Five Key Themes for 2023

January 2023

OUTLOOK

MUFG

Theme 4: Energy markets – a tolerable 2022 but the worst will come in 2023

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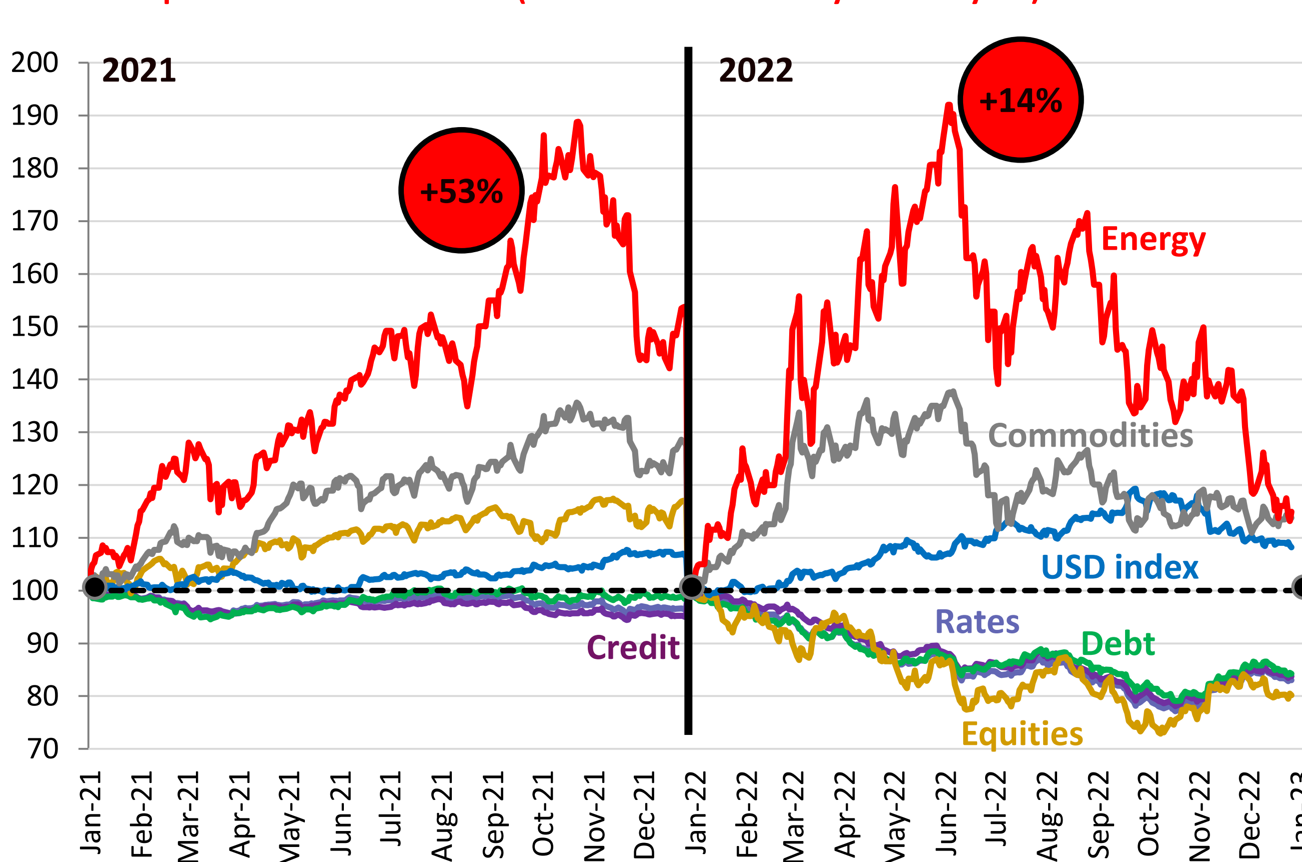
2023 energy outlook | third year of outperformance

Notwithstanding continued volatility, we are tactically cautious (with financial markets pricing in a macro slowdown) – but structurally bullish (physical markets pricing in scarcity), on the energy outlook in 2023. Energy continues to be mired in a persistent supply constrained market.

Commodities set to outperform cross-assets for the third consecutive time in 2023

Cross-asset performance since 2021 (rebased 100 = January of each year)



+20% expected return for energy markets

- With the US dollar too dominant to get long, but fundamentals too tight to get short, the bearish macro outlook will likely spur volatility across the energy complex for most of **H1 2023**.
- However, with China reopening, the eventual end of rate hikes and a US dollar peak all likely by the summer, these improving fundamentals, alongside prevailing supply scarcity, is set to turn into a meaningful tailwind for energy in **H2 2023**.

Source: Bloomberg, MUFG Research

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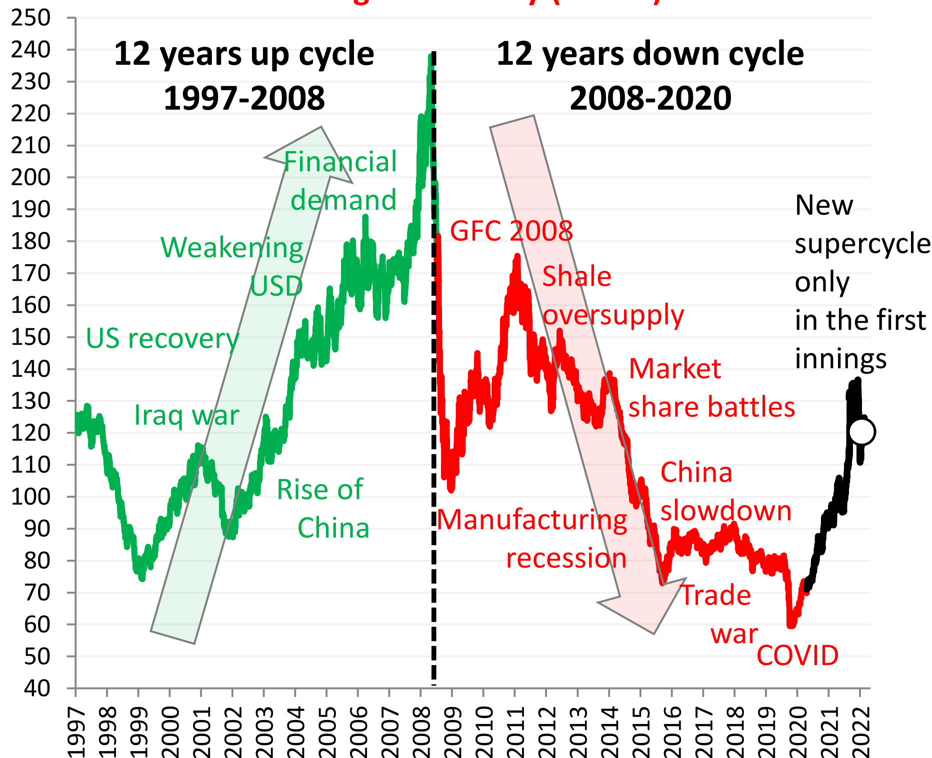
Energy supercycle | only in the first innings

In the 2000s, markets were bullish on energy due to demand from China. Now, the structural bullishness is due to greening the global economy – the new China. Such (i) de-carbonisation, combined with (ii) de-globalisation, being turbocharged by the war in Ukraine, (iii) a near-decade of underinvestments in "old economy" carbon-intensive capex, as well as (iv) re-distributive policies focused on social needs driving a structural rise of demand, leads our conviction towards an energy supercycle this decade.

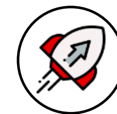
We are in the early stages of an energy supercycle

Bloomberg commodity (BCOM) index



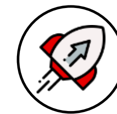
Principles of our supercycle energy thesis

4 central tenets underpinning the decades-long bull market



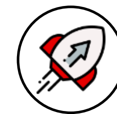
De-carbonisation

- Climate change paradox – greening the economy will support a surge demand but inelastic supply



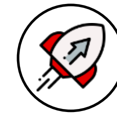
De-globalisation

- Pursuit of economic autarky (to strengthen domestic supply chains) raises energy inflationary pressures



Re-distribution

- Social needs policies creates strong demand growth from lower income groups – control volumetric energy markets



Structural underinvestment

- Rise of ESG has led to structural underinvestment in "old economy" carbon-intensive capex with supply scarcity inadequate to meet today's policy-induced demand*

*Source: Bloomberg, MUFG Research; * even in today's high rates environment, Fed-induced slowdowns are simply a short-term abatement of the symptom – inflation – and not a cure of the problem – underinvestment*

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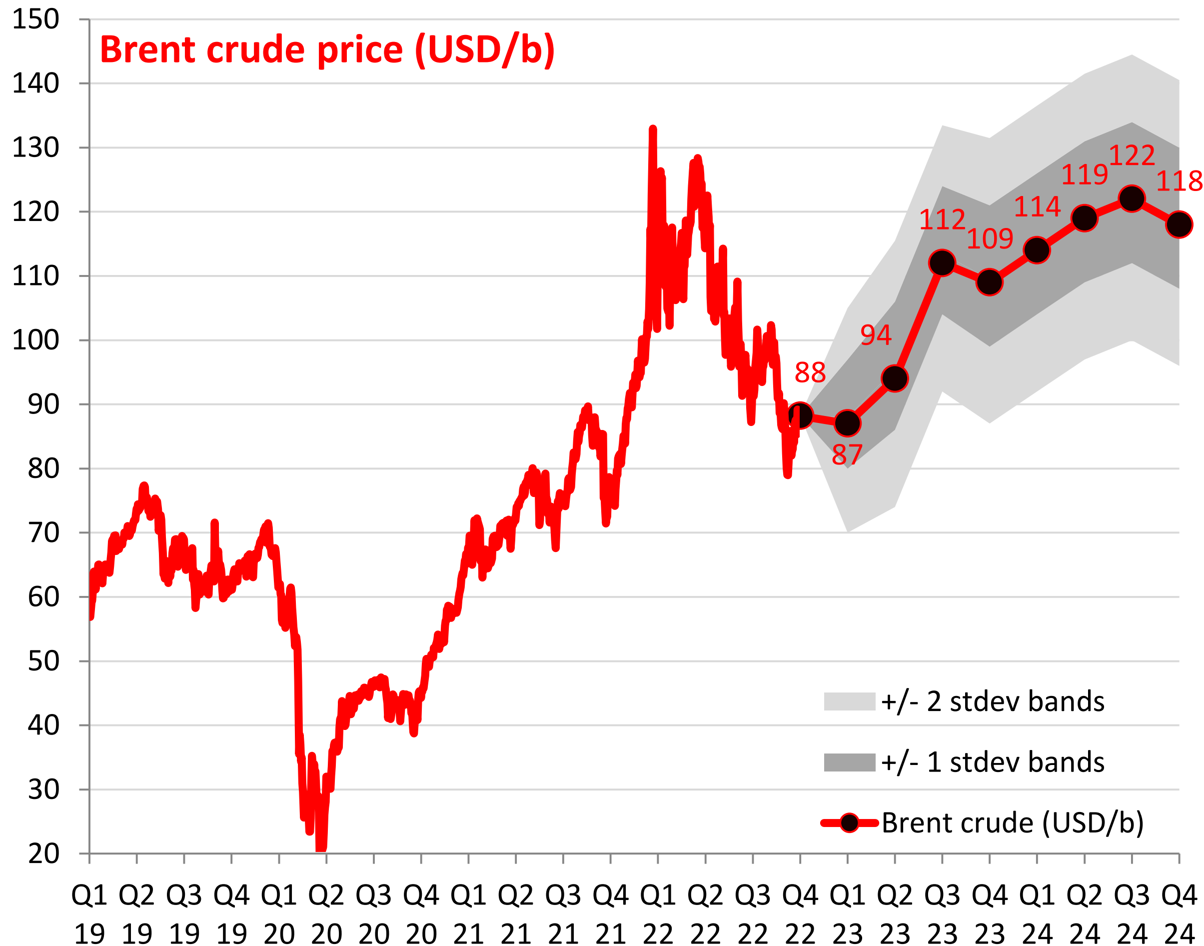
Oil price outlook | down but not out with +USD100/b redux



USD/b	Q1-23	Q2-23	Q3-23	Q4-23	Q1-24	Q2-24	Q3-24	Q4-24	2023	2024
Brent	87	94	112	109	114	119	122	118	101	118
NYMEX WTI	83	89	107	104	109	115	118	114	96	114

Range bound in H1 2023 on sluggish demand …

Market surplus on weak demand despite constrained supply

- (−) Synchronised economic slowdown and core central bank rate hikes
- (−) Timespreads don't lie – pivot from backwardation (supply tightness) to contango (oversupply)

… but higher in H2 2023 on meaningful tightness

Market deficit on surging demand and frigid supply

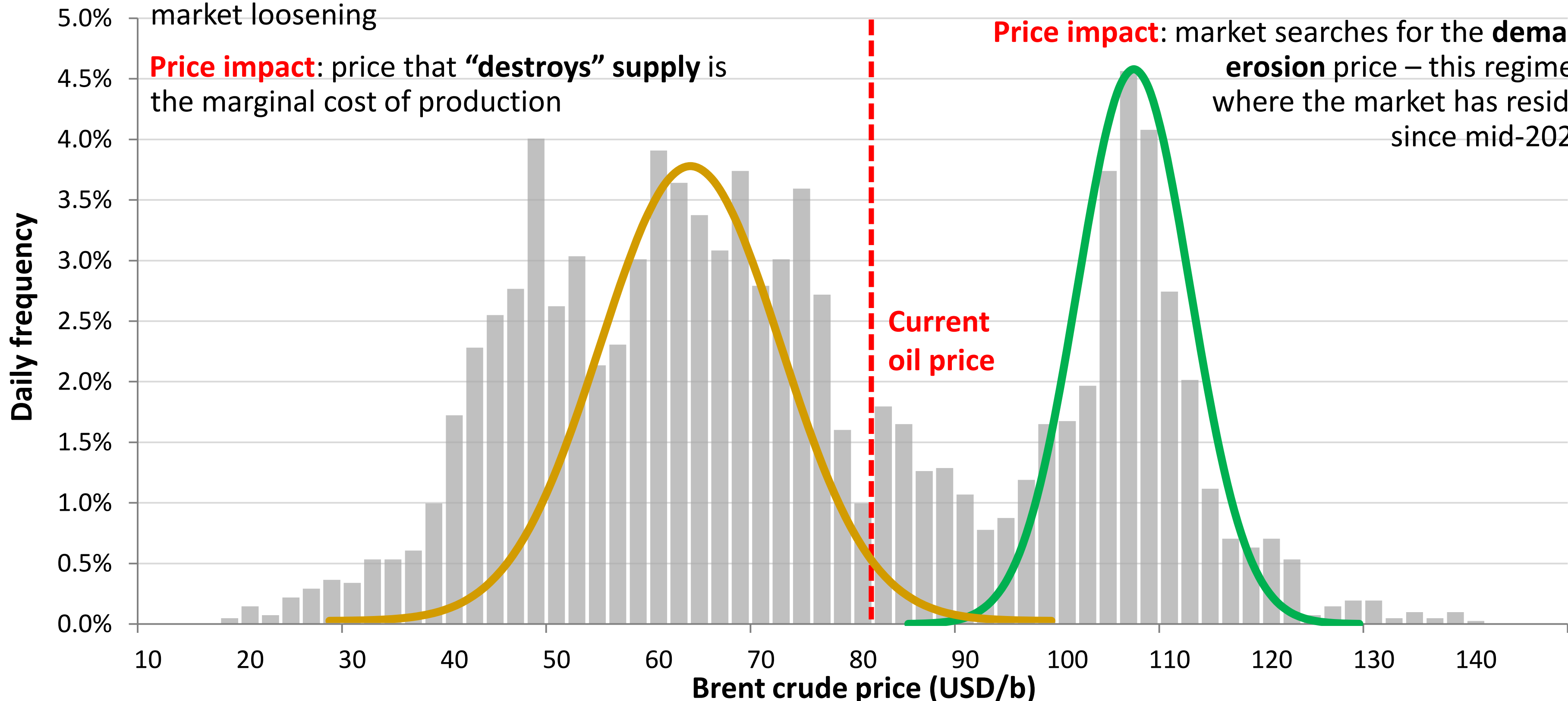
- (+) China reopenings and the return to pre-COVID aviation
- (+) Prudent OPEC+ output cuts and lost Russian barrels
- (+) Refilling last year's SPR releases and shale still resolute on "value over volume"
- (+) ESG-induced structural supply constrained forces – low inventories, low spare capacity and low capex

Source: Bloomberg, MUFG Research

Historical distribution of oil prices | 50-80 vs 100-120

Double-humped nature of distribution over the last 15 years points to two oil pricing regimes

Distribution of inflation adjusted Brent crude prices over the last 15 years (USD/b and daily frequency)



Source: Bloomberg, MUFG Research

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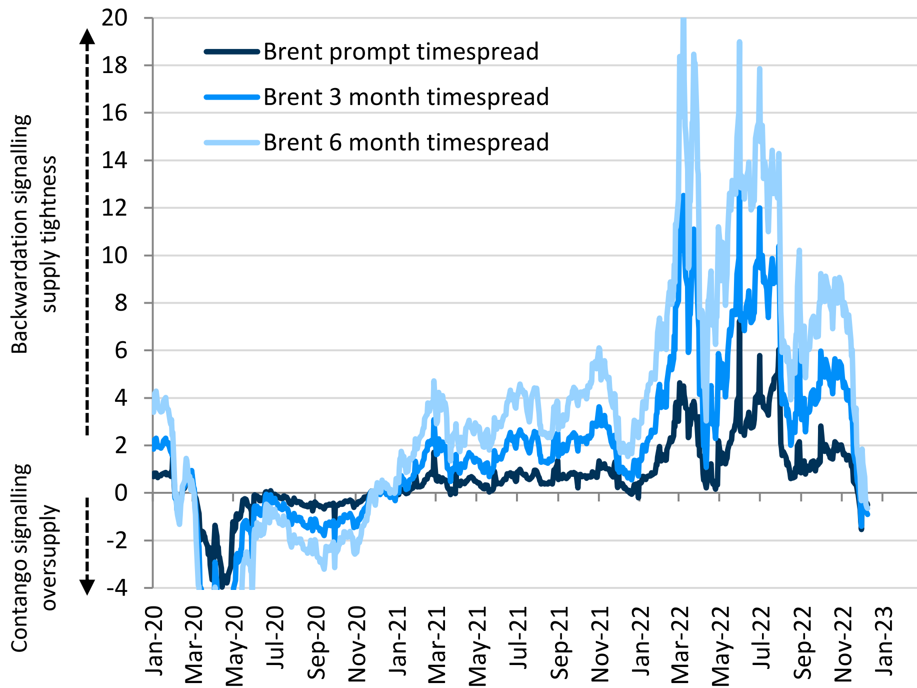
Oil fundamentals | cyclically mixed, structurally tight

Notwithstanding supply scarcity, weakening demand will keep market balances in cyclical oversupply in H1 2023, corroborated by the contango futures curve. Yet, with China reopening, rate hikes ending and the US dollar peaking, juxtaposed against the structural underinvestment thesis, deficits and backwardation will re-emerge in H2 2023.

Timespreads don't lie – contango (oversupply)

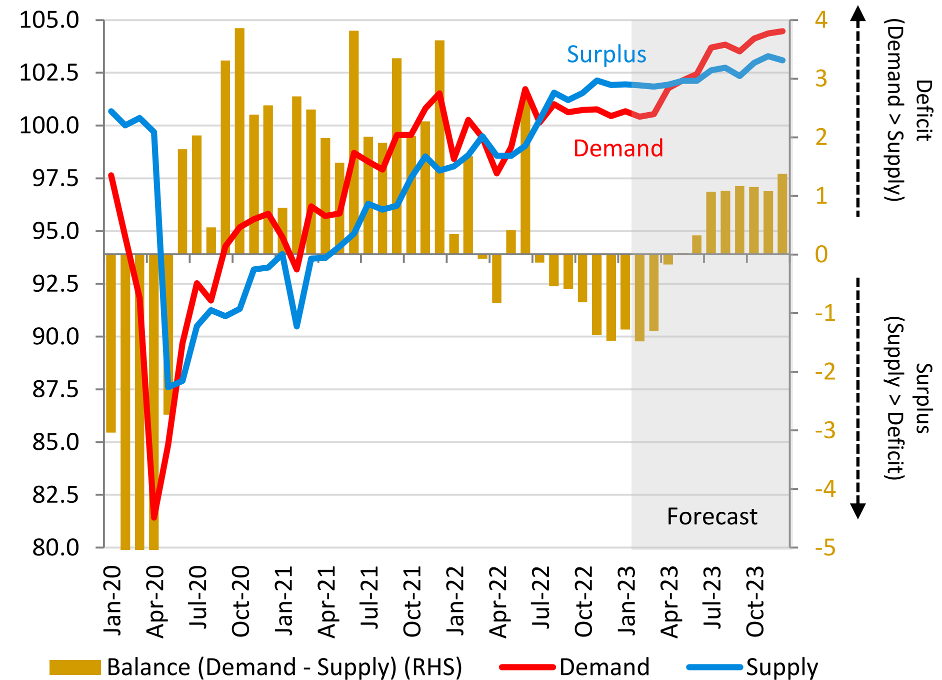
Brent crude timespreads – prompt, 3 and 6 months (USD/b)



In real physical spot assets like oil, scarcity is best expressed through steeper forward curves – the best indicator of market tightness as they price fundamentals (not expectations).

Surplus in H1 2023, but back to deficit in H2 2023

Oil supply, demand and overall balance (m b/d)

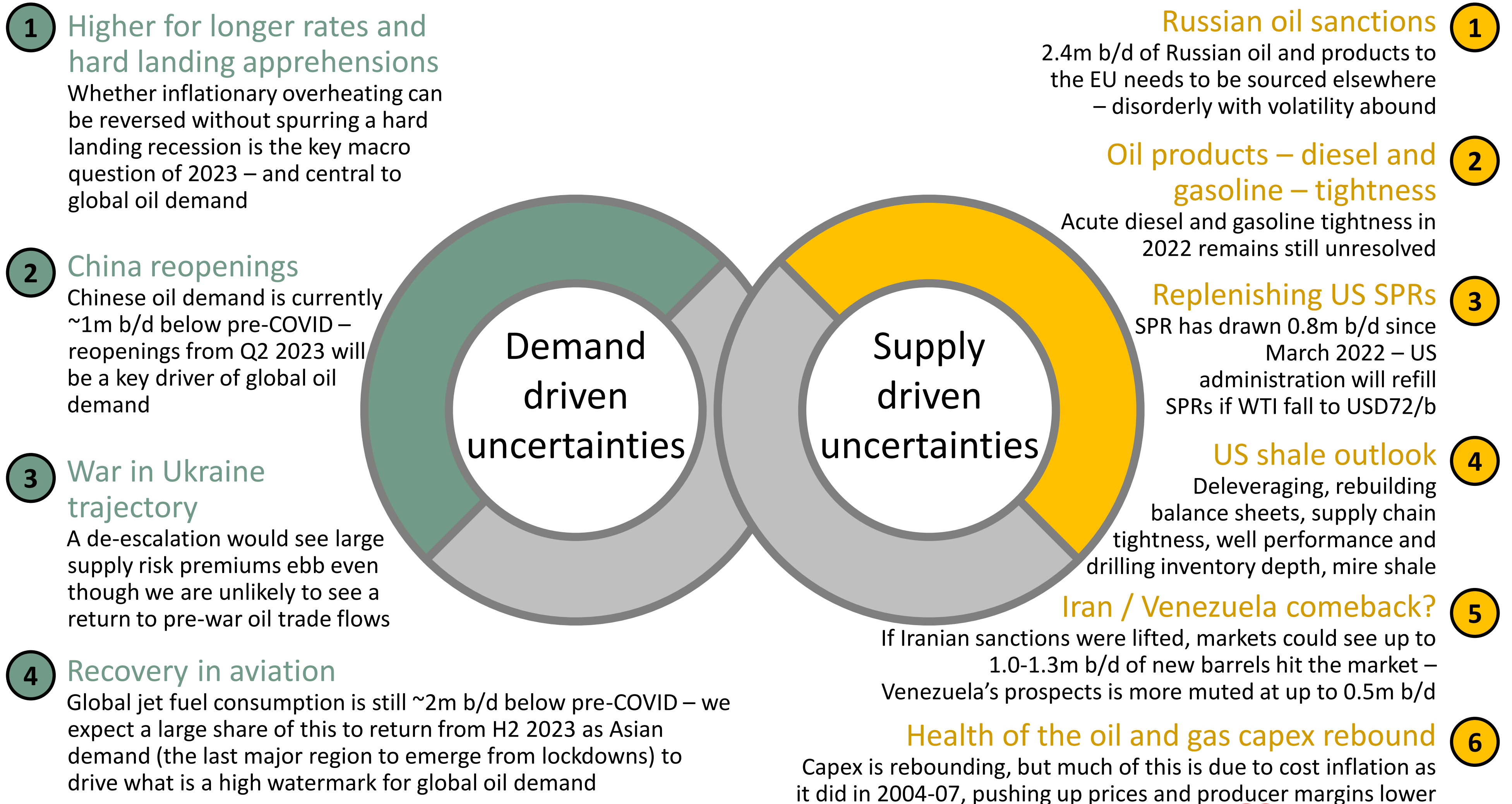


Our balances point to oversupply until end Q1 2023, a return to equilibrium in Q2 2023 and a deficit in H2 2023 – cautious macro headwinds to make way for bullish micro tailwinds.

Source: Bloomberg, EIA, IEA, OPEC, MUFG Research

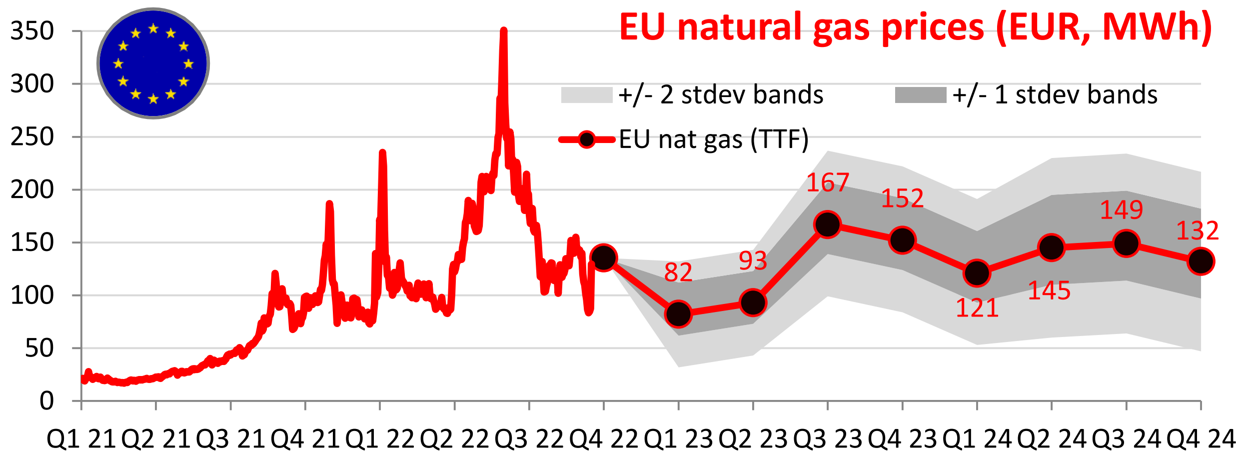
Oil market risks | macro headwinds weigh heavy (for now)

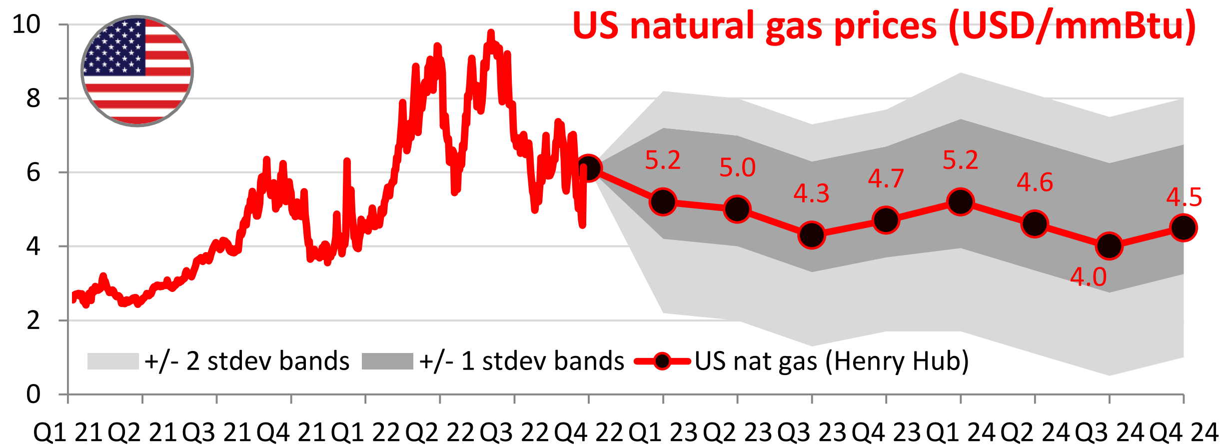
At the best of times, the future trajectory of oil markets has ample uncertainties – 2023 will be no different, with the tilt skewed to the upside



Source: Bloomberg, MUFG Research

Gas price outlook | from "peak" angst to "duration" angst





EUR/MWh EUR/mmBtu	Q1-23	Q2-23	Q3-23	Q4-23	Q1-24	Q2-24	Q3-24	Q4-24	2023	2024
EU (TTF)	82	93	167	152	121	145	149	132	124	137
US (Henry H)	5.2	5.0	4.3	4.7	5.2	4.6	4.0	4.5	4.8	4.6

EU: tolerable 2022, but the real test is in 2023

Tight market and recession

- (+) Pace of 2023 inventory builds to be more modest than 2022
- (+) Collapse in Russian flows and rising Chinese LNG competition
- (+) Demand defence measures will not conserve energy and only fuels consumption –exacerbating inflation
- (+) Given inelastic supply, demand destruction remains only solver to rebalance market tightness – scale decides economic pain

US: comfortable 2023

Bullish 2022, but bearish 2023

- (+) 2022 was mired by stronger global LNG prices, stronger demand from the US power sector and weak inventories
- (−) 2023 will witness higher dry production, weaker US power demand, limited additional LNG export capacity and benign inventories

Source: Bloomberg, MUFG Research

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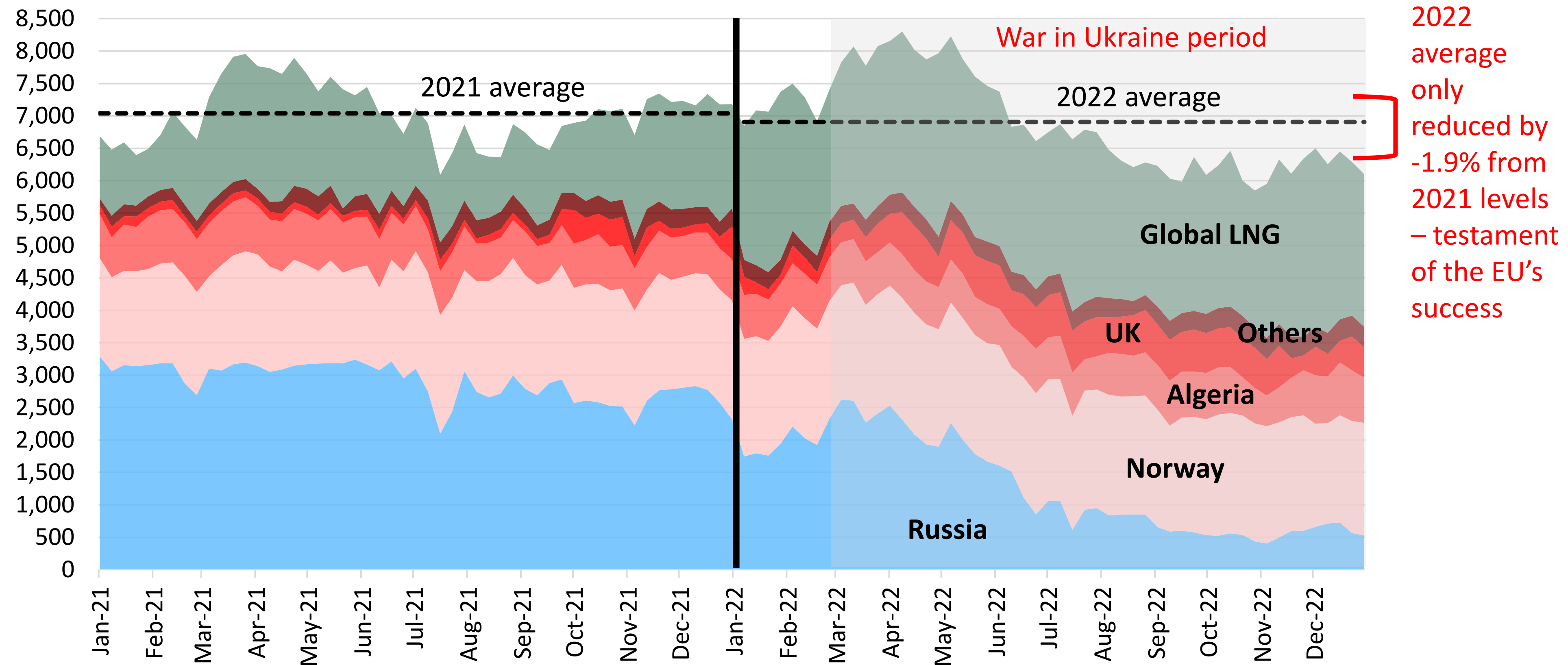
EU gas inflows | pipeline poker, LNG fills the void (for now)

Russian gas shipments to Europe are at near depletion. Encouragingly LNG inflows into Europe are filling the void but a lack of LNG regassification terminals signals infrastructure constraints in 2023 with Chinese post-COVID reopenings spurring competition for LNG flows (current Chinese LNG imports are down -21% y/y).

Russia has left the building but LNG flows into Europe has been filling the vacuum with total EU gas imports in 2022 only -1.9% lower than 2021 – unprecedented given the fear at the start of the war

Russian piped natural gas supply into Europe and LNG inflows into Europe (mcm/d)

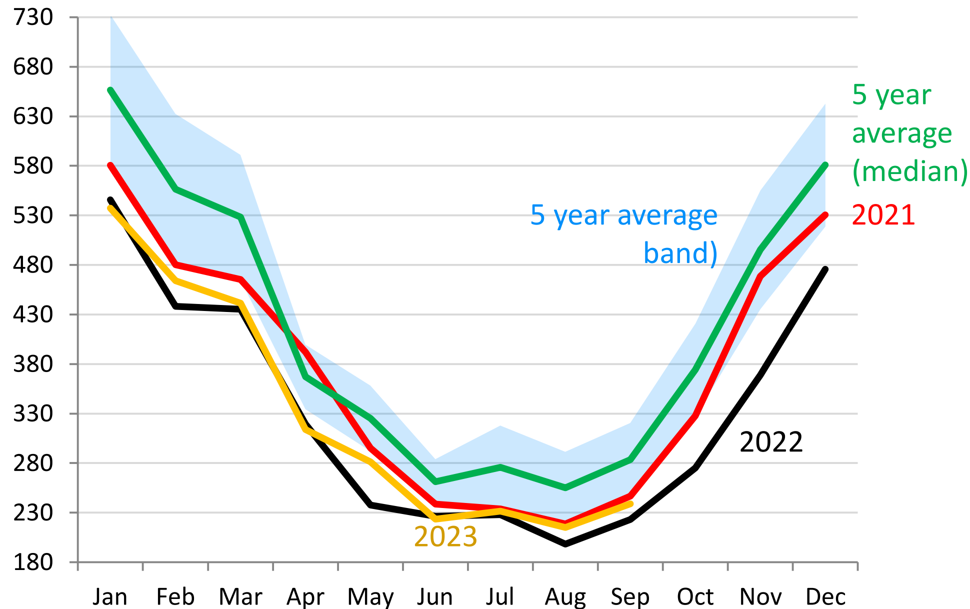


Source: Bloomberg, BP, CEIC, Eurostat, IEA, MUFG Research

EU gas demand destruction scenarios | as good as it gets?

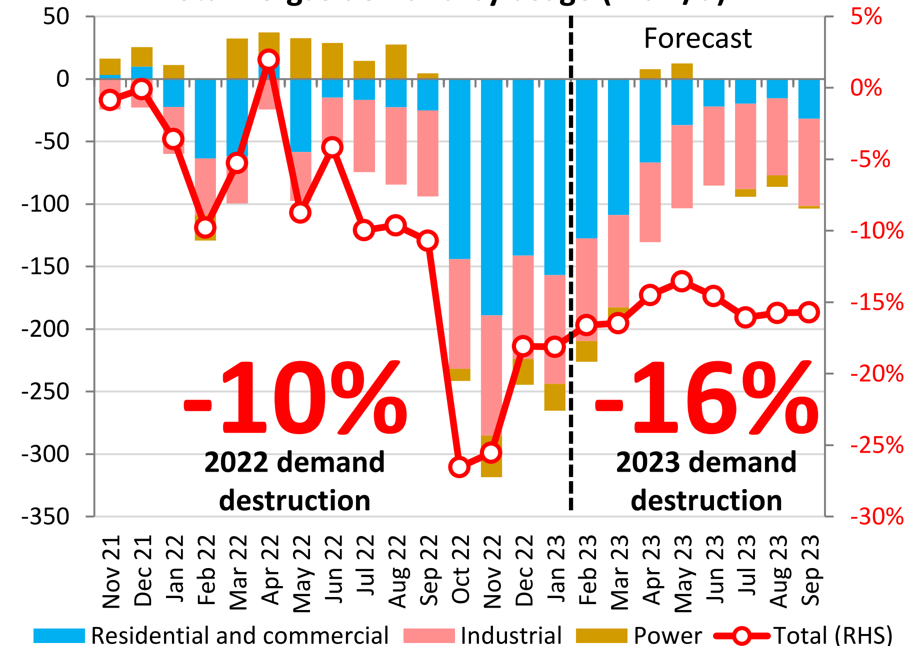
Demand destruction (voluntary and forced) has surprised to the upside since summer 2022, responding both to higher prices and a warmer-than-normal winter (during the heating season). Given inelastic supply, demand erosion remains the only solver to rebalance market tightness in 2023 – scale of which decides the quantum of economic pain.

EU gas demand has been (encouragingly) weak and will remain below the last 5 year average in 2023



Parameterising demand destruction levels is not unambiguous – determining maximum pain thresholds will be conditional on the health of corporate balance sheets, the composition of savings ratios, balance of price-pain thresholds and the voluntary spirit of needing to conserve energy in times of crisis.

Robust demand destruction keeps gas inventories (EU's optimisation strategy) at healthy levels



In 2022, demand destruction averaged 12% among residential and commercial customers, whilst among industrial customers it has averaged 21%. Given adequate storage levels is the EU's optimisation strategy, adequate demand destruction solves for this and we believe consumption will continue to remain weak.

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Source: Bloomberg, BP, CEIC, EIA, Eurostat, IEA, MUFG Research

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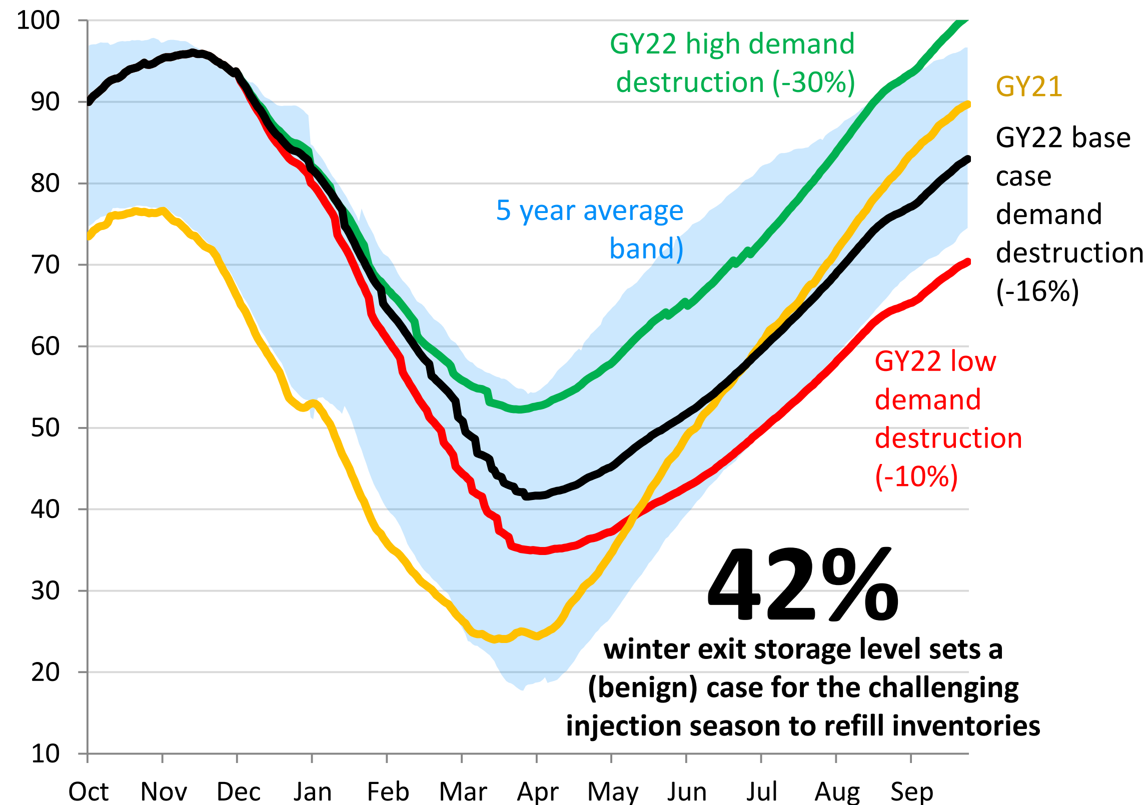
EU gas storage scenarios | false sense of security?

Mild weather, demand destruction and weak China LNG imports has helped create adequate EU gas storage buffers to manage the current winter heating season. Yet, the challenge to build inventories come the injection season from the spring – in the absence of Russian flows and rebounding Chinese LNG demand – to take inventories back to the 90% EU target at the start of the heating season next winter will be testing.

The EU's optimization strategy is adequate gas storage

EU gas inventories (% of total, comprising 76.8bcm*)



Heating season (current)

October 2022 – March 2023

- Mild-to-normal weather and robust (16%) demand erosion
- At end March 2023, our base case is for storage at 42% and EUR93/MWh TTF prices given benign weather

Injection season

April 2023 – September 2023

- Gas storage refills at more modest pace than 2022 given lack of Russian flows and Chinese LNG competition
- At end September 2023, our base case is for storage at 83% and EUR167/MWh TTF prices

Heating season (next)

October 2023 – March 2024

- Hard work (injection season) will be complete, and entrenched demand destruction to conserve inventories

*Source: Bloomberg, Eurostat, IEA, MUFG Research; *GY = gas year is the 12 month period starting from 1 October*

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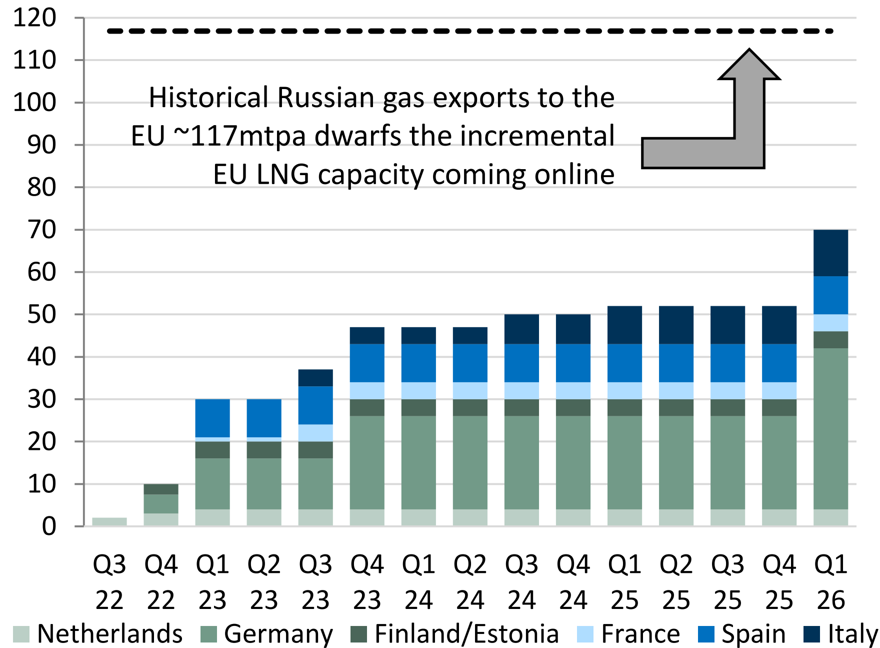
Long-term gas market outlook | multi-year squeeze

The EU is on track to add 46mtpa of LNG regassification capacity by end-2023 (a 24% increase from the 170mtpa at the start of 2022), largely through Floating Regasification and Storage Units (FSRUs) rather than fixed onshore terminals. Whilst welcomed, this is still dwarfed by the magnitude of Russian gas the EU has lost since 2021 (~91mtpa out of ~117mtpa historical imports). Critically, EU regasification capacity helps debottleneck the internal EU "plumbing" but does little to solve the fundamental issue that there is insufficient liquefaction capacity before 2025.

EU LNG regasification capacity – Russia gap is wide

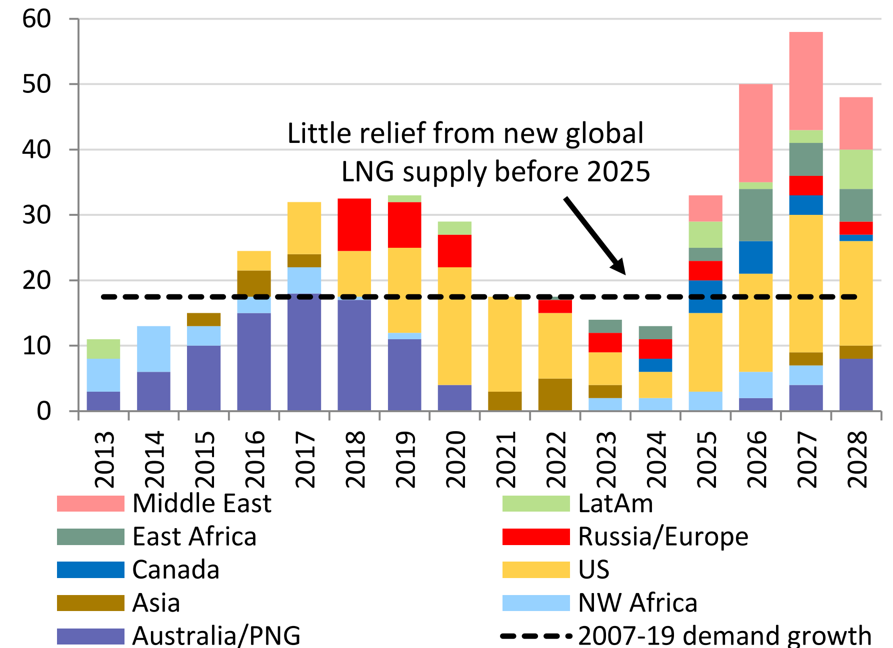
Cumulative incremental LNG regasification capacity (mtpa)



An additional 46mpta of EU regasification capacity by Q4 2023, rising to 70mtpa by Q1 2026 is unprecedented in speed – yet EU lags Asia in signing new long-term LNG contracts.

Surplus in H1 2023, but back to deficit in H2 2023

Oil supply, demand and overall balance (m b/d)



Tight market until 2025 given a lack of new project start-ups over 2022-24 with a loosening of supply-demand balances from 2025 driven by significant additions from the US and Qatar.

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Source: Bloomberg, BP, CEIC, EIA, Eurostat, IEA, Woodmac, MUFG Research

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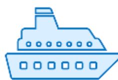
Gas market risks | balanced with volatility abound

The confluence of many moving dynamics impacting the market and limited price elasticity of demand creates an environment where subtle moves cause heavy price volatility

		Bullish risks	Bearish risks
	Weather	A one standard deviation colder-than-average heating season would impact storage by ~6bcm (8% of total storage)	Acute pressure is reinforced if the winter is warm given (i) the mild autumn; and (ii) ongoing demand destruction
	Quantum of demand destruction	Higher gas consumption given consumers' reticence to change behaviour and/or less severe contraction	Greater consumer willingness to voluntarily reduce consumption and/or more industry fuel substitution (to coal)
	Speed of China reopenings	Base case is for a full reopening from Q2 2023, leading to a rebound in LNG imports in 2023	The more delayed the reopening, the lower Chinese intake as industry remains the primary local driver of gas demand
	Return of any Russian flows?	Shutdown of the remaining gas arteries (via Ukraine and Turkey) into the EU – legal disputes or infrastructure damage	Rapprochement with Russia may raise flows back into the EU – though repair to infrastructure damage needs time
	State driven demand defence measures	Government driven measures to support demand (subsidies, price caps, tax cuts) reduces incentives to conserve energy	A reversal of the large quantum of energy-related fiscal measures – given concerns over the debt profile
	Power sector spillages	Cold weather may propel targeted, short and controlled "load shedding" in certain EU region (notably south Germany)	Higher than expected electricity output from non-gas sources (nuclear, hydro, wind, power)

2024 Same uncertainties with less angst

The still tight market global LNG market (to last until 2025) and uncertainties over Russian gas flows, support higher for longer EU gas prices

Source: Bloomberg, BP, CEIC, EIA, Eurostat, IEA, MUFG Research

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Energy affordability | demand defence/demand destruction

Two core policy choices in managing the energy crisis and addressing affordability

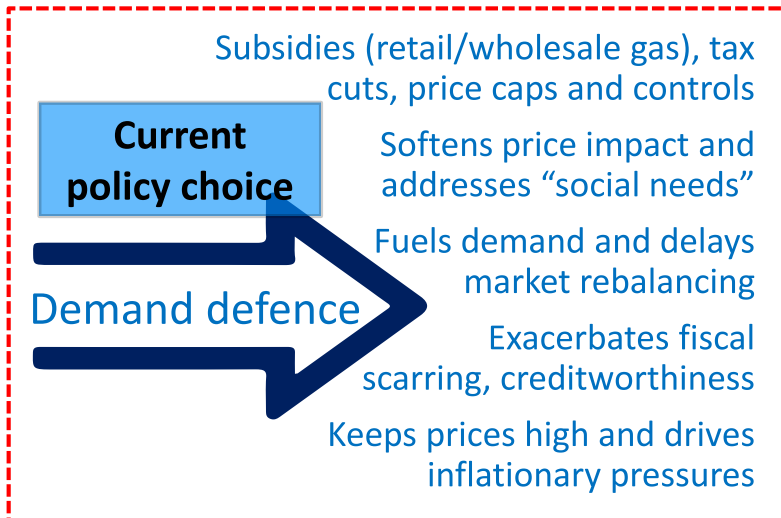
Mandatory or voluntary measures to curb demand

Ultimate solver to rebalance "volumetric" energy markets

Conserves energy and enhances efficiency

Limits avoidable fiscal spending, cushioning credit

Drives down prices and erodes inflationary pressures



Subsidies (retail/wholesale gas), tax cuts, price caps and controls

Softens price impact and addresses "social needs"

Fuels demand and delays market rebalancing

Exacerbates fiscal scarring, creditworthiness

Keeps prices high and drives inflationary pressures

Classification of demand defence measures since September 2021

Proposed: measures that have been announced; Enacted: implemented

Country / Demand defence measure	Energy tax / VAT	Retail price regulat.	Price regulat.	Transfers to vulnerab. groups	Mandate to state-owned firms	Windfall profits tax / regulat.	Business support
Austria	Enacted			Enacted			Enacted
Belgium	Enacted	Enacted		Enacted			
Bulgaria	Enacted	Enacted				Enacted	Enacted
Croatia	Enacted			Enacted			
Czech Rep.	Enacted	Proposed		Enacted	Proposed		
Denmark				Enacted			
Estonia	Enacted	Enacted		Enacted			Enacted
Finland	Enacted			Enacted			Enacted
France	Enacted	Enacted	Enacted	Enacted	Enacted		Proposed
Germany	Enacted			Enacted			Enacted
Greece	Enacted			Enacted	Enacted		Proposed
Hungary		Enacted					
Ireland	Enacted			Enacted			
Italy	Enacted			Enacted		Enacted	Enacted
Latvia	Enacted			Enacted			
Netherlands	Enacted			Enacted			
Norway	Enacted			Enacted			Enacted
Poland	Enacted	Enacted		Enacted			
Portugal	Enacted		Enacted	Enacted	Enacted		
Romania	Enacted	Enacted		Enacted		Enacted	
Spain	Enacted	Enacted	Enacted	Enacted			
Sweden	Enacted			Enacted			
UK		Enacted		Enacted		Enacted	Enacted

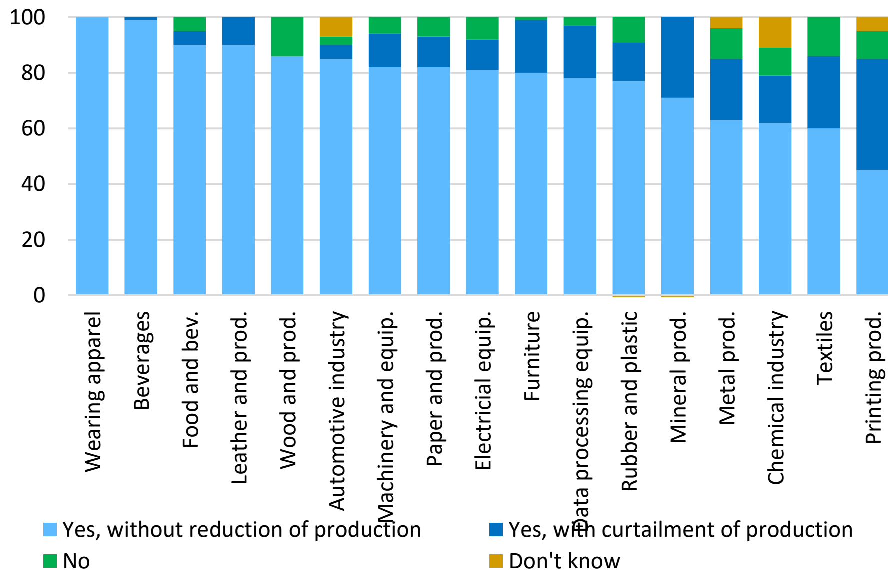
Source: Bloomberg, Bruegel, Eurostat, Institute of Fiscal Studies, MUFG Research

EU de-industrialisation put to test | "GFC" operating rates

The EU industry have reduced its gas consumption by ~30% relative to the average of the last four years, with firms reporting little production curtailment so far. Yet, a critical IFO survey suggests that this relatively costless reduction in gas demand may have reached its limit, and that higher gas prices in 2023 will involve deeper production cuts. Industry utilisation rates are already ~50% today, and on a par with the GFC trough reached in 2009 due to the destocking and weak demand environment – further gas savings requirements will put to the test how far de-industrialisation will go.

Signs of near-term resilience with only 14% of firms having had to reduction production to use less gas

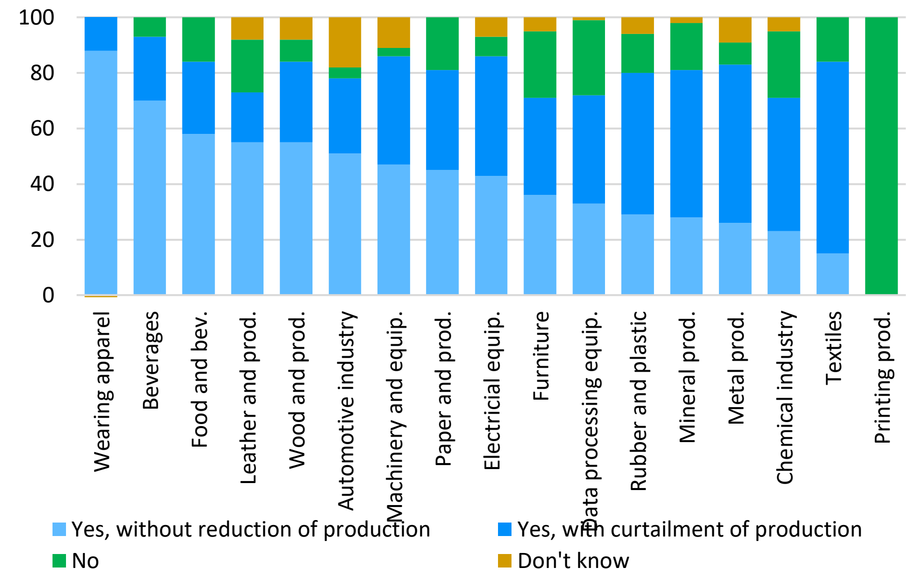
Measures taken in last 6 months to save gas (% shares)



Aside from highly energy-intensive industries such as metals, chemicals and printing, most firms report little production curtailment to save gas in the last six months – driven by flexible production processes. Yet this may have reached its limit.

Only 39% of firms able to further reduce gas consumption by summer while keeping same output

Further savings ability for gas in next 6 months (% shares)



Should gas prices surge in 2023, the outlook is troubling if firms need to make further savings. A total of 61% of firms across industries report that further savings for gas will not be possible without production cutbacks or complete a halt.

Source: Bloomberg, BP, CEIC, EIA, Eurostat, IEA, Woodmac, MUFG Research

Commodity price forecasts | as of January 2023

#	Commodity / BCOM Index	BBG Ticker	Unit / USD Weight	Quarter Averages									Annual Averages			
				Q4-22	Q1-23	Q2-23	Q3-23	Q4-23	Q1-24	Q2-24	Q3-24	Q4-24	2022	2023	2024	2025
1	**Energy**	BCOMENSP Index	39.8%													
2	WTI Crude	CLA Comdty	USD/b	81.22	83.00	89.00	107.00	104.00	109.00	115.00	118.00	114.00	85.58	95.75	114.00	110.00
3	Brent Crude	COA Comdty	USD/b	86.51	87.00	94.00	112.00	109.00	114.00	119.00	122.00	118.00	89.76	100.50	118.25	114.00
4	US Natural Gas	NGA Comdty	USD/MMBtu	6.22	5.20	5.00	4.30	4.70	5.20	4.60	4.00	4.50	6.60	4.80	4.58	4.90
5	EU Natural Gas	TZTA Comdty	EUR/MWh	135.30	82.00	93.00	167.00	152.00	121.00	145.00	149.00	132.00	133.06	123.50	136.75	117.50
6	EU ETS EUA	MOA Comdty	EUR/MT	81.00	78.00	73.00	75.00	78.00	81.00	87.00	90.00	92.00	83.55	76.00	87.50	92.00
7	**Metals**	BCOMIN Index	28.1%													
8	Copper	LMCADS03 Comdty	USD/MT	8,005	8,200	8,400	8,900	9,200	9,400	9,550	9,750	10,250	8,803	8,675	9,738	10,350
9	Aluminium	LMAHDS03 Comdty	USD/MT	2,355	2,250	2,400	2,575	2,670	2,800	2,875	2,900	3,050	2,714	2,474	2,906	3,150
10	Zinc	LMZSDS03 Comdty	USD/MT	2,986	2,850	3,050	3,250	3,500	3,750	3,900	4,000	4,200	3,446	3,163	3,963	4,300
11	Nickel	LMNIDS03 Comdty	USD/MT	25,593	27,500	25,500	23,550	24,000	24,150	24,500	25,500	25,000	25,674	25,138	24,788	25,150
12	Gold	GCA Comdty	USD/Troy Oz	1,746	1,840	1,790	1,890	1,975	2,015	2,085	2,100	2,030	1,825	1,874	2,058	1,950
13	Silver	SIA Comdty	USD/Troy Oz	21.45	21.90	21.50	23.75	24.50	24.00	23.80	23.50	24.00	22.10	22.91	23.83	23.00
14	Platinum	PLA Comdty	USD/Troy Oz	979.28	980.00	1,035	1,080	1,095	1,100	1,175	1,250	1,300	968.83	1,048	1,206	1,260
15	Palladium	PAA Comdty	USD/Troy Oz	1,942	1,750	1,880	1,820	1,800	1,890	1,950	1,920	1,985	2,110	1,813	1,936	1,875
16	**Bulk Commodities**															
17	Hard Coking Coal	IACA Comdty	USD/MT	295.47	275.00	250.00	290.00	295.00	305.00	320.00	315.00	295.00	306.01	277.50	308.75	310.00
18	Iron Ore	ISIX621U Index	USD/MT	95.15	110.00	115.00	95.00	90.00	98.00	105.00	100.00	95.00	113.16	102.50	99.50	104.00
19	**Agriculture**	BCOMAG Index	32.1%													
20	Soybean	S A Comdty	USD cen/lb	1,443	1,450	1,480	1,500	1,515	1,450	1,420	1,480	1,525	1,431	1,486	1,469	1,490
21	Wheat	W A Comdty	USD cen/bush	825.95	825.00	800.00	850.00	870.00	890.00	920.00	900.00	980.00	903.01	836.00	922.50	970.00
22	Corn	C A Comdty	USD cen/bush	673.51	700.00	660.00	705.00	725.00	740.00	755.00	780.00	730.00	661.28	698.00	751.25	775.00
23	Cotton	CTA Comdty	USD cen/lb	82.17	85.00	80.00	72.00	78.00	80.00	85.00	82.00	86.00	97.91	78.75	83.25	85.00
24	Coffee	DFA Comdty	USD cen/lb	1,900	1,875	1,915	1,900	1,840	1,870	1,900	1,945	1,860	2,051	1,883	1,894	1,860
25	Sugar	SBA Comdty	USD cen/lb	19.24	19.20	19.00	19.50	19.80	20.00	20.35	19.60	19.65	18.86	19.38	19.90	20.40

Source: Bloomberg, MUFG Research

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