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The World in 2024 – A Geopolitical and Economic Outlook

5 October



Speakers

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EU27 Chemicals Industry: Latest Development



5 October 2023

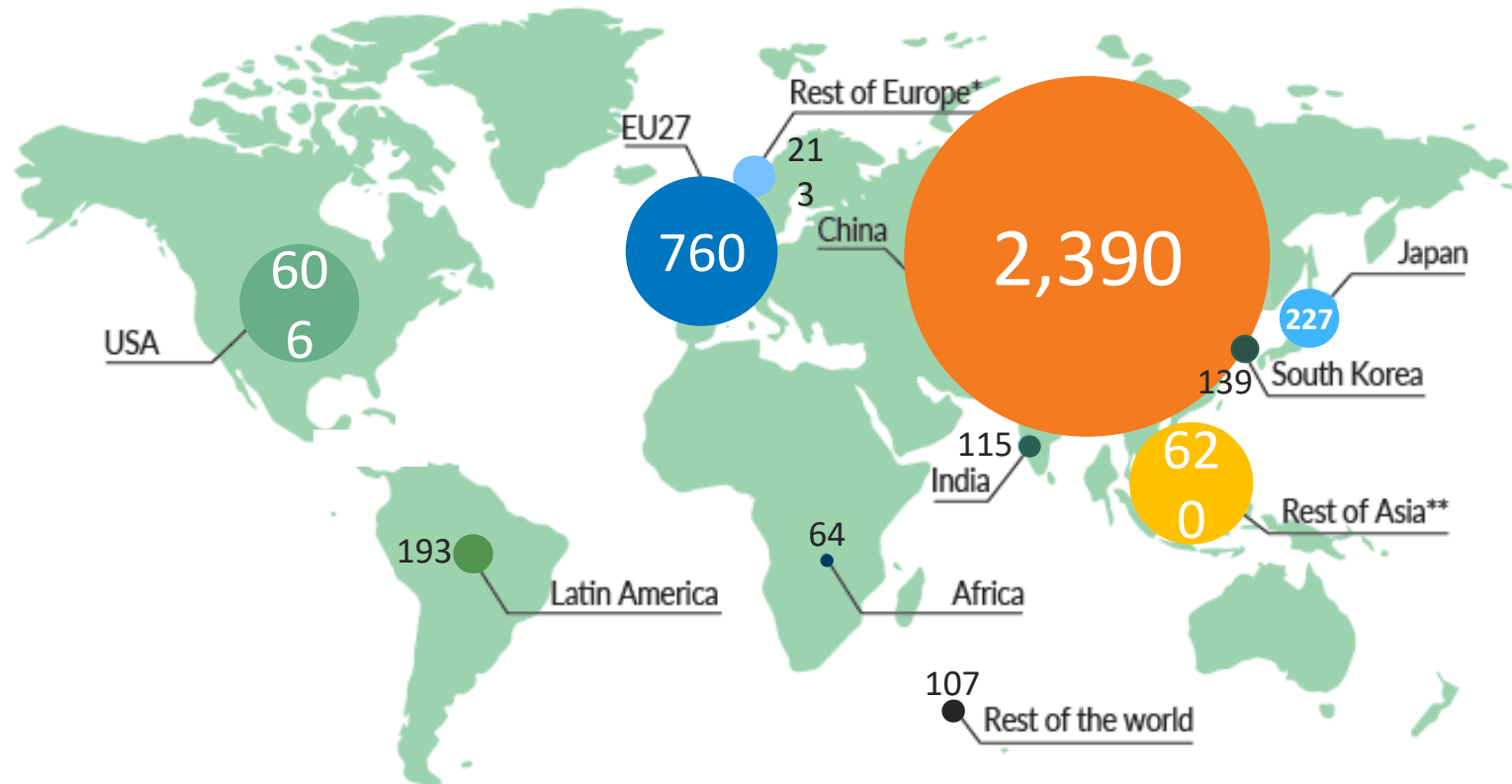
Moncef Hadhri



EU Chemicals Industry – 2022

- **2nd largest chemicals producer** in the world
- **Major importance for economic development and wealth:** 7% of EU27 manufacturing added value
- Employs **1.2 million people** + around **three times more indirect jobs**
- The **biggest industrial users** of European chemicals are rubber and plastics, construction, consumer goods industries, and automotive.

World chemicals sales (2022; €5,434 bn)



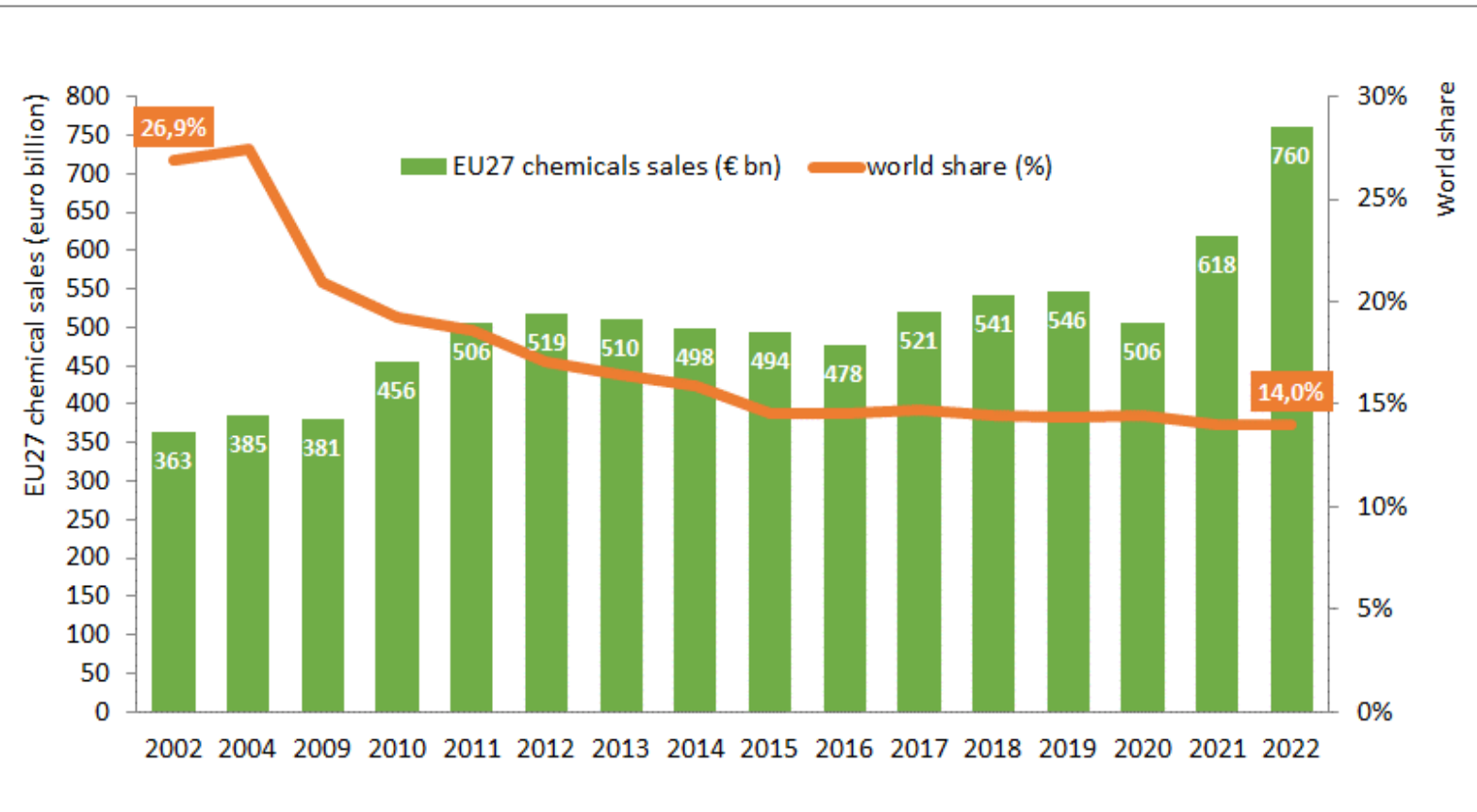
Source: Cefic Chemdata International 2023

*Rest of Europe covers UK, Switzerland, Norway, Türkiye, Russia and Ukraine

**Asia excluding China, India, Japan and South Korea



World market share of EU27 chemical sales drops

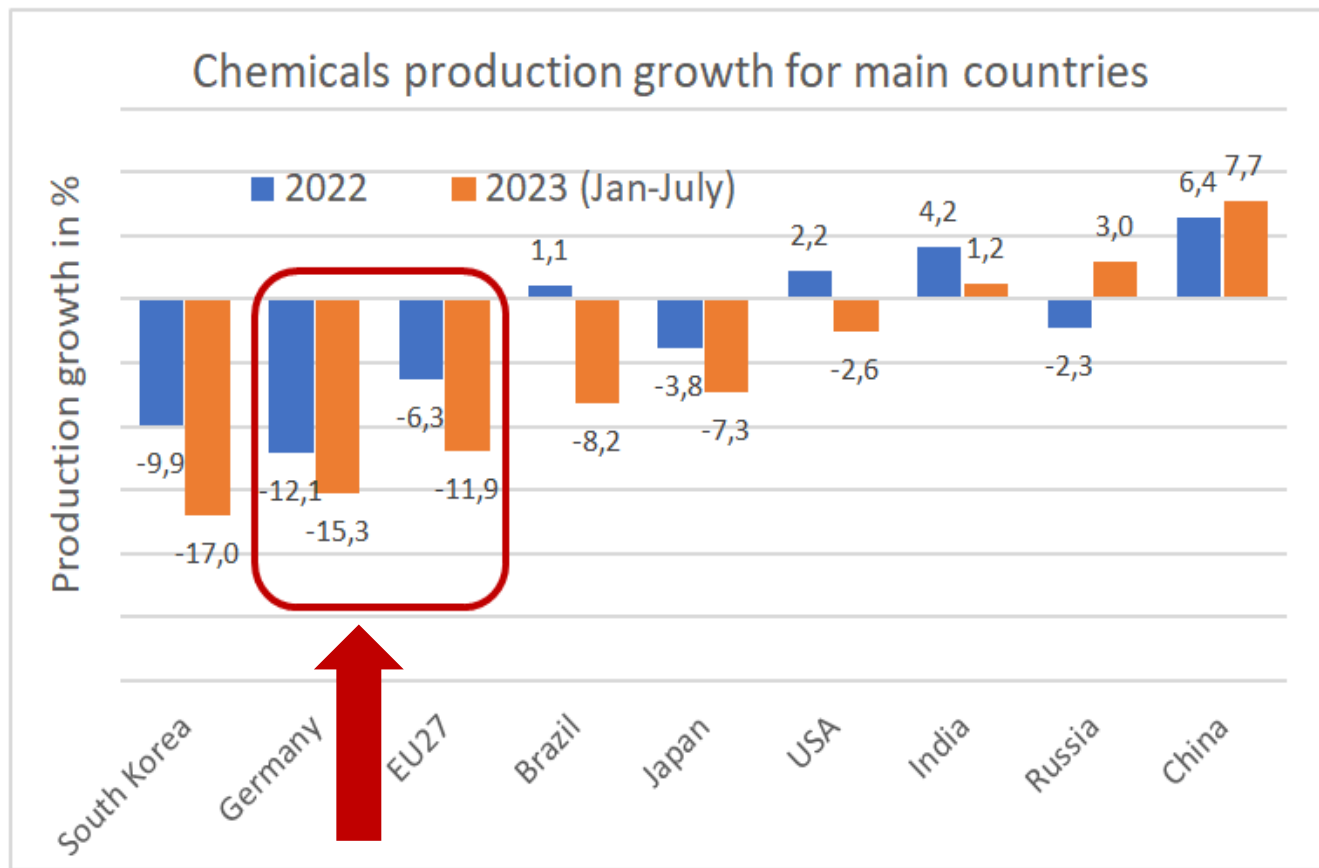


	2021	2022	2022 Market Share	2021-22 Growth
Sales (€bn)				
China	1949	2390	44%	23%
EU27	618	760	14%	23%
USA	493	606	11%	23%
Japan	207	227	4%	10%
South Korea	131	139	3%	5%
Brazil	84	120	2%	43%
India	99	115	2%	16%
Russia	59	79	1%	34%
World	4428	5434	100%	23%

Global market share of Europe nearly halved in 20 years



A severe drop in 2022 growth and a disappointing year 2023

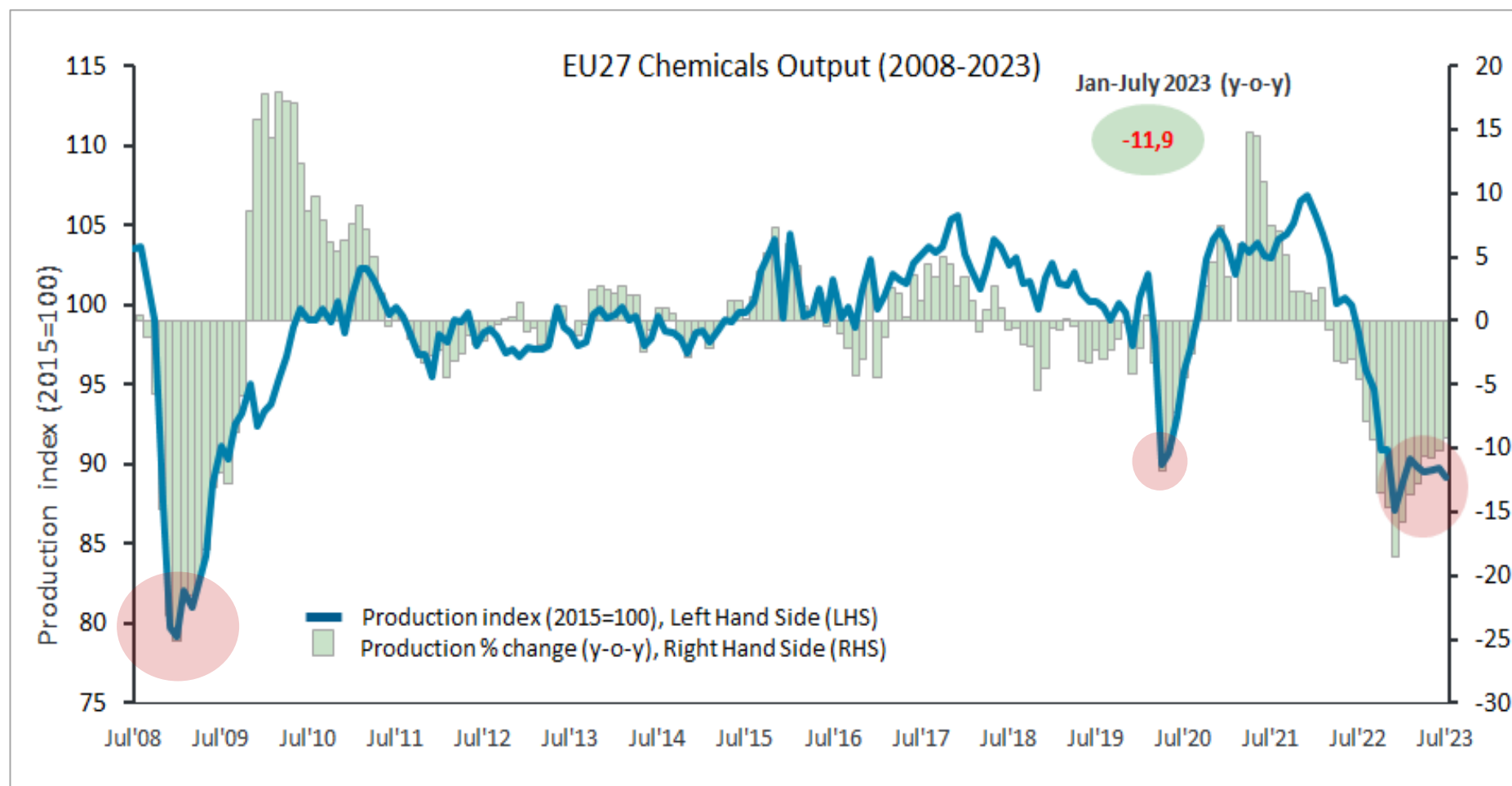


Output	2020	2021	2022	2023 (Jan-July)
South Korea	-3,1	8,6	-9,9	-17,0
Germany	-1,3	5,7	-12,1	-15,3
EU27	-2,2	6,1	-6,3	-11,9
Brazil	0,0	3,6	1,1	-8,2
Japan	-12,0	5,1	-3,8	-7,3
USA	-4,9	4,2	2,2	-2,6
India	-5,4	8,0	4,2	1,2
Russia	7,4	7,1	-2,3	3,0
China	2,9	8,4	6,4	7,7
World	-0,5	7,2	1,5	-0,2

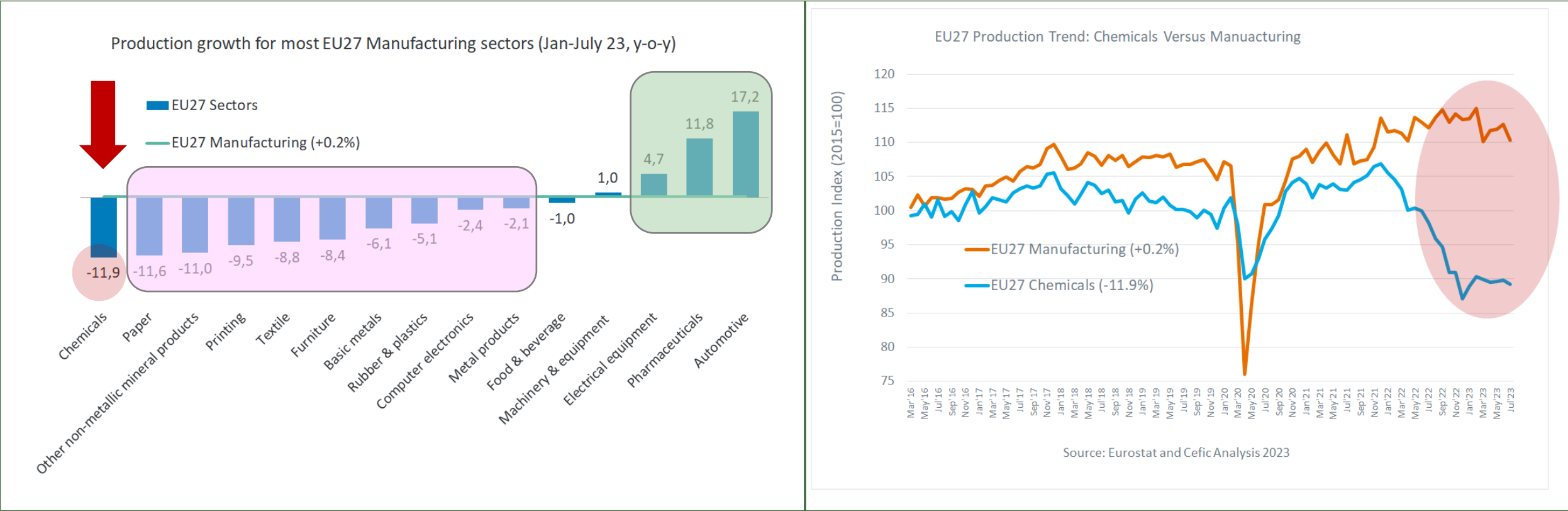


In view of the weak business situation of industry generally, the output of chemicals is expected to decline. With falling prices overall, the industry's sales are likely to go down markedly.

The EU27 chemicals industry output continues downward trend



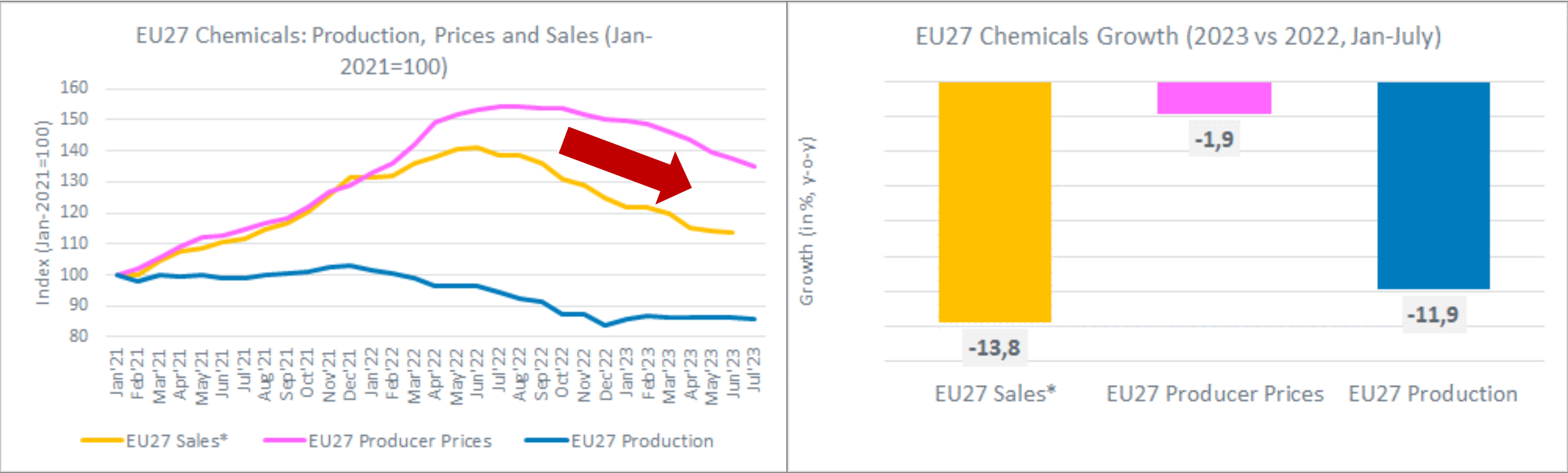
EU27 Chemicals reported the largest output decline in 2023



The EU27 manufacturing output grew by 0.2% only during the first seven months of 2023 compared to the same period of 2022. With minus 11.9%, EU27 chemicals is hit by high energy costs & ongoing weak demand.



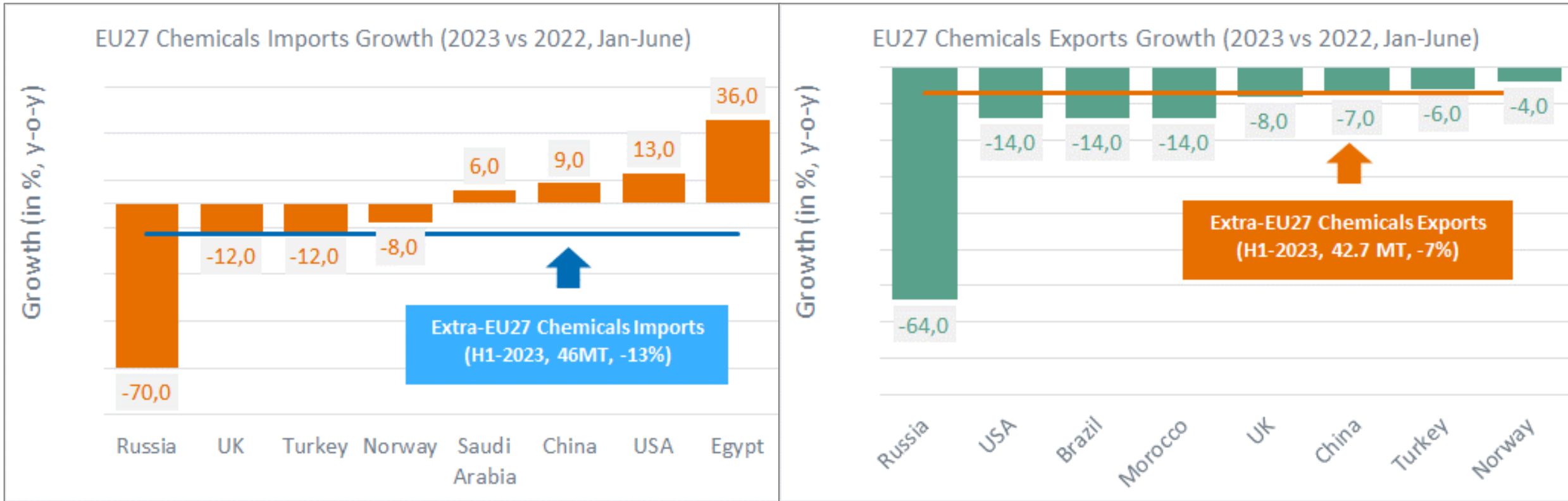
Prices and sales began to decline sharply since April 2022



In 2022 chemical sales in Europe reached an all-time high. Due to high energy prices and increasing demand for chemicals (due to supply chain disruptions), chemical prices and sales increased strongly since the beginning of 2021. This trend was amplified in first half of 2022 due to energy crisis and war in Ukraine.



Loss of competitiveness of EU27 chemicals industry



The European chemical industry is losing competitiveness on global chemical markets due to high regional energy and feedstock costs. Production and trade activity are significantly declining and are below 2022's levels. According to a [public VCI survey](#), almost two thirds of German companies reported falling profits or even losses



The recovery will be probably be slow and far from robust

1. Industry hit hard by energy crisis in 2022, weak exports due to reduced competitiveness and global demand.
2. H1 2023: Hopes for relief with lower energy prices did not materialise, EU gas prices remain 60% above 2015-2019 average.
3. Full Year 2023: **Chemical output expected to decline by 8%** due to weak industry conditions.
4. Outlook 2024: Continued challenges with weak global demand and high energy costs.



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S&P Global

Commodity Insights

The Chemical Industry in 2024 – and Beyond

CEFIC Chemical Convention 2023

Tony Potter

Vice President- Chemicals

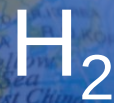
S&P Global Commodity Insights

Bratislava, 5 October 2023



The chemical industry has provided “what the world needs” for decades. What the world needs today is...

To keep carbon out of
the atmosphere



More hydrogen for
clean energy

Hydrocarbons to make
consumer goods



Nitrogen to feed
growing population

**Policy makers must support the industry to
solve for the entirety of the “equation”**

Global demand for traditional fuels peaks imminently

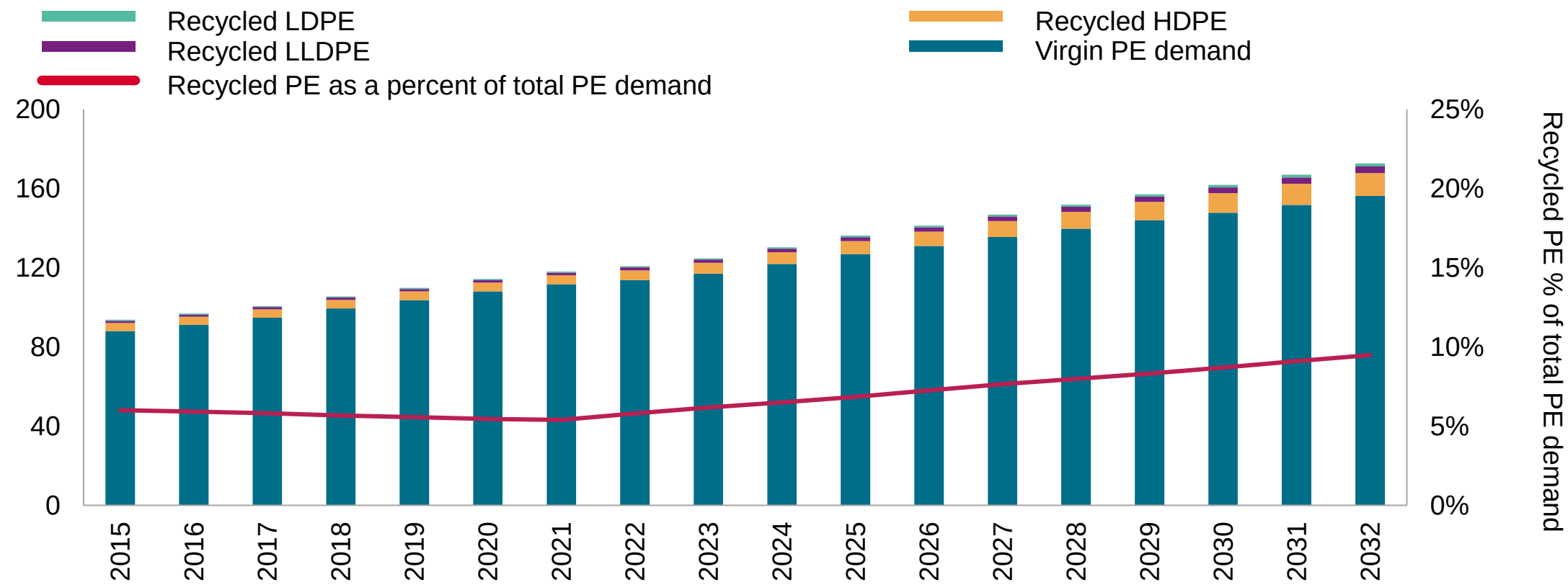
But Peak Polymer not envisaged in next 30 years



Data compiled May 2023.
Source: S&P Global Commodity Insights

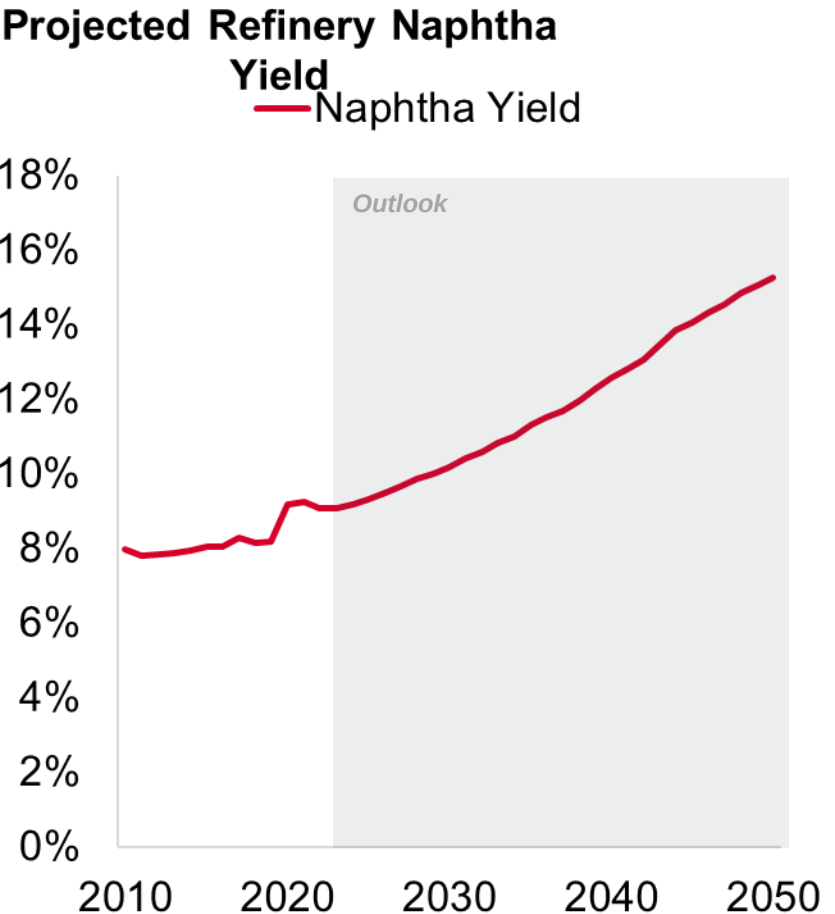
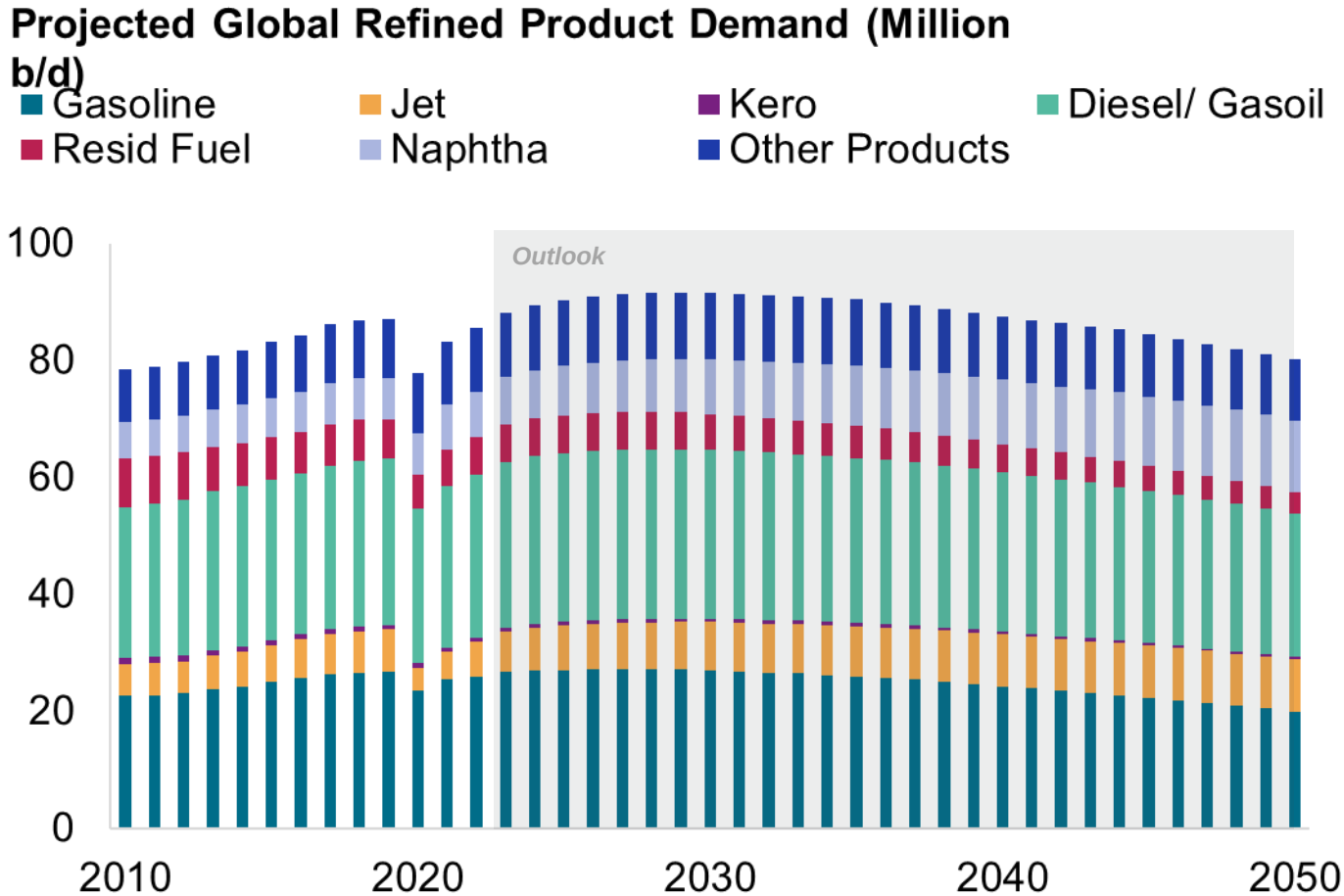
Underlying polymer demand growth exceeds virgin polymer growth as recycled polymer infrastructure develops. Volumes becoming relevant, particularly in HDPE, but virgin demand growth remains robust. “Peak Polymer” is not on the horizon.

Global virgin & recycled PE demand estimates (MMT)



Source: S&P Global Commodity Insights

Transportation sector demand and petchem feedstocks are on different trajectories. Naphtha is expected to become a premium product. Even assuming a massive increase in plastics circularity, the world will need to build 100+ MMT new ethylene capacity during 2030-2050



Agenda

- **Geopolitical, economic and energy outlook**
- The state of the chemical industry 2024
- Have we reached peak China? (and other export markets)
- Decarbonisation and circularity



Volatility dominates global politics, economics and security in an increasingly polarized world



Russia-Ukraine: No Prospect for Diplomatic Settlement



US-China: Cycle of Deteriorating & Dangerous Relations



Israel-Saudi Arabia-Iran: Reshaping the Middle East?

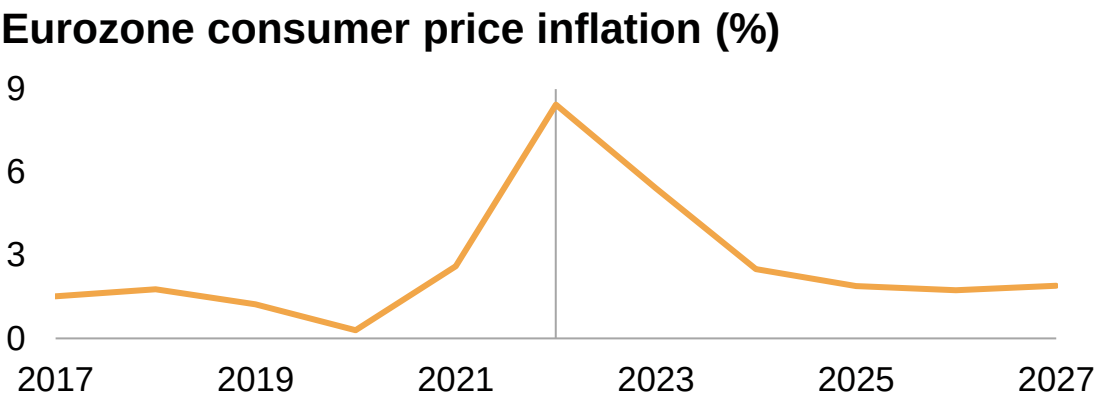
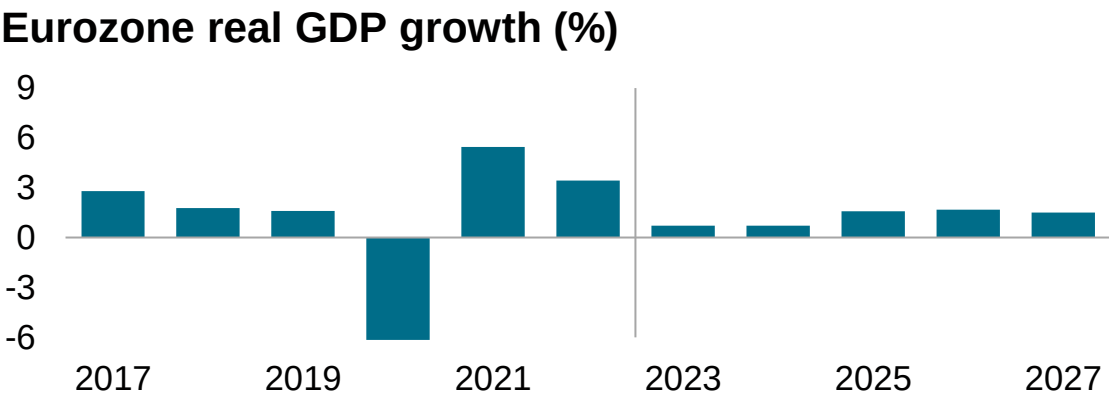
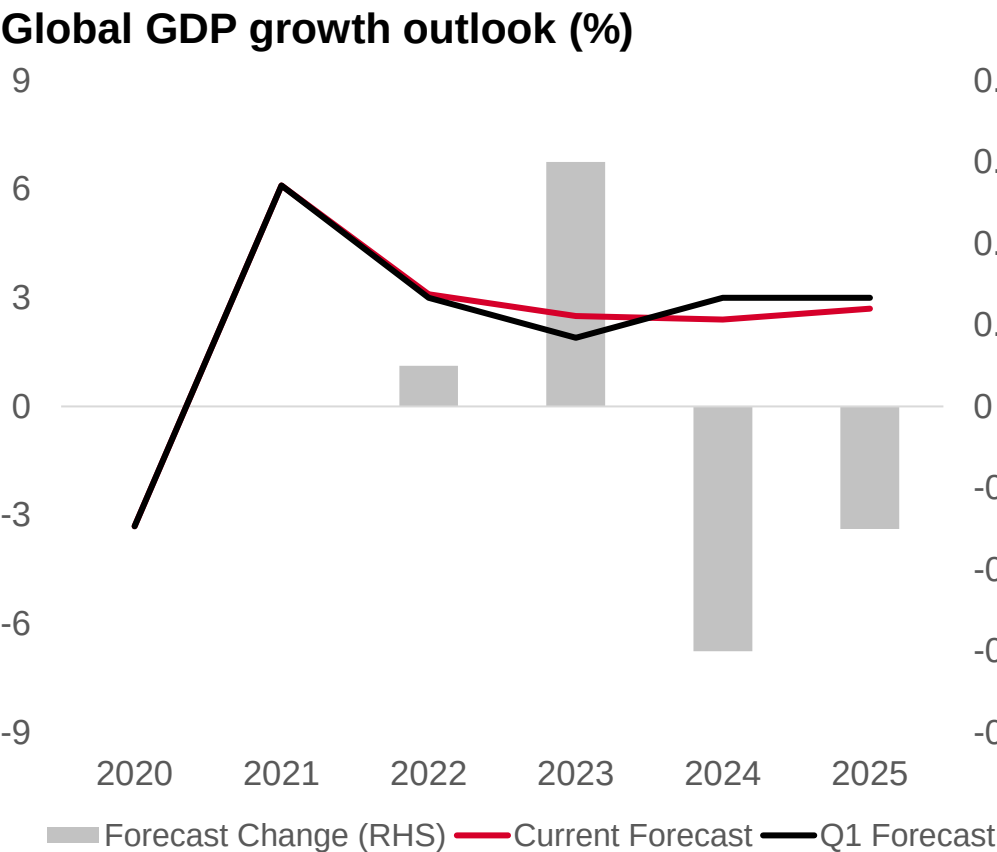


Developing Countries: Aggrieved and Ignored

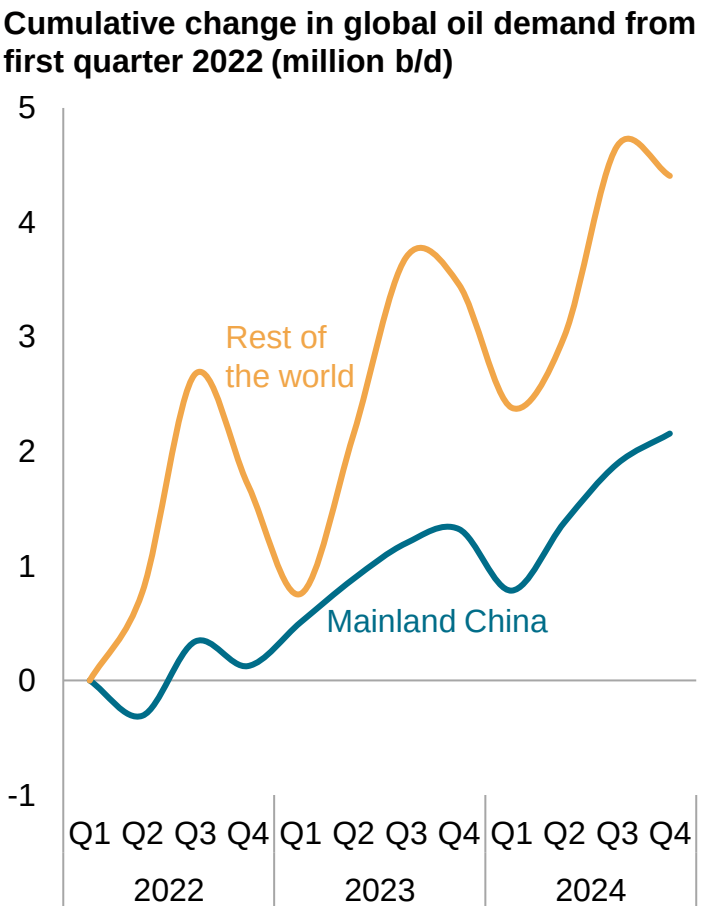
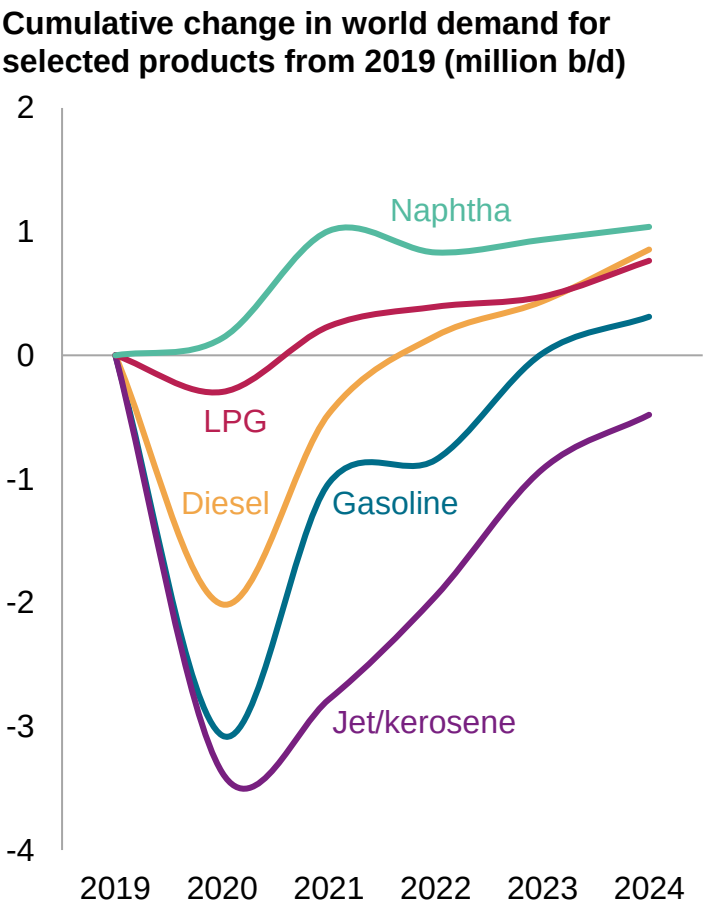
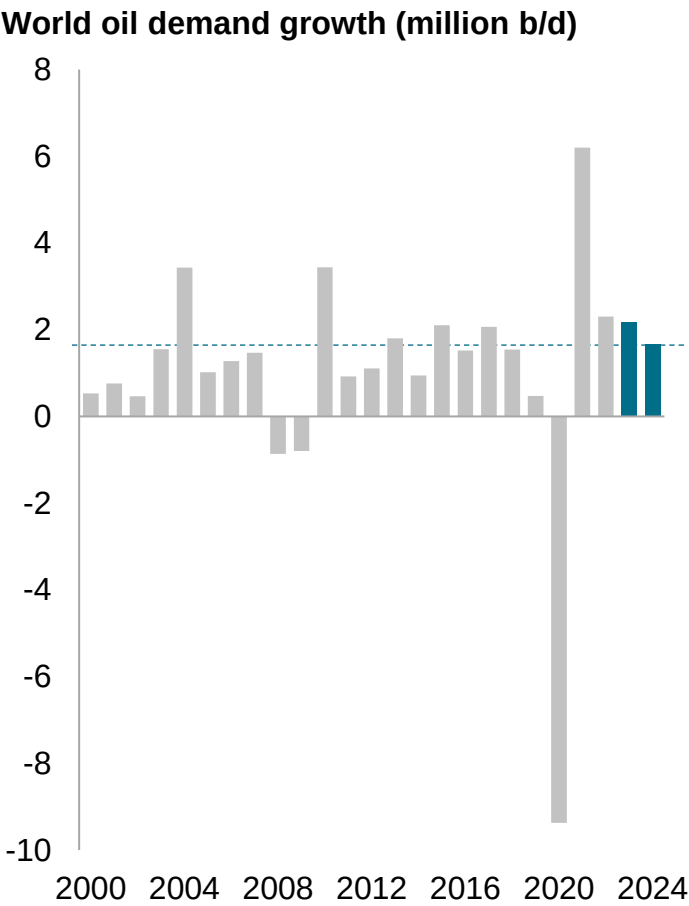


U.S: Too Polarized to Act?

Economic recovery not expected to bounce back immediately



Personal mobility and Mainland China drive crude oil demand growth in 2023, expected to moderate in 2024, as naphtha consumption growth slows



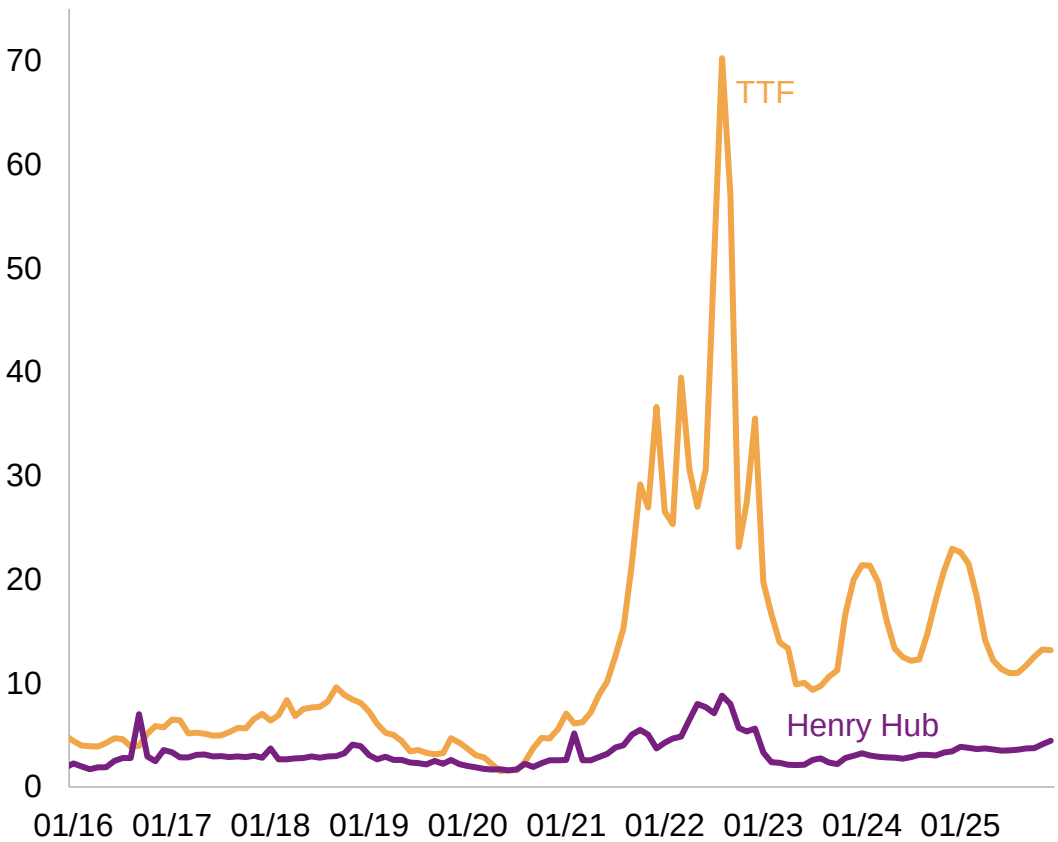
Data compiled Aug. 24, 2023.
Demand is for total liquids.
Source: S&P Global Commodity Insights.

Base case outlook assumes Saudi Arabia’s oil supply policy will support Brent above \$80/b, maintaining upward pressure on chemical feedstock prices

S&P Global Commodity Insights Dated Brent price outlook (\$/b)



Selected natural gas prices (\$/MMBtu)



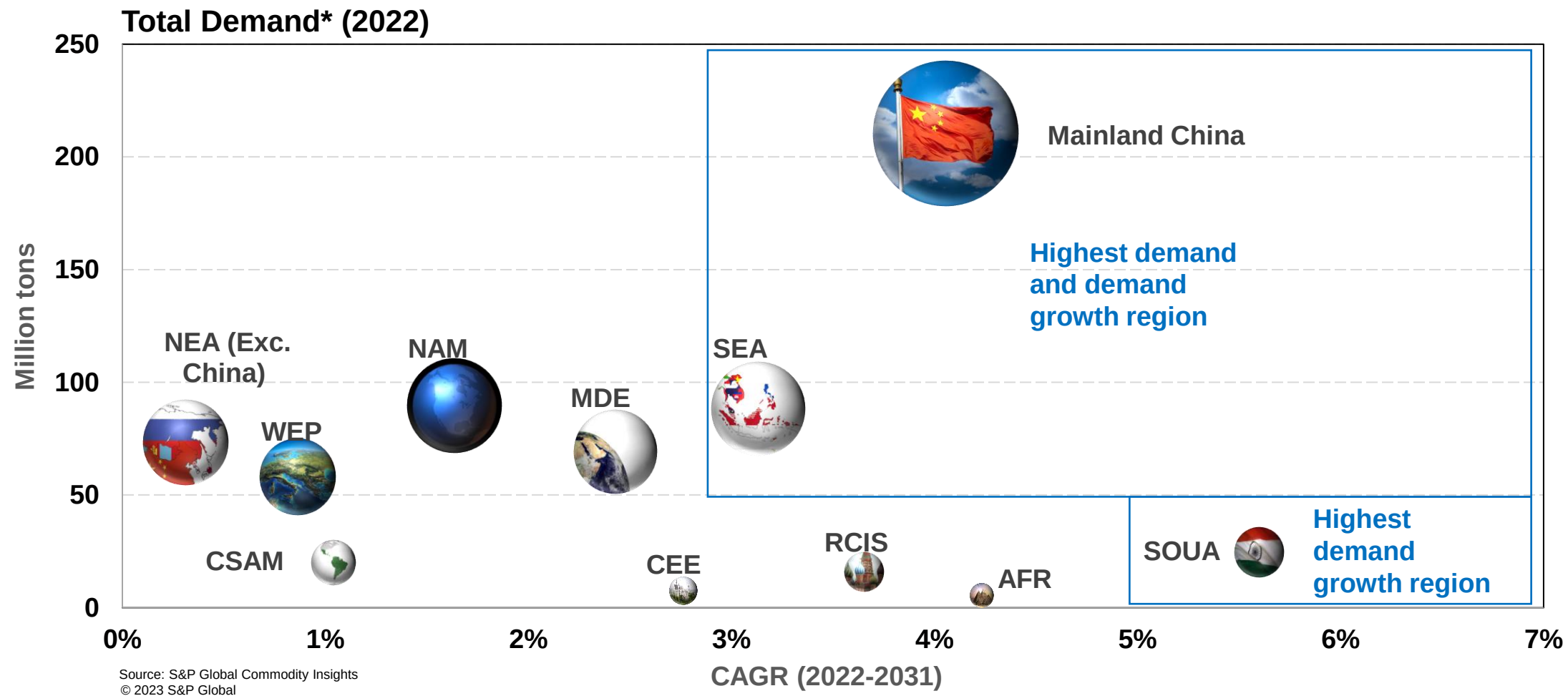
Data compiled Aug. 24, 2023.
Source: S&P Global Commodity Insights.

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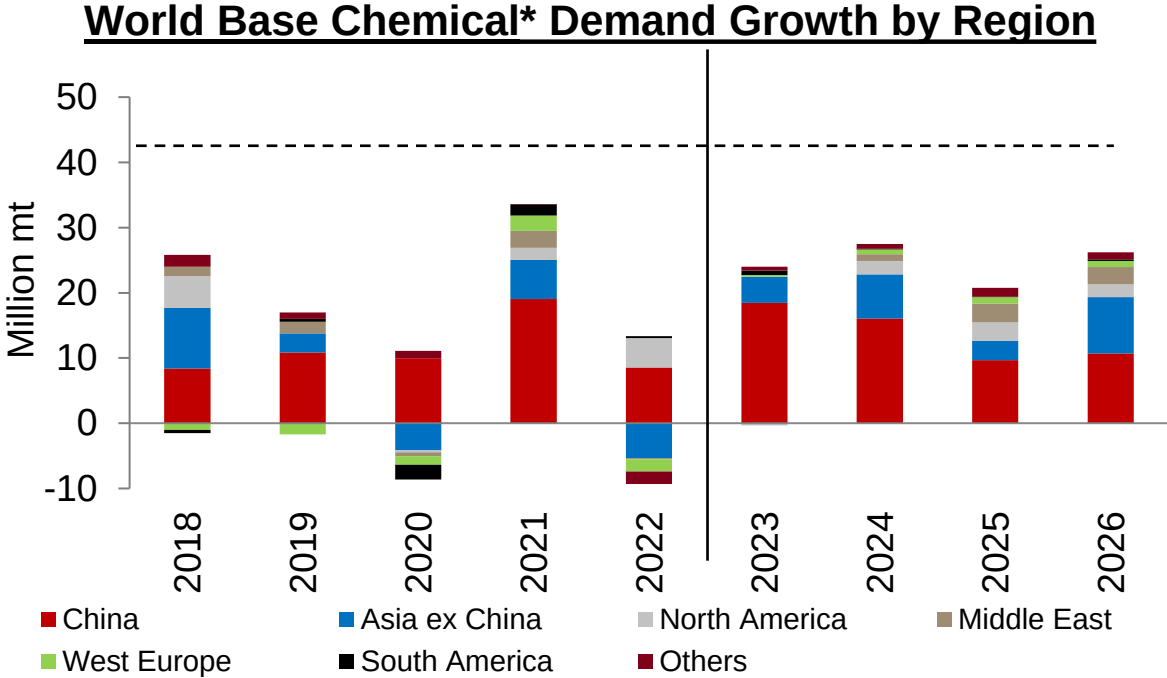
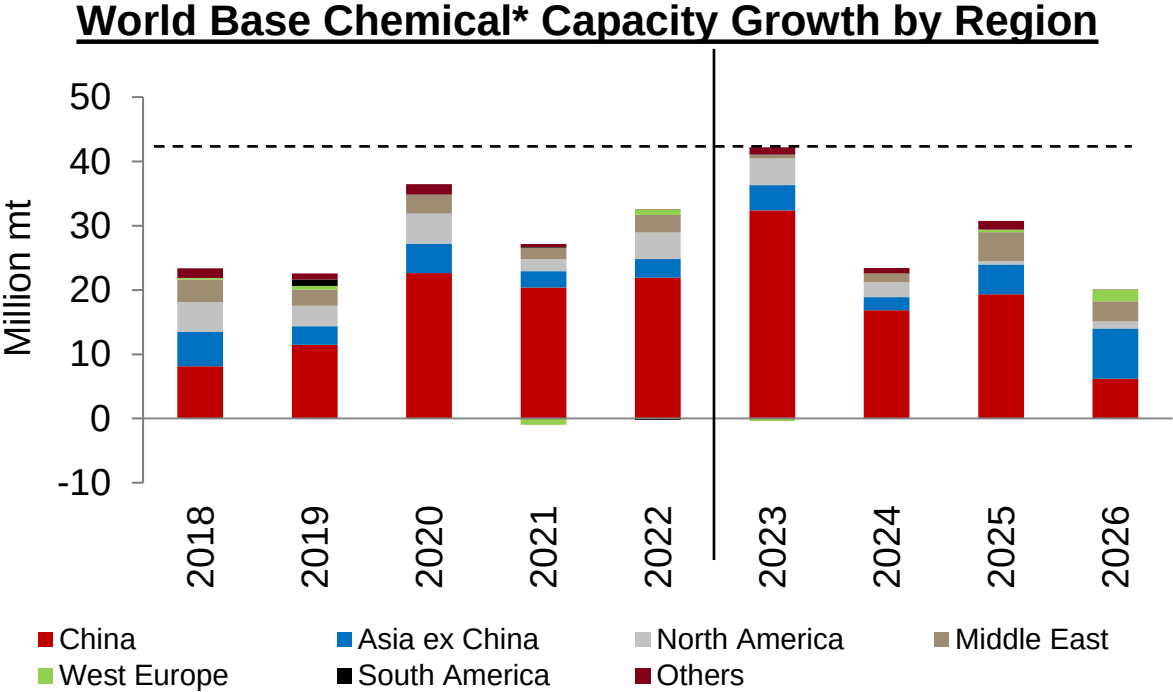


Mainland China, SE Asia (SEA) and South Asia (SOUA) have relatively higher demand and/or growth rates for investments and/or trade opportunities



*Base Chemical : Ethylene, Propylene, Paraxylene, Benzene, PVC, Methanol

Global petrochemicals are over-supplied across 2023 - 2025

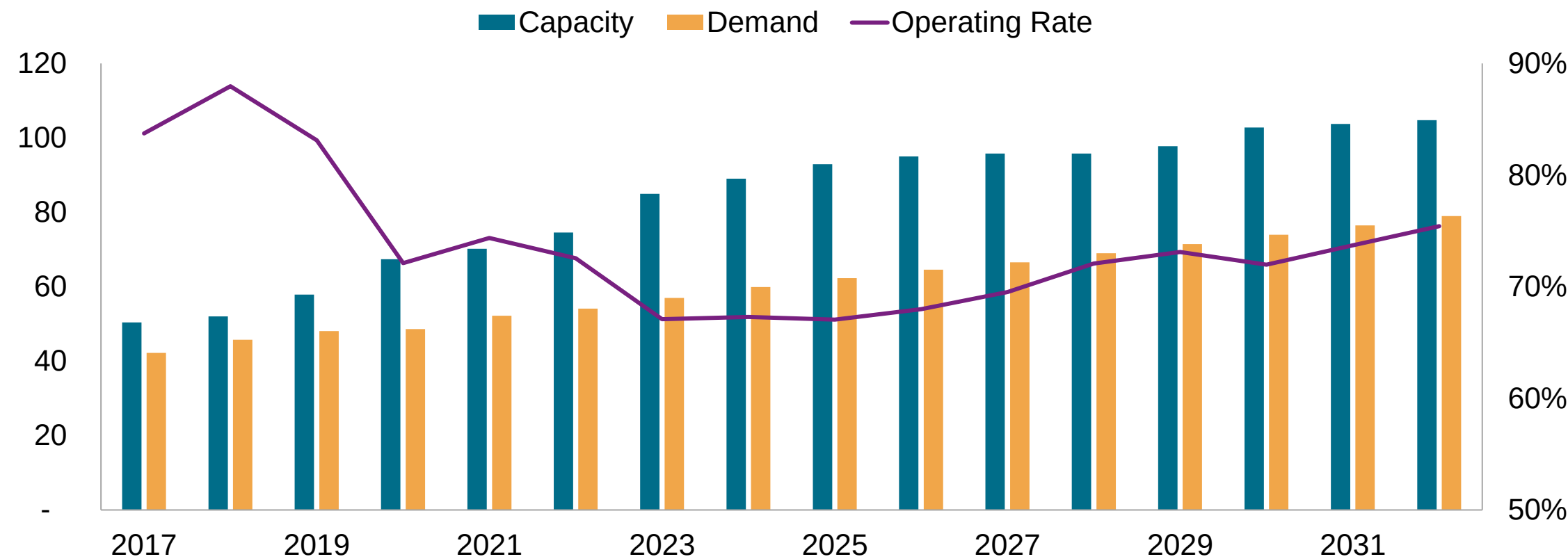


Source: S&P Global Commodity Insights
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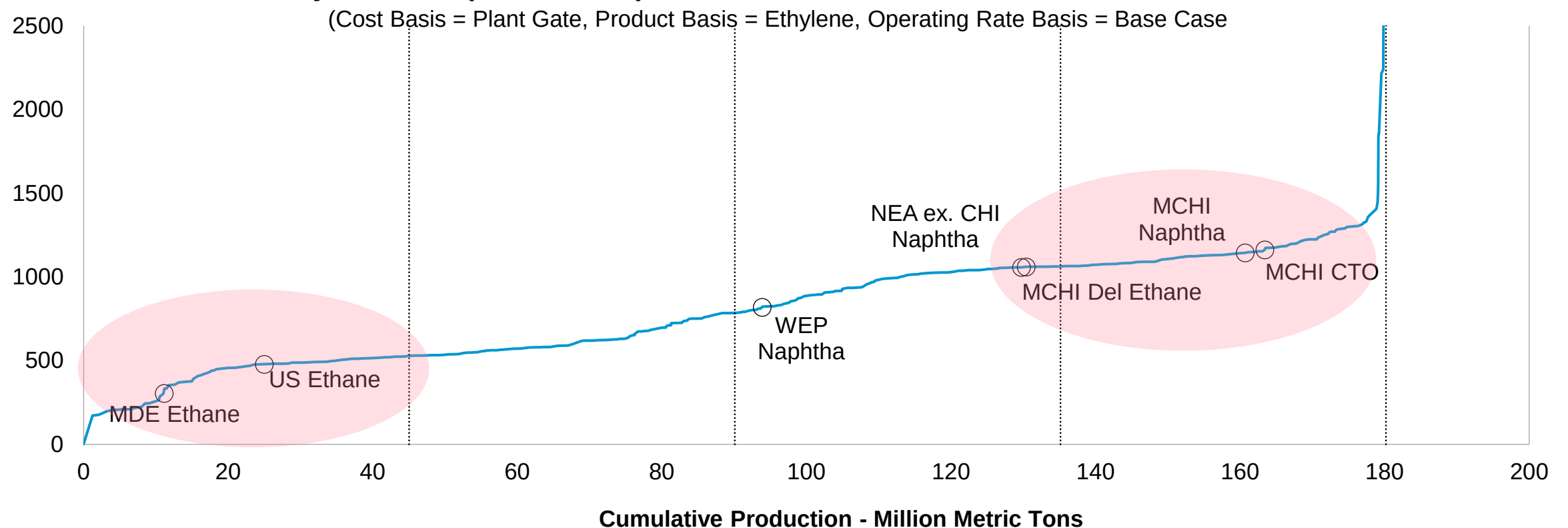
Paraxylene operating rates are not expected to recover until post 2025. Yet PX-naphtha spreads are healthy – there is money in making high octane gasoline components

Global paraxylene supply-demand (MM mt)



Europe can't compete with the US and the Middle East feedstock advantage, but can compete with the rest of the world

World Cost Curve: Ethylene 2022 (\$/metric ton)

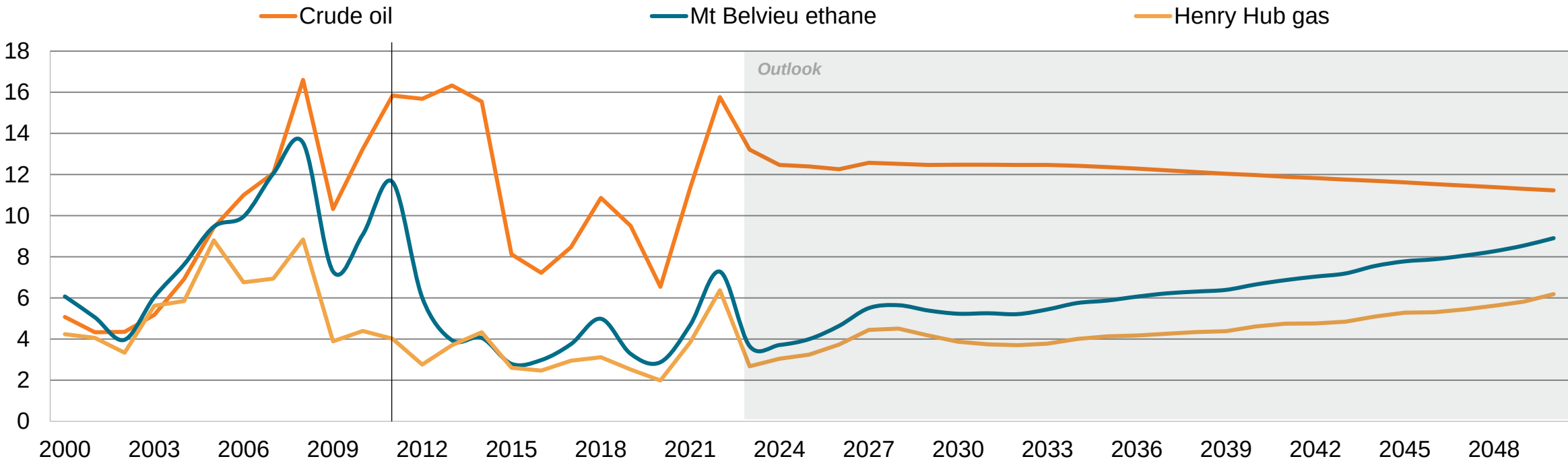


Source: S&P Global Commodity Insights
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US ethane remains at a premium to gas, but more competitive than naphtha through 2050. Availability increases with use of gas as bridging fuel.

Post 2030 premium increases as rejection decreases and marginal ethane barrel shifts to farther regions to meet demand

USGC Mont Belvieu ethane and Henry Hub gas price (Constant 2022 \$/MMBtu)



Spread between crude oil and natural gas makes ethane a competitive feedstock for ethylene production

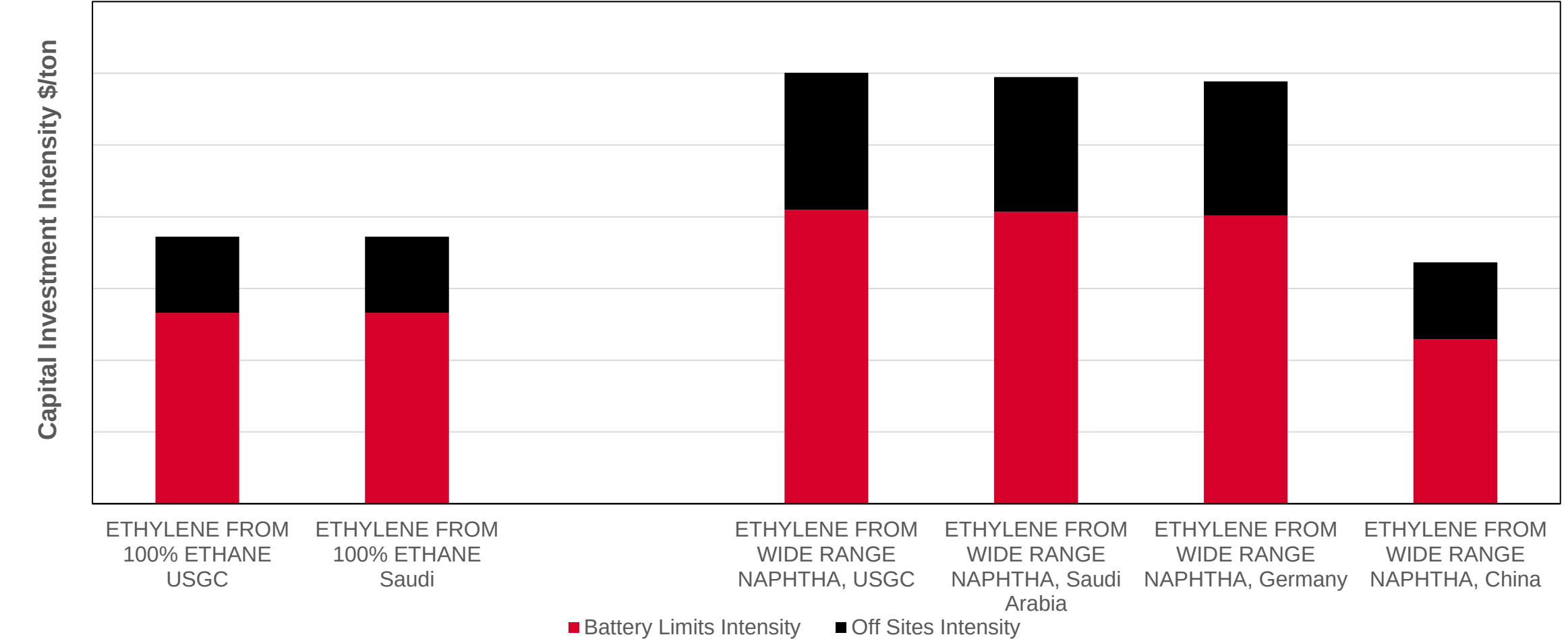
Data compiled May 2023.
Source: S&P Global Commodity Insights

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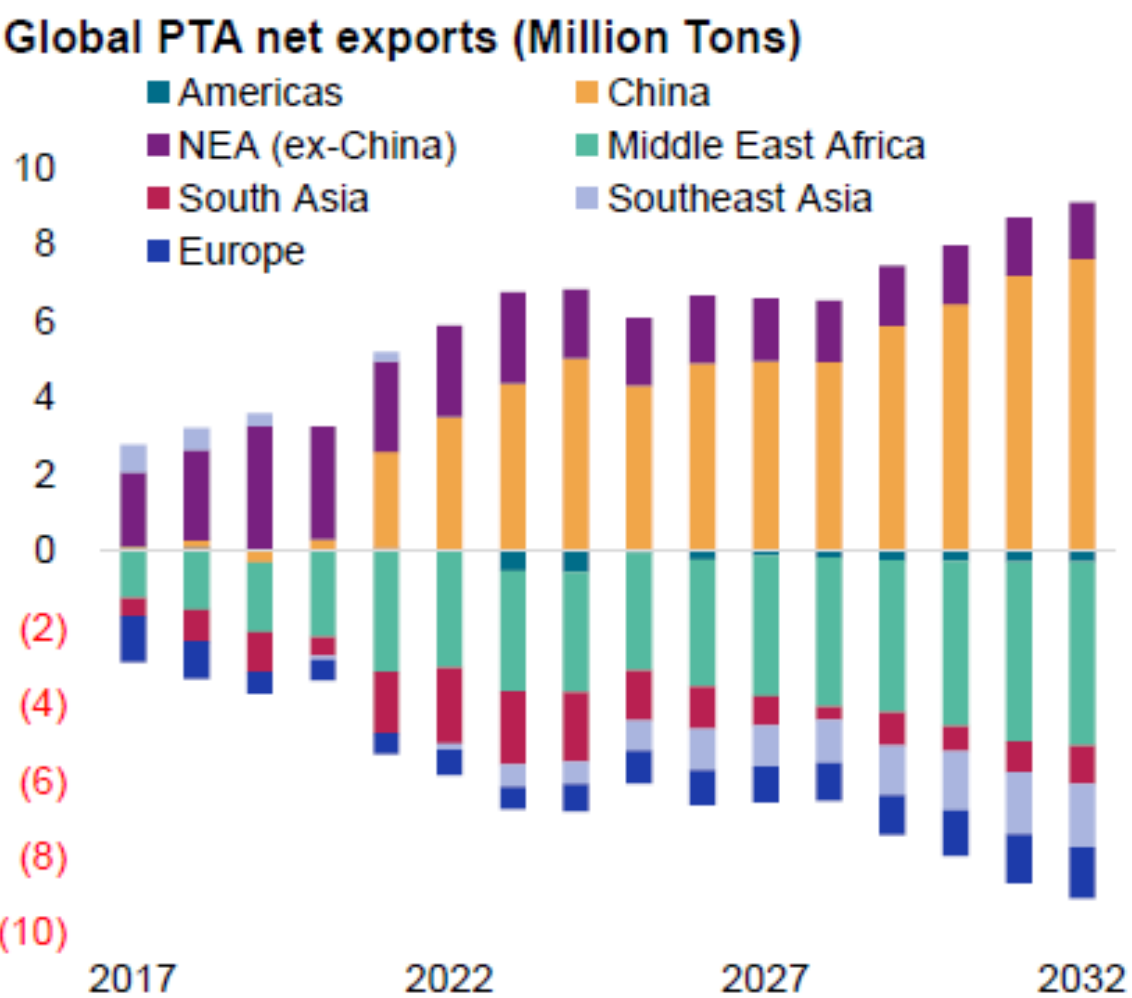
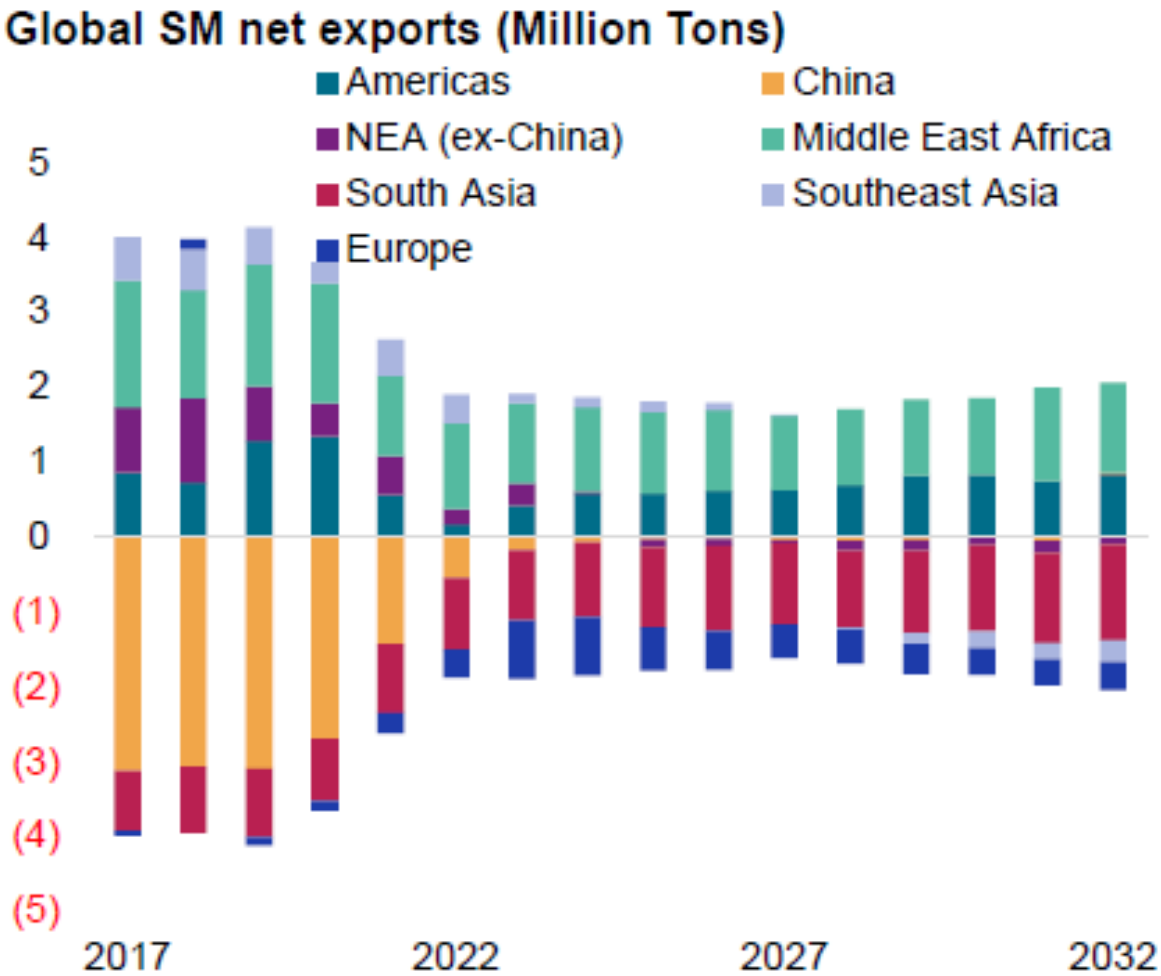
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S&P Global estimates China builds new plants at 0.56*USGC. China can build a naphtha cracker for the cost of an ethane cracker in USGC or Middle East

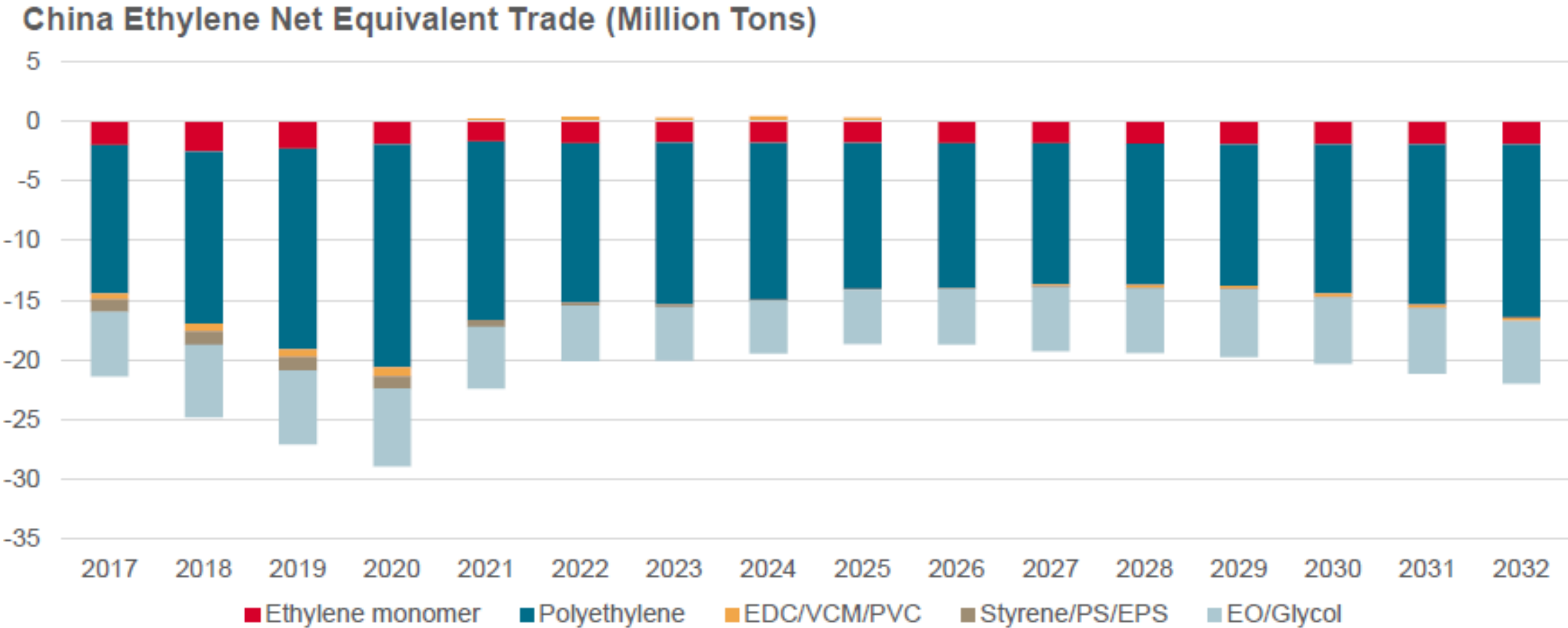


China is pushing to self-sufficiency which is changing trade flows

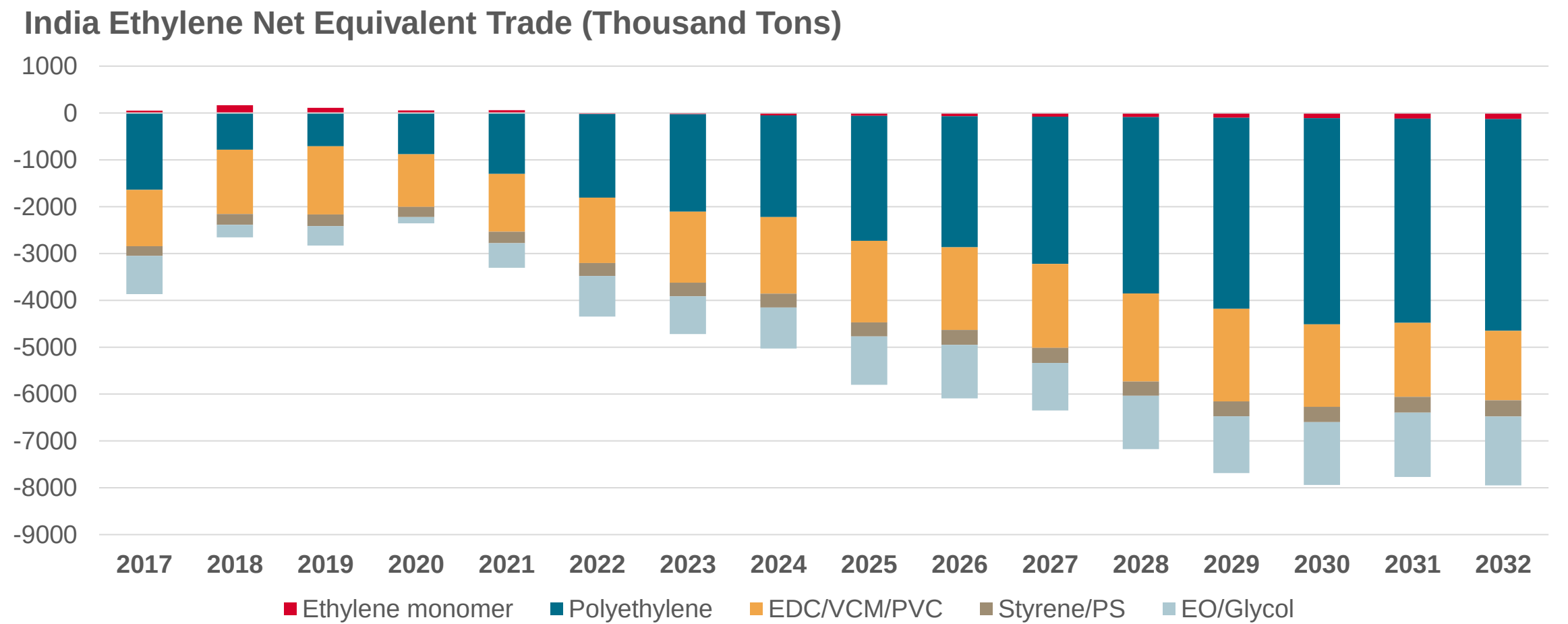


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China is pushing to self-sufficiency; but not in ethylene



India's ethylene derivative deficit will grow as demand growth outstrips project approval and implementation



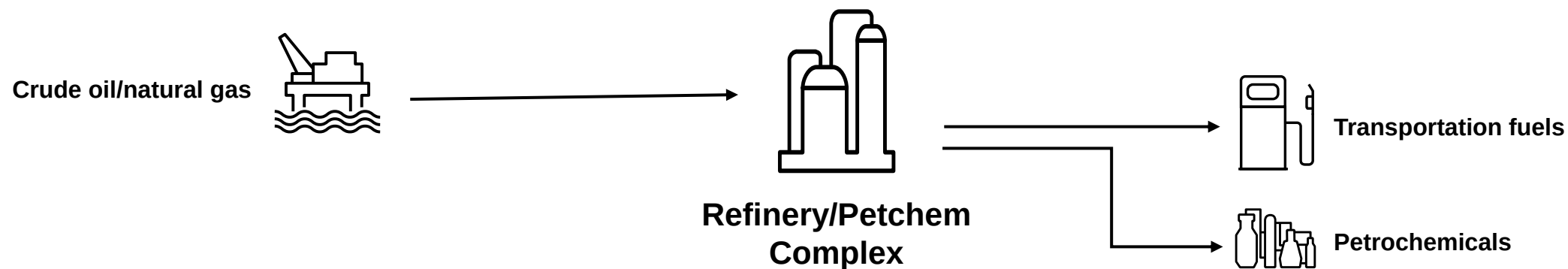
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The refinery is morphing from fossil fuel machine...

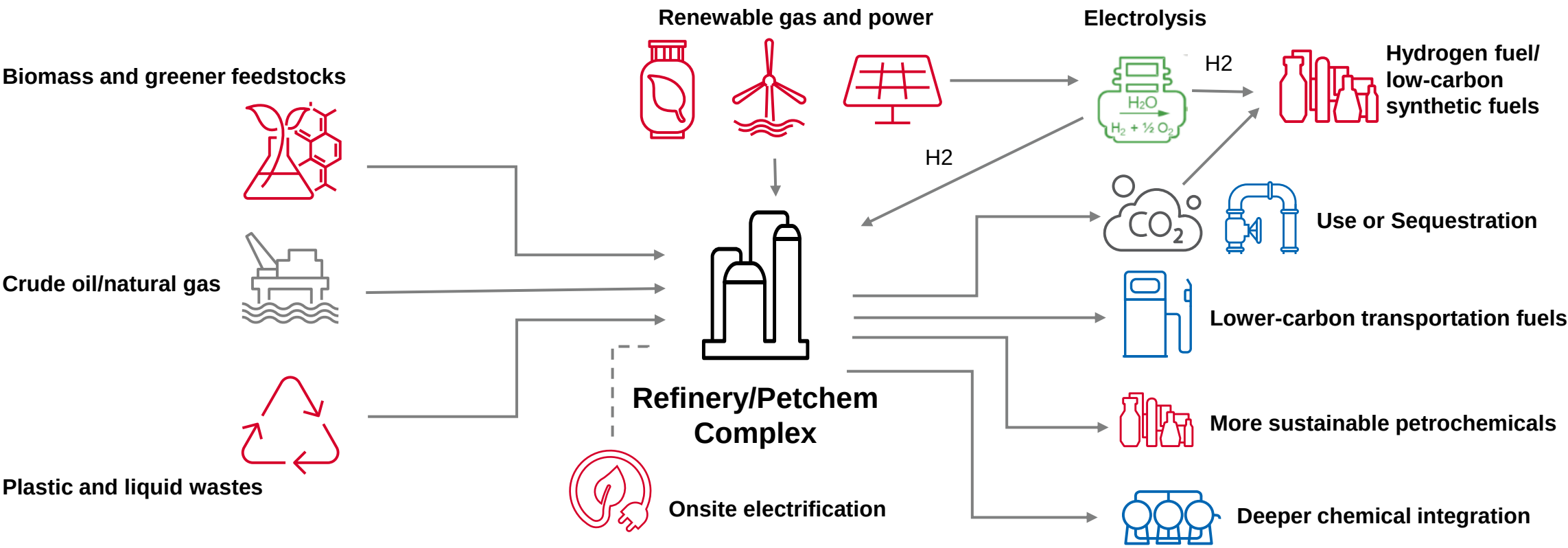
Refinery and petrochemical operations are exploring many decarbonization options



Source: S&P Global Commodity Insights

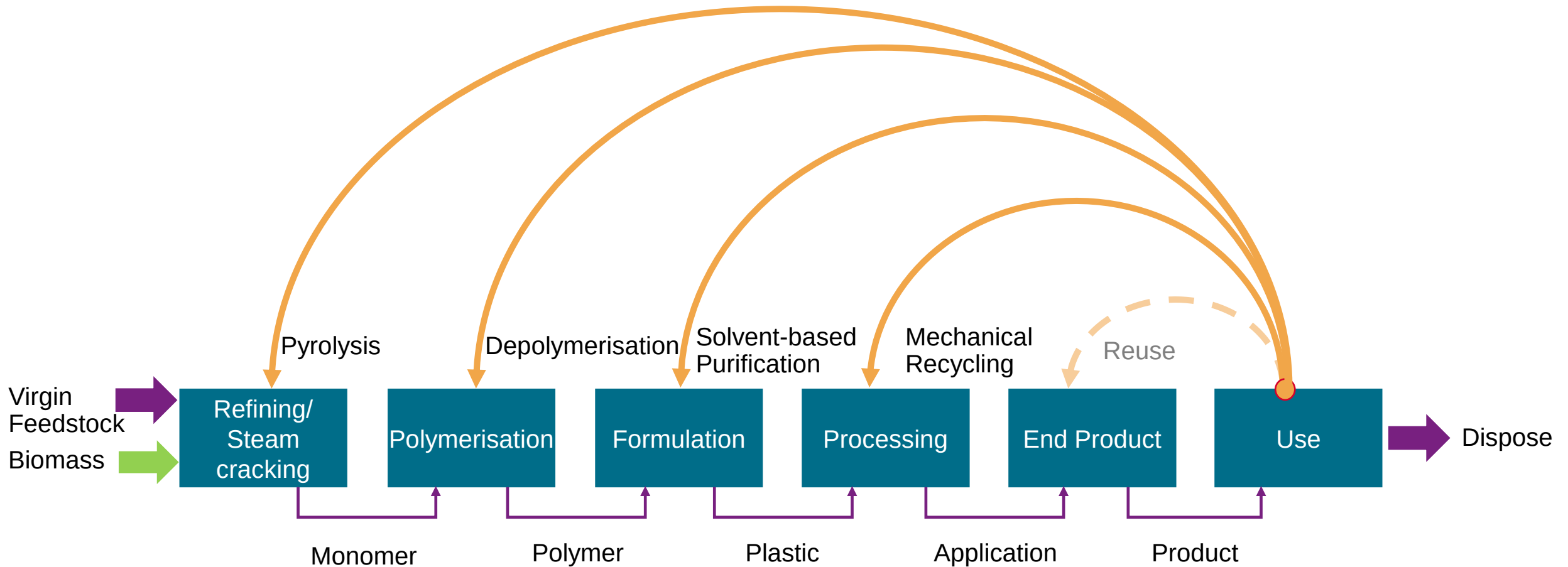
...to become the heart of a low-carbon fuels and chemicals hub

Refinery and petrochemical operations are exploring many decarbonization options



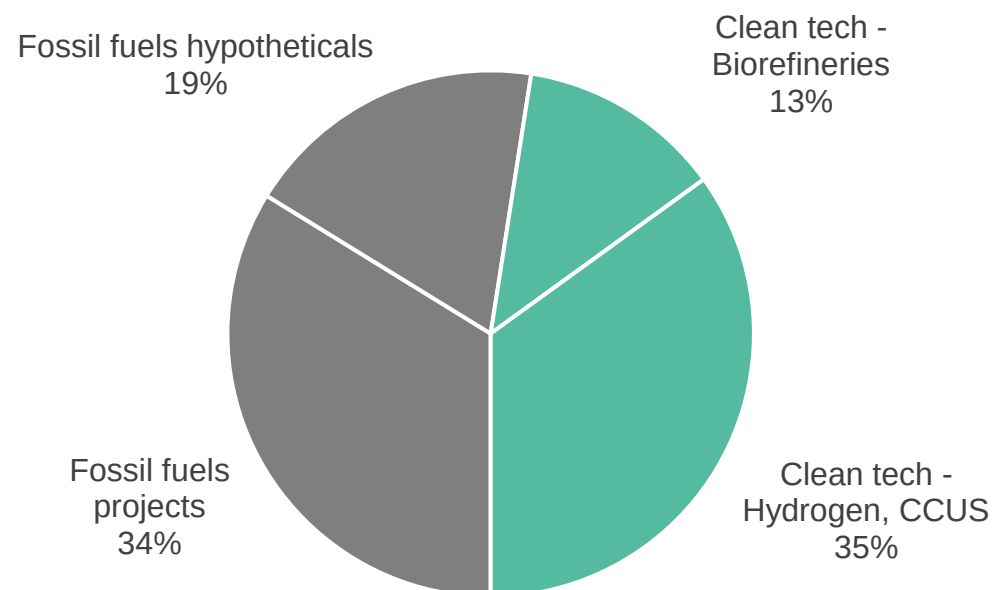
Note: H₂ = hydrogen, list of options shown non-exhaustive
Source: S&P Global Commodity Insights

Plastic recycling covers a range of technologies, at different stages of the value chain, each of which have their own (potential) carbon footprint. Advanced recycling still not at scale to impact the feedstock balance



The pivot towards low-carbon products manufacturing will drive a dynamic investment climate, with half of global spend on cleantech

Refinery capex outlook to 2050



Data compiled April 2023
Source: S&P Global Commodity Insights.

Key decisions to be faced in next ten years:

- Europe has an ageing asset base with many sites below world scale – cash positive through the cycle at maintenance capex
- Options:
 - Invest to revamp and decarbonize existing site
 - Scrap and build low carbon assets
 - Shutdown
- Needs:
 - Partnership/access to green energy
 - Good innovation base – people talent
 - Competitive investment costs, incl. incentives/subsidies
 - Transparent cost of carbon
 - Reliable long-term policy environment

Conclusions

Peak polymer is not on the horizon

Transportation fuel demand and petchems on different trajectories requiring substantial investment in new chemicals capacity over the next 30 years

2024 profitability will remain challenged

The capacity overbuild in most value chains will continue to depress margins

China and emerging markets will remain epicentre of demand growth

But will need to measure new investments relative to meeting their own carbon goals

Decarbonisation and circularity will require substantial investment

Europe faces difficult decisions on investing to decarbonize small, ageing sites



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World Petrochemical Conference
March 18-22, 2024 | Marriott Marquis, Houston, TX

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