

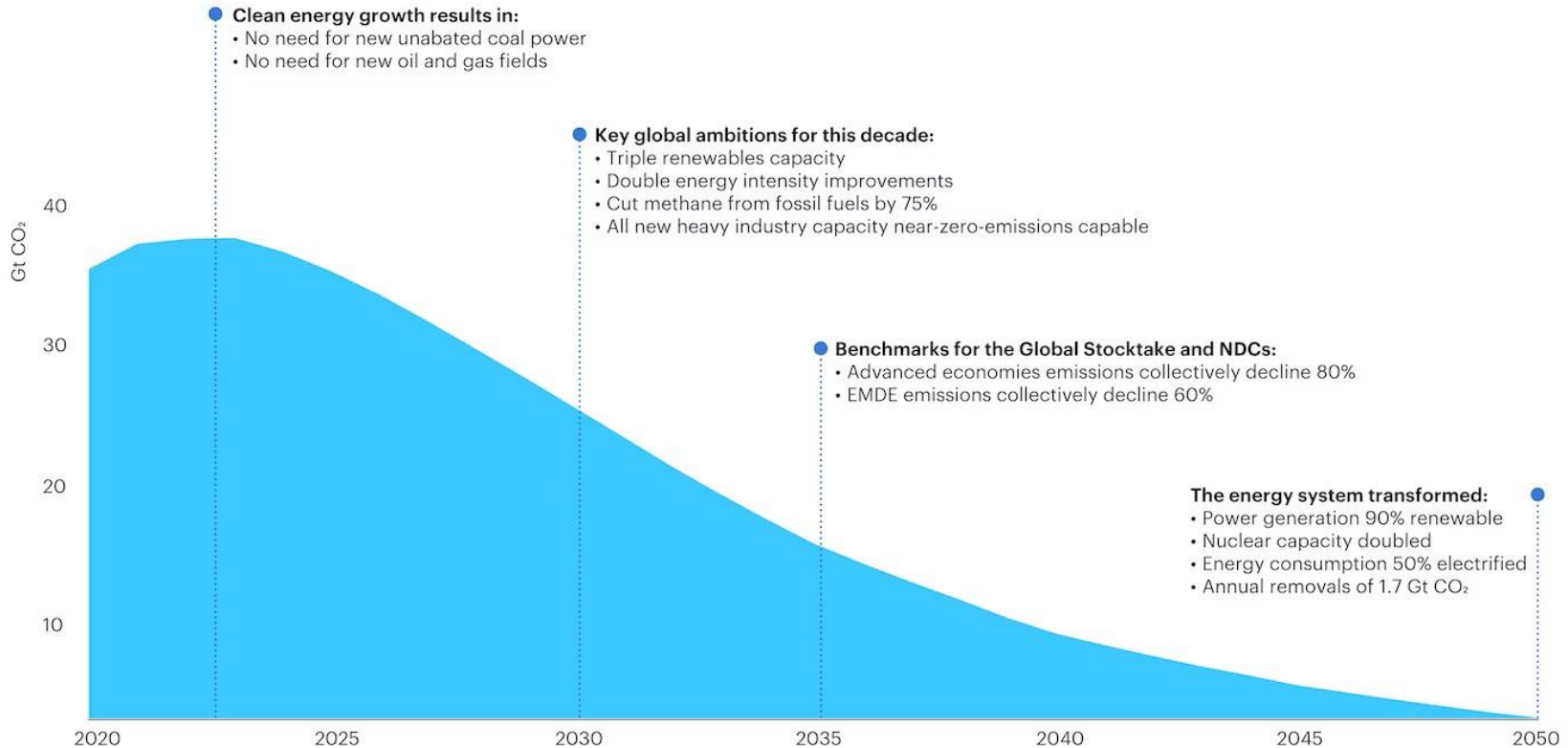


# エネルギーを巡る環境の変化と今後の見通し

国際エネルギー機関 エネルギー市場・安全保障局長 貞森恵祐

中東協力現地会議 2024年8月23日

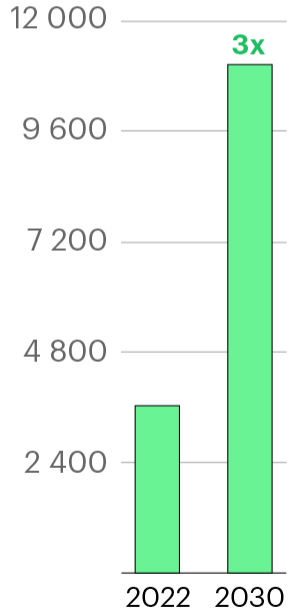
# The road to Net Zero is **narrow but achievable**



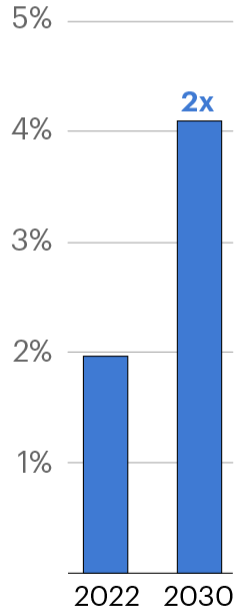
# Five pillars to keep 1.5 °C alive

World Energy Outlook 2023

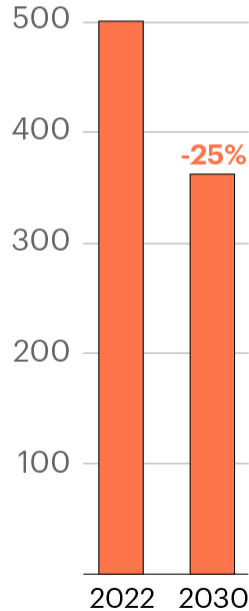
Installed renewables (GW)



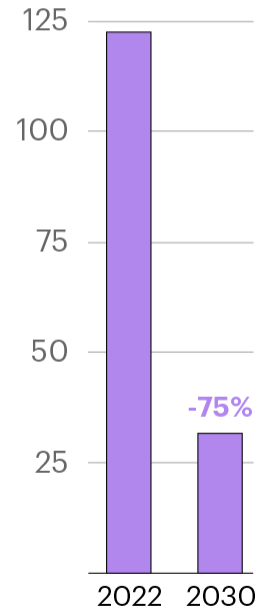
Energy intensity improvement



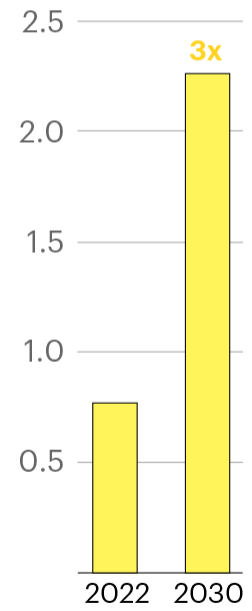
Fossil fuel demand (EJ)



Fossil fuel methane (Mt)

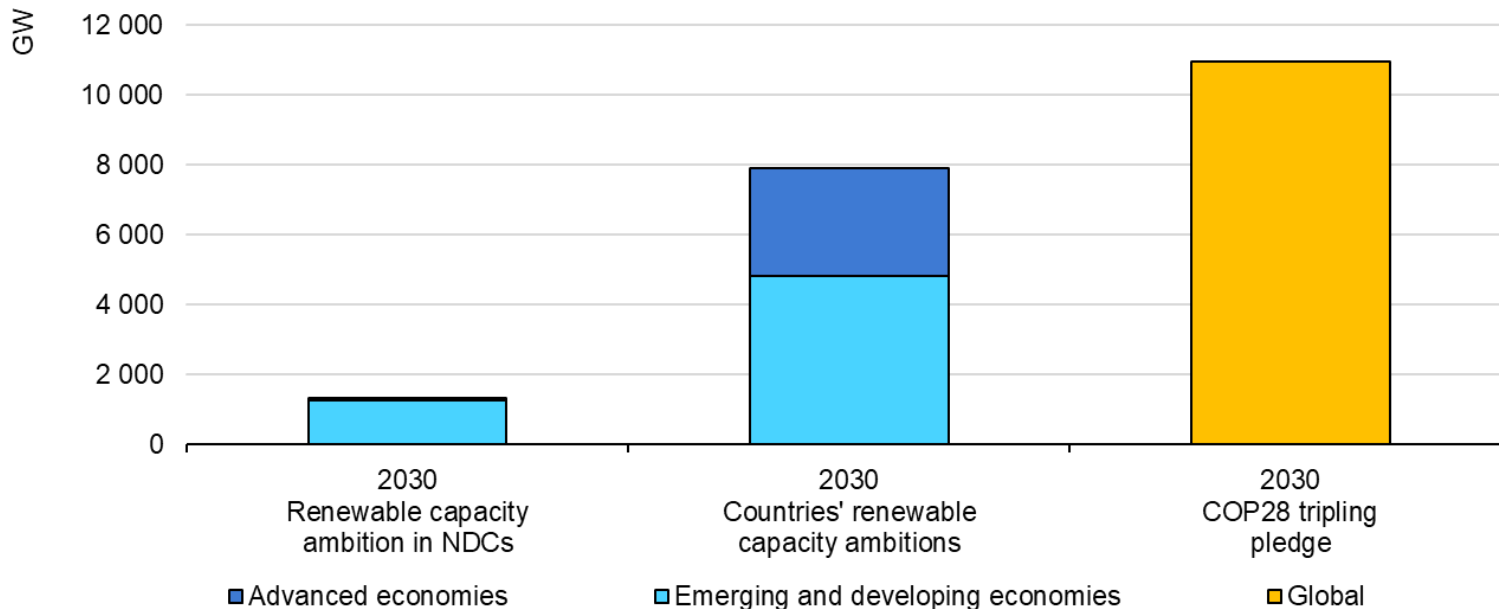


Clean energy investment in emerging & developing economies (trillion USD)



# Global renewable capacity ambitions fall short of COP28 tripling pledge

Global renewable electricity capacity in 2022 and ambitions for 2030

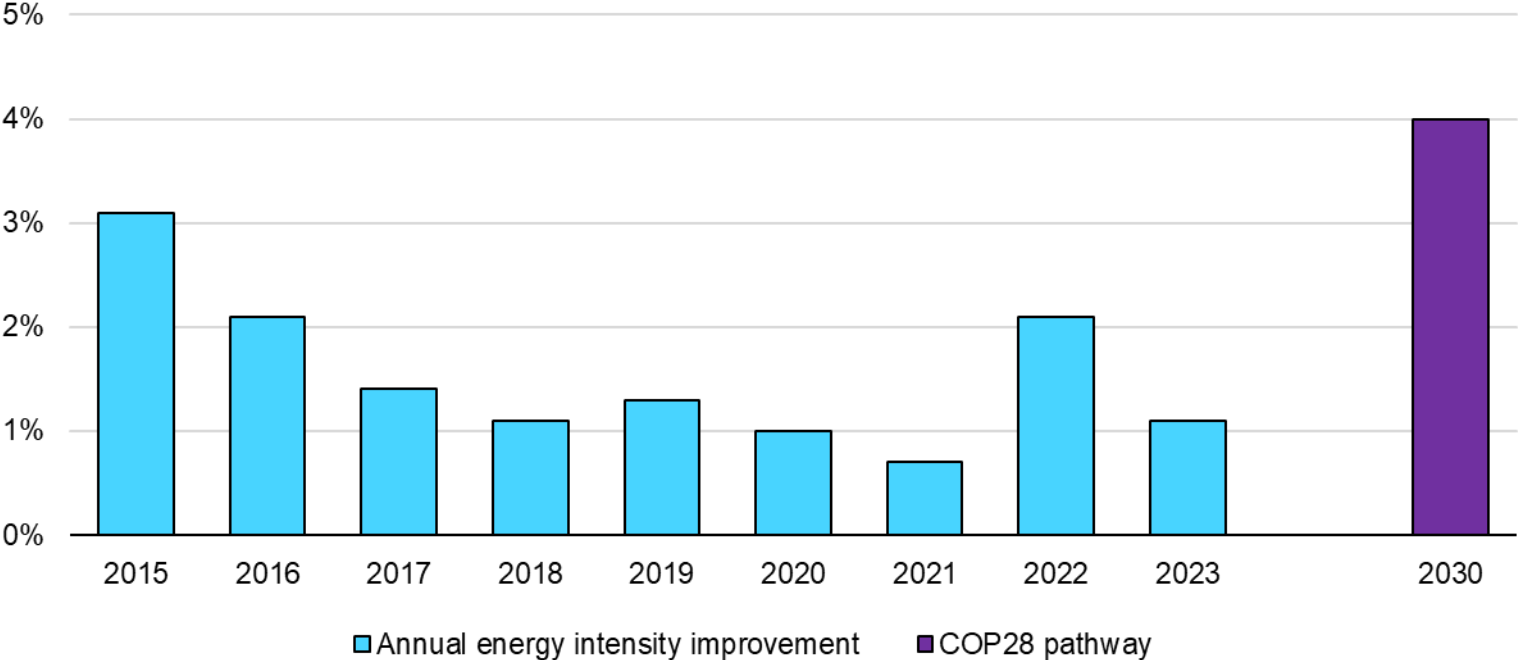


**Announced 2030 ambitions reach nearly 8 000 GW, six times higher than current NDC commitments. Nearly 50 countries on track to meet their goals but stronger ambitions is needed: we are still 30% below the COP28 pledge.**

# Double the global average rate of efficiency improvements by 2030



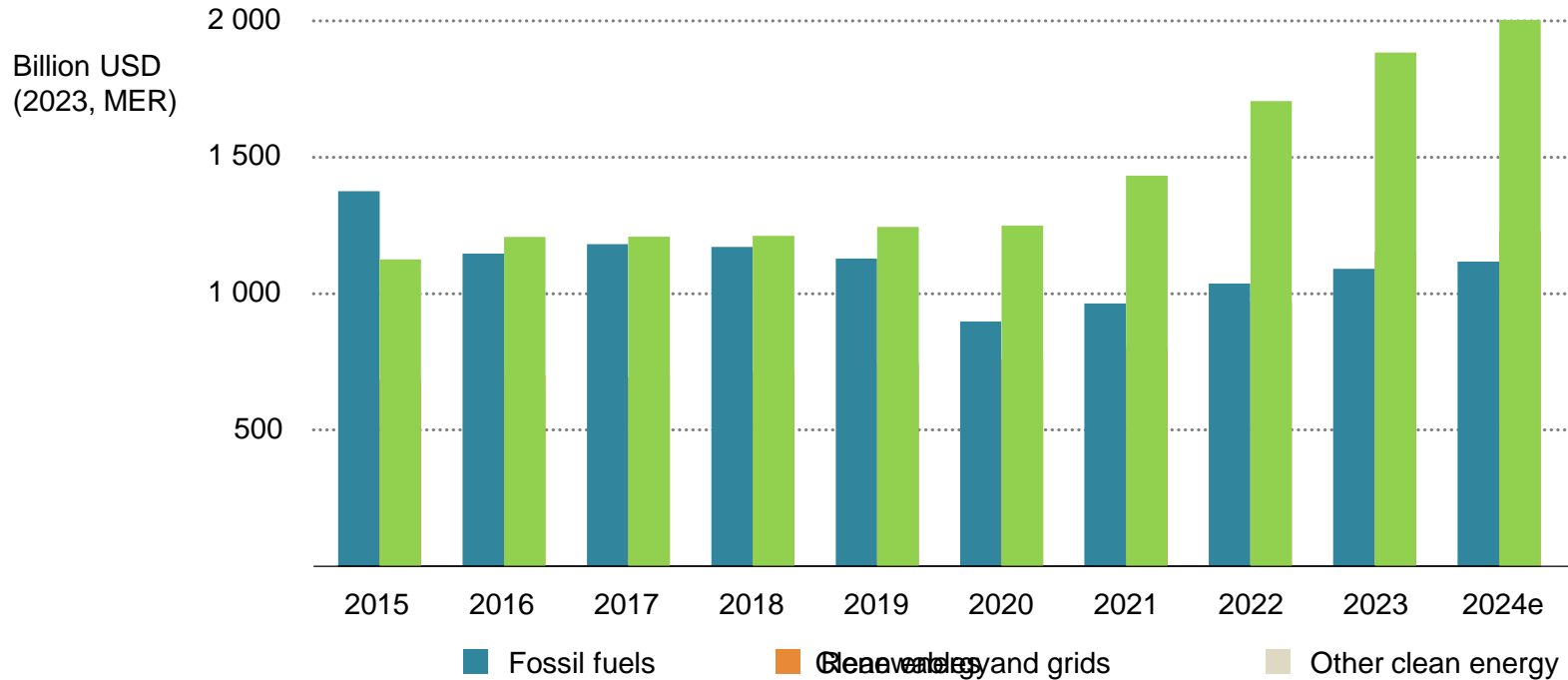
Global energy intensity improvement and COP28 Pathway, 2030



**According to the IEA's net zero pathway, annual progress needs to double from a baseline of 2% per year to an average of more than 4% per year between now and 2030.**

# Clean energy pushes global energy investment above USD 3 trillion

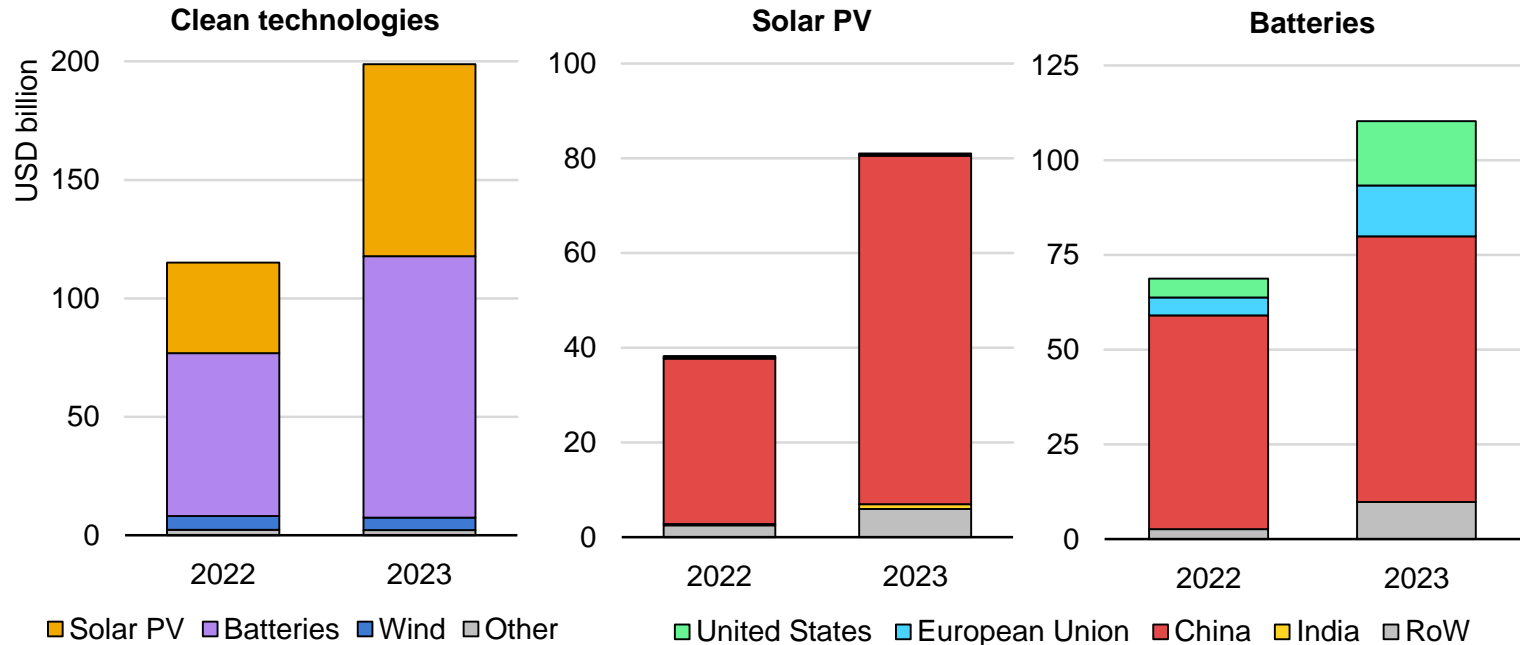
Global investment in clean energy and fossil fuels, 2015-2024e



**Total investment in the energy sector is set to top USD 3 trillion in 2024, thanks mainly to strong clean energy growth. Spending on renewable power and grids, on its own, is now higher than investment in fossil fuels.**

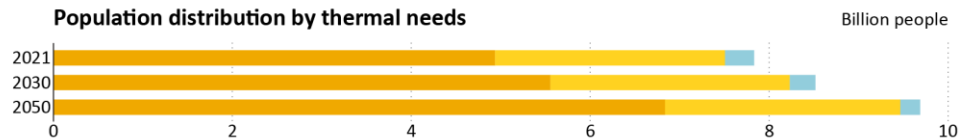
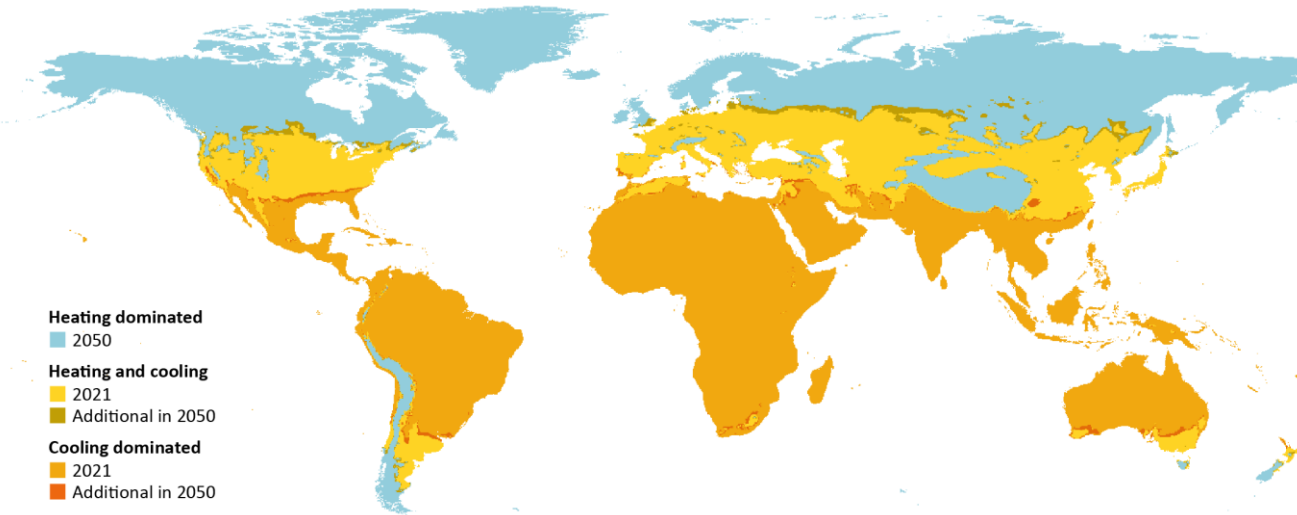
# Clean technology manufacturing investment spending

Clean technology manufacturing investment spending



**Annual investment spending on clean technology manufacturing grew by 75% in 2023, surpassing USD 200 billion, with solar PV and battery manufacturing accounting for the vast majority of the total.**

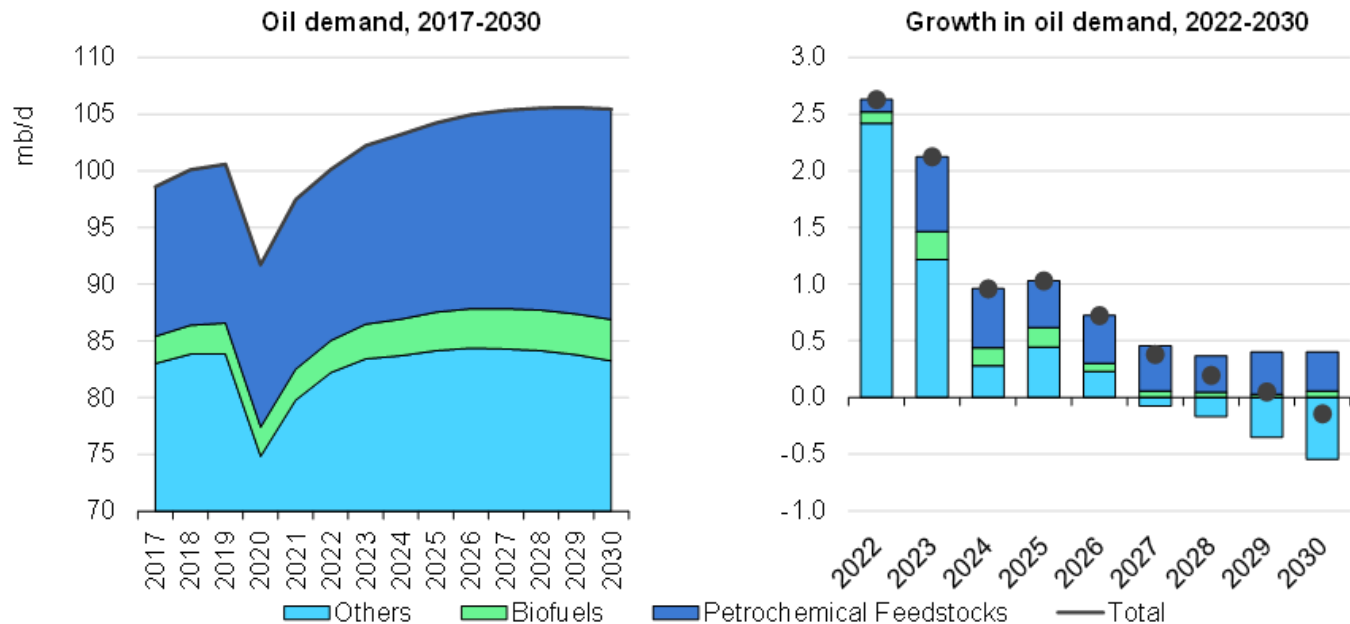
Heating and cooling needs by region, 2021 and 2050



**2.6 billion people will live in regions requiring heating and cooling by 2050**  
**Many heat pumps can provide heating and cooling, eliminating the need for a separate air conditioner**

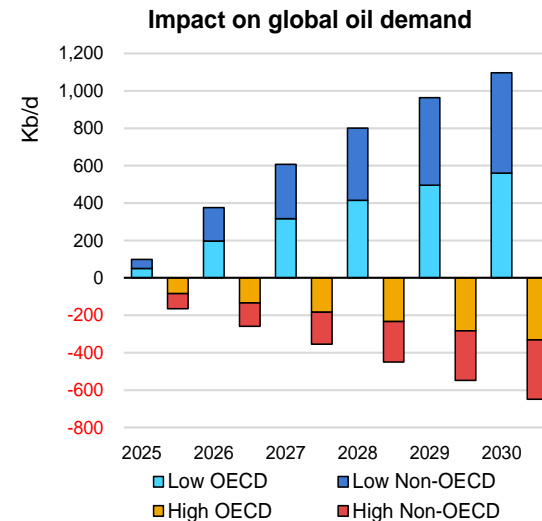
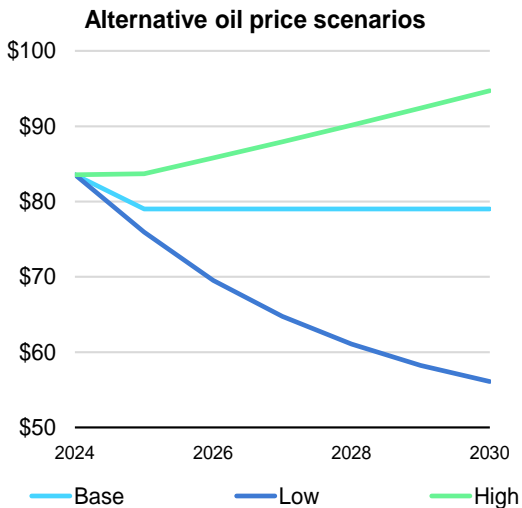
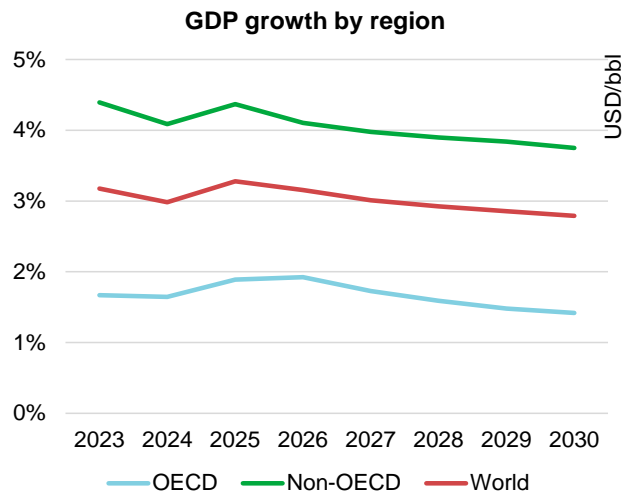


# World oil demand on course to plateau by 2030



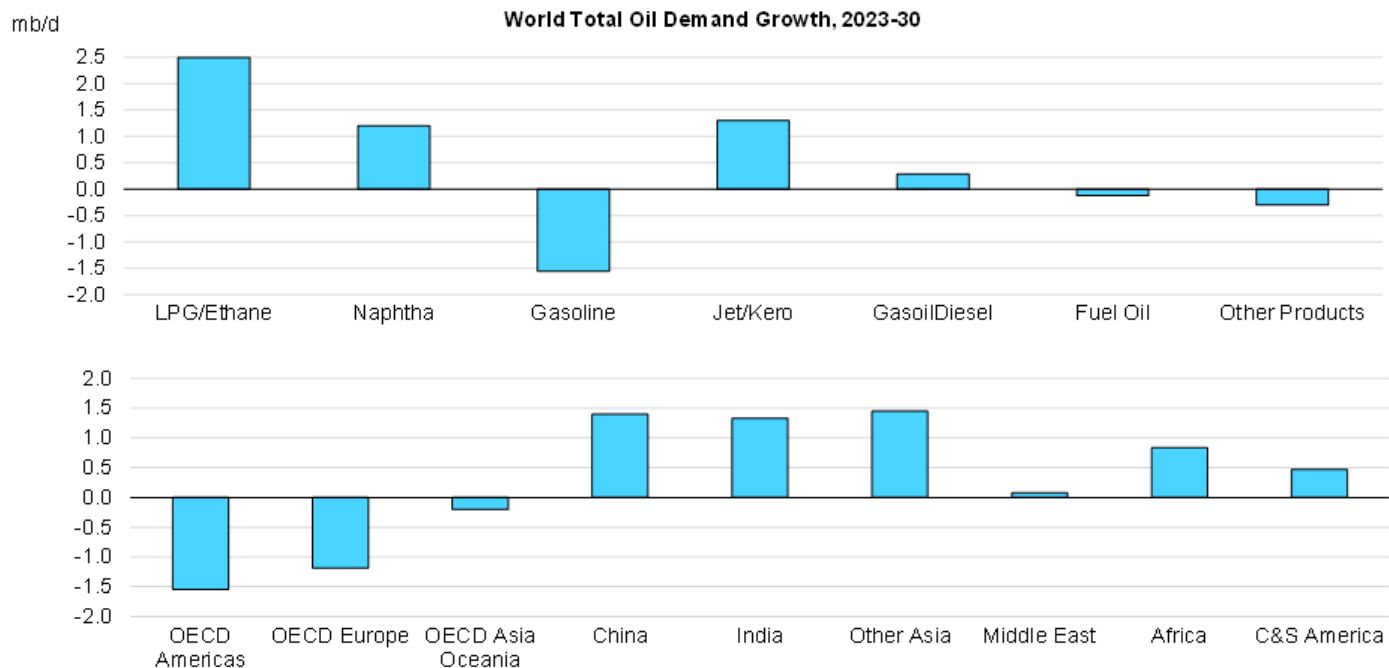
Growth decelerates from 2.1 mb/d in 2023 to less than 1 mb/d in 2024, with a small contraction by 2030. Demand, including biofuels, plateaus at around 105.6 mb/d by the end of the forecast period.

# Outlook sensitive to GDP and oil price assumptions



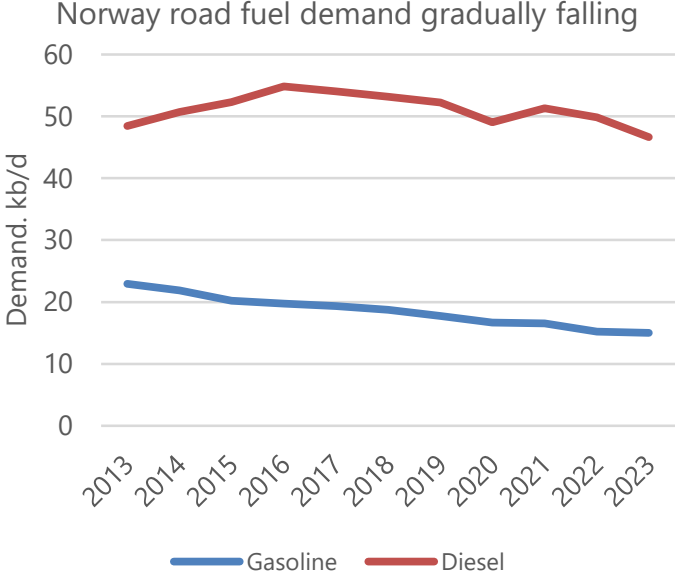
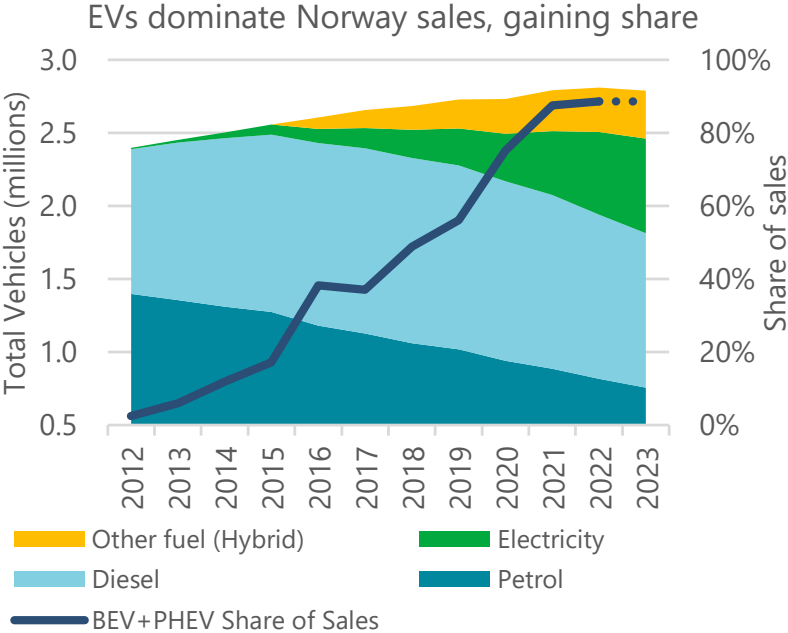
Outlook assumes global GDP growth of 3% (0.5% below pre-pandemic trend) with oil prices staying constant near current level of \$80/bbl

# Demand growth dominated by Asia, aviation and petrochemicals



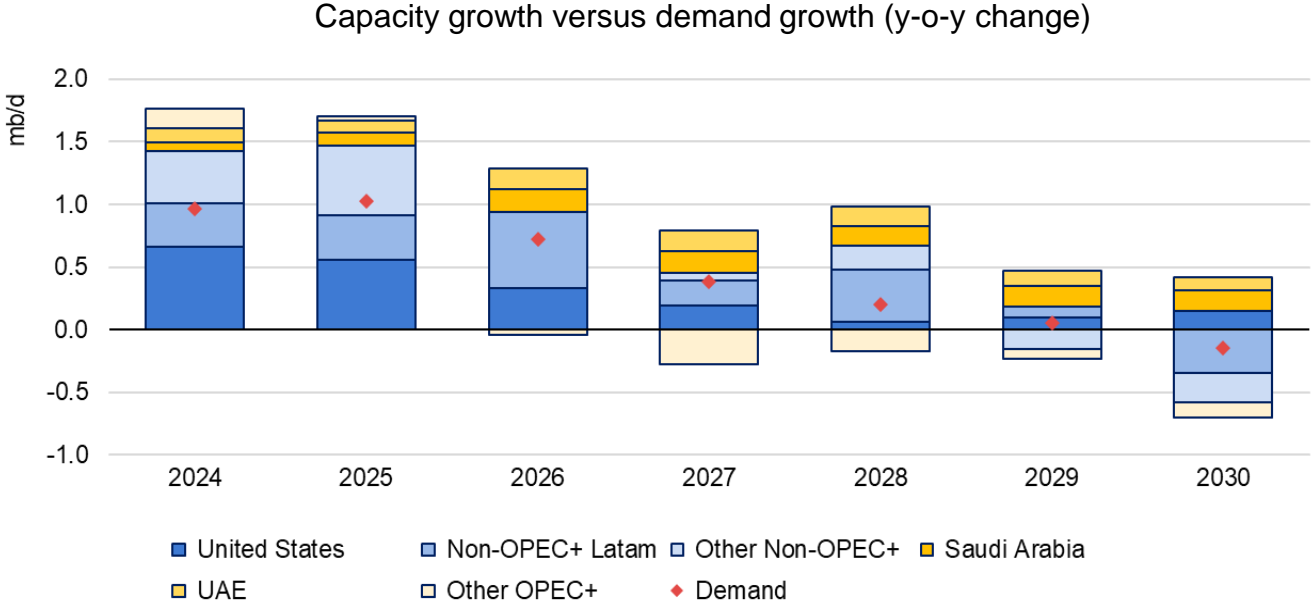
China, India and other emerging and developing economies in Asia each add 1.3-1.4 mb/d. Petrochemical feedstocks, jet fuel drive product gains, while gasoline leads declines.

# EVs are growing rapidly, and are eroding oil use



Norwegian EV and hybrid sales have grown rapidly in recent years, to about 90% of total registrations. These accounted for 35% of personal cars in 2023, with gasoline and diesel demand 17% below the 2016 peak.

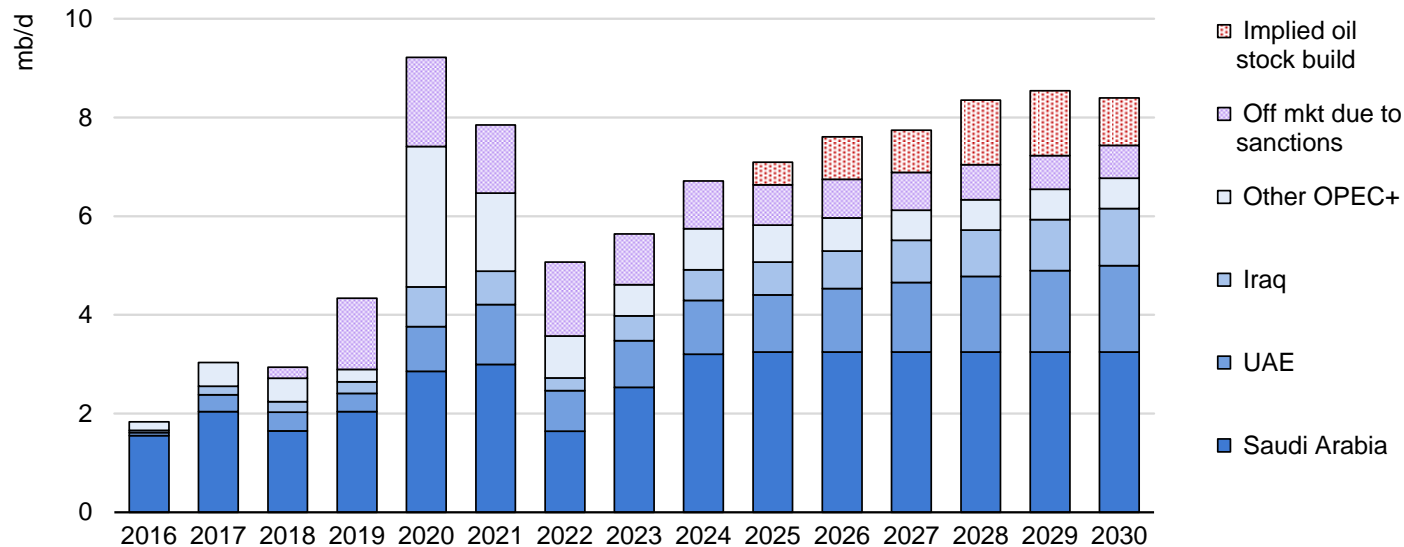
# Oil capacity building loses momentum towards 2030



The US and other producers in the Americas lead the medium-term capacity expansion, adding 4.7 mb/d. Saudi Arabia suspends crude capacity boost in favour of NGLs build out.

# Surplus supply capacity may reach highest level in recent times

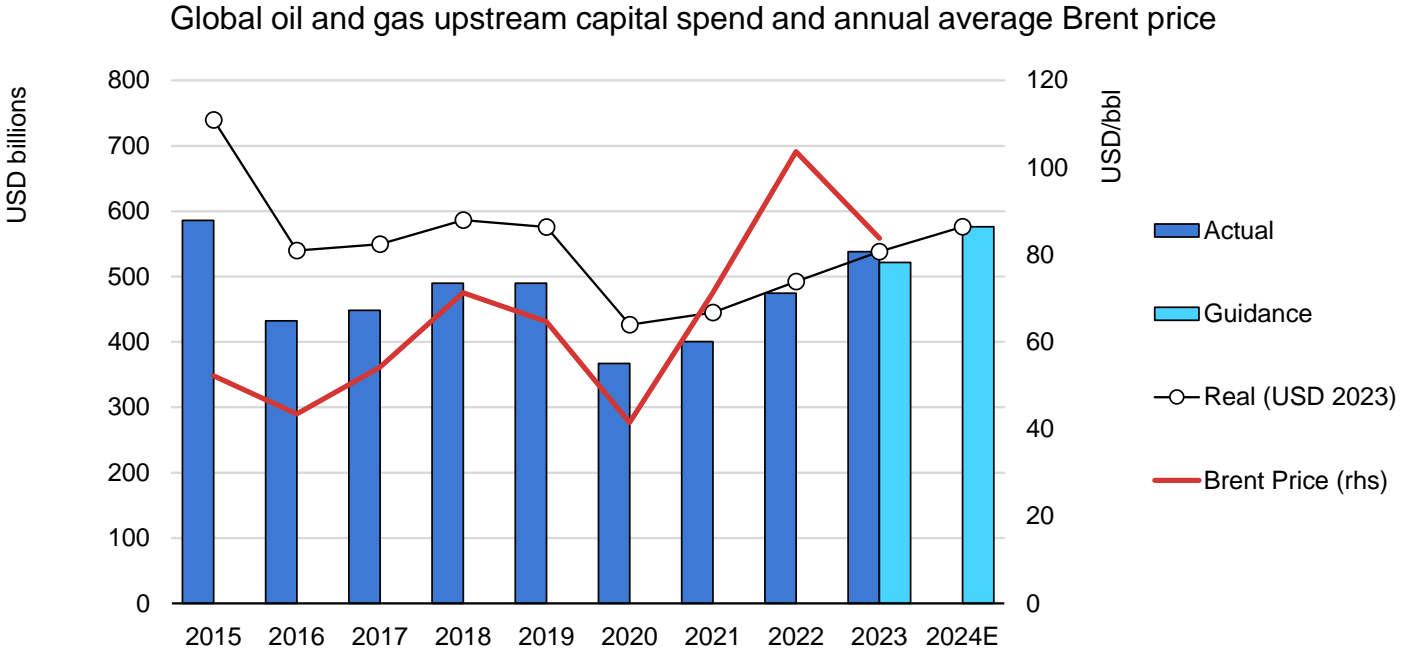
OPEC+ spare crude production capacity and implied total oil stock build, 2016-2030



Notes: Projections based on the current OPEC+ supply agreement. OPEC+ countries are crude oil only. Assumes Iran and Russia remain under sanctions. Implied oil stock builds include total oil.

Total supply capacity rises by 6 mb/d to 114 mb/d by 2030, 8 mb/d above projected global demand. Such a massive spare cushion could challenge OPEC+ oil market management and US shale.

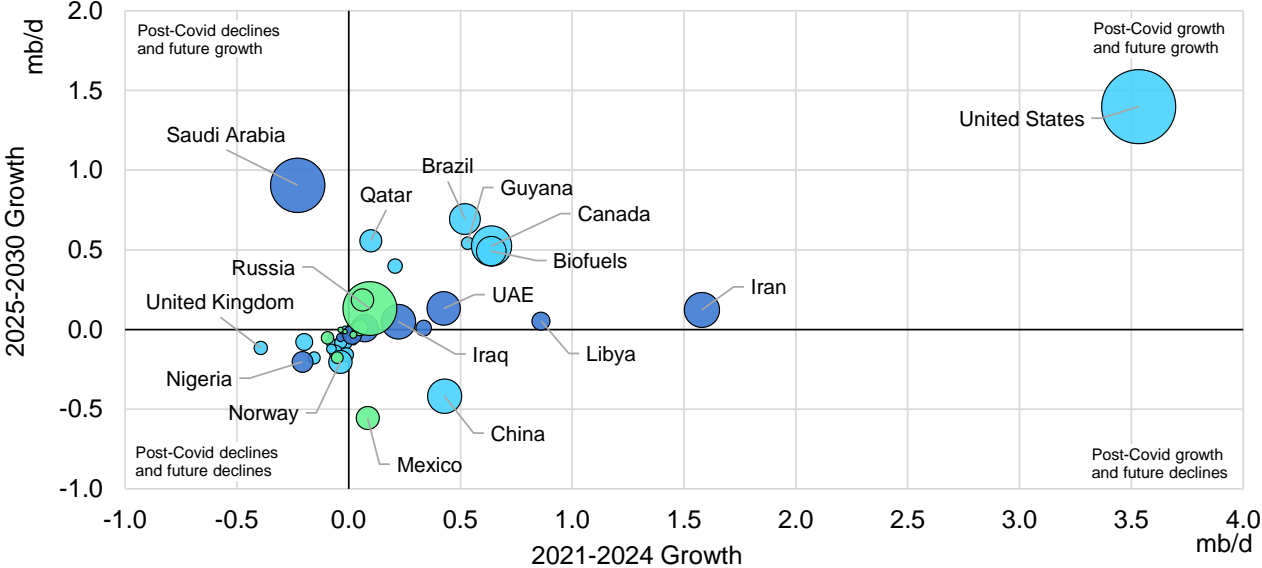
# Growth in upstream spending moderates



Investment to rise 7% in 2024 to \$575 billion, the highest nominal since 2015. Real spend is still below 2019 levels. New facility investment slows while well capex surfs record highs.

# Global oil supply growth led by the US and other Americas

Oil supply changes for select countries in 2025-2030 compared to 2021-2024

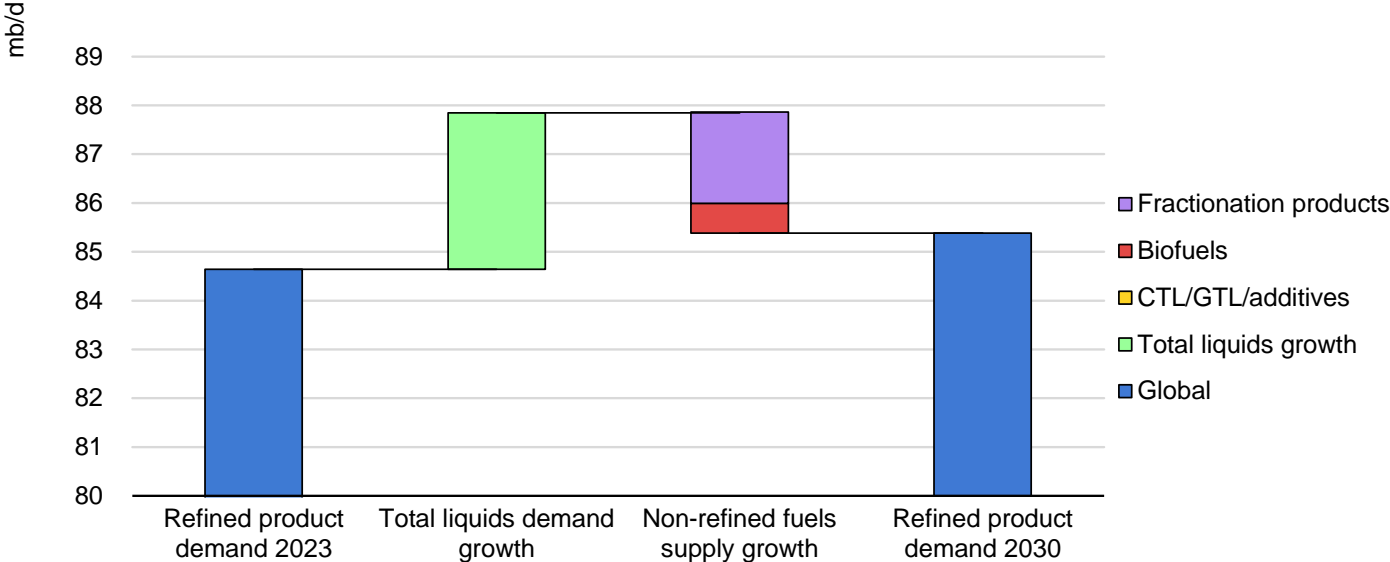


The US, along with Brazil, Guyana, Canada and Argentina lead supply growth through 2030. Mexico posts largest decline



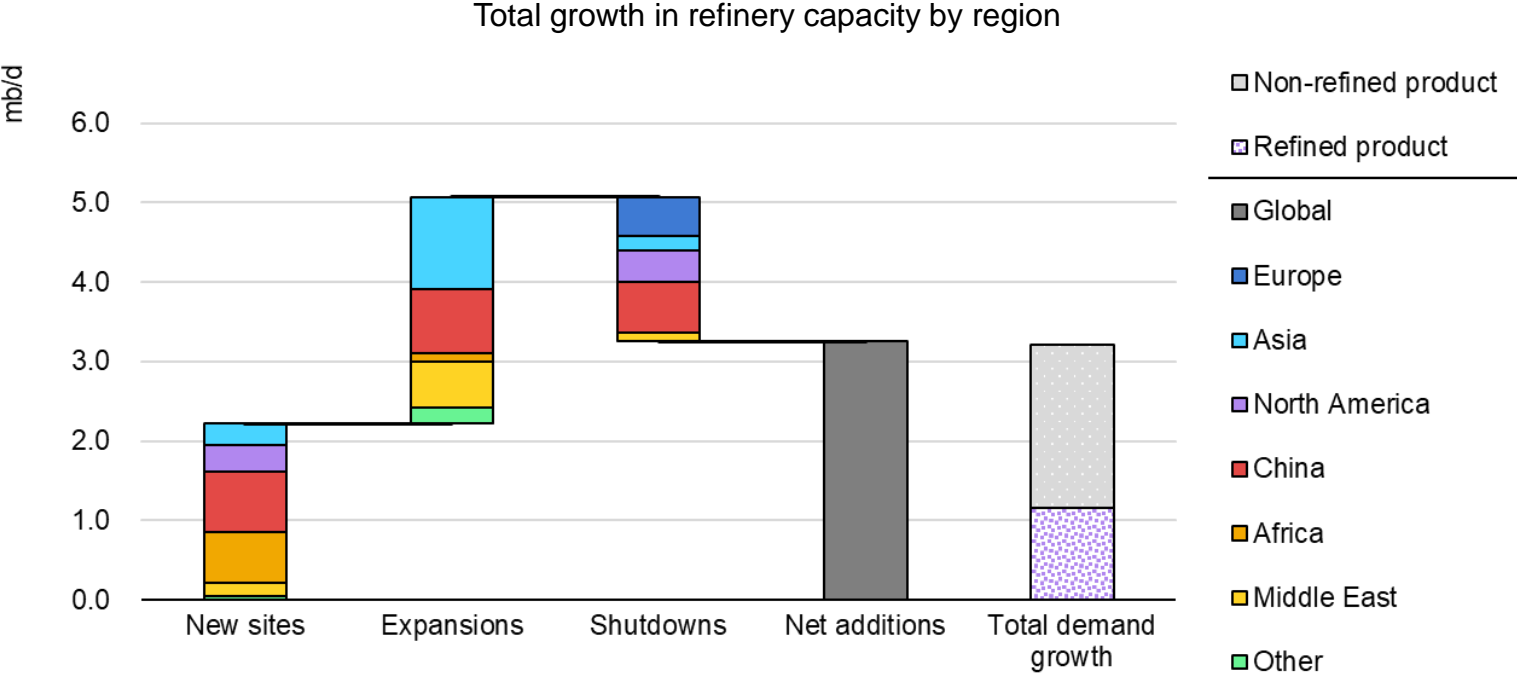
# Refined product demand growth is crushed by non-refined fuels supply

Competing sources of product supply reduce refined products market share



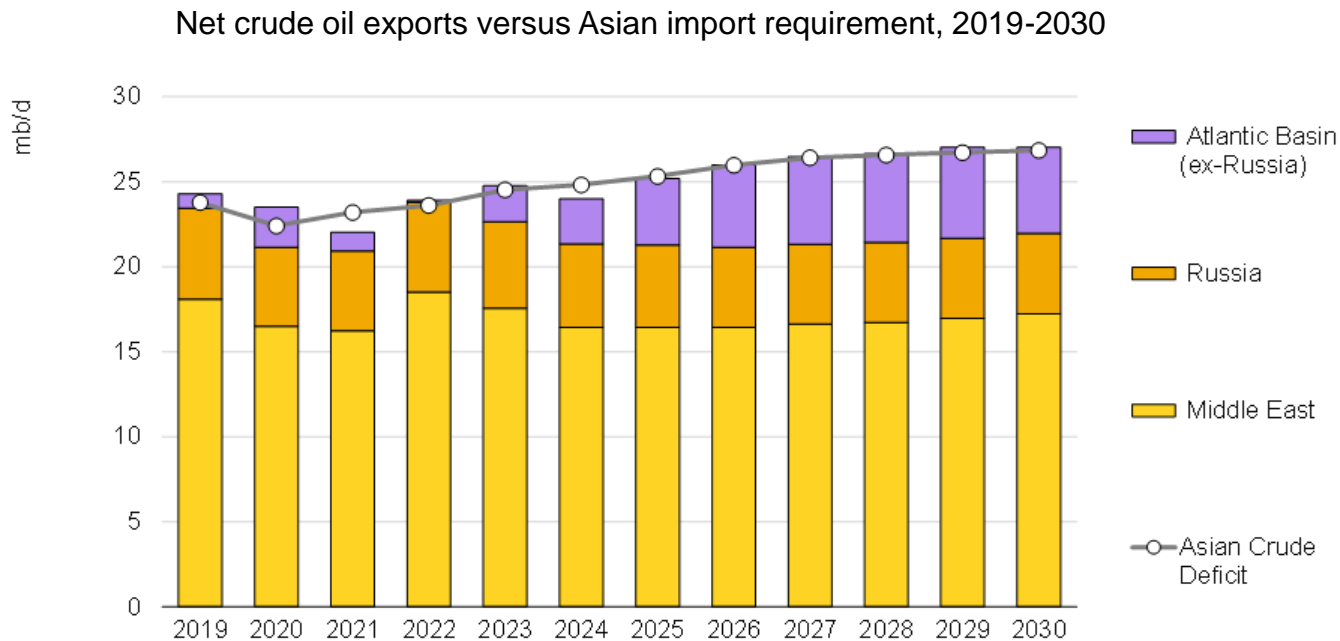
Low cost NGLs and biofuel blending mandates pressure refiners' market share

# Refinery capacity growth exceeds oil products demand increase



Fuels by-passing the refinery system (crude, NGLs and biofuels) meet 2/3 of demand growth to 2030. Refinery capacity, especially in mature markets, will face renewed risk of closure.

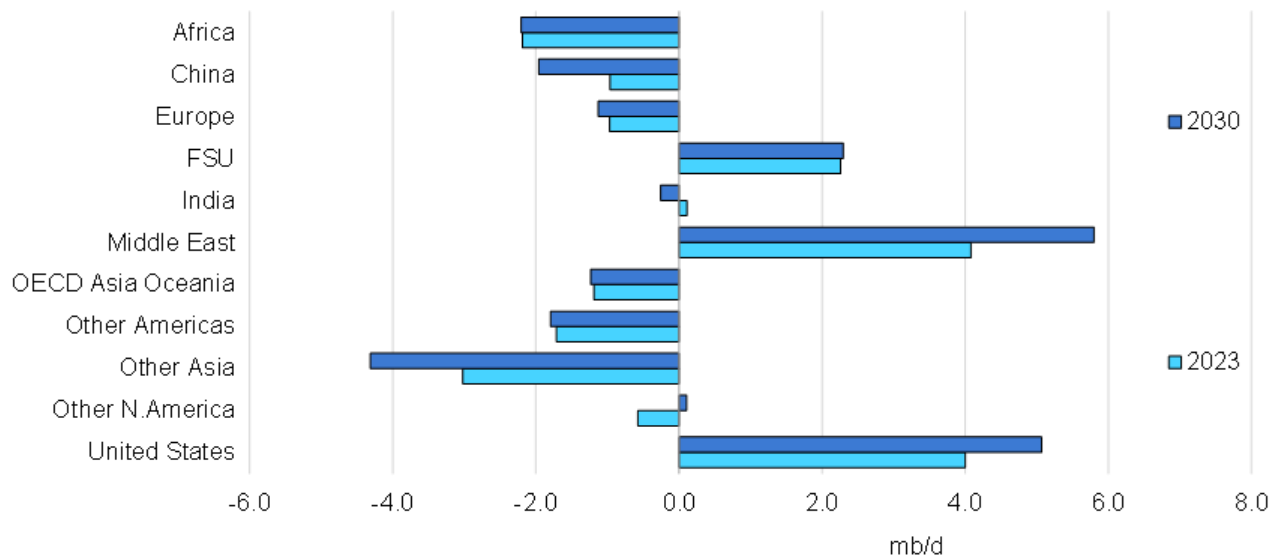
# Atlantic Basin fills Asian crude oil gap in the medium-term



The crude deficit East of Suez rises from 4.9 mb/d in 2023 to 7.7 mb/d by 2030. It will be met by increased supplies from the Atlantic Basin, including from Russia.

# US, Middle East to meet Asia's growing demand for products

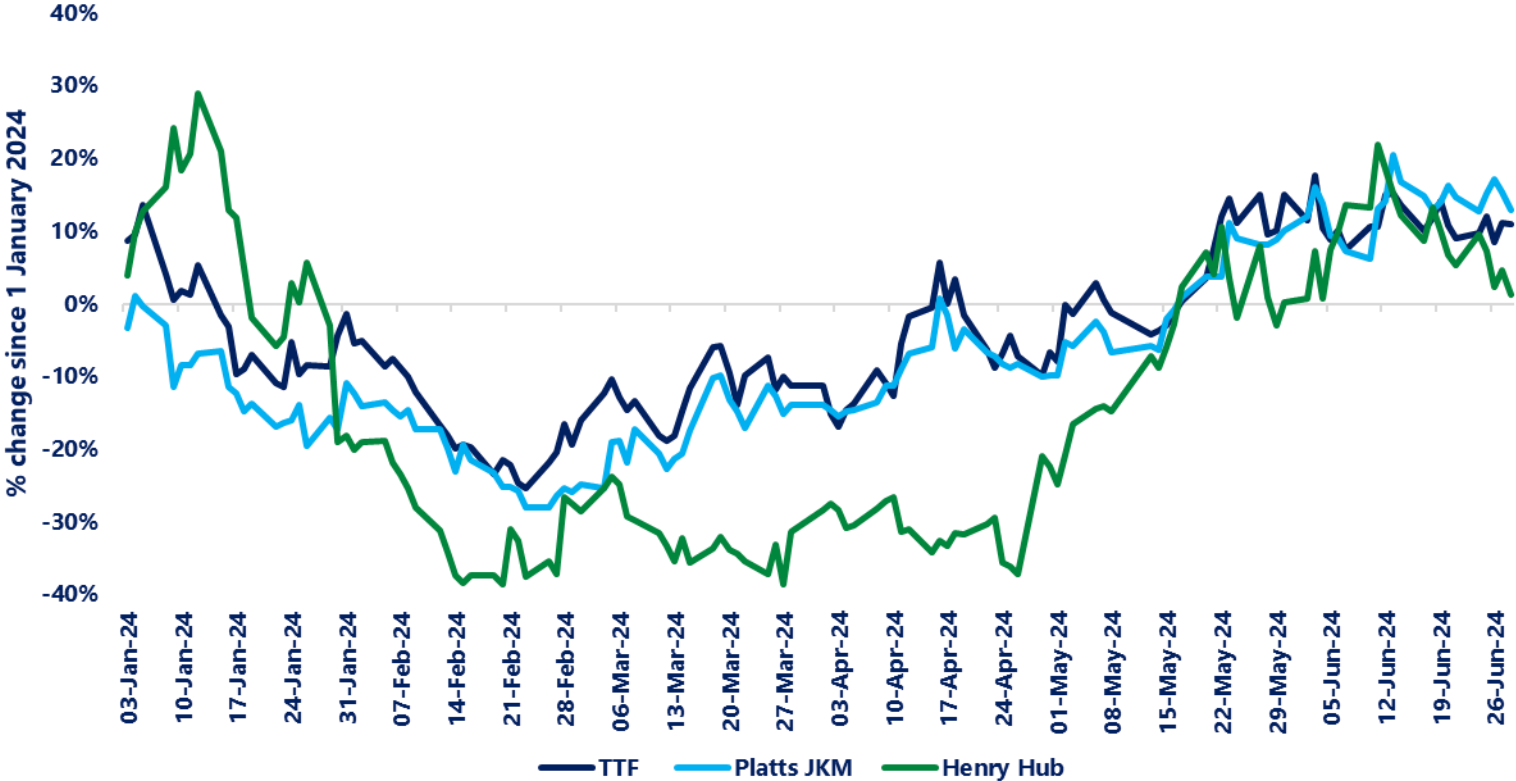
Regional balances for total refined products, 2023-2030



Increased product needs in net importers will boost global product trade and provide room for higher exports from the Middle East and the United States.

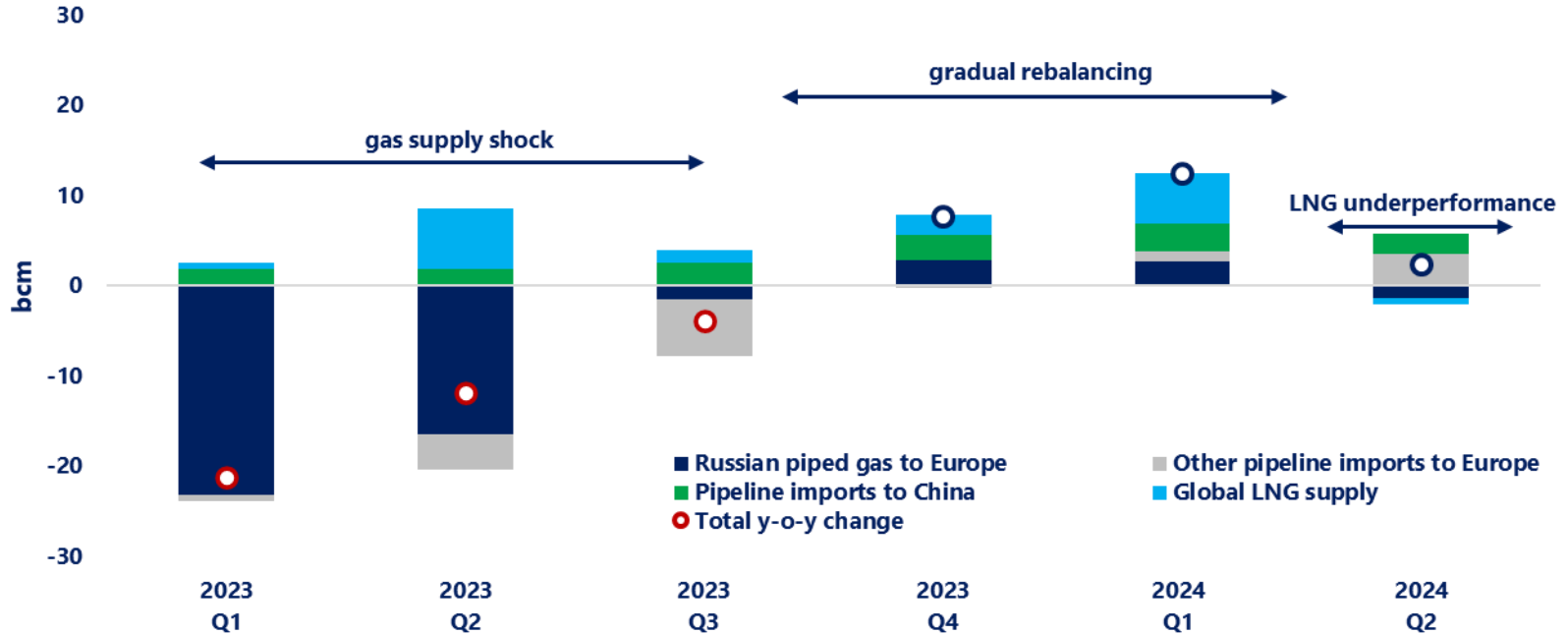
# Natural gas prices strengthened across all markets in Q2 2024...

Evolution of key regional natural gas prices since 1 January 2024



# ...supported by tighter supply fundamentals...

Estimated year-on-year change in key piped natural gas trade and global LNG supply by quarter, 2023 – 2024



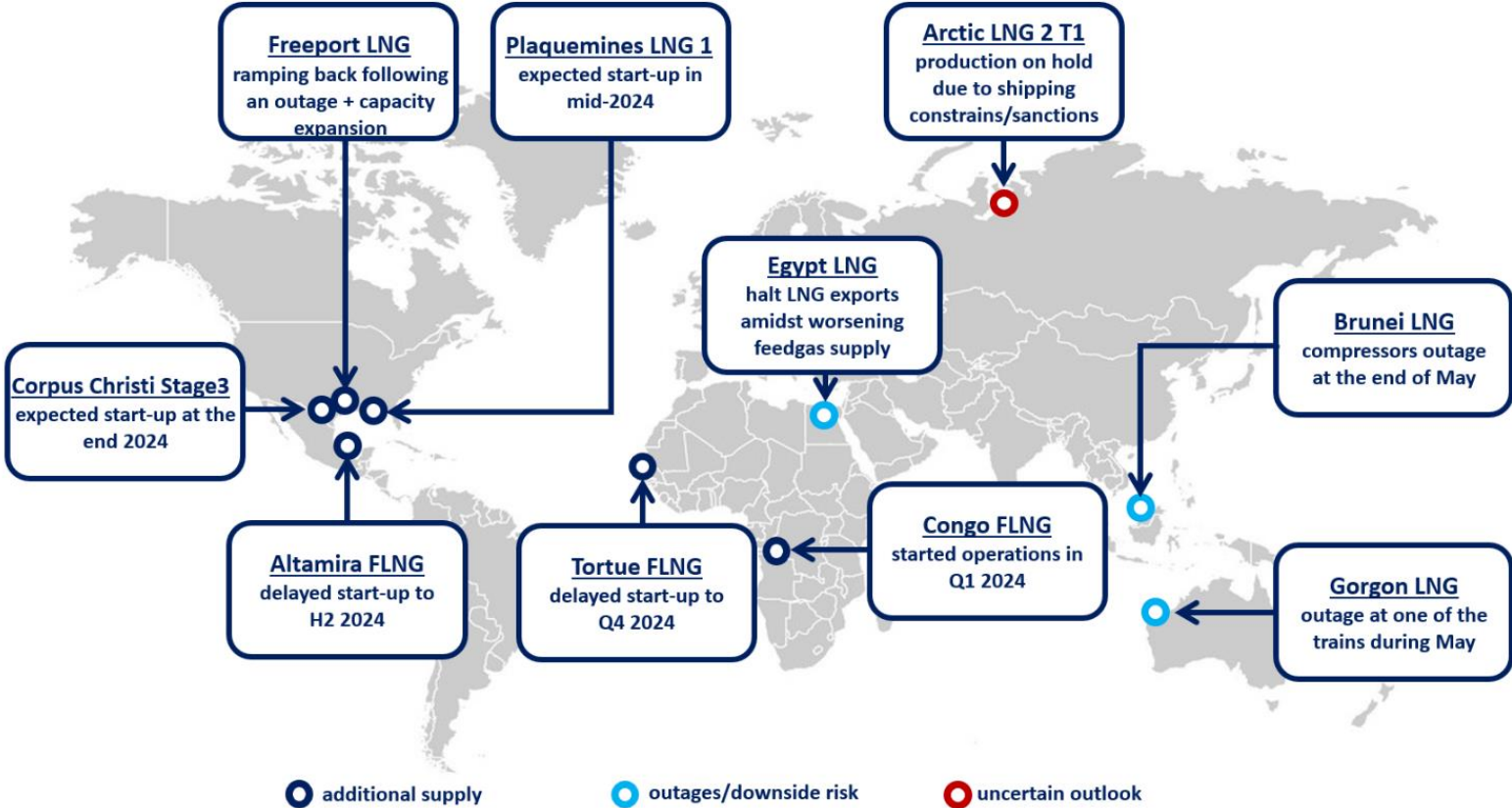
Global LNG supply decreased in the second quarter – representing its first contraction since the covid lockdowns in 2020. Lower LNG availability naturally tightened market fundamentals.

# ...amid a temporary LNG underperformance in Q2 2024



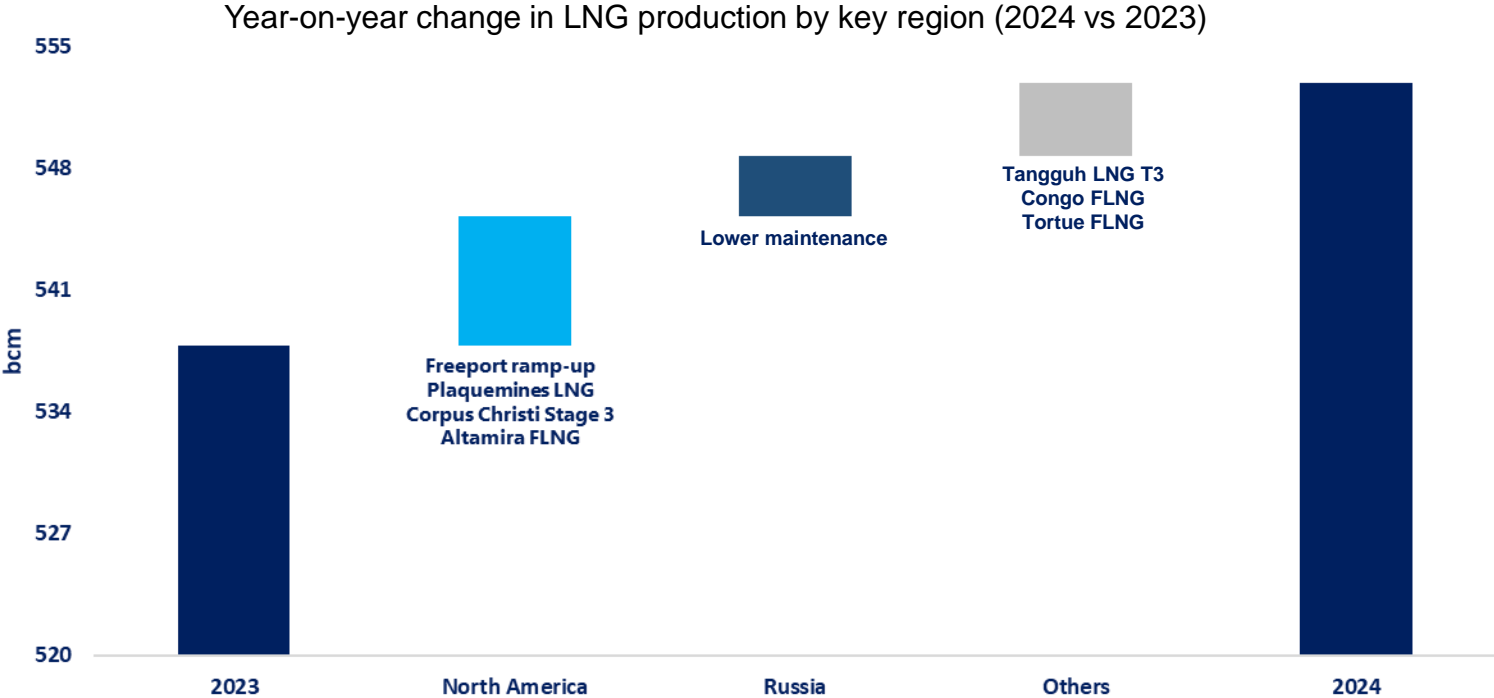
Feedgas availability issues at legacy producers were the key driver behind lower LNG supply in Q2 2024. Unplanned outages and repair works further reduced LNG production.

# New projects are set to improve LNG availability in H2 2024...





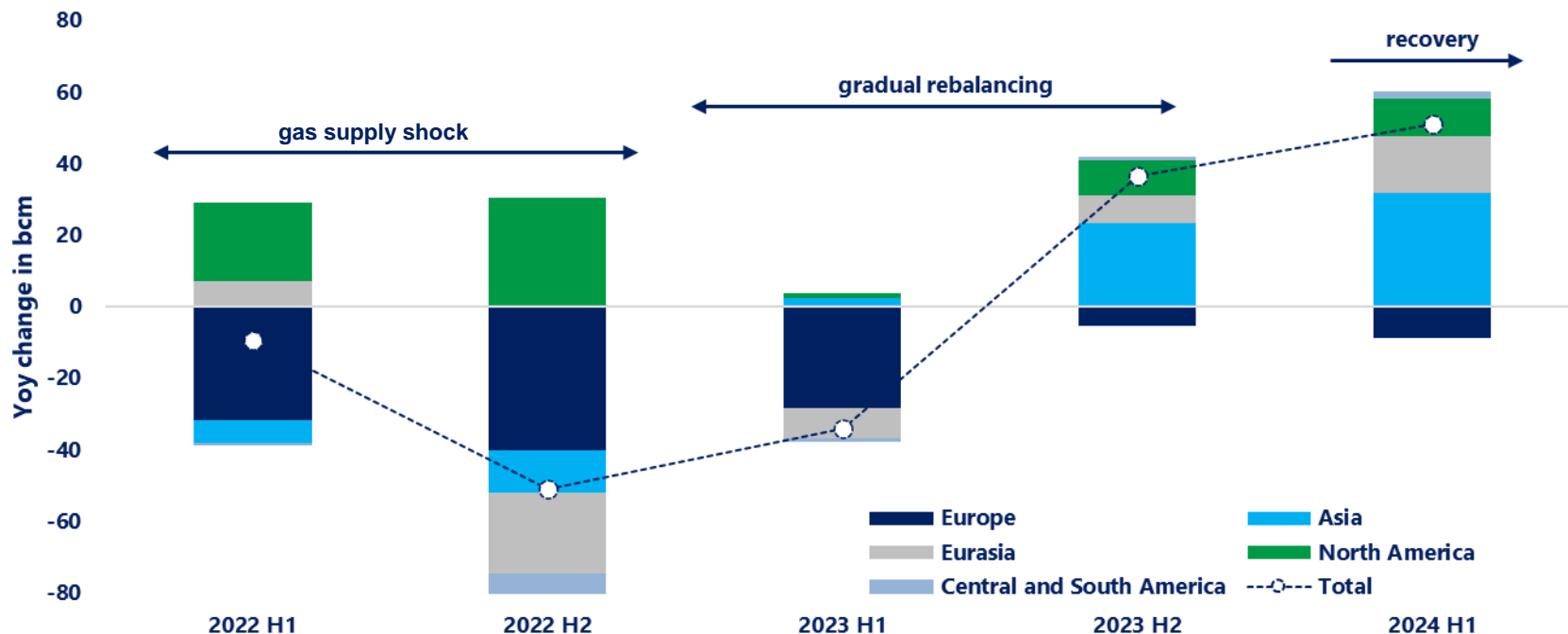
# ...although LNG supply growth is expected to remain limited



Global LNG supply is set to increase by a mere 3% in 2024 –well-below the 8% growth rate experienced between 2016-20. Incremental supply is primarily driven by the US, Africa, Indonesia and Russia.

# Global gas demand returned to stronger growth in H1 2024...

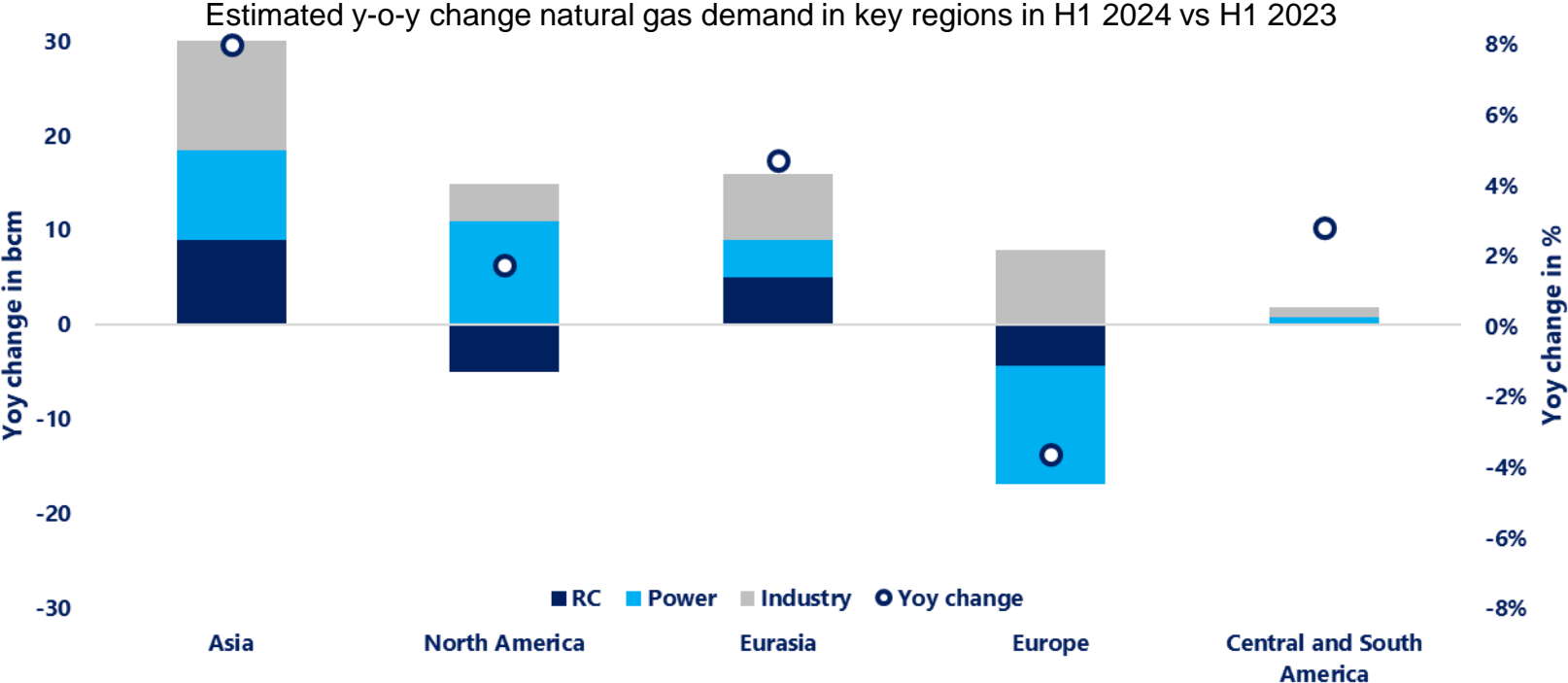
Estimated year-on-year change in semi-annual natural gas demand by key regions, 2023 – 2024



Global gas demand increased by 3% y-o-y in H1 2024, well above the historical 2% average growth rate between 2010 and 2020. Around 70% of this growth was concentrated in Q1 2024.

\*Asia, Central and South America, Eurasia, Europe and North America.

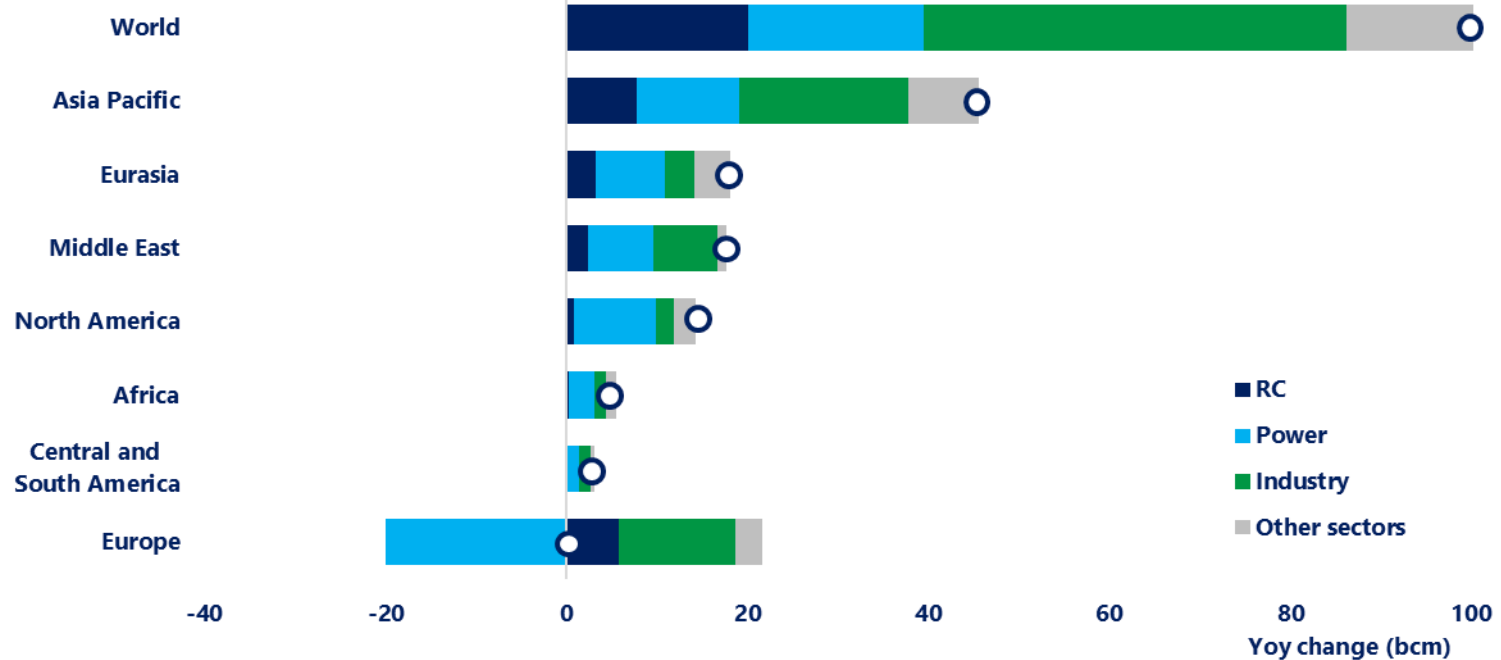
# ...primarily supported by fast-growing Asian markets and industry



Asia accounted for around 60% of the incremental gas demand in the H1 2024, primarily driven by China and India. Higher gas use in industry contributed to almost 65% of global demand growth in H1 2024.

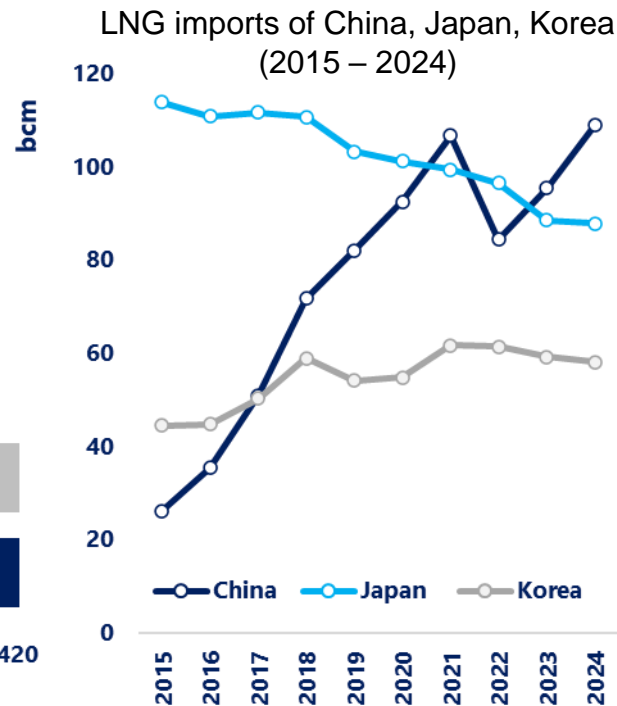
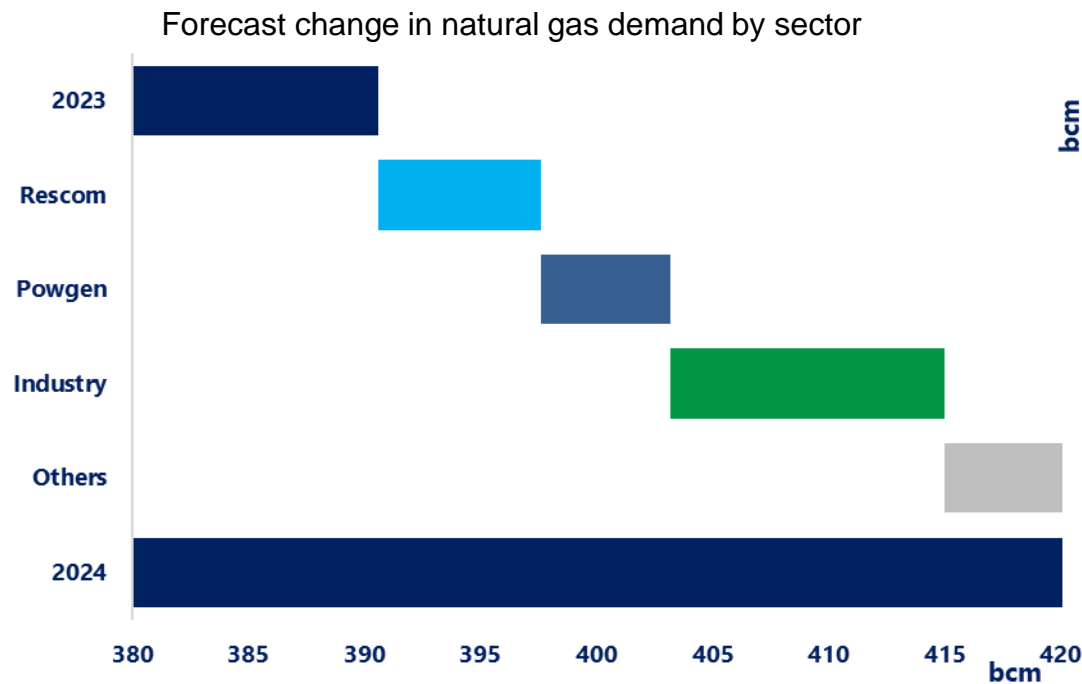
# Industry is expected to drive demand growth in 2024

Forecast change in natural gas consumption by region and sector, 2024 vs 2023



Global gas demand is forecast to increase by 2.5% in 2024, with growth primarily concentrated in fast-growing Asian markets. Industry is expected to account for 45% of incremental gas demand in 2024.

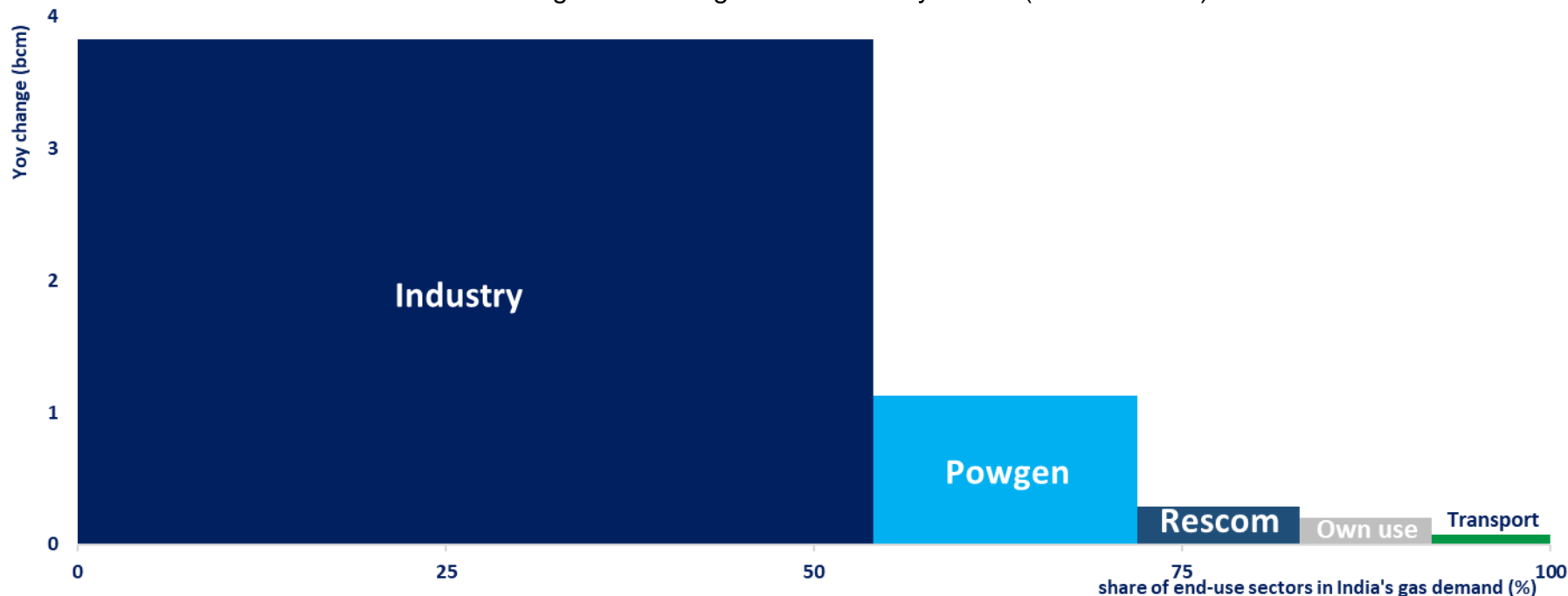
# Year of the Dragon: China is back with full strength



China's gas demand is forecast to grow by 8% in 2024, with all sectors maintaining strong momentum. Demand growth is expected to drive-up China's LNG imports just above their 2021 record levels.

# Healthy macroeconomic outlook drives India's gas demand

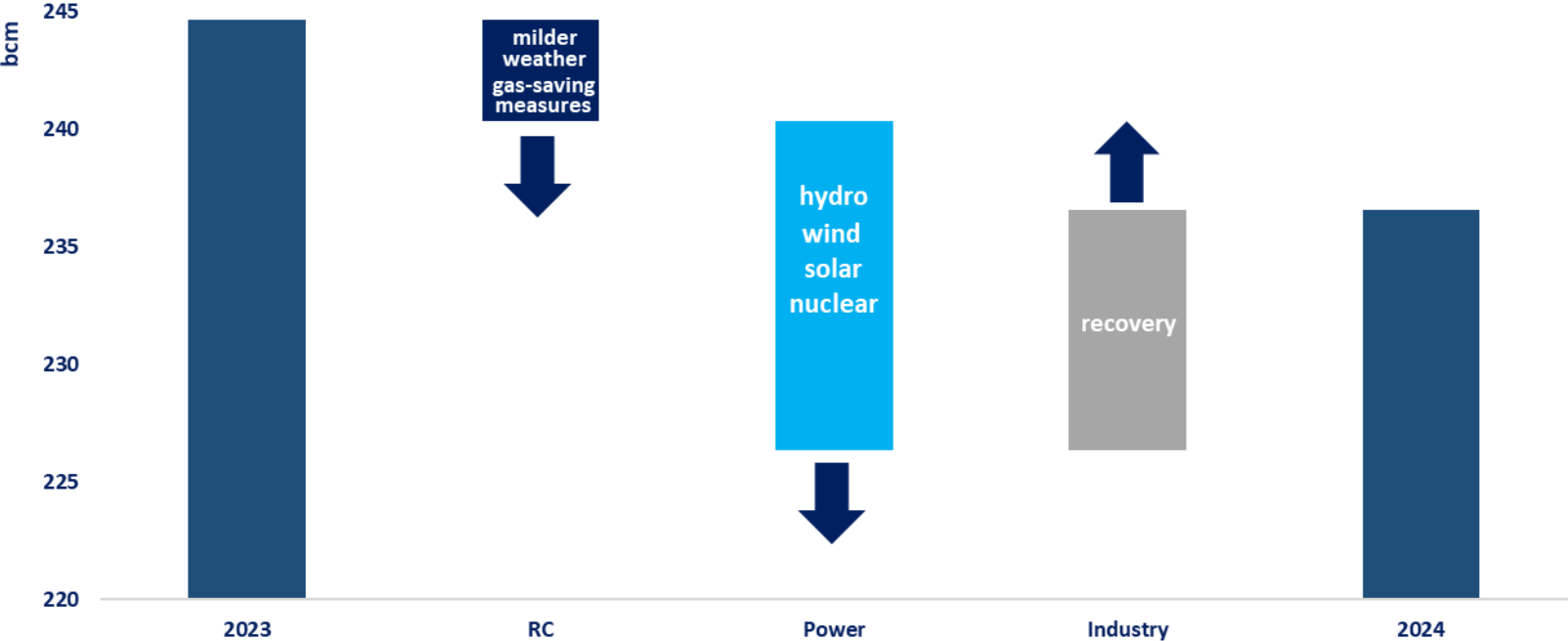
Forecast natural gas demand growth in India by sector (2024 vs 2023)



India's natural gas consumption is expected to grow by 8-9% in 2024, primarily driven by a strong expansion in gas used in the industrial and power sectors –as lower LNG prices foster demand growth.

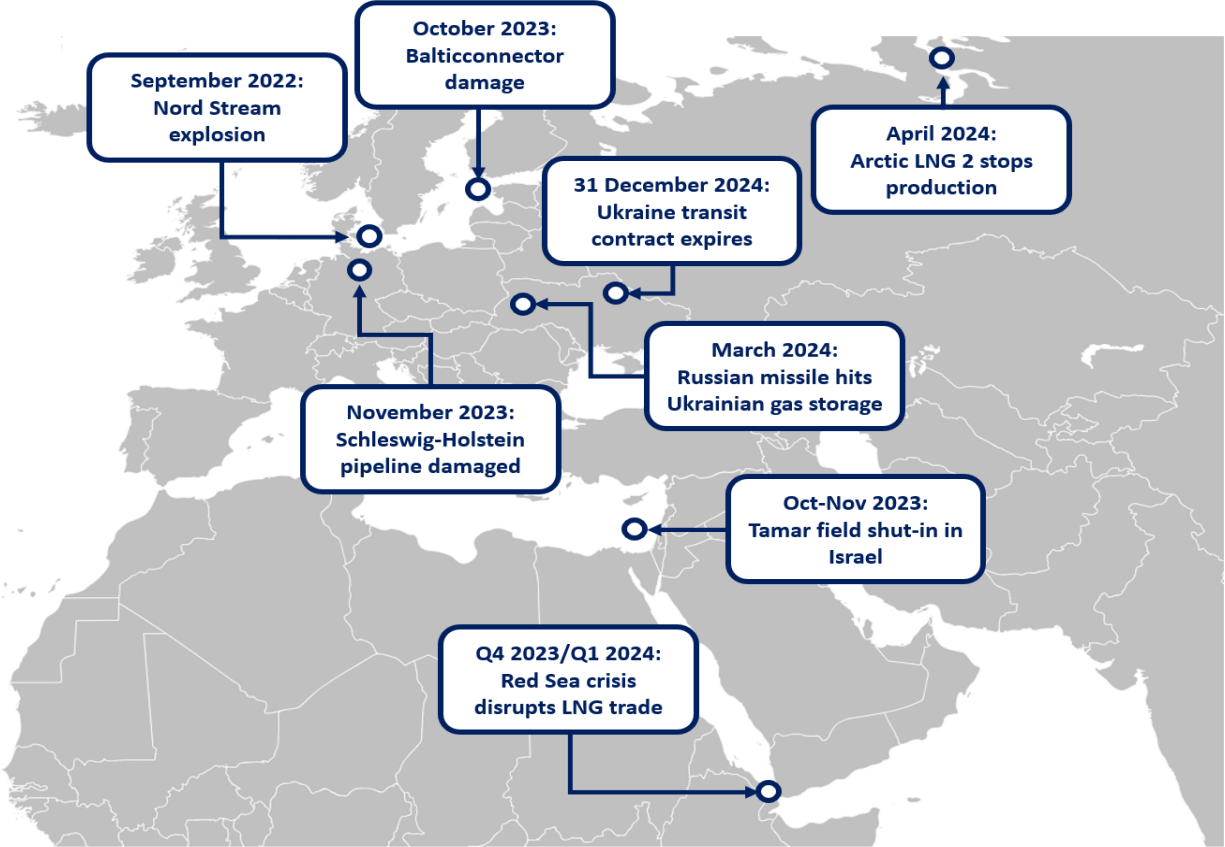
# No recovery in sight for European natural gas demand

Estimated yoy change in OECD Europe's gas demand by sector, January – June, 2024 vs 2023



European gas demand declined by an estimated 3.5% in 5M 2024, primarily due to lower gas burn in the power sector. In contrast, gas use in industry continued to recover –albeit remaining below pre-crisis levels

# Geopolitics present greatest short-term risk for gas markets



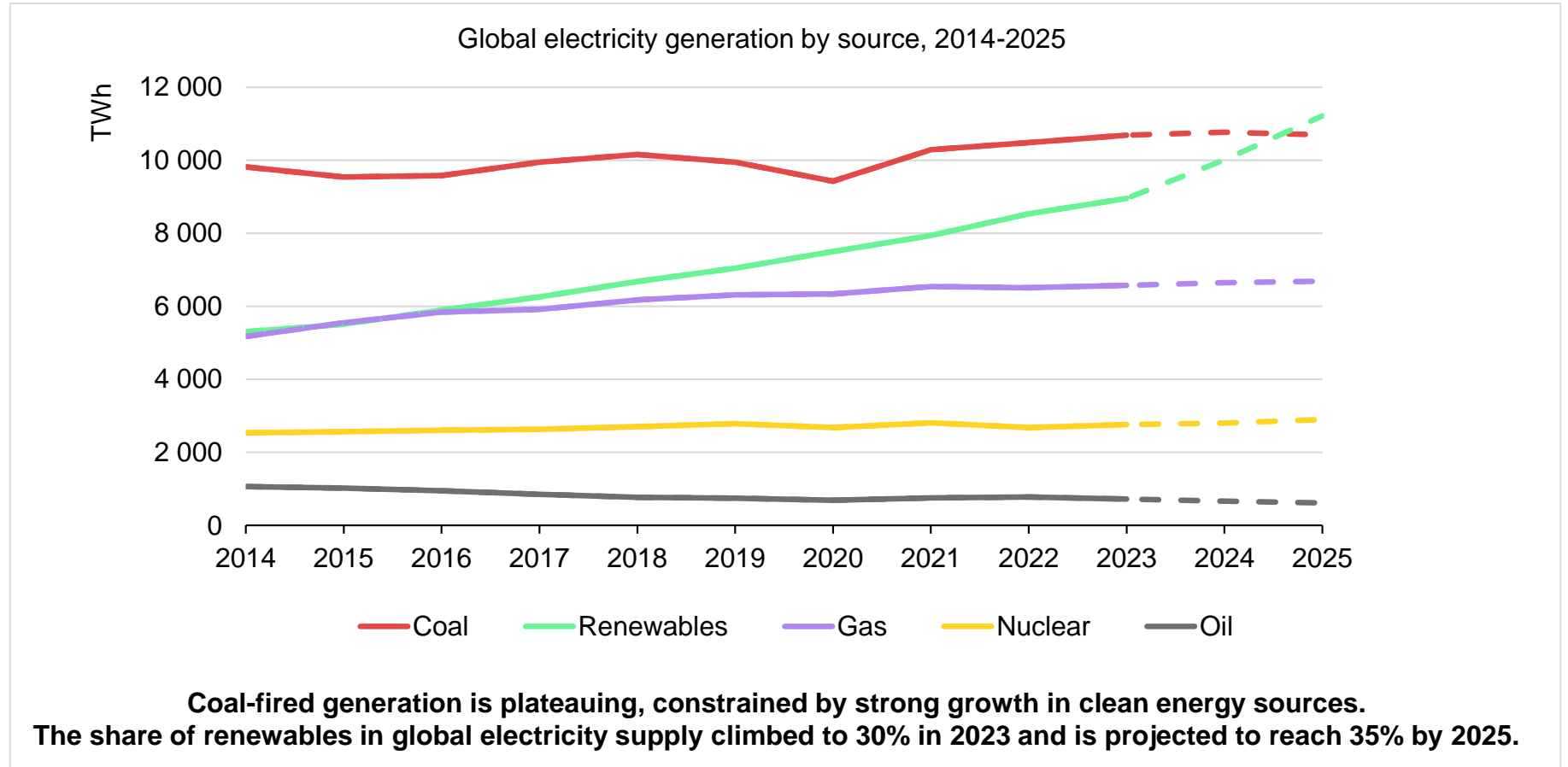


# Key takeaways

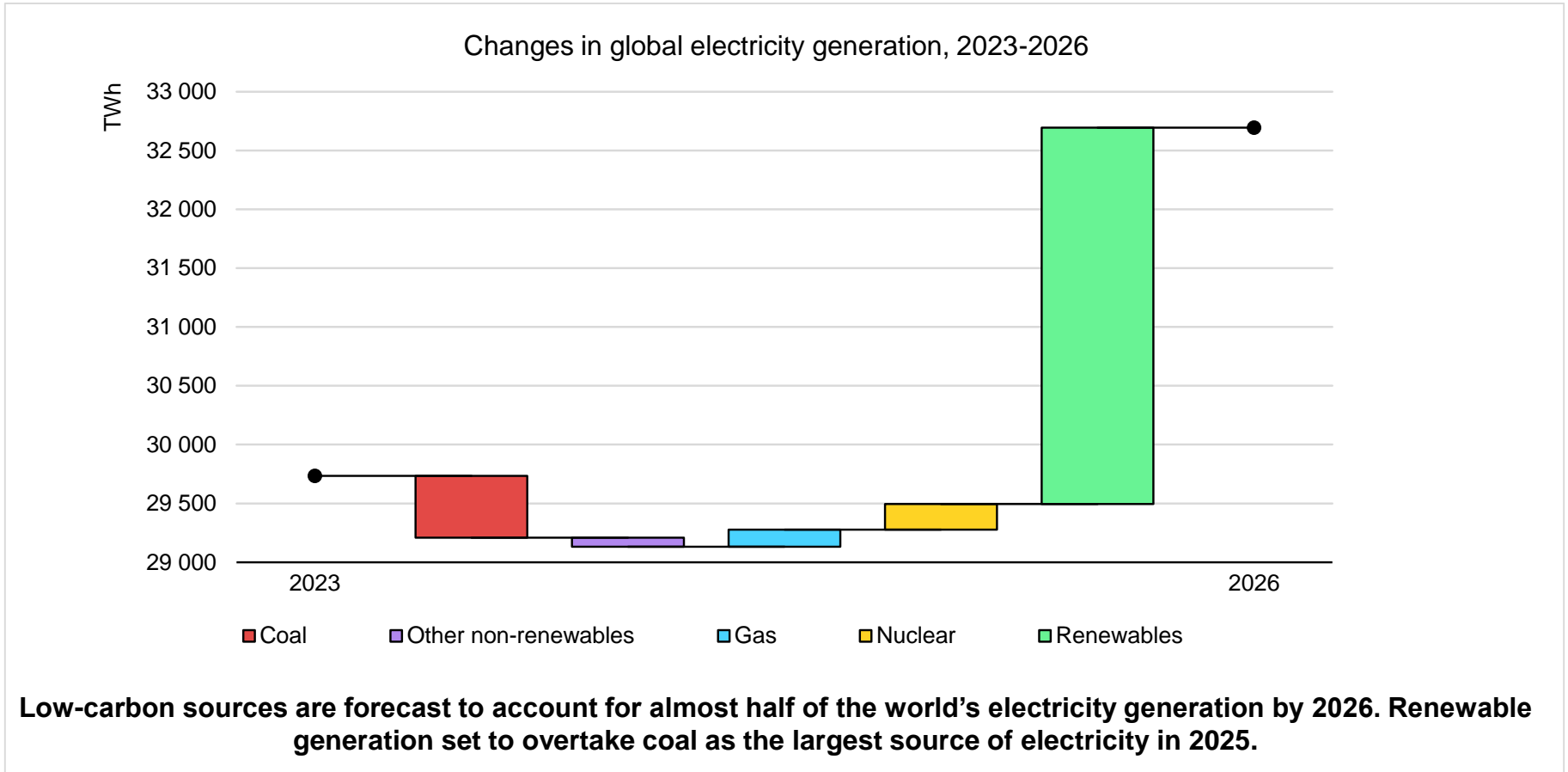
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- **Global gas demand returned to stronger growth** in H1 2024, with first data suggesting an increase of 3%, primarily supported by **the fast-growing Asian markets** and industry.
- After softening through the winter, **natural gas prices strengthened in Q2 2024** amid tighter market fundamentals and geopolitical uncertainties -albeit remaining well-below their 2022 levels.
- **Global LNG supply** is set to increase by a mere 3% in 2024. Incremental supply is primarily driven by the US, Africa, Indonesia and Russia, with **new projects expected to start-up in H2 2024**.
- **China is back with full strength**, with the country's LNG imports expected to reach a new all-time high in 2024 on the back of strong demand across all key end-use sectors.
- Despite lower storage injections over April and May, **the European Union remains well on track to reach its 90% fill level target** by the start of the 2024/25 heating season.

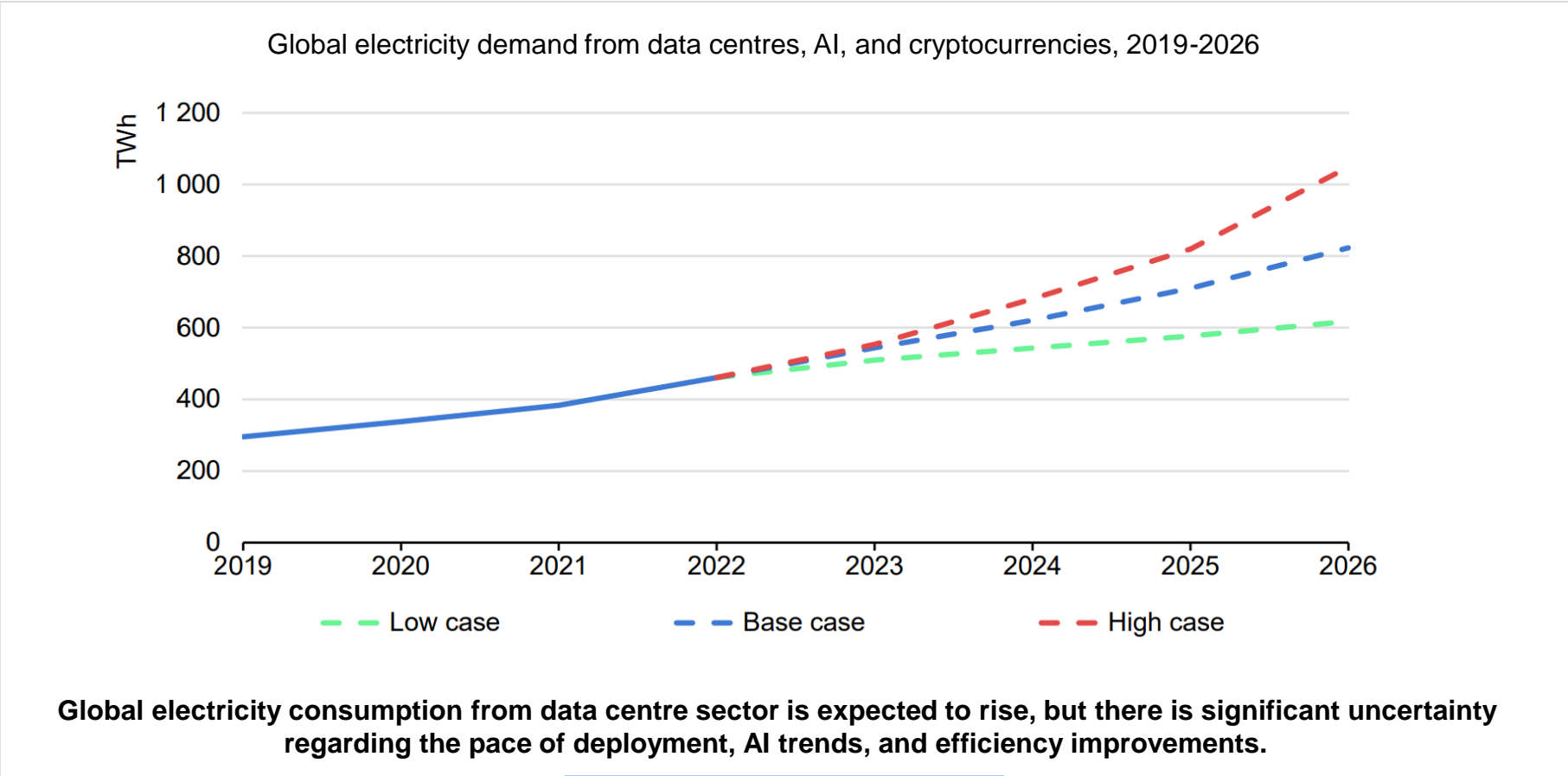
# Renewable generation will overtake coal-fired power in 2025



# Clean electricity supply set to meet nearly all growth to 2026

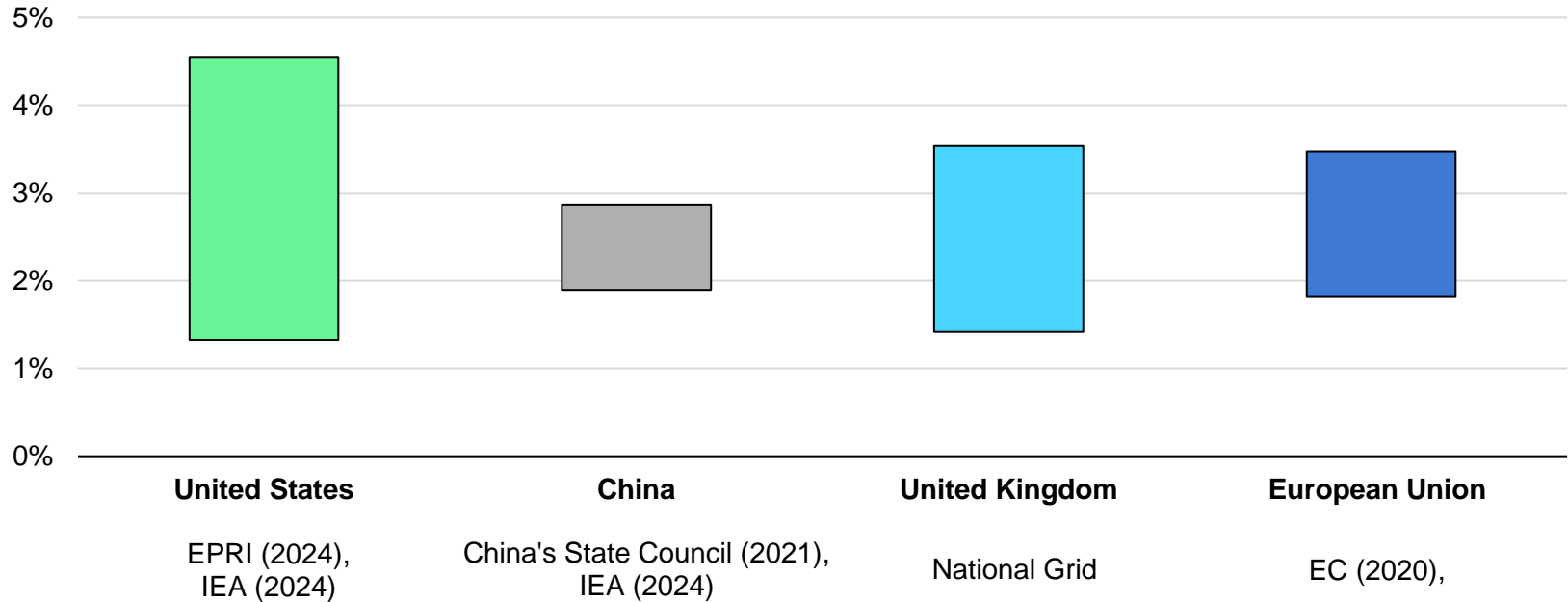


# Data centres are now main drivers of electricity demand in various regions



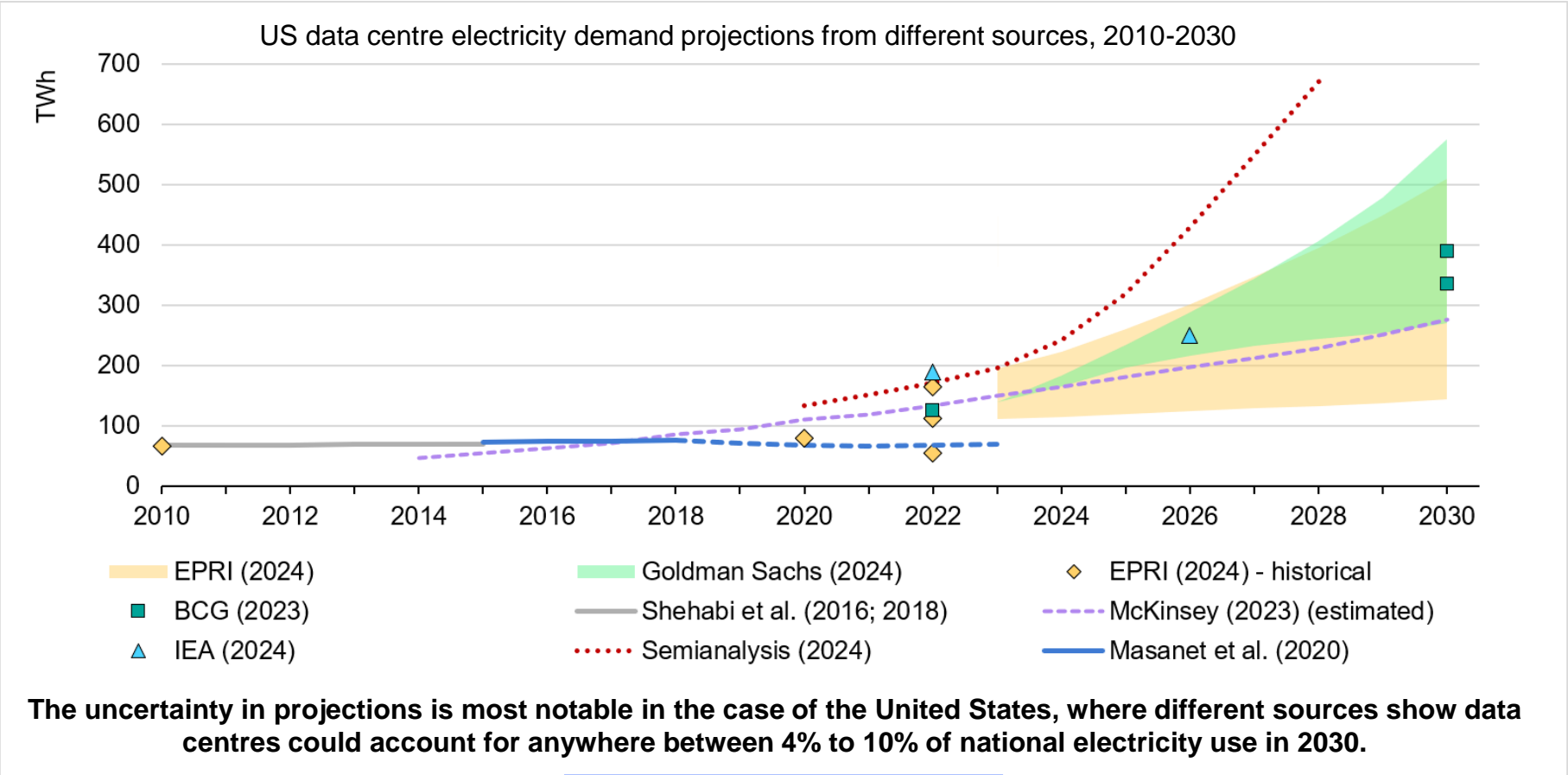
# Stocktaking of data centres' energy use needs to be improved

Range of data centre electricity consumption estimates as a share of total electricity demand in the United States, China and Europe for the year 2022



**A lack of reliable data in many countries contributes to the substantial uncertainty in consumption levels.**

# Electricity demand forecasts of data centres show a very wide range



## Energy Security in Energy Transitions

- (1) Vigilant on traditional risks to energy security
- (2) Well-sequenced/co-ordinated actions across energy demand and supply
- (3) Prioritise energy efficiency across end-use sectors
- (4) Scale up clean energy investment to reduce fossil fuel use
- (5) Put electricity security at the heart of transitions
- (6) Deploy a broad range of low-emissions technologies
- (7) Ensure diverse and resilient clean energy supply chains

**Energy trilemma report tasked by G7 Japan to IEA: Countries should remain vigilant on traditional energy supply security risk and become prepared against new types of risk with energy transitions.**

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