global Oil Demand & Supply

Global Oil Demand and Supply Summary

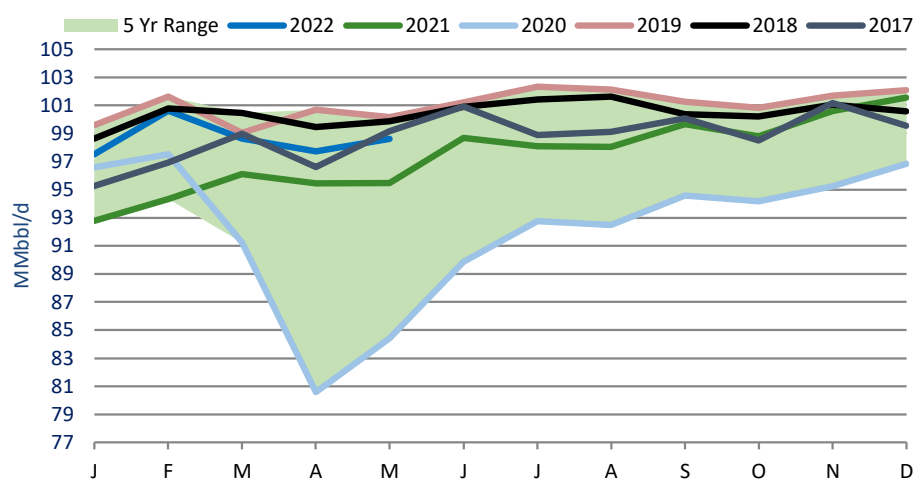
Global Oil Demand and YoY Change



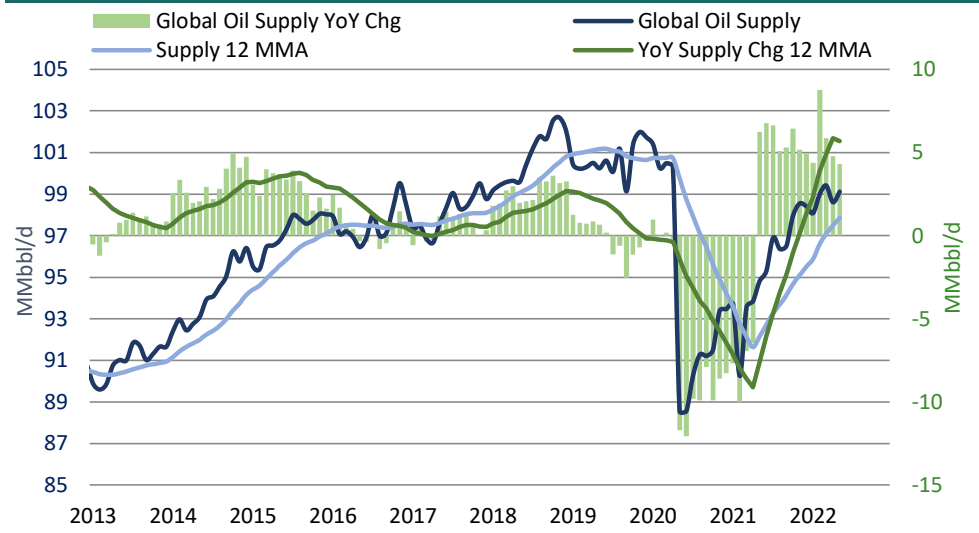
Global Demand Vs Global Supply



Seasonal Global Oil Demand and 5-Yr Range



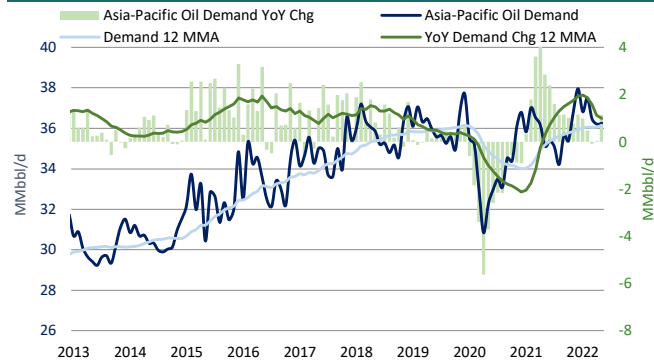
Global Oil Supply and YoY Change



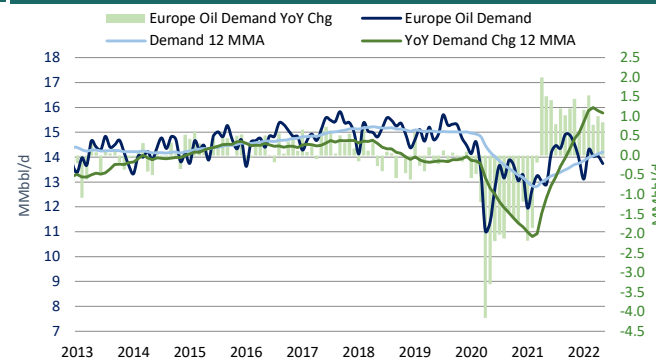
Source: U.S. Energy Information Administration, International Energy Agency, ERCE Estimates. Data included until May/22.

Global Oil Demand

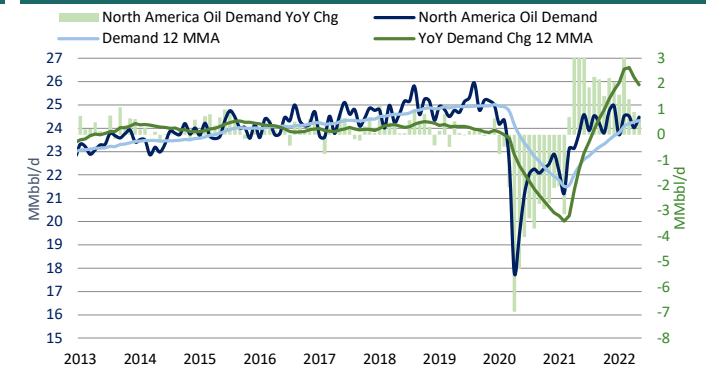
Asia-Pacific Oil Demand YoY Change



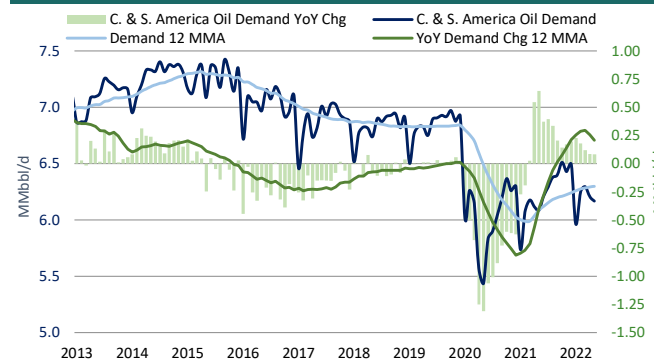
Europe Oil Demand YoY Change



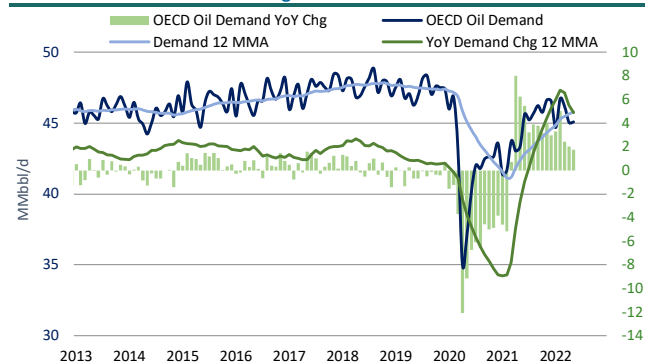
North America Oil Demand YoY Change



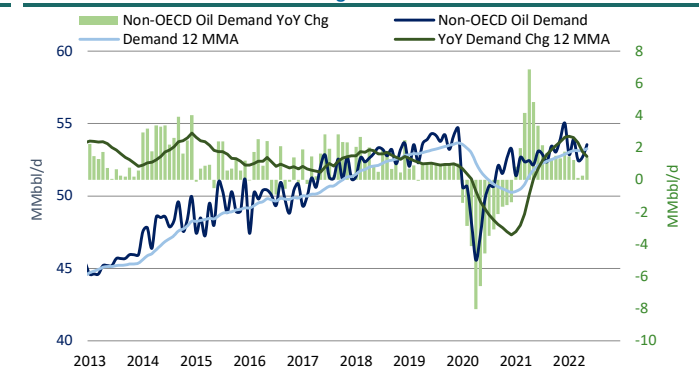
Central and South America Oil Demand YoY Change



OECD Oil Demand and YoY Change

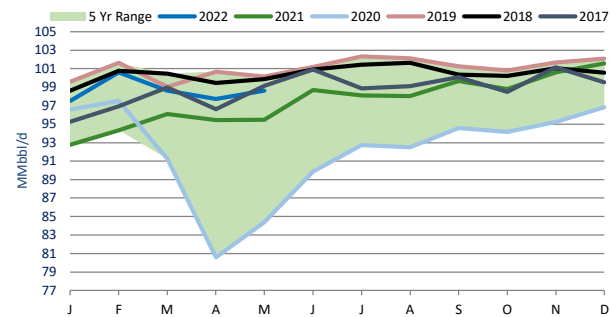


Non-OECD Oil Demand and YoY Change

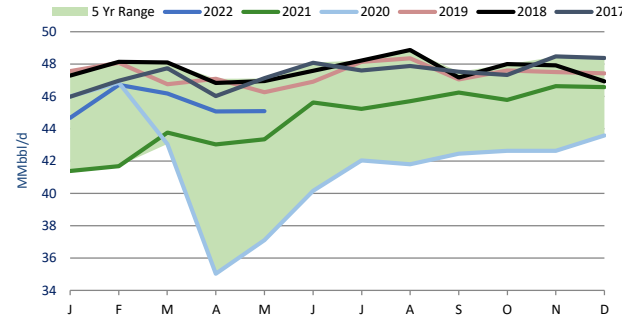


Global Oil Demand Trends

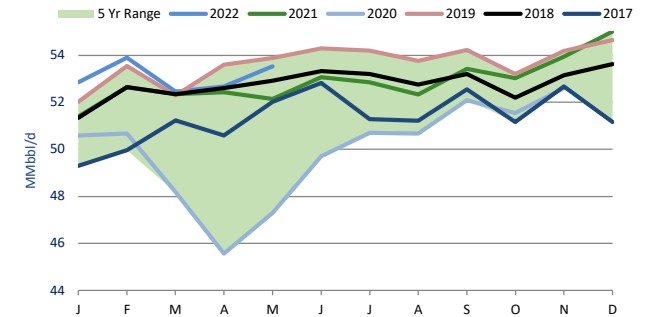
Seasonal Global Oil Demand and 5-Yr Range



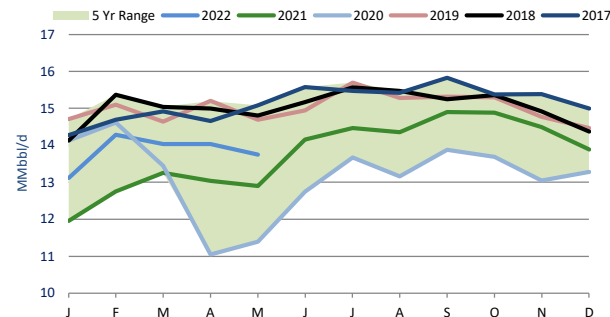
Seasonal OECD Oil Demand and 5 Yr Range



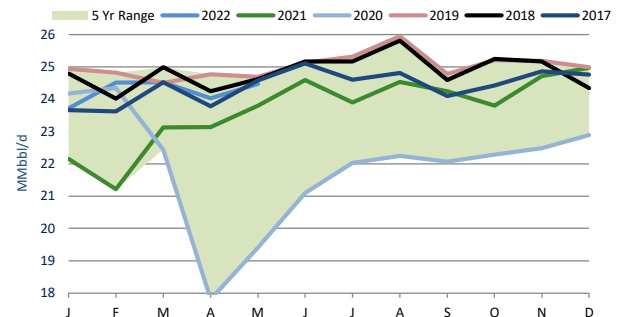
Seasonal Non-OECD Oil Demand and 5 Yr Range



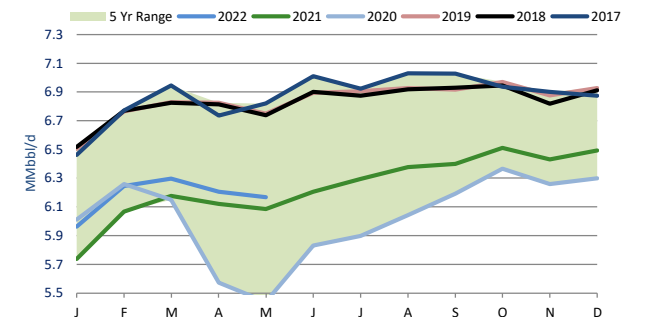
Seasonal Europe Oil Demand and 5 Yr Range



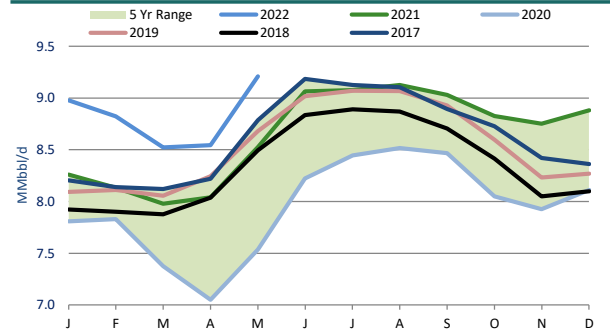
Seasonal North America Oil Demand and 5 Yr Range



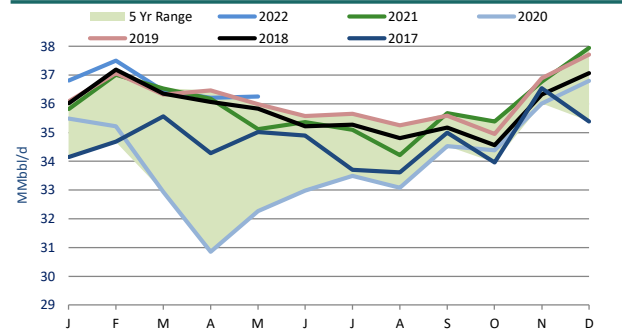
Seasonal Central and South America Oil Demand and 5 Yr Range



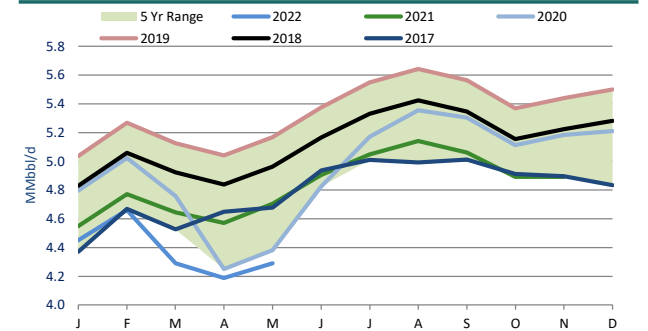
Seasonal Middle East Oil Demand and 5 Yr Range



Seasonal Asia-Pacific Oil Demand and 5 Yr Range

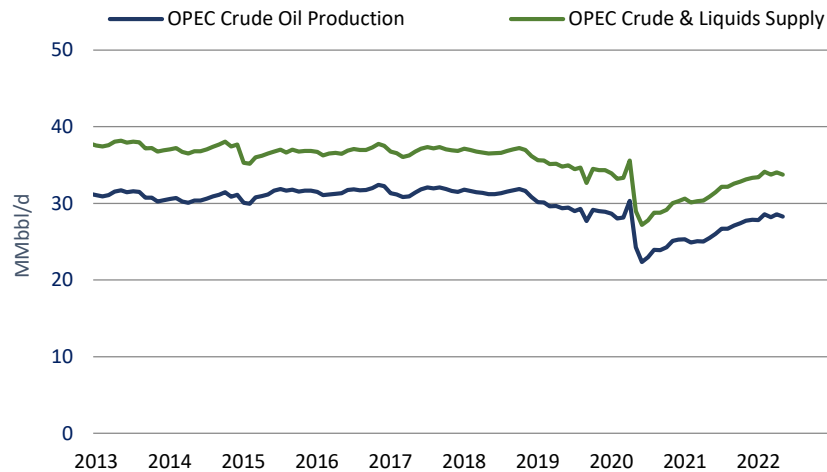


Seasonal Eurasia Oil Demand and 5 Yr Range

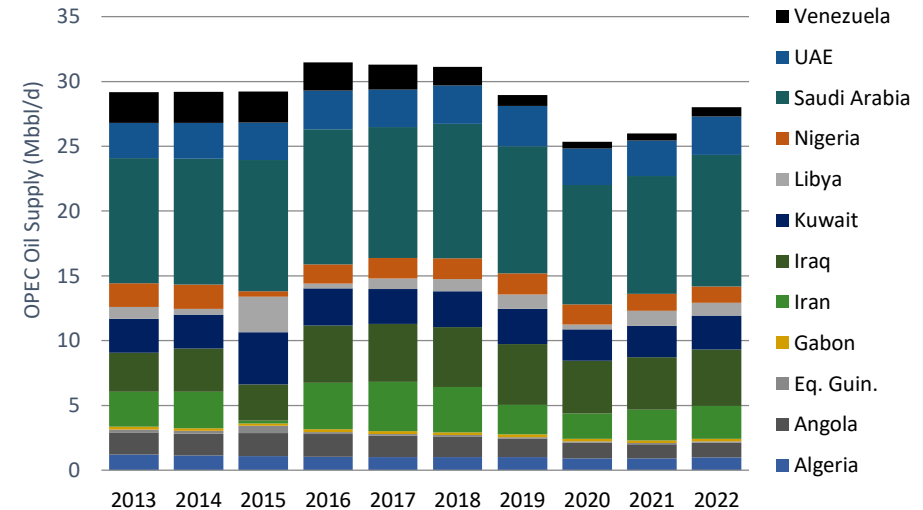


OPEC Supply

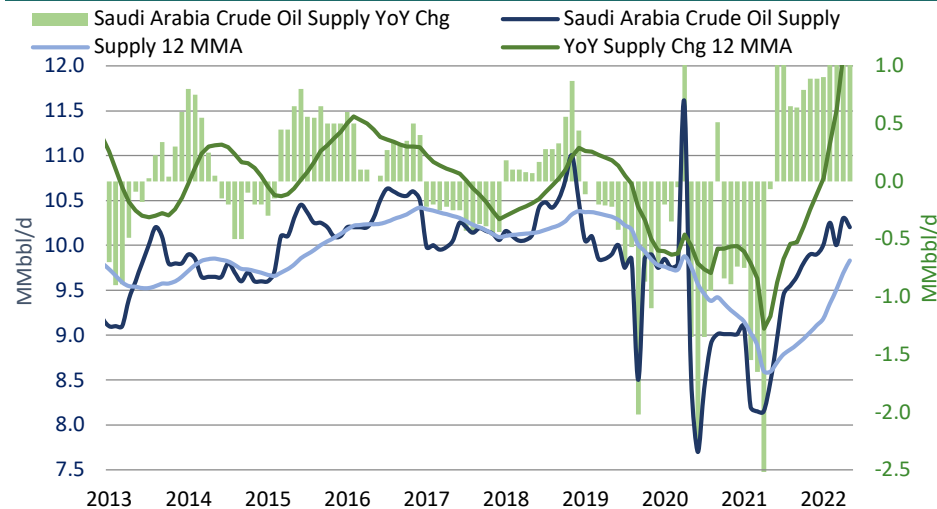
OPEC Crude Oil vs OPEC Other Liquids



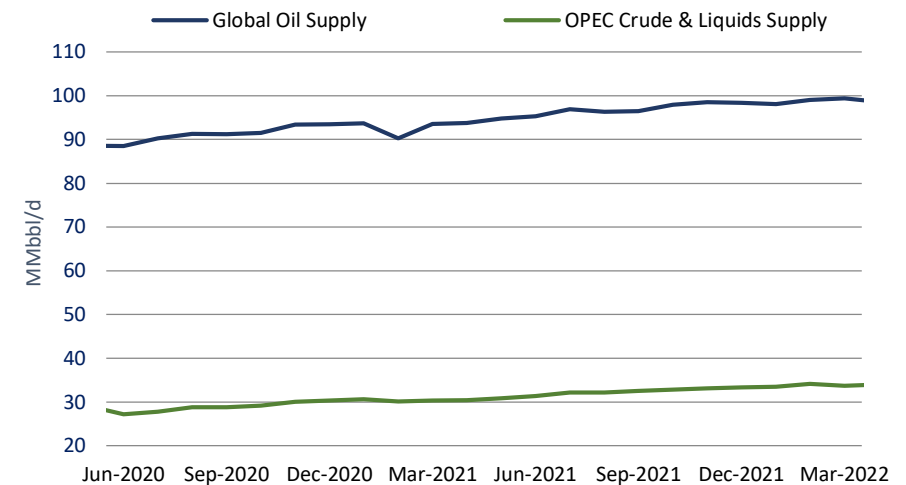
OPEC Oil Supply (All Members)



Saudi Arabia Crude Oil Supply and YoY Change

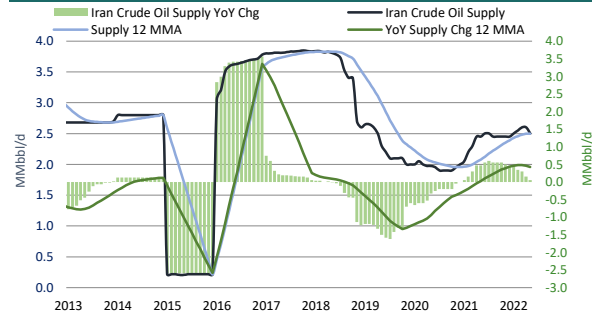


Global Vs. OPEC Crude Oil and Liquid Fuels Supply

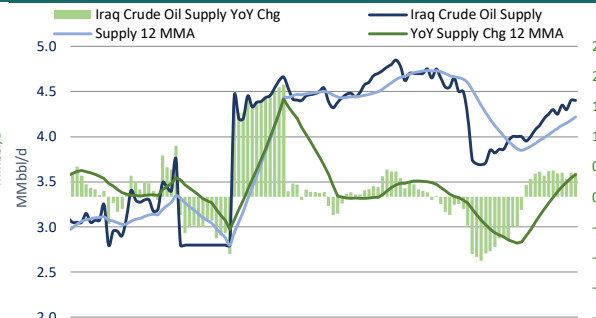


OPEC Supply

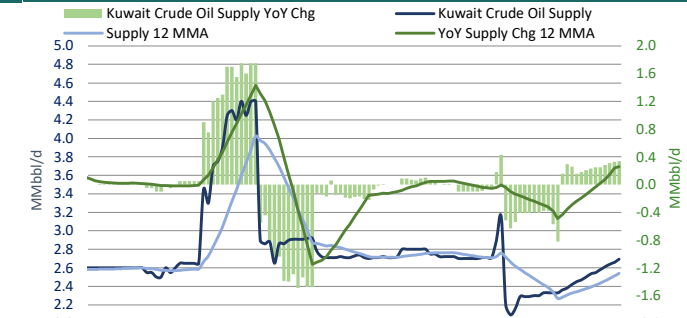
Iran Crude Oil Supply and YoY Change



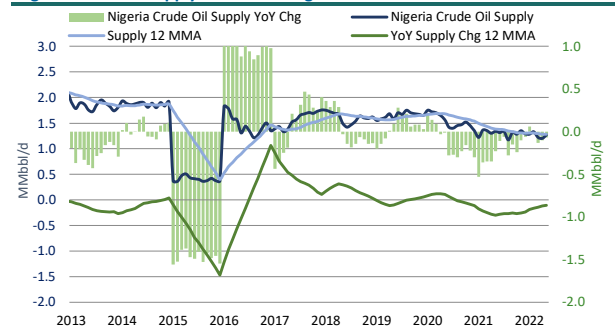
Iraq Crude Oil Supply and YoY Change



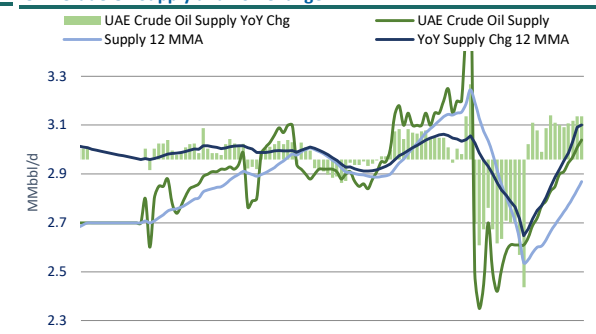
Kuwait Crude Oil Supply and YoY Change



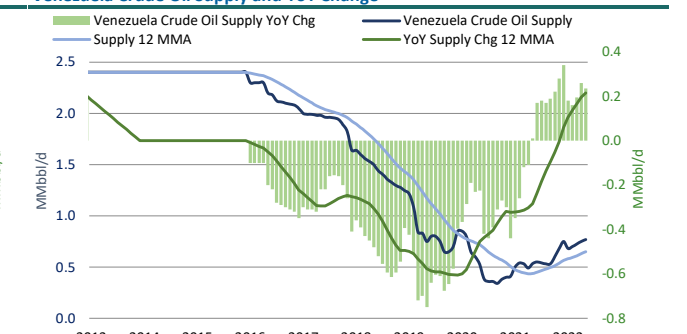
Nigeria Crude Oil Supply and YoY Change



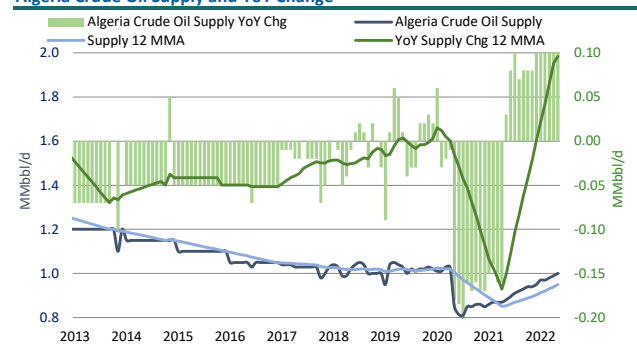
UAE Crude Oil Supply and YoY Change



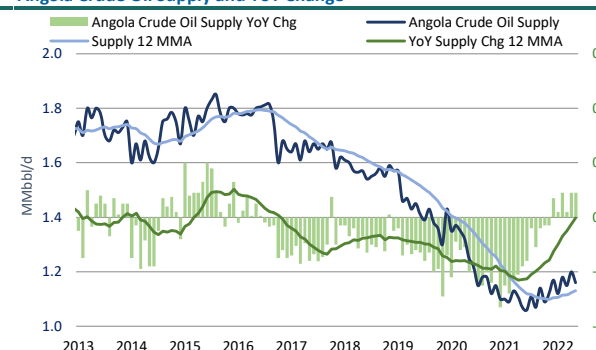
Venezuela Crude Oil Supply and YoY Change



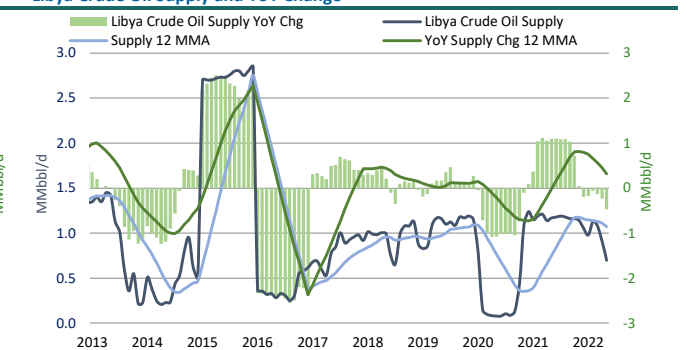
Algeria Crude Oil Supply and YoY Change



Angola Crude Oil Supply and YoY Change

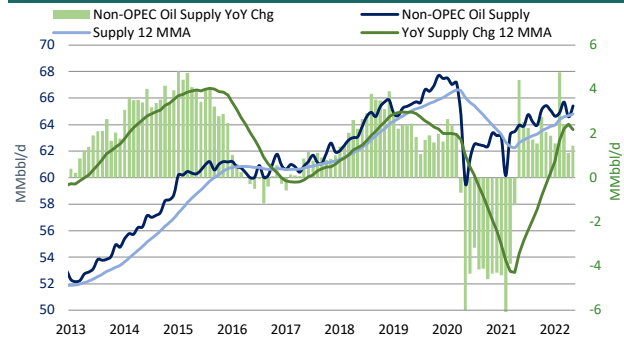


Libya Crude Oil Supply and YoY Change

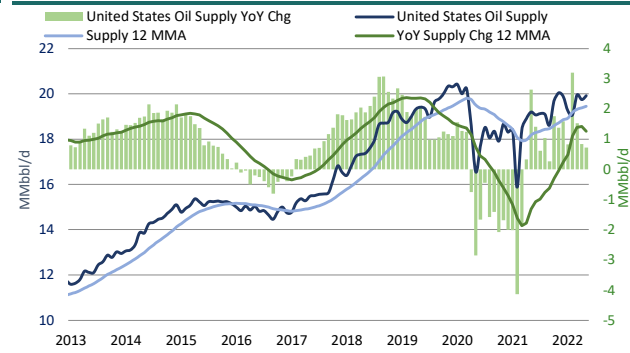


Non-OPEC Supply

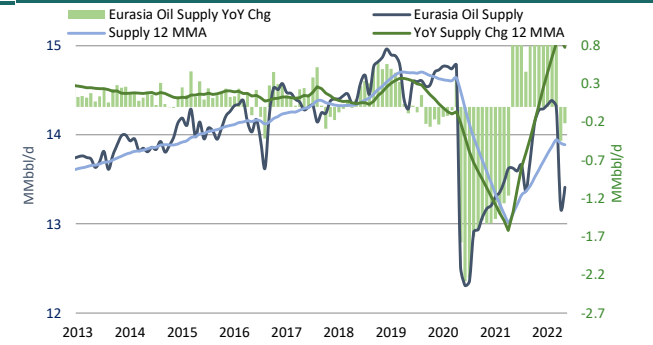
Non-OPEC Crude Oil and Liquid Fuels Supply



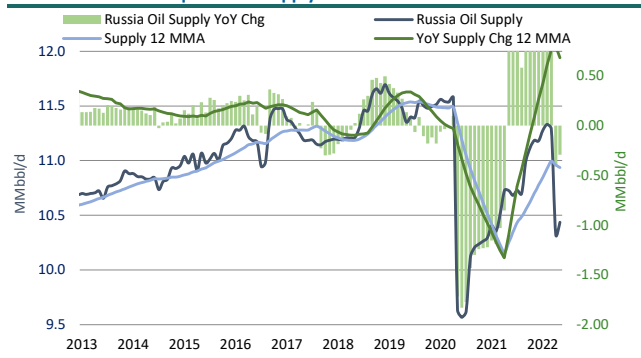
US Crude Oil and Liquid Fuels Supply



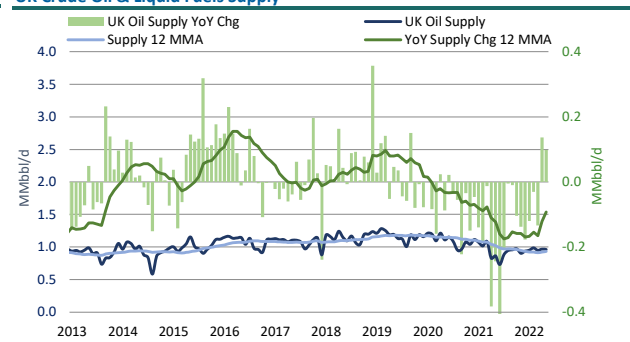
Eurasia Crude Oil & Liquid Fuels Supply



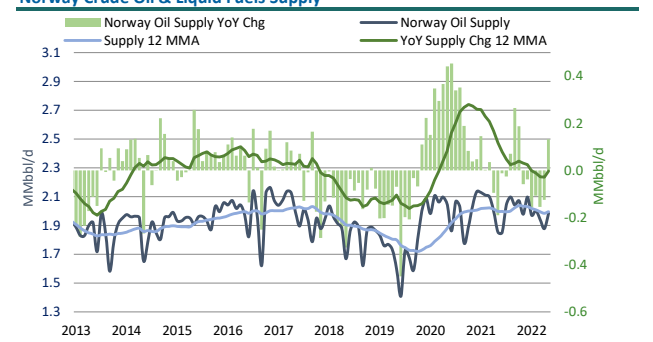
Russia Crude Oil & Liquid Fuels Supply



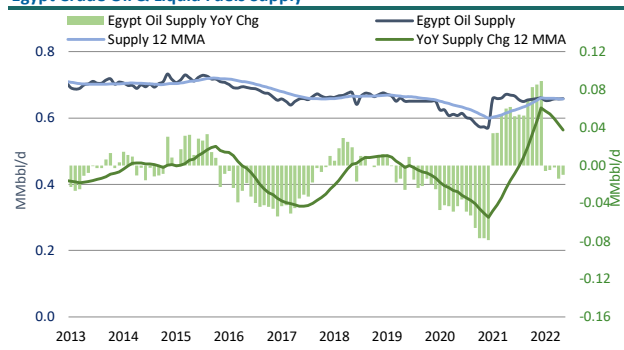
UK Crude Oil & Liquid Fuels Supply



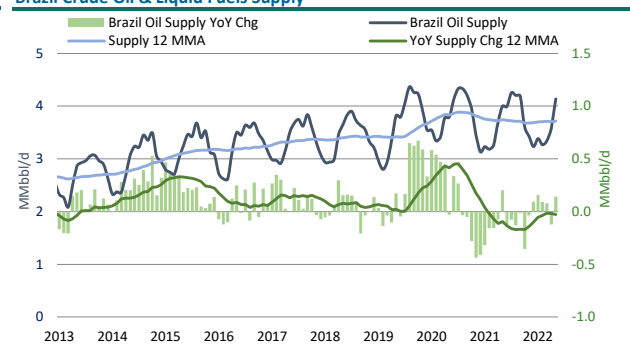
Norway Crude Oil & Liquid Fuels Supply



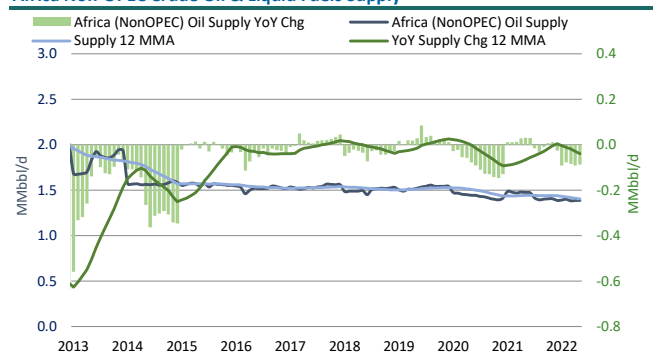
Egypt Crude Oil & Liquid Fuels Supply



Brazil Crude Oil & Liquid Fuels Supply



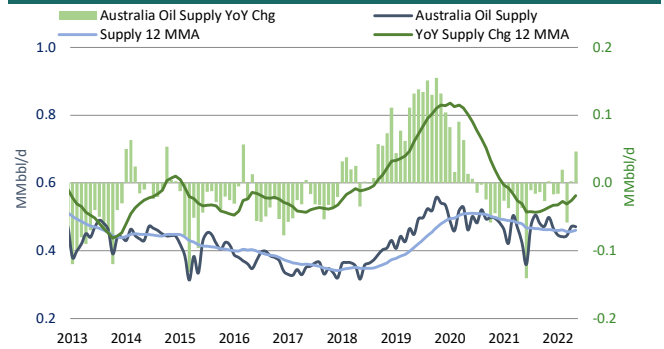
Africa Non-OPEC Crude Oil & Liquid Fuels Supply



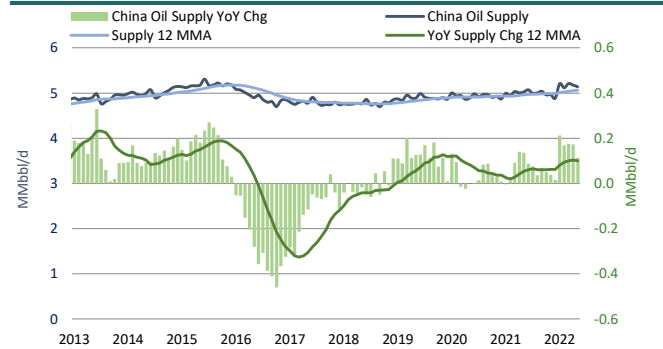
Source: U.S. Energy Information Administration, International Energy Agency, ERCE Estimates. Data included until May/22.

Non-OPEC Supply (APAC)

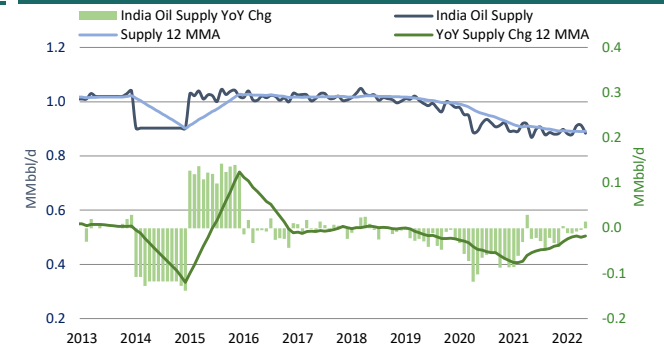
Australia Crude Oil & Liquid Fuels Supply



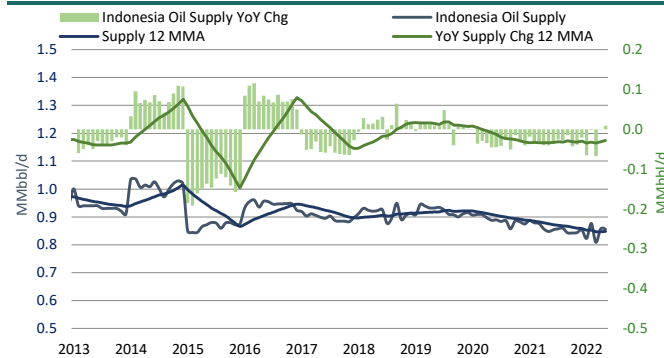
China Crude Oil & Liquid Fuels Supply



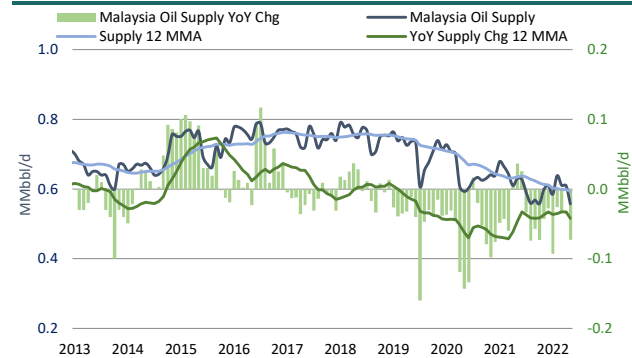
India Crude Oil & Liquid Fuels Supply



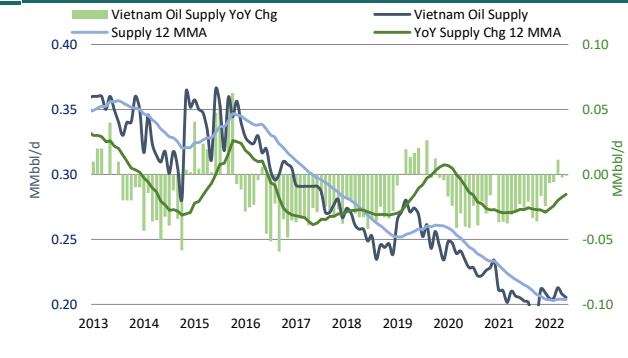
Indonesia Crude Oil & Liquid Fuels Supply



Malaysia Crude Oil & Liquid Fuels Supply

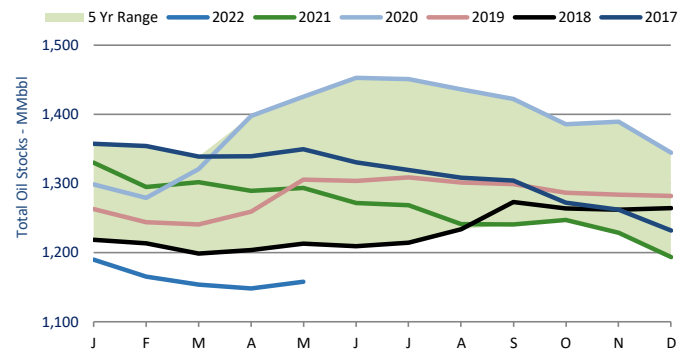


Vietnam Crude Oil & Liquid Fuels Supply

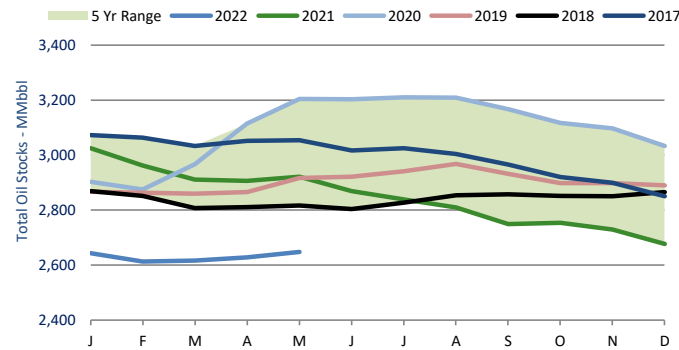


U.S. and OECD Commercial Oil Inventories

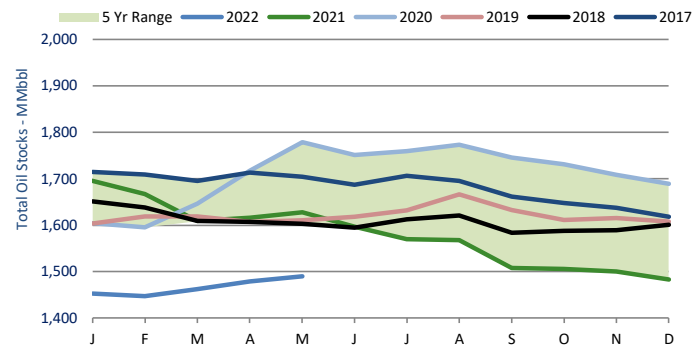
Total U.S. Commercial Oil Stocks (Seasonal)



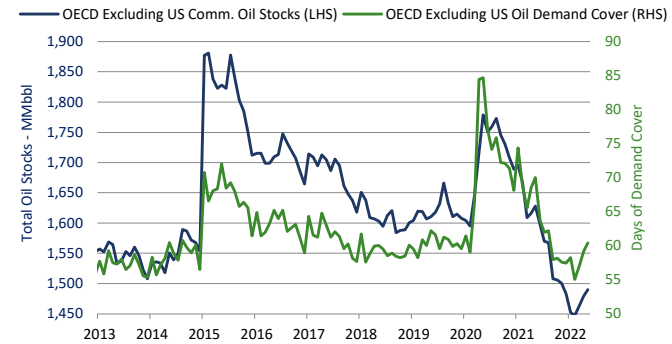
Total OECD Commercial Oil Stocks (Seasonal)



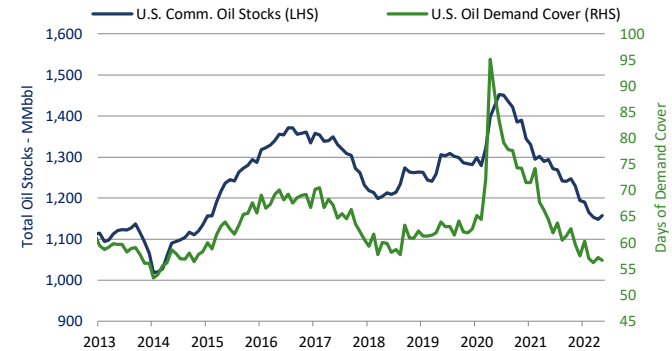
Total OECD Excluding US Commercial Oil Stocks (Seasonal)



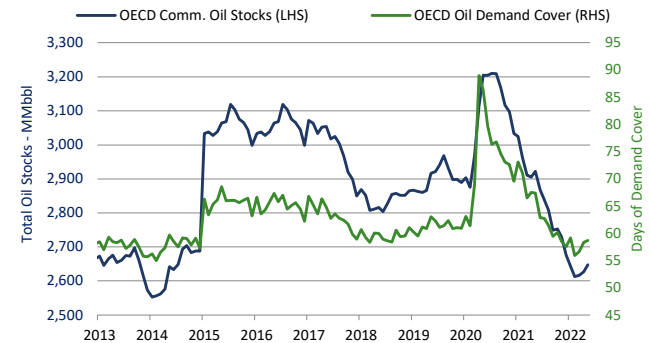
Total OECD Excluding US Commercial Oil Stocks and Demand Cover



Total U.S. Commercial Oil Stocks (Crude + Product) and Demand Cover



Total OECD Commercial Oil Stocks and Demand Cover



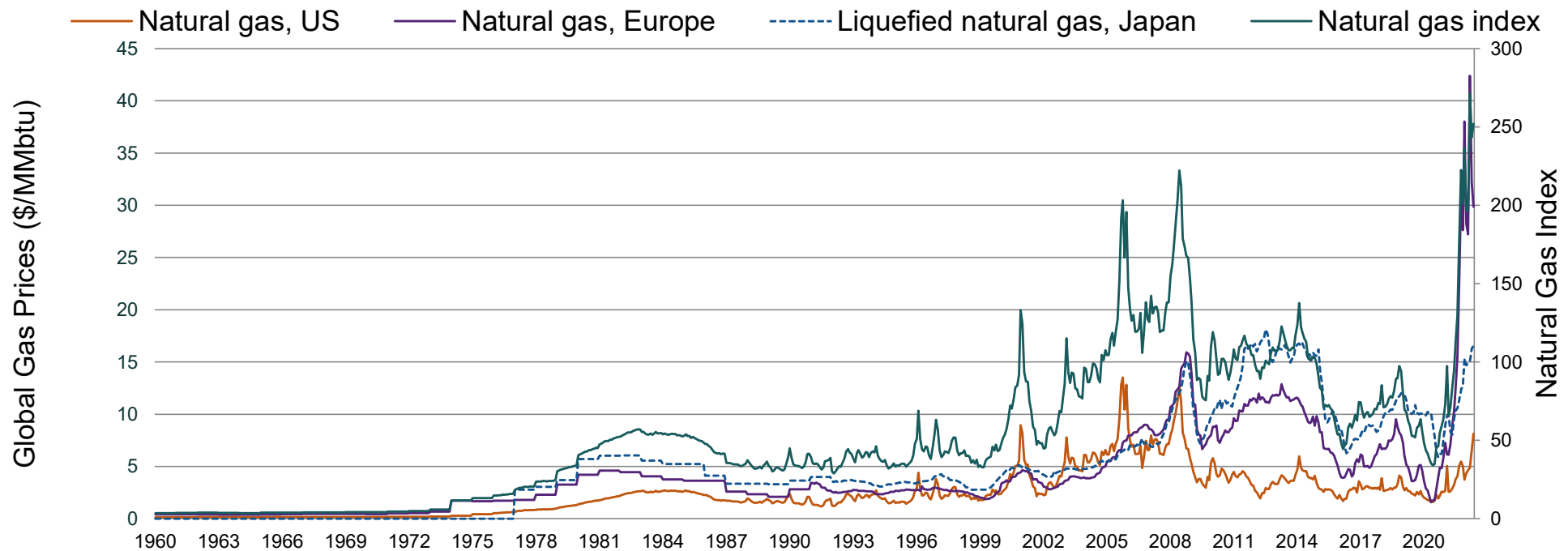
Source: U.S. Energy Information Administration, International Energy Agency, ERCE Estimates. Data included until May/22.



Gas Market Fundamentals

Long Term Gas Prices

Gas Price History (Nominal)



- Nominal - economic value expressed in historical nominal monetary terms, also known as “money-of-the-day”.
- Natural Gas (Europe) - from April 2015, Netherlands Title Transfer Facility (TTF); April 2010 to March 2015, average import border price and a spot price component, including UK; during June 2000 - March 2010 prices excludes UK.
- Natural Gas (U.S.), spot price at Henry Hub, Louisiana
- Liquefied natural gas (Japan), LNG, import price, cif; recent two months' averages are estimates.
- Natural gas index (Laspeyres), average of Europe, US and Japan (LNG), weights based on 5-year average consumption volumes, updated every 5 years, except the 11-year period 1960-70.

Gas Market Summary

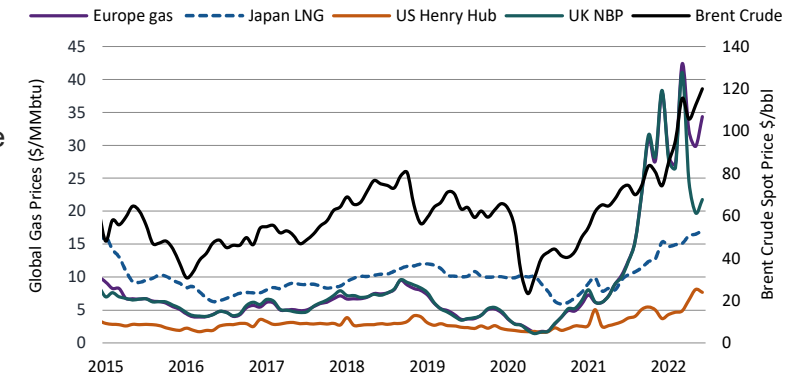
H1 Review

- European and Asian gas prices continued to rise in H1 2022 on concerns of tight supply and the potential for further disruptions as a result of Russia’s invasion of Ukraine.
- Dutch TTF contract rose, doubling in a month, after Russia cut supplies via the Nord Stream 1 pipeline into Germany.
- The Japan Korea Marker (JKM) continued its upward trend amid stronger demand on the back of a heatwave in Japan and a return of competition with Europe which is gearing up for disruption of Russian gas.
- US Henry Hub gas price has fallen in June following the shutdown of the Freeport export terminal. The terminal will partially resume operations only in October 2022. The shutdown is estimated to have reduced U.S. export capacity by approximately 2.0 Bcf/d..

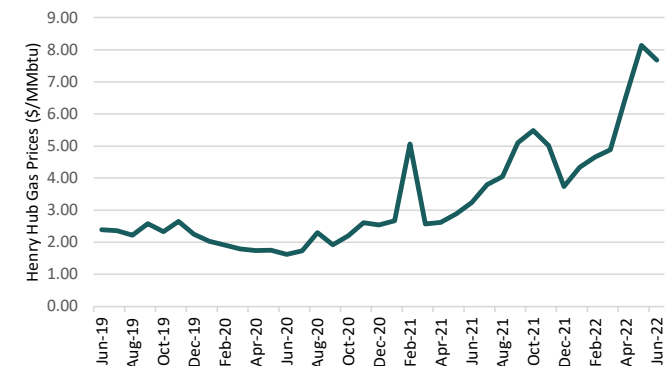
Trends

- According to the IEA, global gas consumption is forecast to contract slightly in 2022, with limited growth over the next three years, resulting in a total increase of about 140 bcm between 2021 and 2025. That is less than half the 370 bcm increase seen in the previous five years and well short of the exceptional jump in demand of close to 175 bcm seen in 2021.
- The Asia Pacific region and the industrial sector are the main engines of growth, accounting for 50% and 60% of the growth to 2025 respectively, although both are subject to downward risks from high prices and potentially lower economic growth.
- The European Union’s commitment to speed up the phase-out of Russian imports – historically its largest supplier – is transforming Europe’s gas market. According to IEA’s report, base case assumes Russian pipeline gas exports to the EU will fall by over 55% between 2021 and 2025. The huge uncertainties in this area are amplified by the possibility that Russia will further restrict its export flows unilaterally, as it has done already in 2022 to certain countries.
- Europe’s surging demand for LNG to replace Russian pipeline gas supply has led to an exceptionally tight global market. Record high European gas prices have turned the continent into a premium market for LNG, drawing deliveries from other regions, and resulting in supply tensions and demand destruction in several markets. Europe’s LNG needs are expected to outpace supply capacity additions in 2022, and to account for more than 60% of the net growth in global LNG trade through 2025.

Global Gas Prices (From 2015) Monthly Average Prices



US Henry Hub Natural Gas Prices

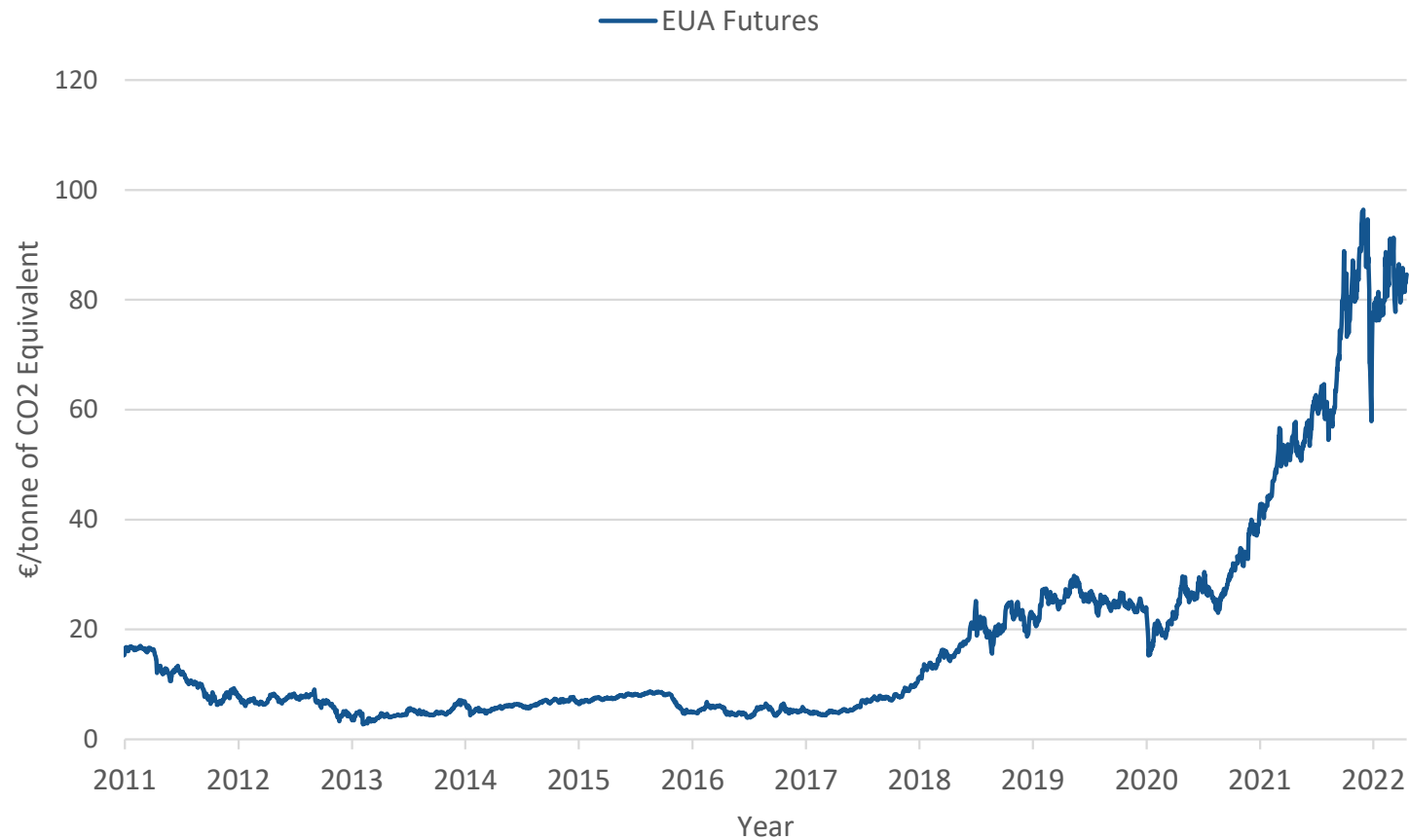




Energy Transition

Carbon Pricing

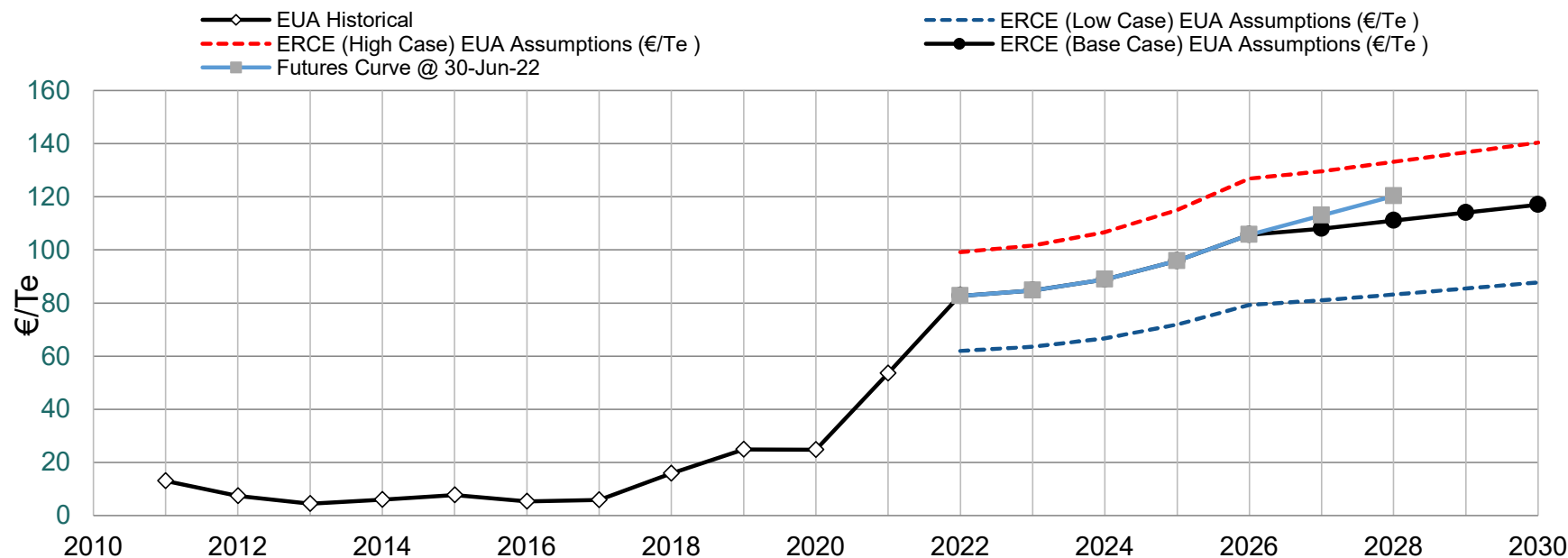
Carbon Price History



- One European Union allowance (EUA) entitles the holder to emit one ton of carbon dioxide and carbon-equivalent greenhouse gas under the European Union Emissions Trading Scheme (EU ETS).
- The EU carbon market is the world's largest cap and trade scheme.

ERCE EUA Price Deck

Nominal EUA Forecast



ERCE (Low Case) EUA Assumptions (€/Te)	2022	2023	2024	2025	2026	2027	2028	2029	2030
Real (Constant €, 2022)	62	62	64	68	73	73	74	74	75
Nominal (€ of the day)	62	64	67	72	79	81	83	86	88

ERCE (Base Case) EUA Assumptions (€/Te)	2022	2023	2024	2025	2026	2027	2028	2029	2030
Real (Constant €, 2022)	83	83	85	90	98	98	99	99	100
Nominal (€ of the day)	83	85	89	96	106	108	111	114	117

ERCE (High Case) EUA Assumptions (€/Te)	2022	2023	2024	2025	2026	2027	2028	2029	2030
Real (Constant €, 2022)	99	100	103	108	117	117	118	119	120
Nominal (€ of the day)	99	102	107	115	127	130	133	137	140

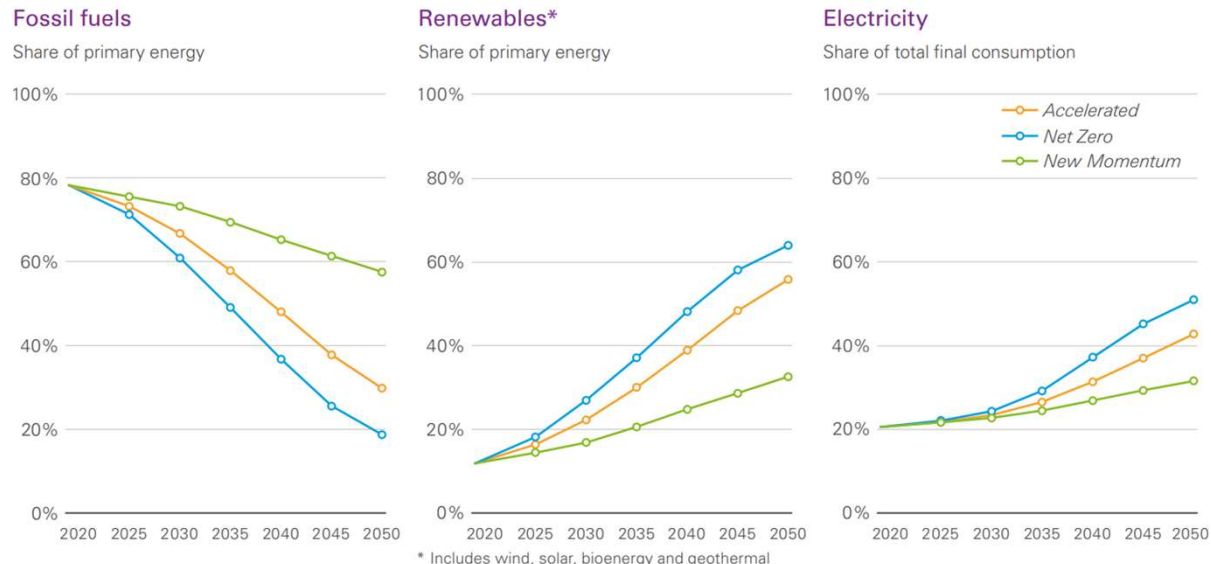
EUA Futures Curve (€/Te)	2022	2023	2024	2025	2026	2027	2028
Futures Curve @ 30-Jun-22	83	85	89	96	106	113	120

- The ERCE Base Case EUA price assumption follows the futures curve, then uses a forecast of €100/teCO₂ for 2030.
- As of Jun-20, BP has revised its long-term carbon price assumptions to \$100/teCO₂ for 2030.
- S&P Platts Analytics forecasted EUAs to reach nearly €100/teCO₂ for 2030, due to the implementation of 'Fit for 55' EU ETS market reforms.

H1-22 Energy Transition Highlights

- According to bp’s 2022 Energy Outlook, CO2e emissions in all three scenarios increase above pre-Covid levels. Emissions in Accelerated and Net Zero peak in the early 2020s and by 2050 are around 75% and 95% below 2019 levels respectively. CO2e emissions in New Momentum peak in the late 2020s and by 2050 are around 20% below 2019 levels.
- bp believes that the transition to a low-carbon energy system in Accelerated and Net Zero is underpinned by rapid growth in a broad range of low-carbon energy sources and technologies: wind and solar power, electric vehicles, biofuels, and low carbon hydrogen.
- According to Bloomberg, natural gas will help accelerate Australia’s transition to cleaner energy.
- Alan Finkel, the government’s special adviser on low emissions technology, stated that “being able to call on natural gas to firm up the solar and wind electricity in a country like Australia will enable us to develop and deploy solar and wind at enormous scale, more quickly than if we cannot call on natural gas.”

Gradual shift in energy demand: declining role for hydrocarbons, rapid expansion in renewables and electrification



ERCE Oil Price Review: Glossary

<p>\$ All dollar amounts are in U.S. dollars unless otherwise indicated.</p> <p>bbl barrels</p> <p>bbl/d barrels per day</p> <p>Brent A blended crude stream produced in the North Sea region which serves as a reference or "marker" for pricing a number of other crude streams.</p> <p>btu British thermal unit</p> <p>chg Change.</p> <p>EIA U.S. Energy Information Agency</p> <p>ERCE is a trade name of ERC Equipoise Limited</p> <p>FSU Former Soviet Union and includes Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.</p> <p>IEA International Energy Agency</p> <p>M Month (e.g. 1M Ago = one month ago).</p> <p>MMbbl million stock tank barrels.</p> <p>MMbbl/d Million stock tank barrels per day.</p> <p>MMA Month Moving average (12MMA = twelve month moving average).</p> <p>MMbtu Million british thermal units</p> <p>MoM Month-on-month (e.g. MoM Chg = month-on-month change).</p> <p>Nominal Economic value expressed in historical nominal monetary terms, also known as "money-of-the-day".</p> <p>Therm a unit of heat equal to 100,000 British thermal units and approximately the energy equivalent of burning 100 cubic feet of natural gas.</p> <p>OECD The Organisation for Economic Co-operation and Development - an</p>	<p>international economic organisation of 34 countries and include many of the world's most advanced countries but also emerging countries like Mexico, Chile and Turkey.</p> <p>OPEC Organisation of the Petroleum Exporting Countries. Its mandate is to "coordinate and unify the petroleum policies" of its members and to "ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers, and a fair return on capital for those investing in the petroleum industry. It's current members are Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the UAE, and Venezuela.</p> <p>p pence (GBp)</p> <p>Real Economic value that has been adjusted from a nominal value to remove the effects of general price level changes over time and is thus measured in terms of the general price level in some reference year (the base year e.g. 2013).</p> <p>Spot Price The price for a one-time open market transaction for immediate delivery of a specific quantity of product at a specific location where the commodity is purchased "on the spot" at current market rates.</p> <p>stb stock tank barrels.</p> <p>USD Index Trade Weighted U.S. Dollar Index – a weighted average of the foreign exchange value of the U.S. dollar against the currencies of a broad group of major U.S. trading partners which includes the Euro Area, Canada, Japan, Mexico, China, United Kingdom, Taiwan, Korea, Singapore, Hong Kong, Malaysia, Brazil, Switzerland, Thailand, Philippines, Australia, Indonesia, India, Israel, Saudi Arabia, Russia, Sweden, Argentina, Venezuela, Chile and Colombia.</p> <p>WTI West Texas Intermediate – a crude stream produced in Texas and southern Oklahoma which serves as a reference or "marker" for pricing a number of other crude streams and which is traded in the U.S. domestic spot market at Cushing, Oklahoma.</p> <p>YoY Year-on-year (e.g. YoY Chg=year-on-year percentage change).</p> <p>YTD Year-to-date.</p>
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