



# Shell LNG

Outlook 2025



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This LNG Outlook contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “aim”; “ambition”; “anticipate”; “believe”; “commit”; “commitment”; “could”; “estimate”; “expect”; “goals”; “intend”; “may”; “milestones”; “objectives”; “outlook”; “plan”; “probably”; “project”; “risks”; “schedule”; “seek”; “should”; “target”; “will”; “would” and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this Outlook, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak, regional conflicts, such as the Russia-Ukraine war, and a significant cybersecurity breach; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this Outlook are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc’s Form 20-F for the year ended December 31, 2023 (available at [www.shell.com/investors/news-and-filings/sec-filings.html](http://www.shell.com/investors/news-and-filings/sec-filings.html) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this Outlook and should be considered by the reader. Each forward-looking statement speaks only as of the date of this Outlook, February 25, 2025. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this Outlook.

## Shell’s Net Carbon Intensity

Also, in this Outlook we may refer to Shell’s “Net Carbon Intensity” (NCI), which includes Shell’s carbon emissions from the production of our energy products, our suppliers’ carbon emissions in supplying energy for that production and our customers’ carbon emissions associated with their use of the energy products we sell. Shell’s NCI also includes the emissions associated with the production and use of energy products produced by others which Shell purchases for resale. Shell only controls its own emissions. The use of the terms Shell’s “Net Carbon Intensity” or NCI are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

## Shell’s net-zero emissions target

Shell’s operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and NCI targets over the next ten years. However, Shell’s operating plans cannot reflect our 2050 net-zero emissions target, as this target is currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell’s operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

## Forward-Looking non-GAAP measures

This Outlook may contain certain forward-looking non-GAAP measures. We are unable to provide a reconciliation of these forward-looking non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc’s consolidated financial statements.

The contents of websites referred to in this report do not form part of this LNG Outlook.

We may have used certain terms, such as resources, in this Outlook that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov).

# Summary

## LNG enables lower emissions in hard-to-electrify sectors and paves the way for net-zero emissions

- The global trade in LNG is set to rise significantly by 2040, driven by Asian economic growth, the need to decarbonise heavy industry and transport and the emerging growth in the energy-intensive tech sector.
- LNG is becoming a cost-effective fuel for shipping and road transport that can bring down emissions. Longer term, existing gas infrastructure could be used to import bio-LNG or synthetic LNG and also repurposed for the import of green hydrogen.



## Negligible supply growth and resilient Asian demand kept prices elevated in 2024

- Global trade in LNG reached 407 million tonnes in 2024, an increase of just 3 million tonnes from 2023, the lowest annual supply addition for 10 years.
- Demand for LNG strengthened in Asia during the first half of 2024 as China took advantage of lower prices and India bought more cargoes to help meet strong power demand due to hot summer weather.
- European imports fell by 23 million tonnes, or 19%, due to strong renewable energy generation and continued weakness in industrial gas demand.

## With rising global demand, LNG is a fuel of choice to ensure energy system resilience

- Demand for gas continues to gather pace across Asia, with China and India significantly increasing their regasification and downstream infrastructure.
- More than 170 million tonnes of new LNG supply is set to come on to the market by 2030, helping to meet growing long-term global demand for gas. But project start-up timings remain uncertain.
- Europe and Japan will continue to require LNG to fill a widening gap between energy diversification ambitions and actual investment levels.



# 1 LNG enables lower emissions in hard-to-electrify sectors and paves the way for net-zero emissions

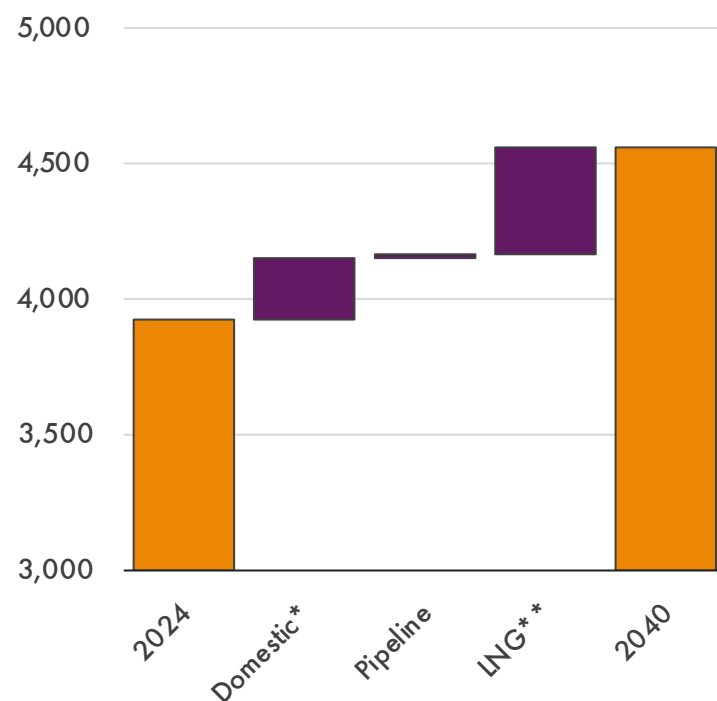
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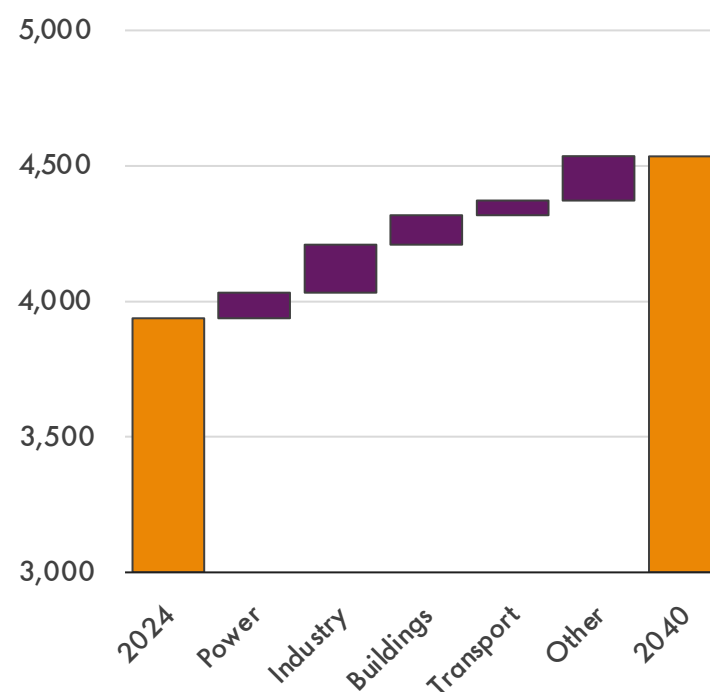
# The world continues to need more natural gas

## 2024 sees record gas demand, 2040 forecasts revised upwards

**Natural gas supply 2024-2040**  
BCM



**Natural gas demand 2024-2040**  
BCM



### Demand drivers



Traditional biomass, oil and coal use fall



Gas switching in power sector



Increase in gases for transport



Data centres and AI



Low-carbon gases

Source: Shell's interpretation of Wood Mackenzie data 2024

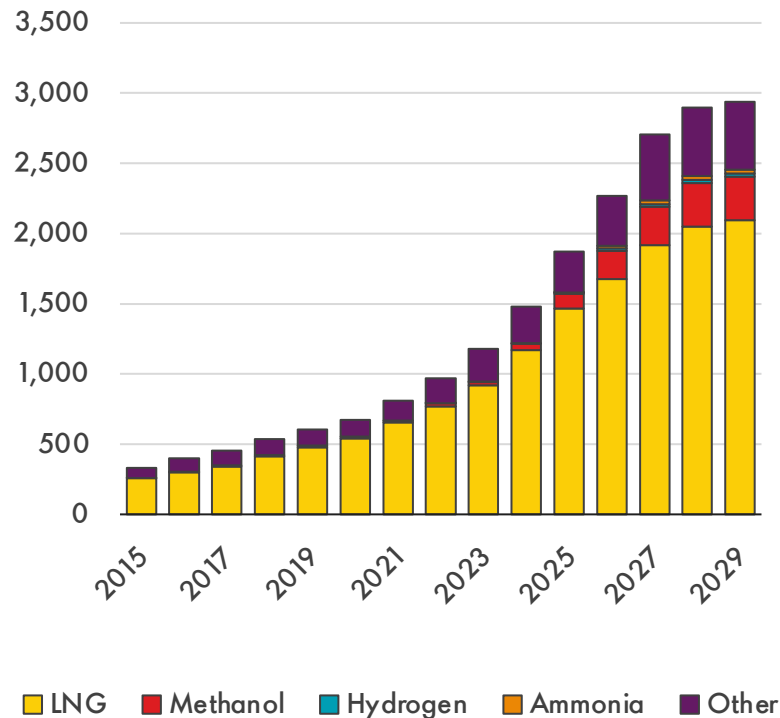
\*Indigenous production includes stock build, other losses; \*\*excluding LNG liquefaction losses

Other includes stock changes, losses, blue hydrogen production

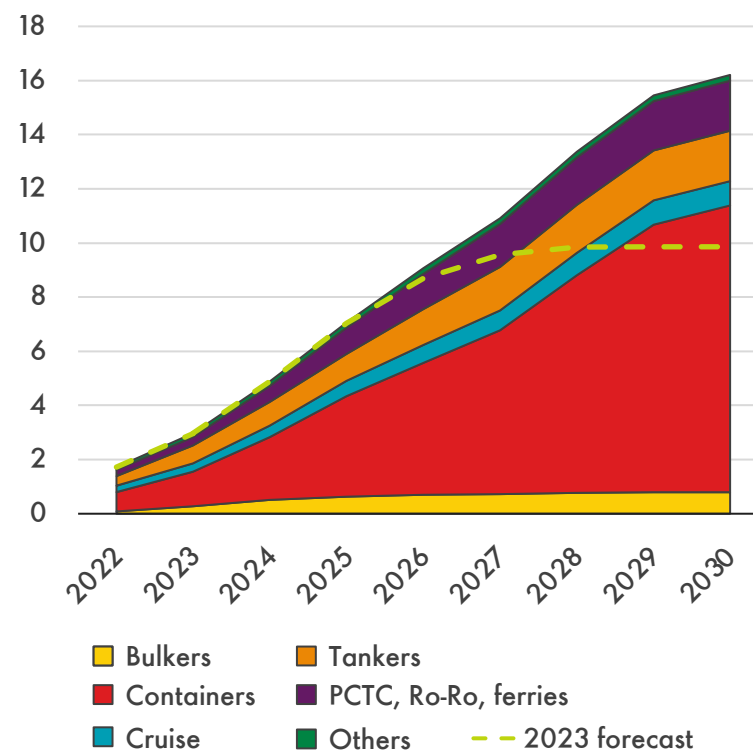
# LNG demand grows in hard-to-electrify sectors

Clear cost and environmental benefits of LNG in marine transportation

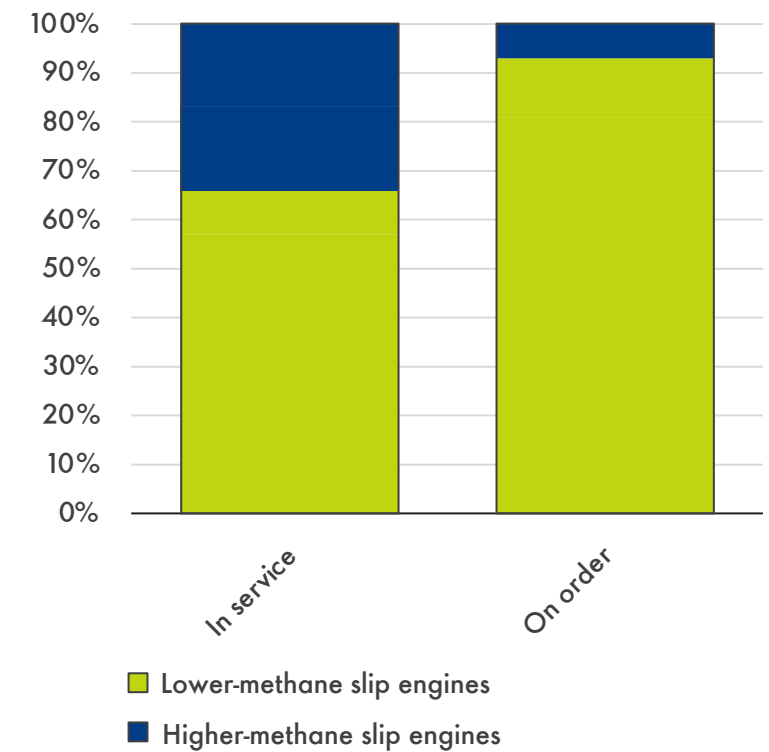
## Marine order book for lower-carbon fuels Vessels



## LNG demand in shipping MTPA



## Reducing methane emissions in shipping Share of engine technology by gross tonnage



Source: Shell's interpretation of Clarkson's data 2025, Other: biofuel, CNG, ethane, LPG, nuclear; PCTC: pure car, truck carrier; Ro-Ro: roll-on/roll-off

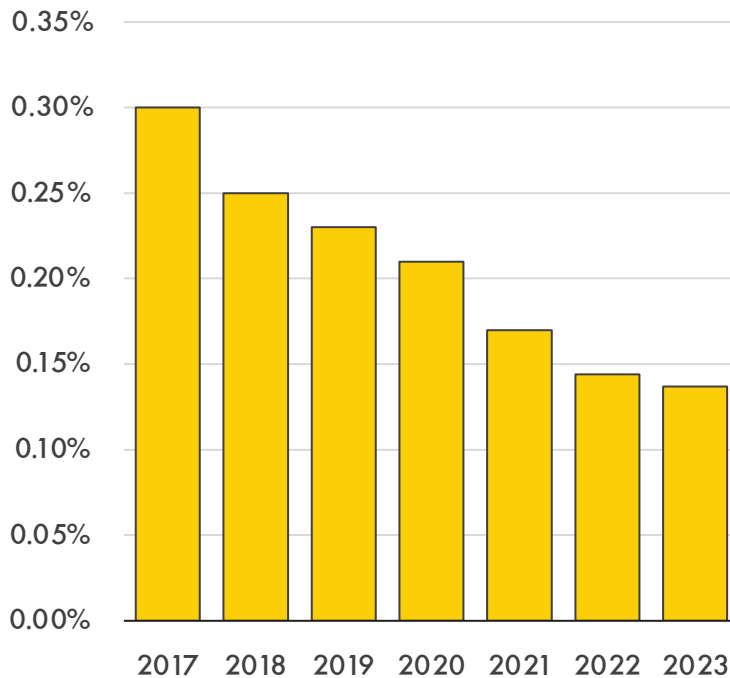
Lower methane slip engines: 2-stroke dual fuel slow speed diesel (HP) and 2-stroke dual fuel slow speed Otto Gen 2 engines; higher methane slip engines: 2-stroke dual fuel slow speed Otto Gen 1, 4-stroke medium speed Otto and LBSI engines

# Progress in reducing methane emissions in LNG value chain

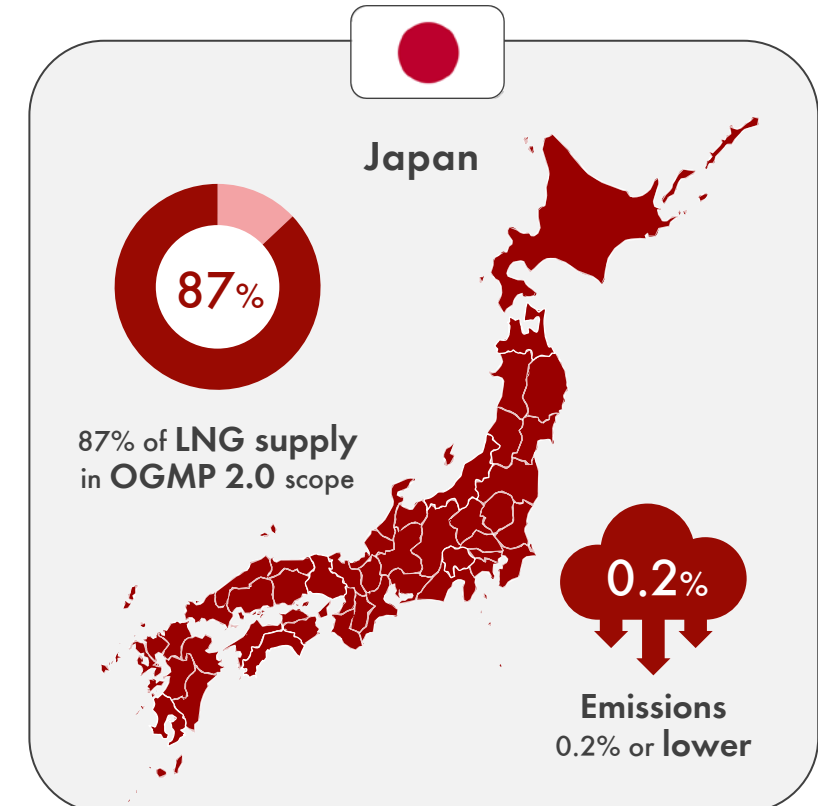
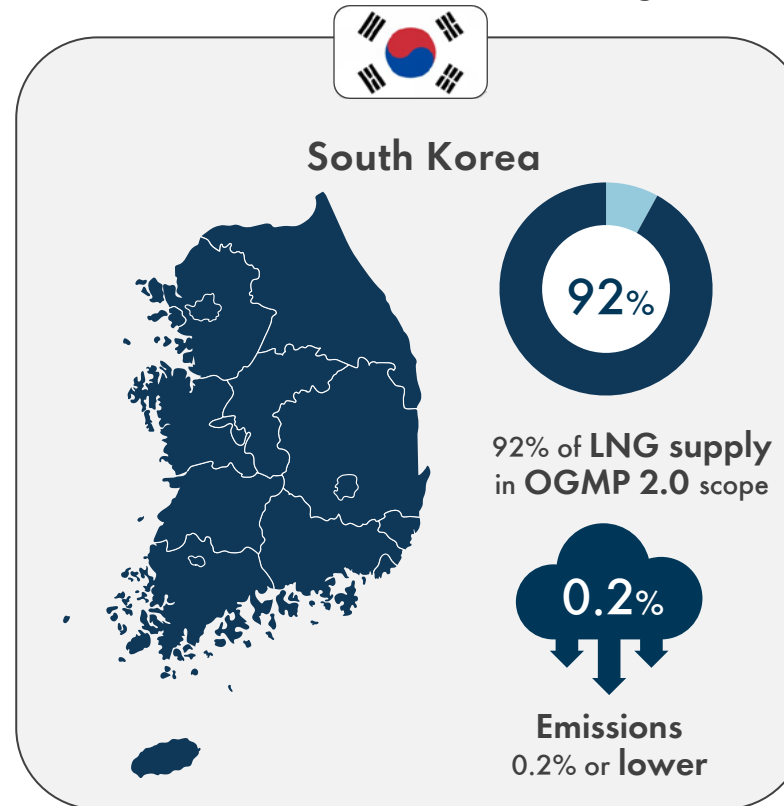
## Efforts to achieve near-zero targets for 2030

### Methane intensity of upstream production

Collective methane intensity of OGCI\* members



### Measuring methane emissions of LNG

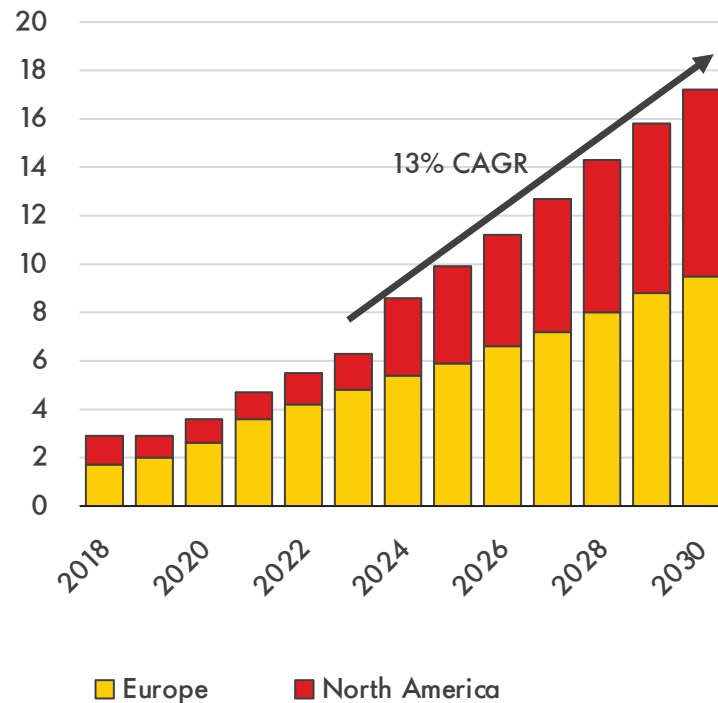


Source: Shell's interpretation of Oil and Gas Climate Initiative (OGCI) progress report 2024, UN Environment Programme's International Methane Emissions Observatory 2024 data \*Oil and Gas Climate Initiative members (~30% of total global oil and gas production); emissions are estimated to be within or below 0.2% from wellhead to LNG loading arm

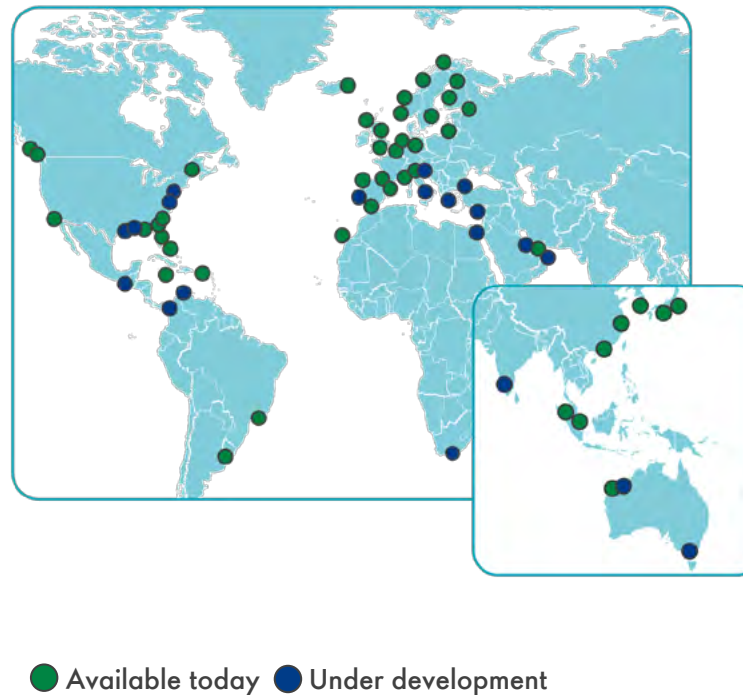
# Liquefied biomethane will play a growing role in transport

## LNG delivers GHG savings and supports future compliance

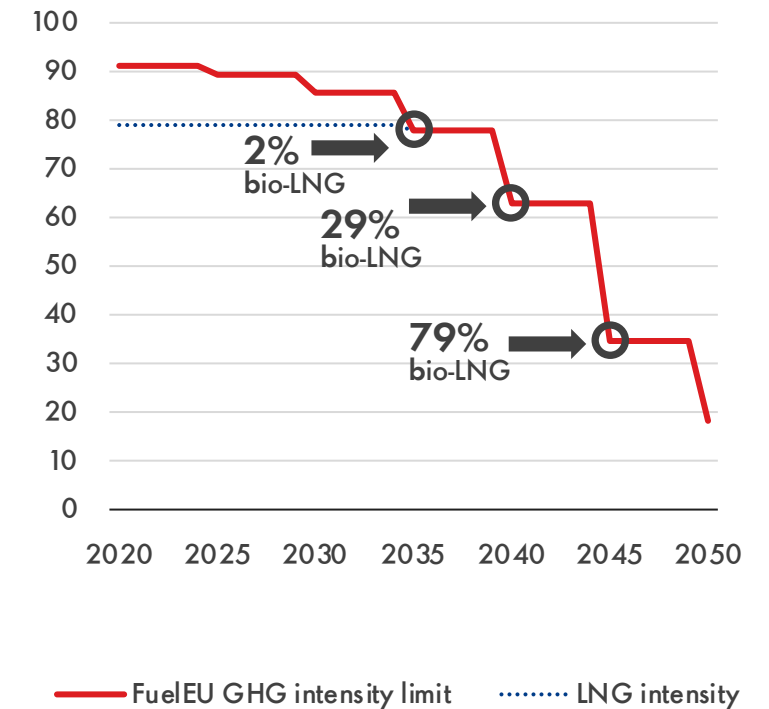
**Biomethane production**  
BCM



**LNG bunkering ports**



**Shipping GHG intensity targets**  
gCO<sub>2</sub>e/MJ

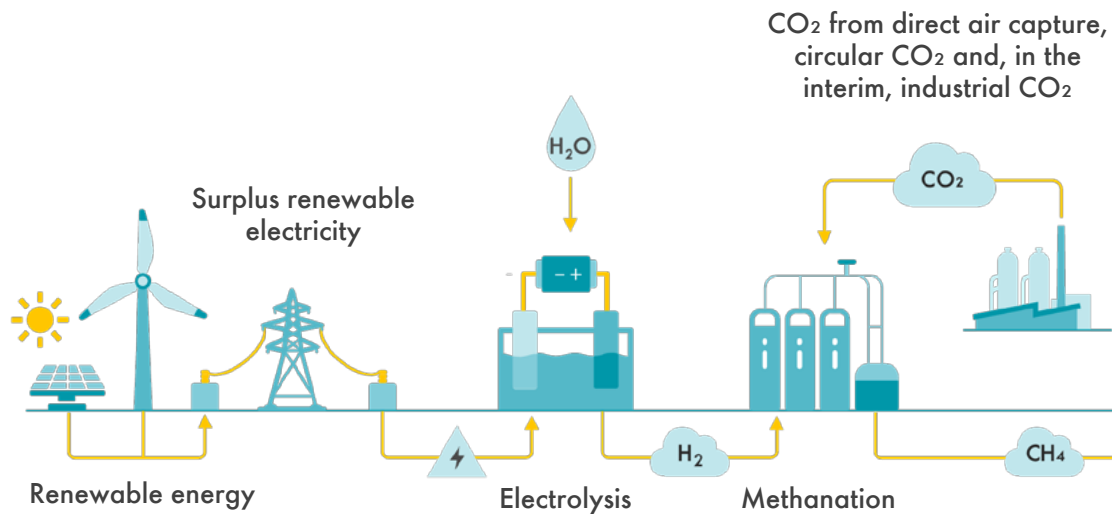


Source: Shell's interpretation of S&P Global,, SEA-LNG and FuelEU Maritime data

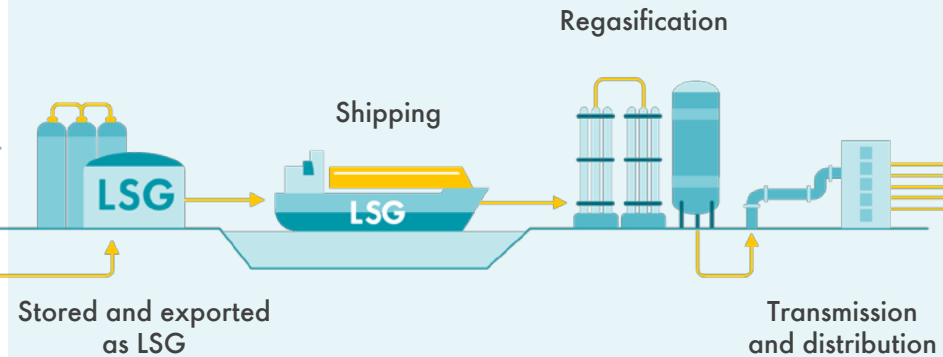
# LSG: using existing LNG infrastructure to achieve net zero

Can deliver the energy to supply all industrial demand in USA & Japan

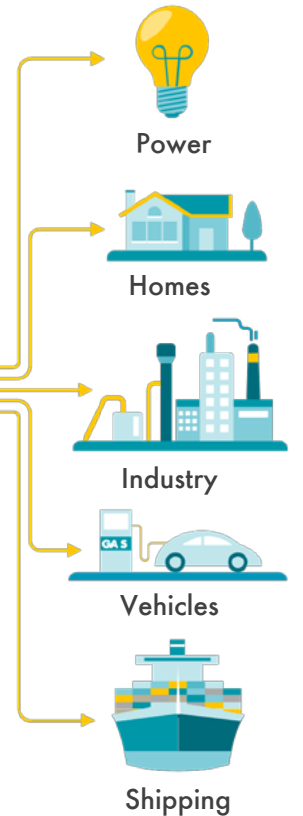
## Liquefied synthetic gas (LSG) production process



## Existing gas and LNG infrastructure



## Gas demand



# 2

**Negligible supply growth and resilient Asian demand kept prices elevated in 2024**

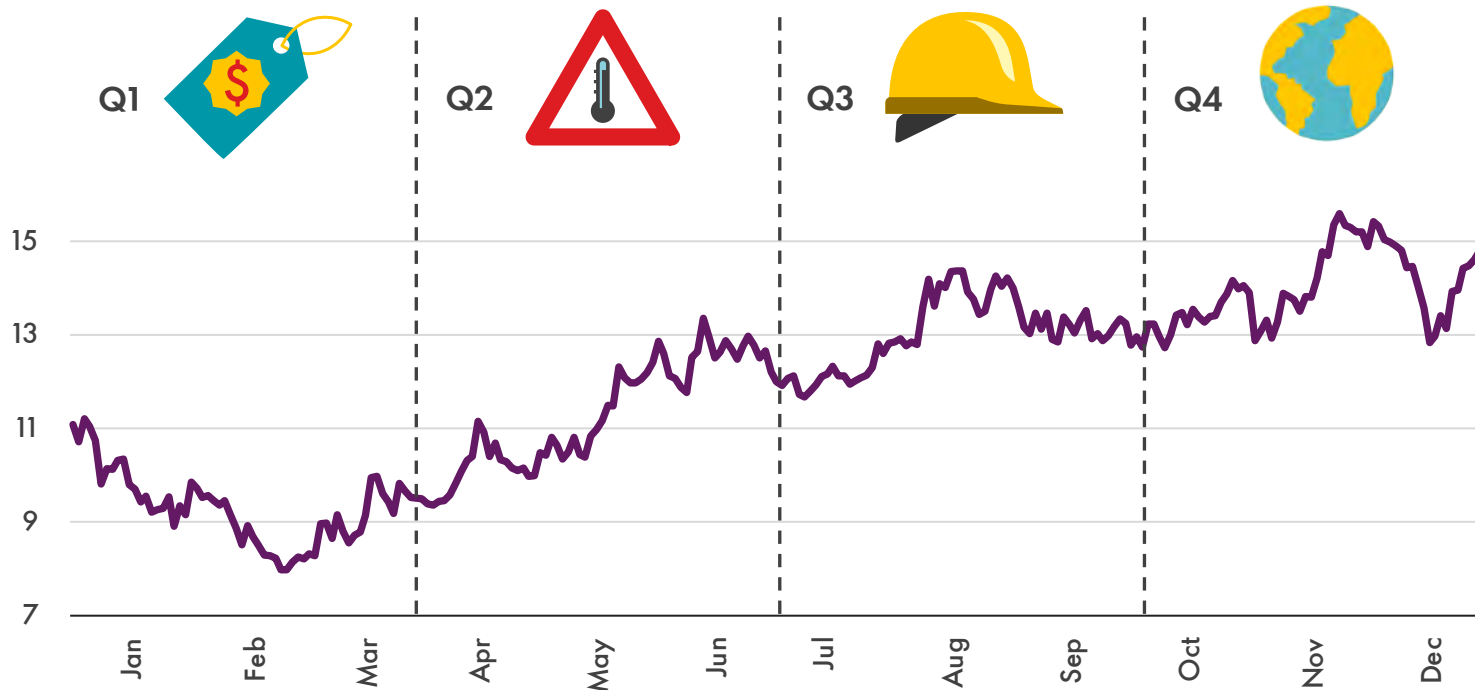
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# LNG spot prices strengthened throughout 2024

Prices below highs of 2021-2023 but unexpected factors fuelled volatility

2024 Asia LNG spot prices\*  
\$/MMBtu



Q1



Opportunistic buying in Q1 as mild winter and high inventories offered attractive prices for end users, mostly in China

Q2



Record heat in India stretched coal generation capacity, driving increase in spot LNG purchases, despite elevated prices

Q3



Delayed construction of new LNG plants and declining domestic production in Egypt reduced global supply

Q4



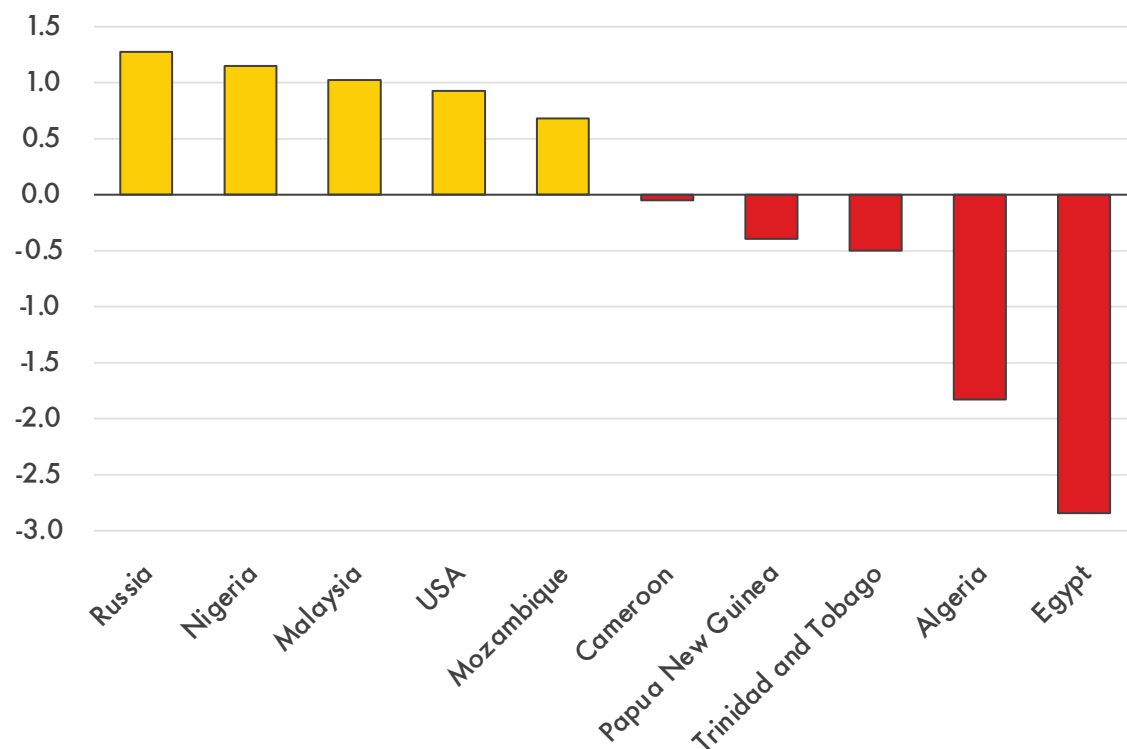
Ongoing threats of Russian pipeline supply curtailment via Ukraine and weak European storage-fill triggered scarcity fears

Source: Shell interpretation of S&P Global Commodity Insights data  
\*Daily Japan/Korea Marker (JKM) prices

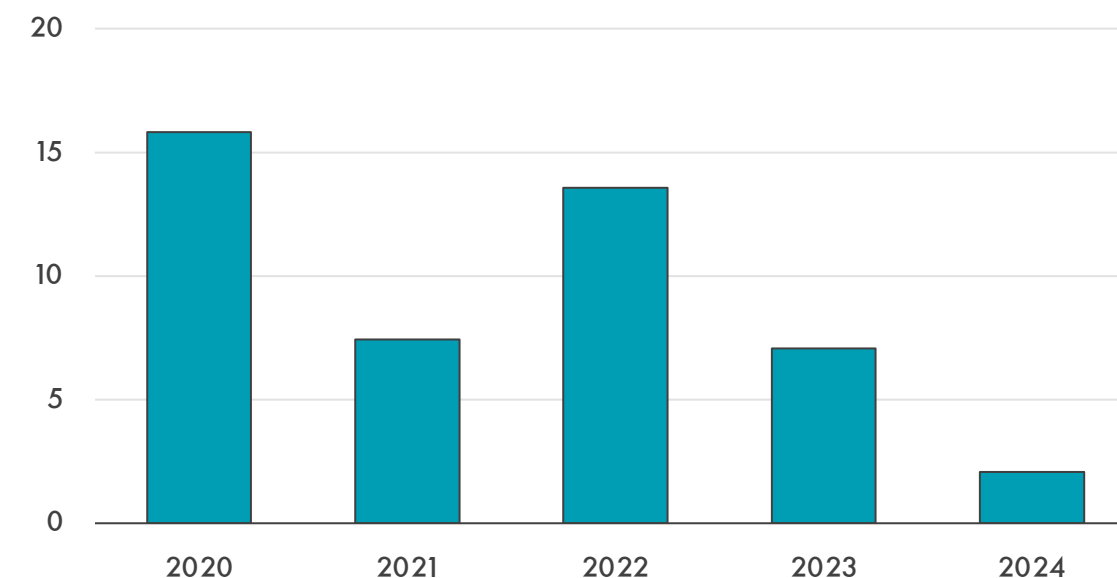
# 2024 saw lowest growth in LNG export capacity in 10 years

Growth restricted by gas production declines and construction delays

Change in global LNG exports\* 2024 (YoY)  
MTPA



Global LNG export capacity additions  
MTPA

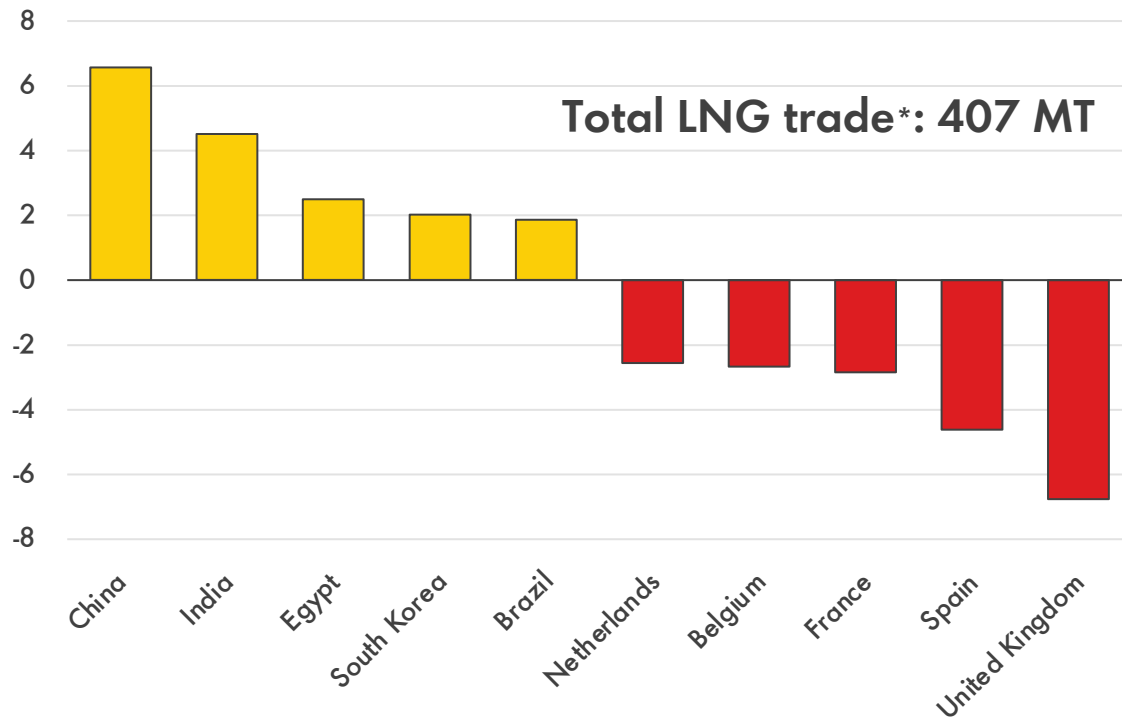


Source: Shell interpretation of Kpler and Wood Mackenzie data  
\*Represents free on board (FOB) volume; YoY: year-on-year comparison

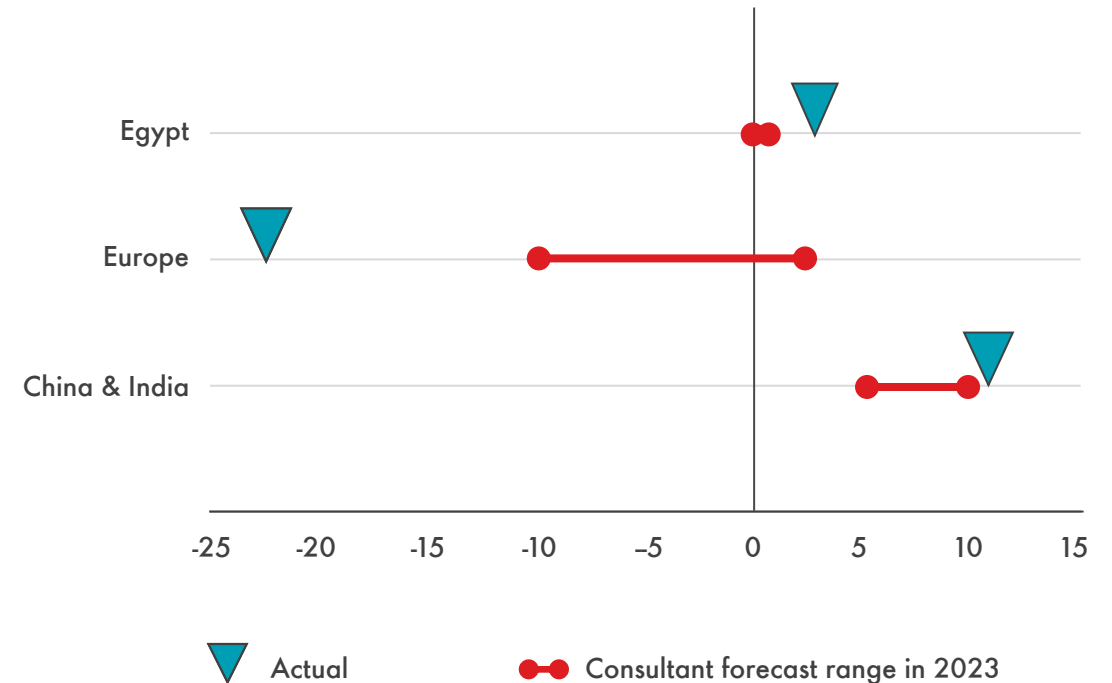
# Strong Asian demand comes at Europe's expense

The shortfall in local supply made Egypt a net LNG importer in 2024

Change in LNG imports\* 2024 (YoY)  
MTPA



LNG import growth vs forecast 2024 (YoY)  
MTPA

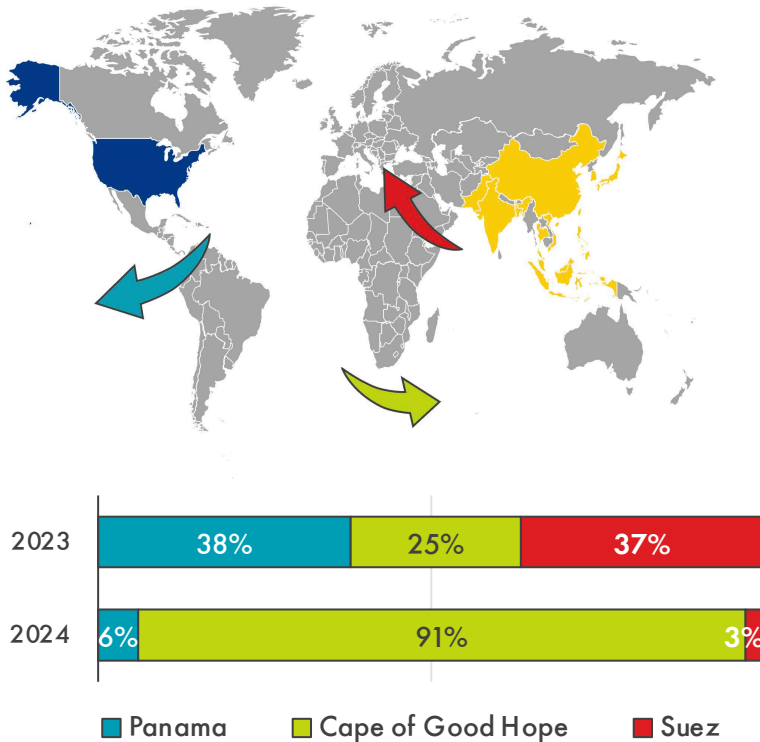


Source: Shell interpretation of Kpler, S&P Global Commodity Insights, Wood Mackenzie and Poten & Partners data  
\*Represents delivered, ex-ship (DES) volume; YoY: year-on-year comparison

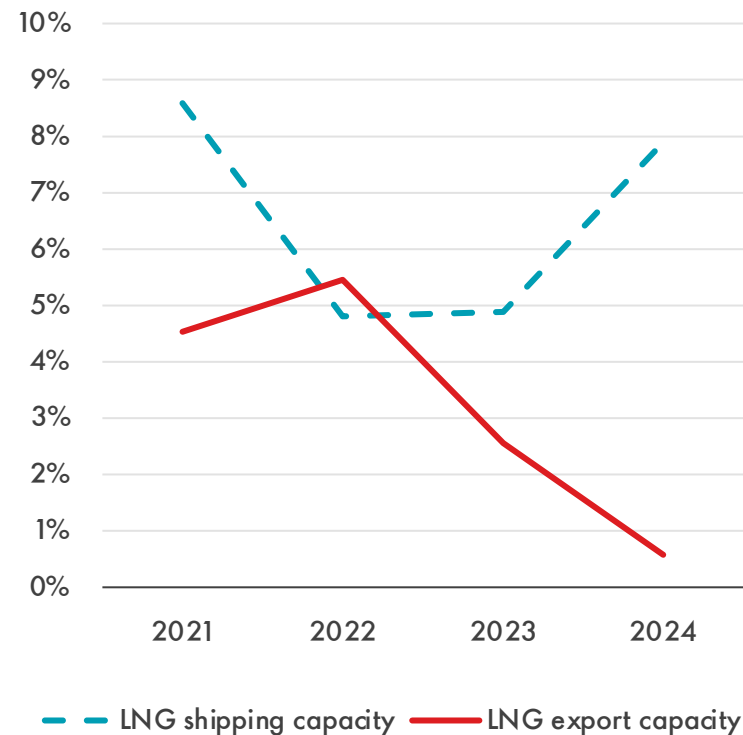
# LNG shipping rates hit record low despite canal bottlenecks

Tanker capacity outpaced LNG supply increases due to project delays

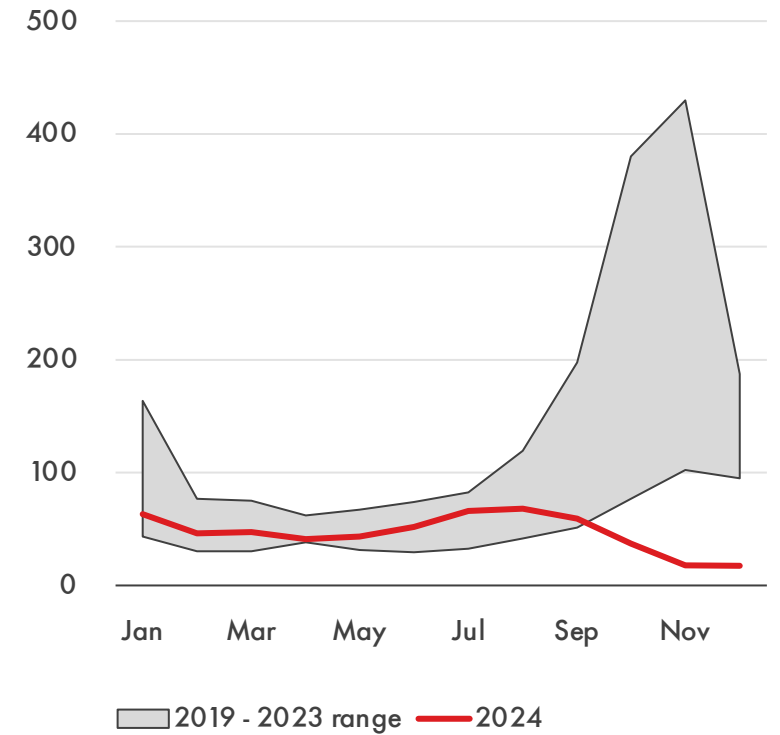
US LNG exports to Asia  
% of total, by transit route



LNG tanker vs liquefaction capacity  
% change YoY



Average LNG tanker charter rates\*  
\$1000s/day

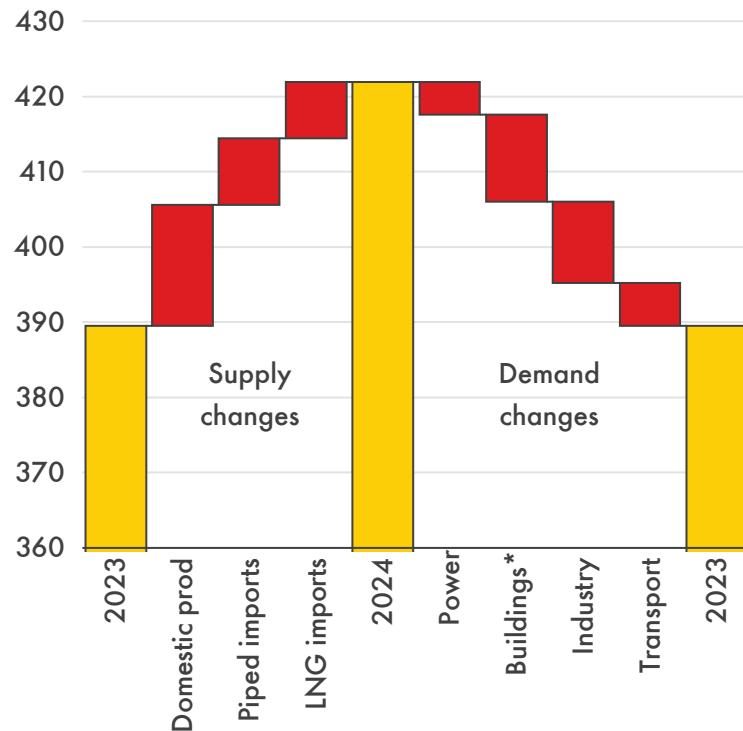


Source: Shell interpretation of Kpler, S&P Global Commodity Insights, Wood Mackenzie, and FGE data  
\*Average of shipping daily rates of tri-fuel diesel electric and 2-stroke tankers

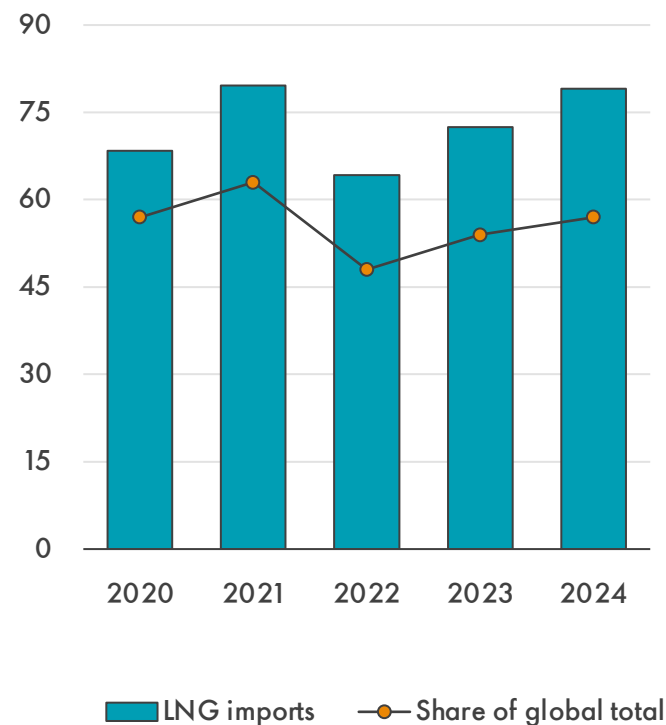
# Chinese LNG demand recovery nears 2021 peak

Spot buying remained steady but was reactive to price

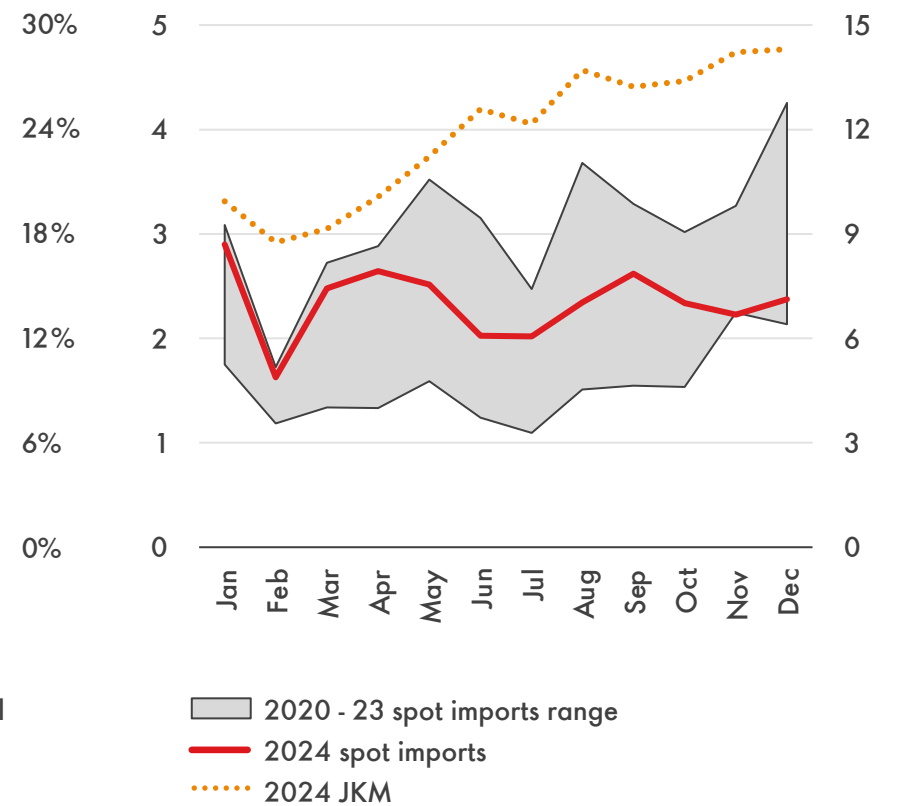
Change in China's gas balance  
BCM



China's LNG imports  
MTPA



China's spot LNG imports  
Share MT

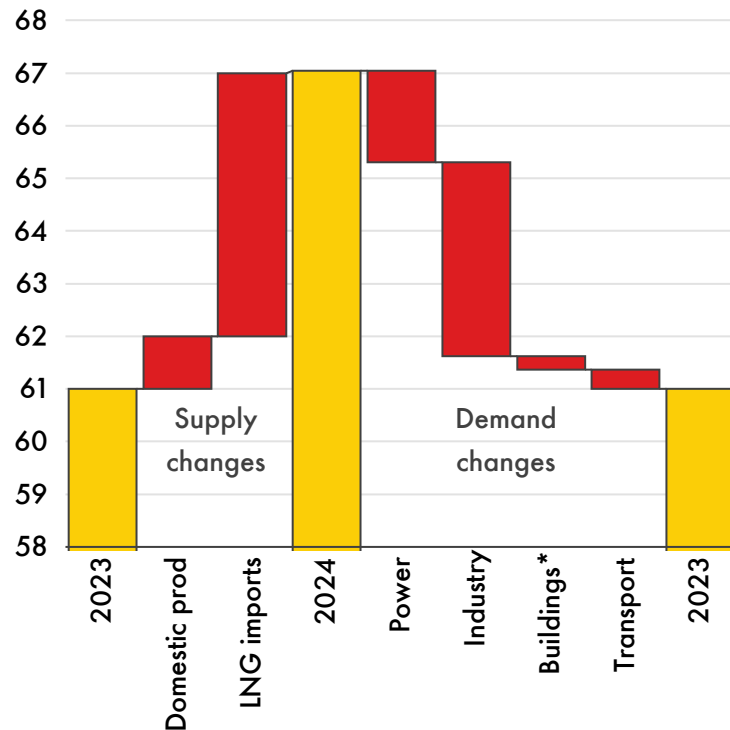


Source: Shell interpretation of S&P Global Commodity Insights and Kpler data  
\*buildings include residential and commercial demand

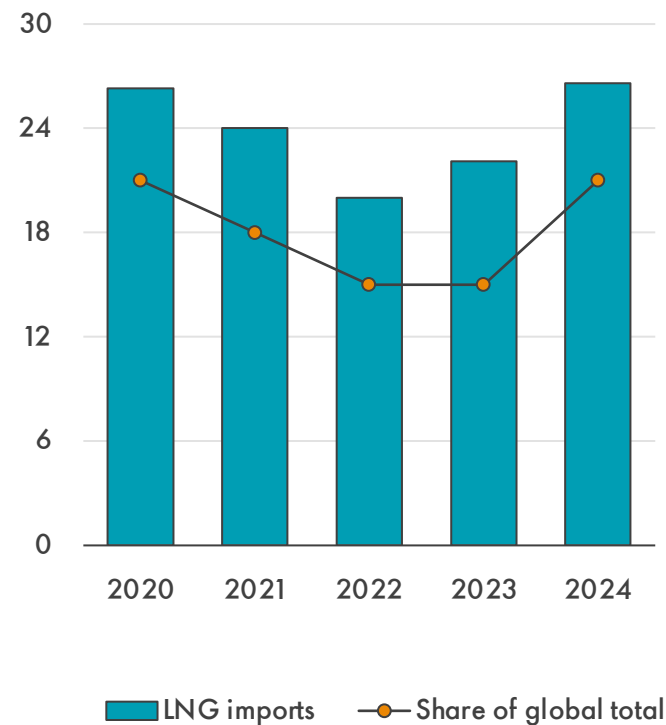
# India's LNG imports hit record level in 2024

Summer heatwave drove strong spot buying despite elevated prices

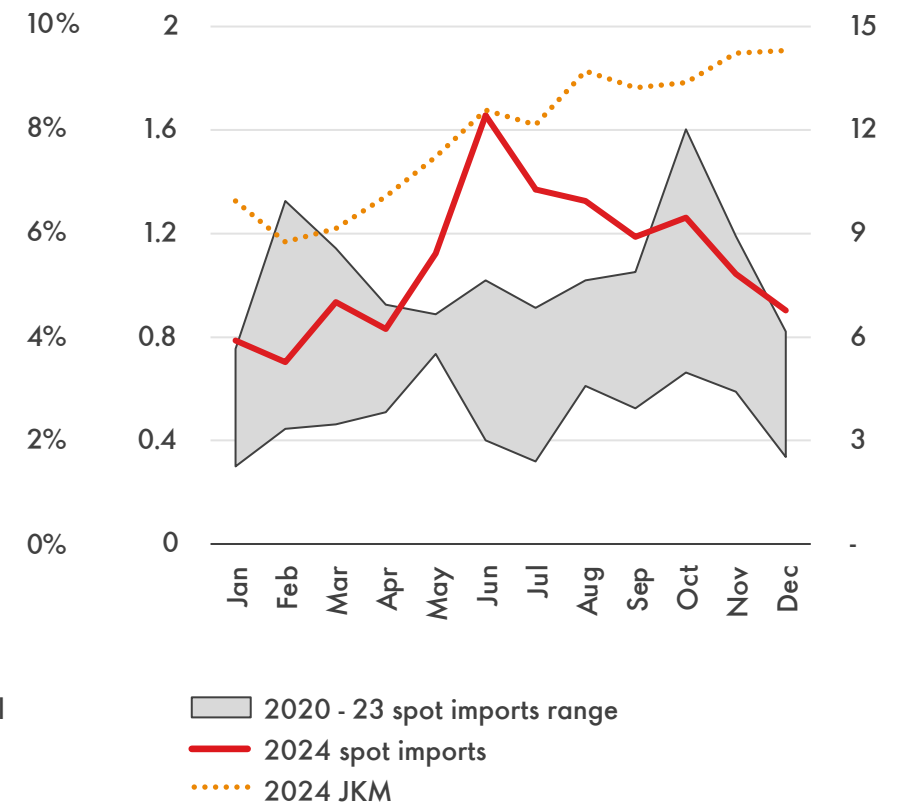
**Change in India's gas balance**  
BCM



**India's annual LNG imports**  
MTPA



**India's spot LNG imports**  
Share MT

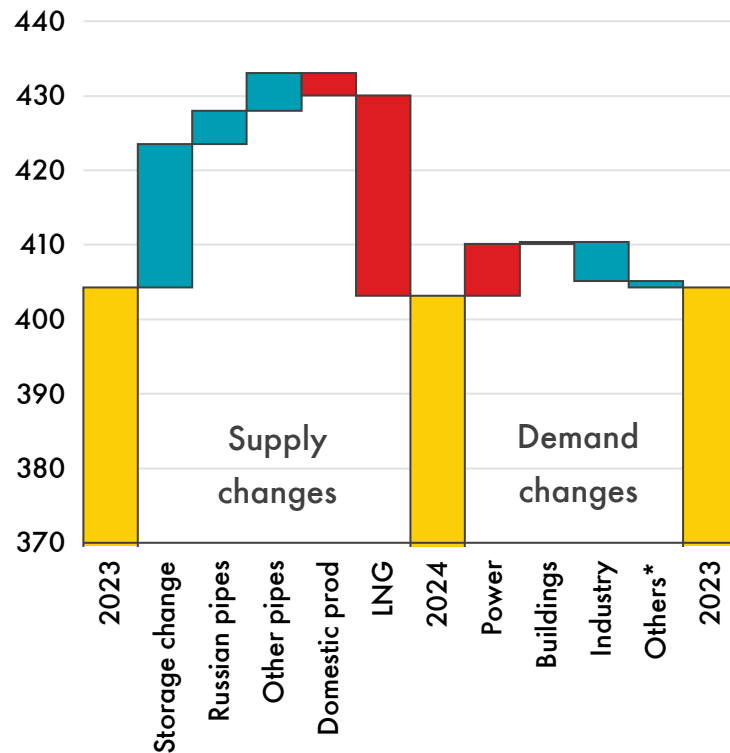


Source: Shell interpretation of S&P Global Commodity Insights, Kpler and Wood Mackenzie data  
\*buildings include residential and commercial demand

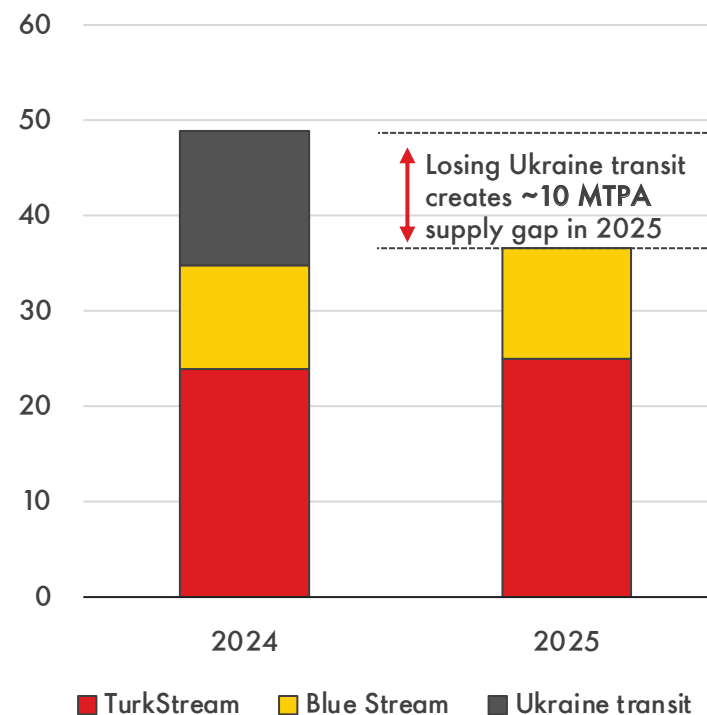
# Europe faces tight gas balance despite weak demand

Lower inventories and less wind generation intensified need for LNG in Q4

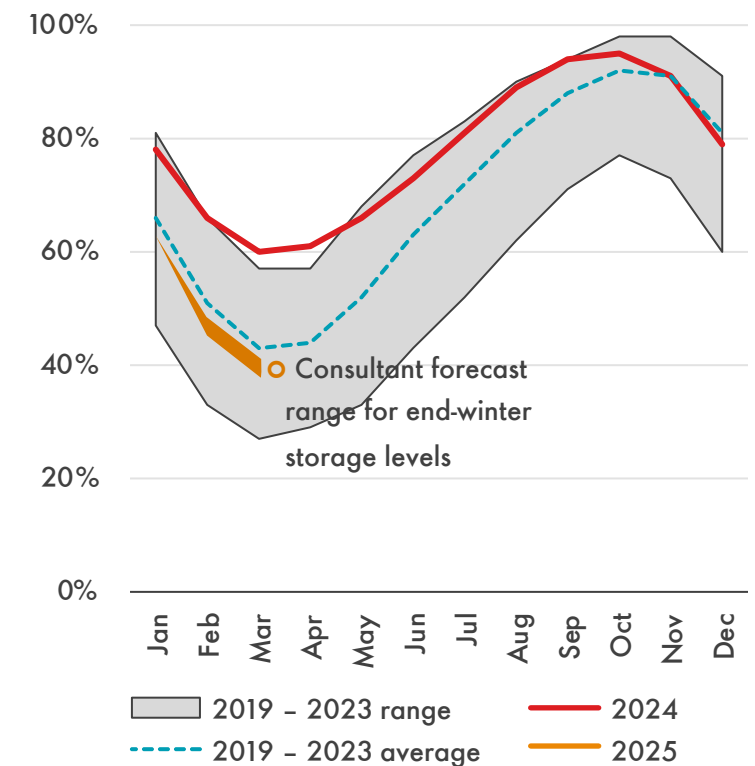
**Change in Europe gas balance**  
BCM



**Russian pipeline export to Europe**  
BCM



**Europe gas storage**  
% full

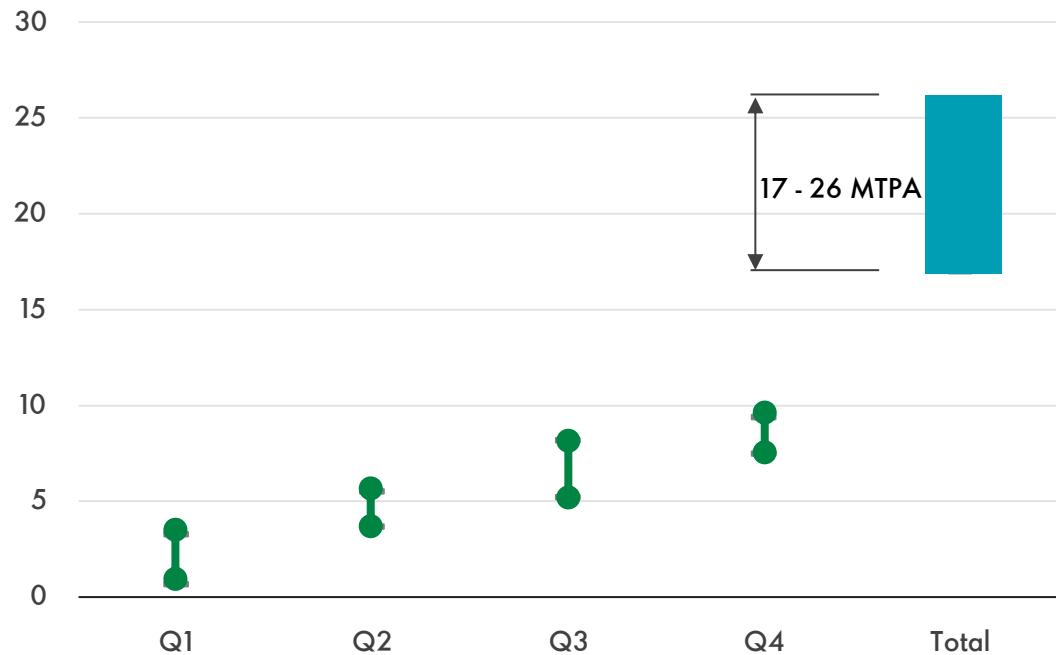


Source: Shell interpretation of Gas Infrastructure Europe, Wood Mackenzie, and BloombergNEF data  
Europe includes UK + EU27, excluding Cyprus  
\*Includes blue hydrogen, transport and pipeline exports

# New LNG supply limited until second half of 2025

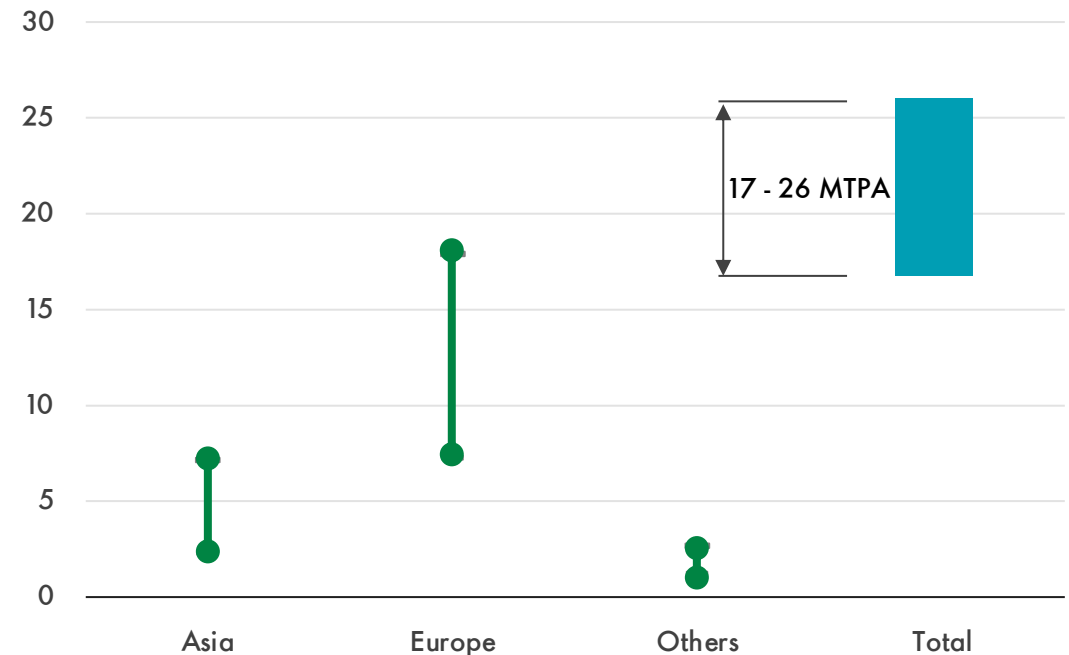
Europe's need to refill gas storage will compete with Asian demand

Forecast LNG supply growth 2025 (YoY)  
MTPA



High ● Low Consultant forecast range

Forecast LNG demand growth 2025 (YoY)  
MTPA



Consultant forecast range (total)

Source: Shell interpretation of S&P Global Commodity Insights, Wood Mackenzie and Energy Aspects data

3

**With rising global demand,  
LNG is a fuel of choice to deliver  
energy system resilience**

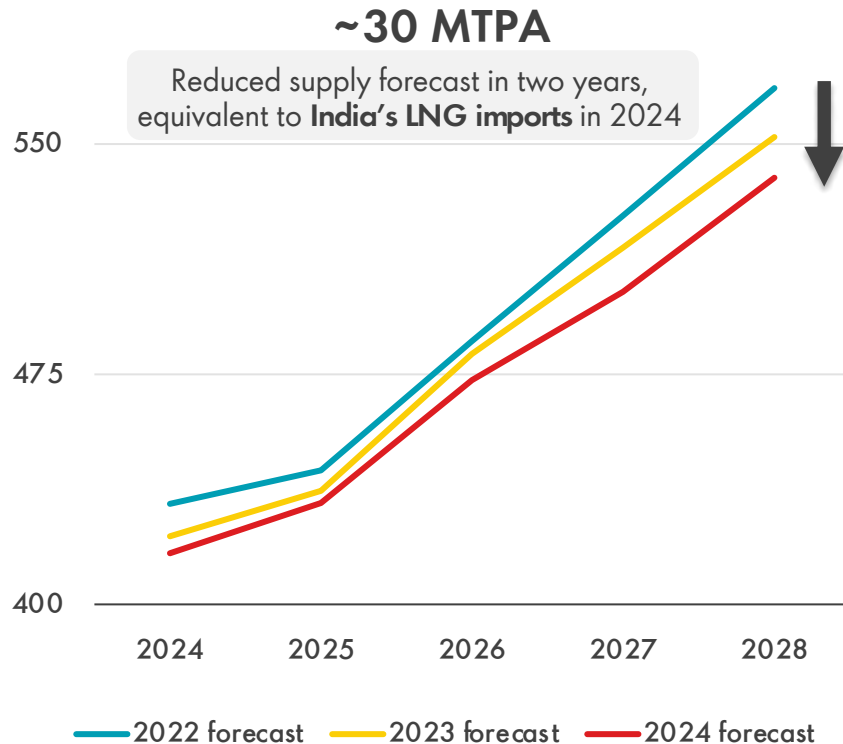
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# LNG supply growth is coming, but timing remains uncertain

## New project development faces multiple challenges

### Global LNG supply forecast evolution MTPA



### Delay factors



Geopolitical tensions



Regulatory hurdles



Start-up risks



Civil unrest

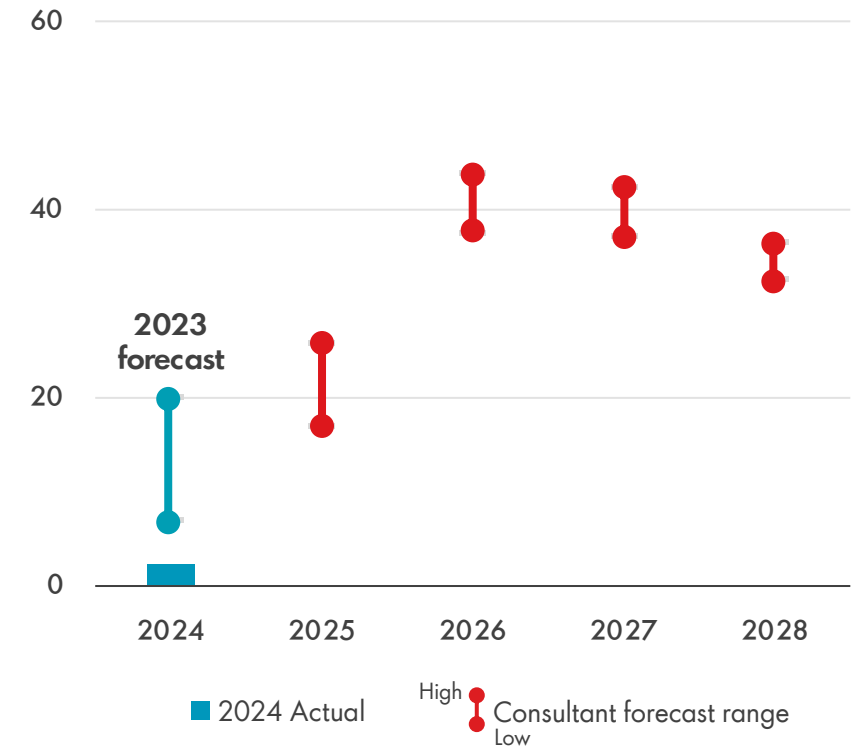


Labour shortages



Supply chain bottlenecks

### 2025-28 global LNG supply forecast range MTPA

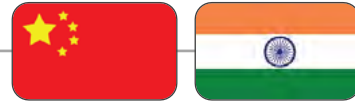
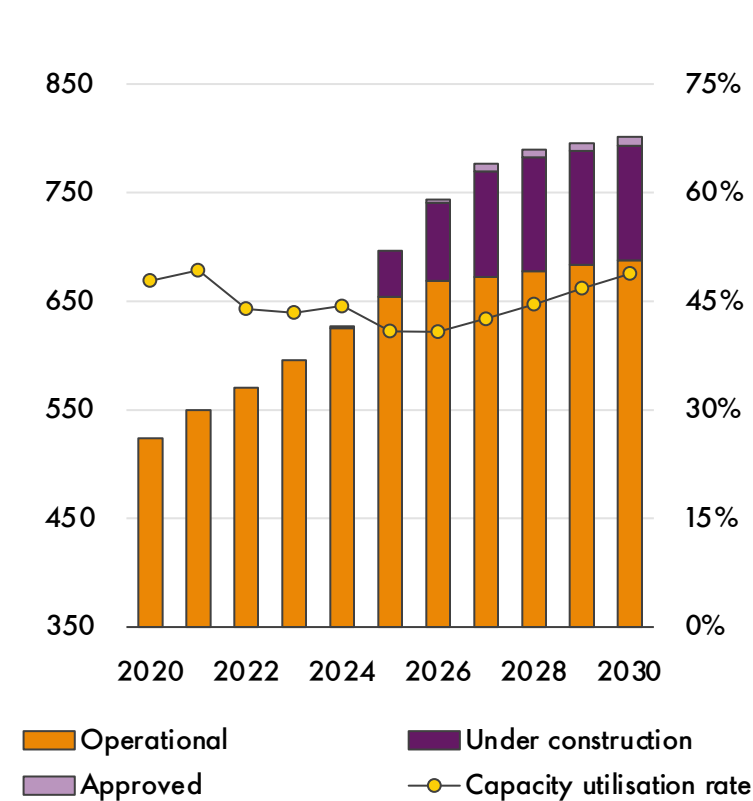


Source: Shell interpretation of S&P Global Commodity Insights, Wood Mackenzie and Energy Aspects data

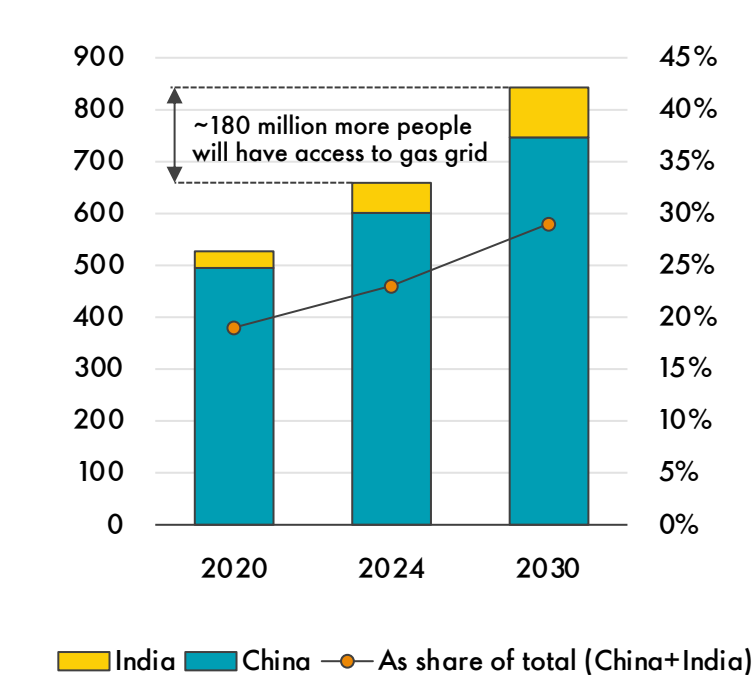
# Infrastructure investment signals strong LNG growth in Asia

## Expansion in China and India set to drive greater gas use

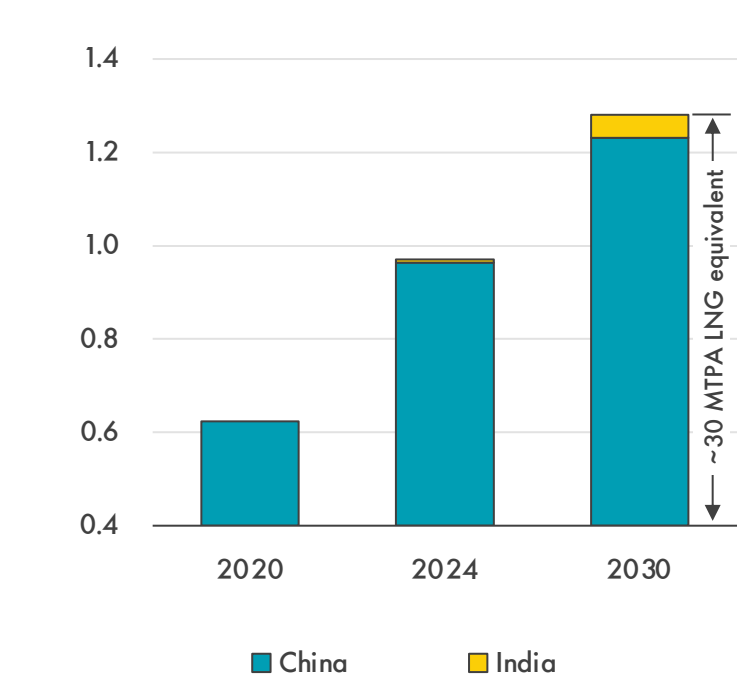
### Regasification capacity in Asia



### Population connected to gas grid



### LNG-fuelled heavy-duty truck fleet



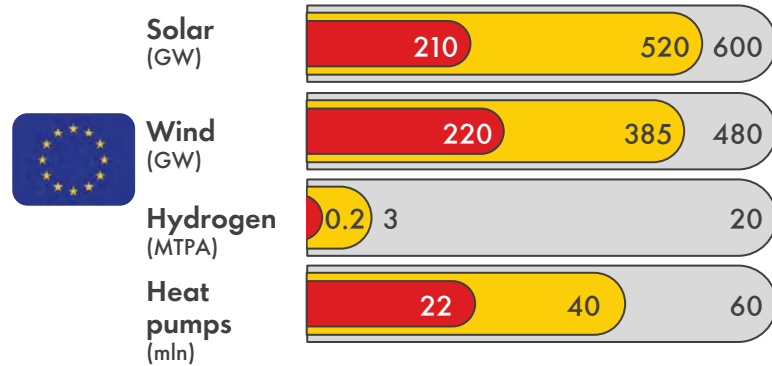
Source: Shell interpretation of Wood Mackenzie, World Bank, S&P Global Commodity Insights, and National Institution for Transforming India data

# LNG provides energy security in transitioning markets

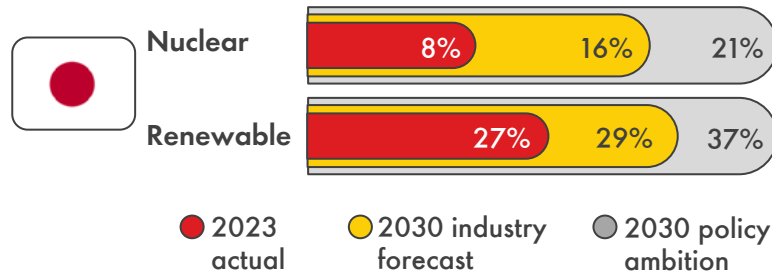
European Union and Japan falling short of policy aims

## Europe and Japan policy aims

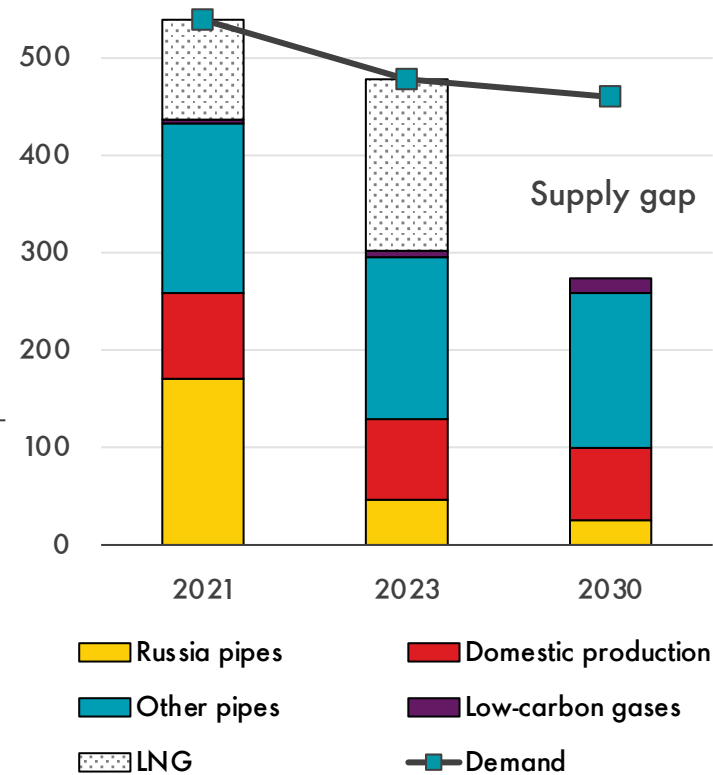
### REPowerEU ambitions vs industry forecasts



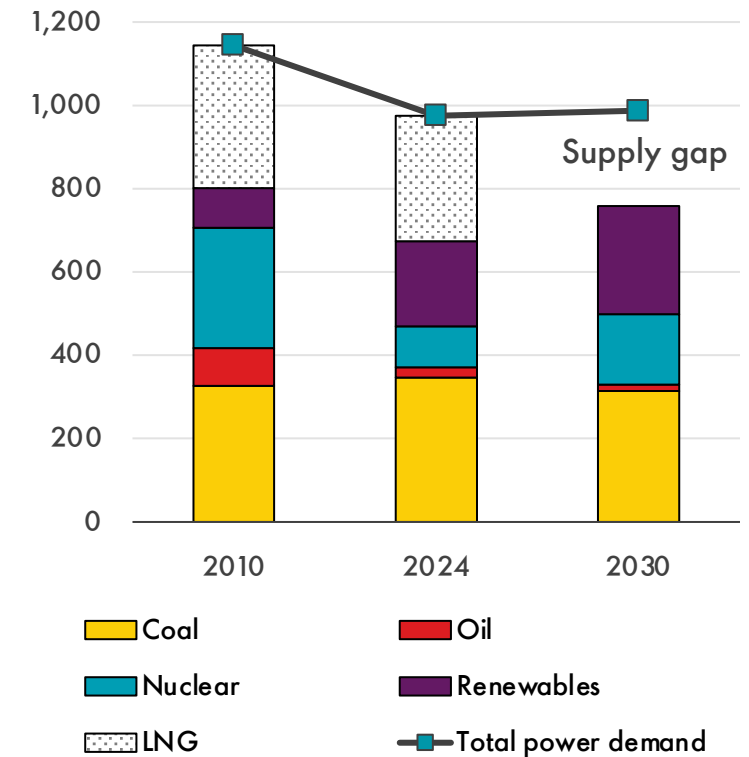
### 6<sup>th</sup> Energy Plan ambitions vs industry forecasts



## Europe gas balance BCM



## Japan power balance TWh



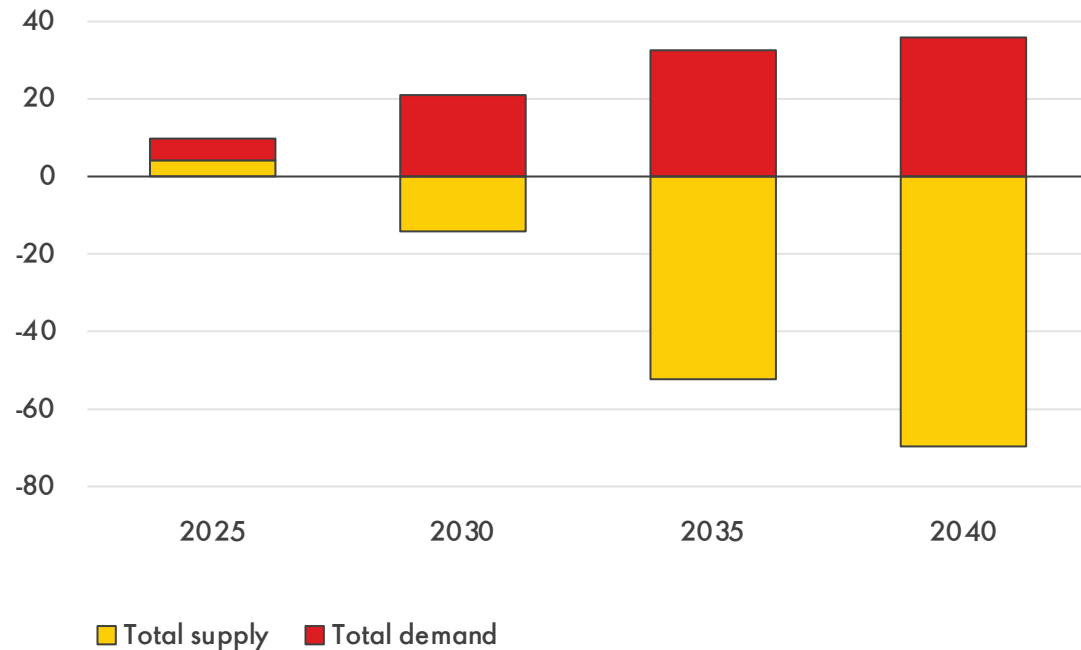
Source: Shell interpretation of S&P Global Commodity Insights, Wood Mackenzie, European Commission, and Japan's Ministry of Economy, Trade and Industry (METI) data

# Declining reserves, growing demand slow legacy LNG exports

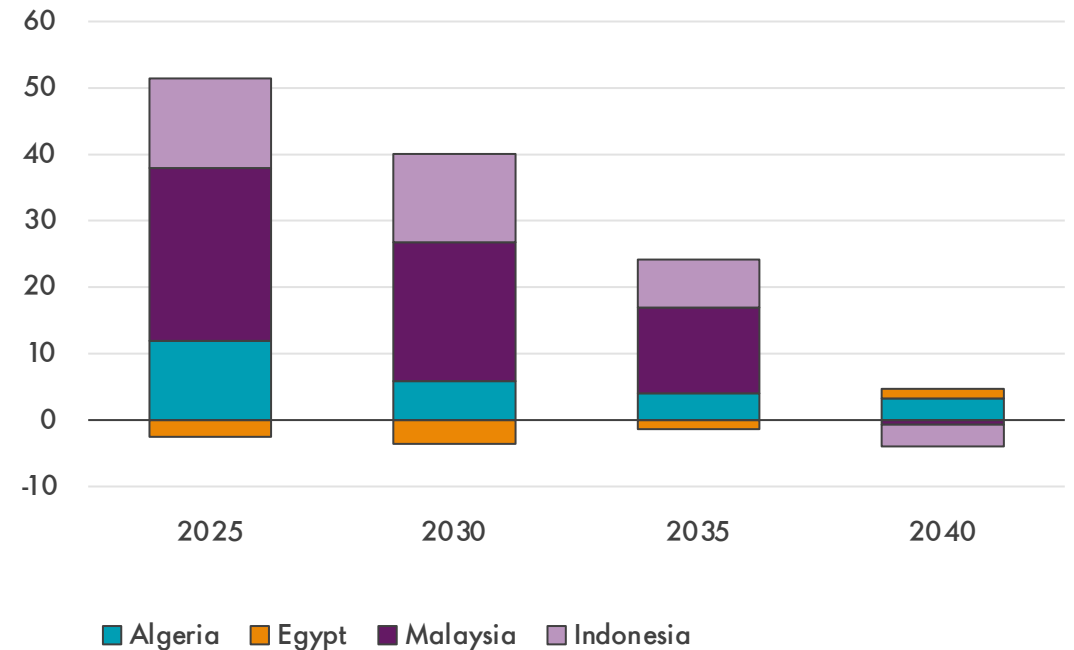
Algeria, Egypt, Malaysia & Indonesia will export less to the global market



Gas supply and demand vs 2024  
BCM



Net LNG exports  
MTPA

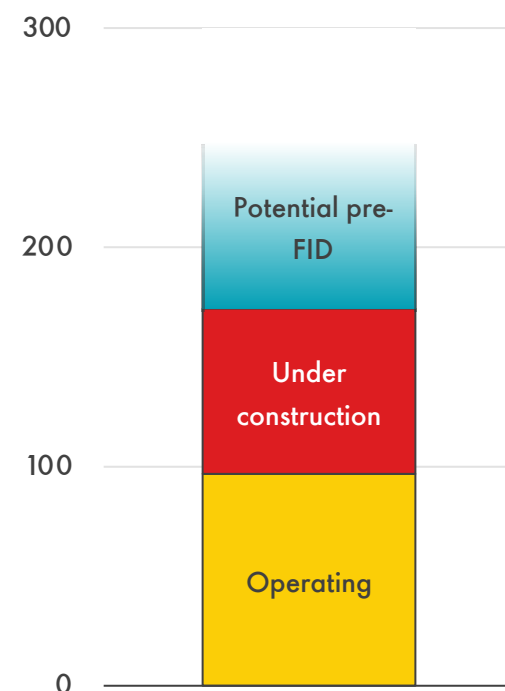


Source: Shell interpretation of Wood Mackenzie data

# The LNG industry is increasing its reliance on US supply

## Further US LNG growth is likely but comes with risks

### US LNG exports MTPA



**2035**

US LNG supply  
could represent:



**2x**

the size of South Korea  
and Japan's 2024 LNG  
demand combined



**1/3**

of global LNG supply

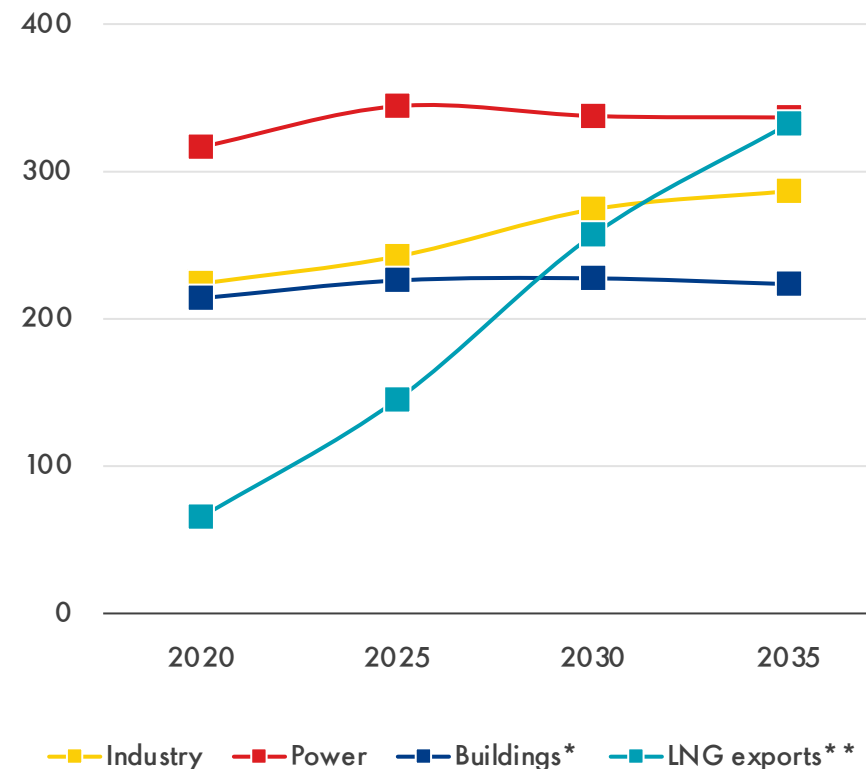


With Qatar

**~60%**

of global LNG supply

### US gas consumption by sector BCM



### US LNG

Risk factors:



Regulatory uncertainty



Energy security



Cost of construction



Emissions intensity

Source: Shell interpretation of Wood Mackenzie data

\*Buildings include residential and commercial demand

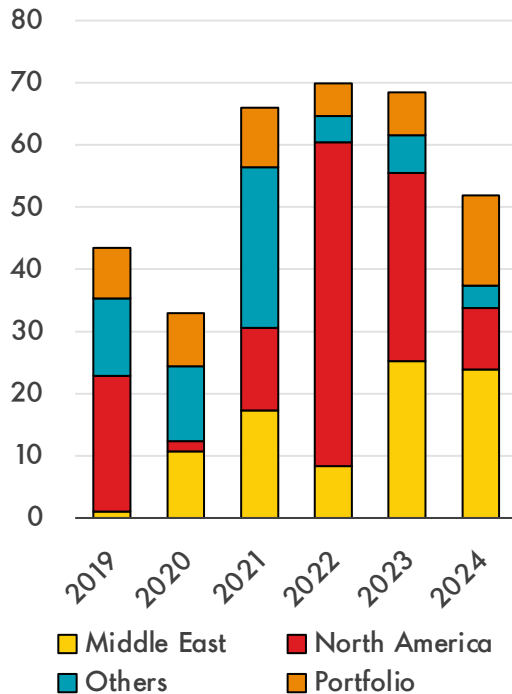
\*\*LNG exports include pre-FID capacity assumptions, including feed gas for Mexico liquefaction capacity exporting US gas supply

# Middle East dominated contracting during 2024

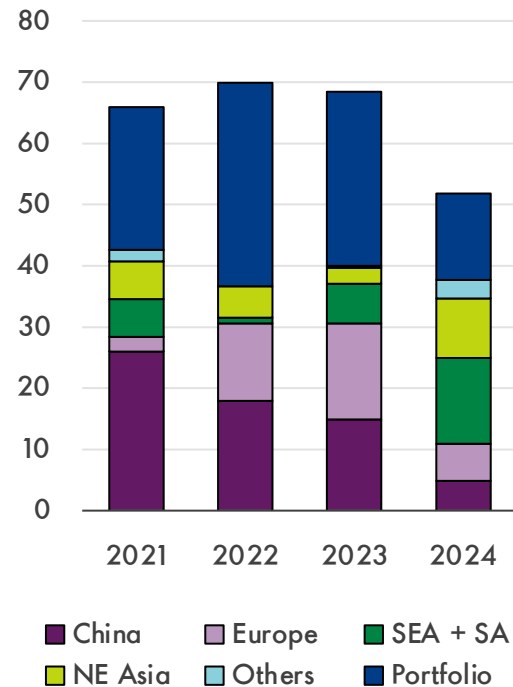
## US selling slowed after record contract signings from 2021 to 2023

### LNG SPA signings MTPA

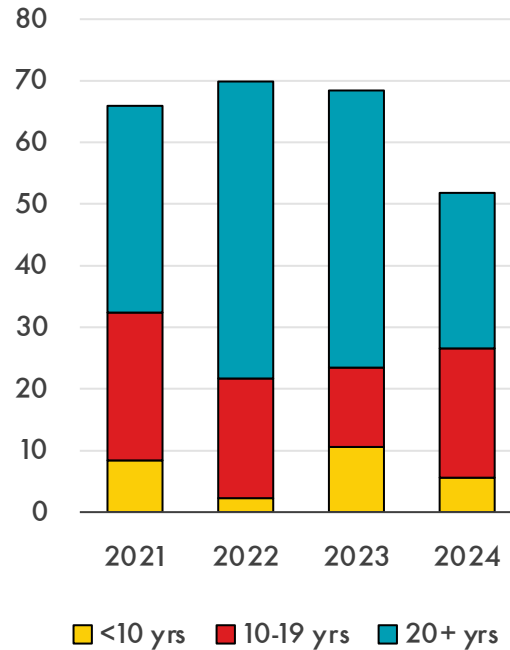
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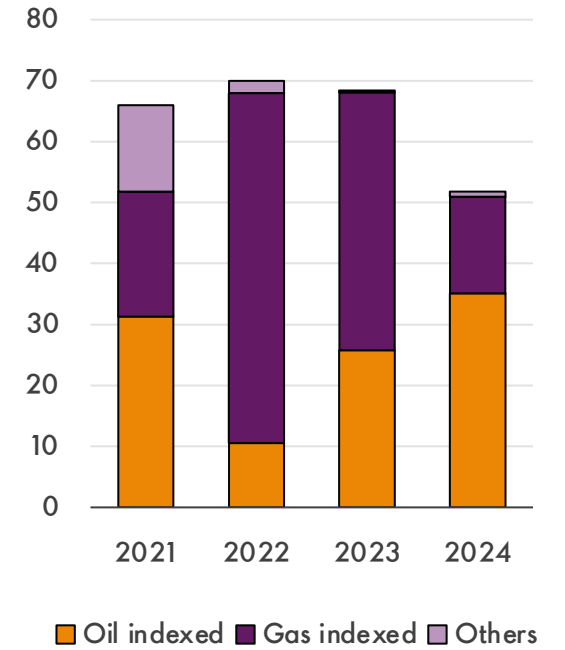
By buyer



By tenor



By index

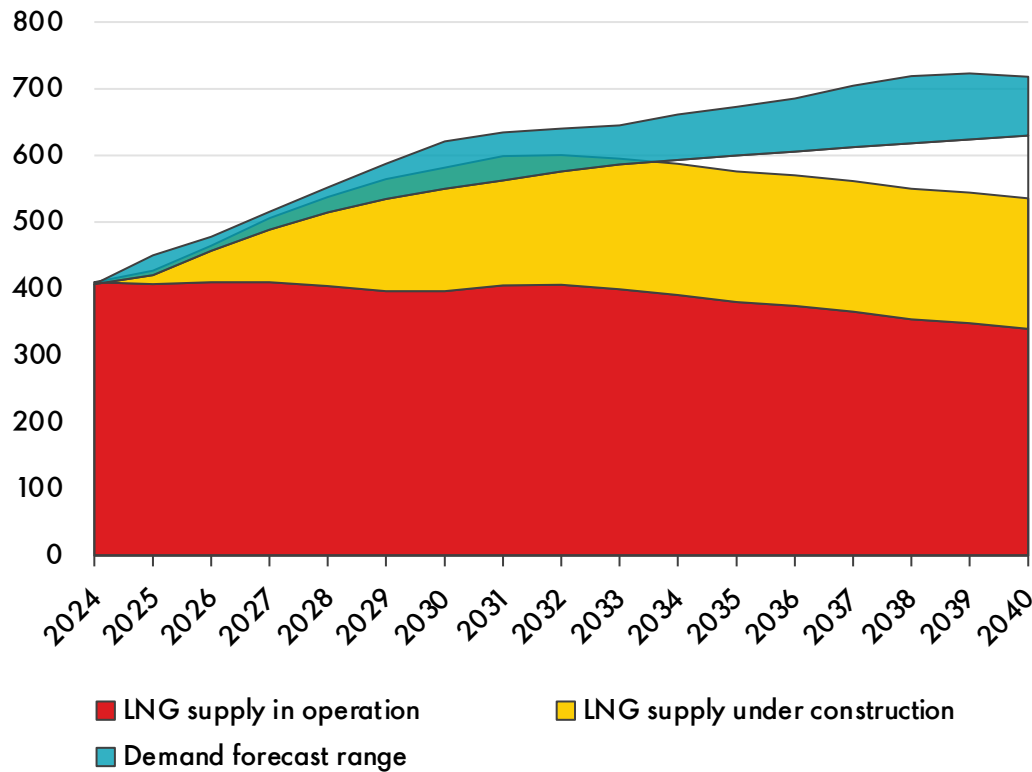


Source: Shell interpretation of S&P Global Commodity Insights and Wood Mackenzie data  
NE Asia: excluding mainland China; SEA: Southeast Asia; SA: South Asia

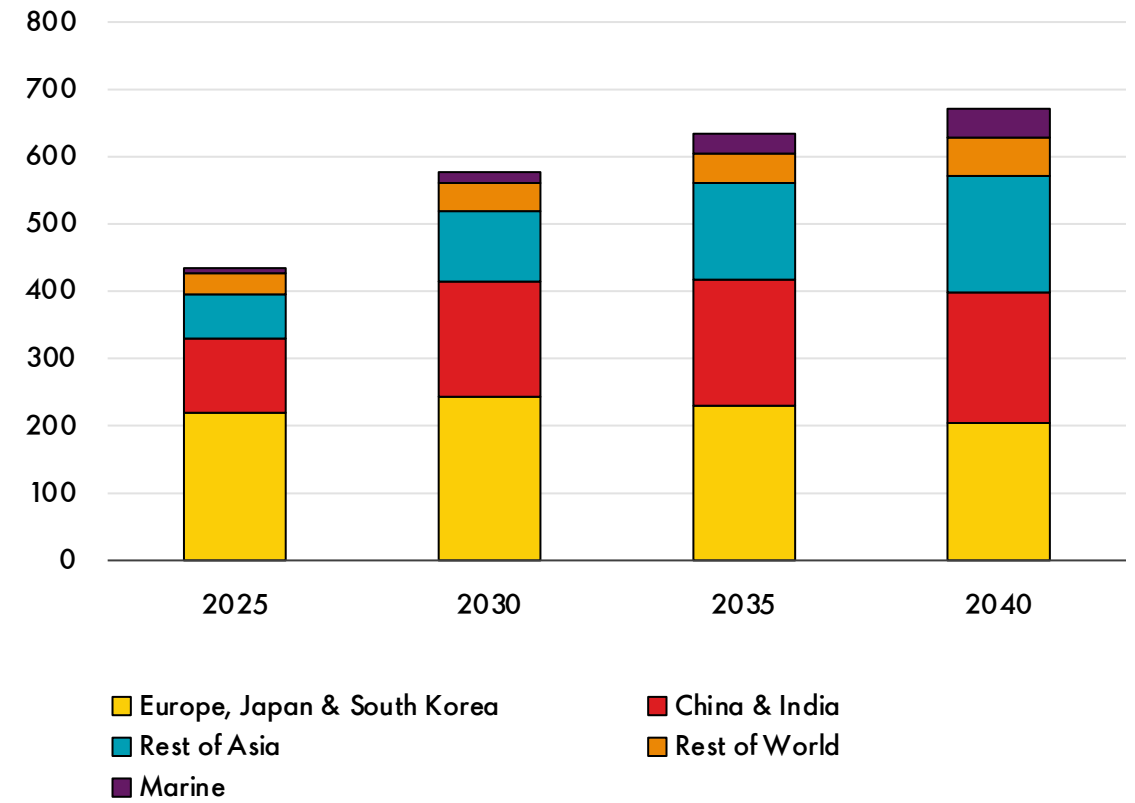
# Outlook upgraded for LNG demand through to 2040

More investment is needed to ensure supply can keep up with demand

Global LNG supply vs demand forecast range  
MTPA



Global LNG demand  
MTPA



Source: Shell interpretation of Wood Mackenzie, S&P Global Commodity Insights, Poten & Partners, Rystad Energy and FGE data

# LNG: dynamic solutions for an interconnected energy system

A fuel of choice for customers navigating the energy transition

