McKinsey & Company

Global Energy Perspectives

Semana de la Energía

OLADE

October 1st

Key global insights

Global Energy Perspectives

A Despite policy innovations and growing private sector commitments, emissions are only set to decline 15-65% and not reducing at the rate required

B Energy demand is projected to grow up to 18%, determined by developments in emerging economies, particularly ASEAN countries, India, Africa, and the Middle East

C Fossil fuel demand continues, now better characterized as a "plateau" between 2025-2035, instead of the previously anticipated "peak"

D The pace of low-carbon energy source growth (3-7% p.a.) is not currently fast enough to meet net-zero goals due to business case viability and other challenges

The transition cannot proceed at speed and at scale without addressing raw materials supply chains, manufacturing, and geopolitical developments

Nuclear could play a significant role in the transition (8-10% of total generation 2050), but faces headwinds in policy and public sentiment

The cost of carbon (globally) is too low to be compatible with faster transition scenarios at 150-225 USD/tCO_2

For the energy transition, (rare-earth) minerals are crucial but account less than 20% of global metals and mining revenues

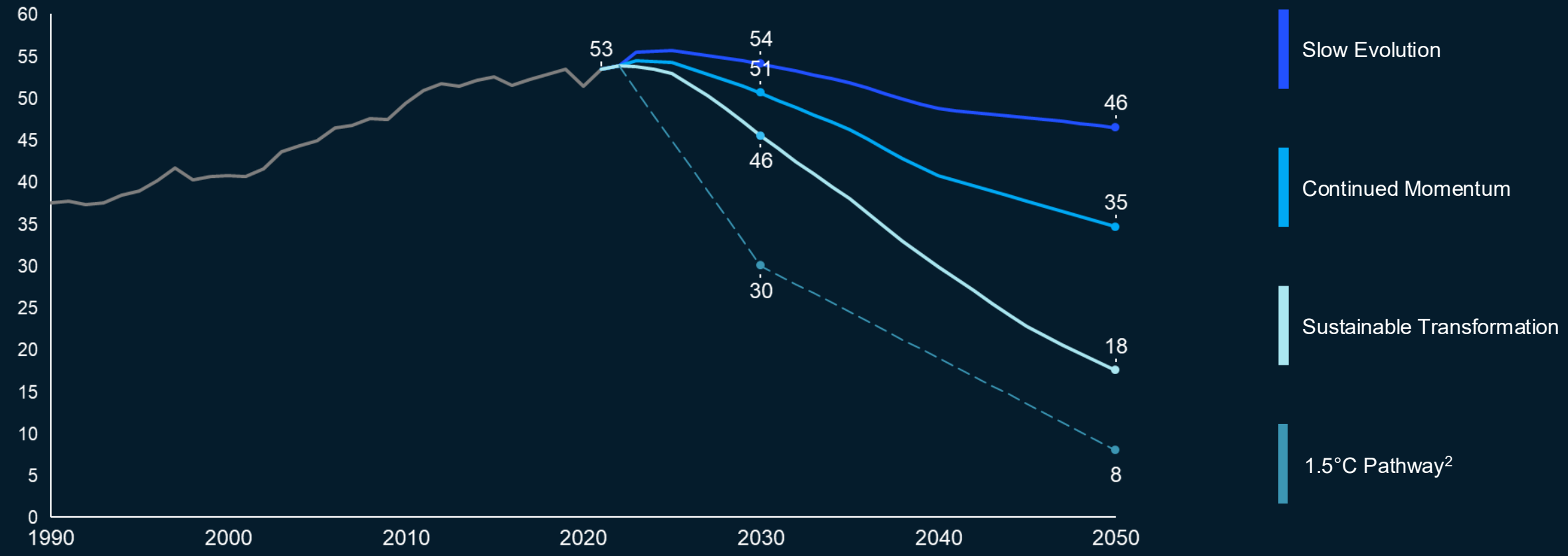
Source: McKinsey Energy Solutions' Energy Perspective 2024

A| Global emissions remain above a 1.5° pathway even if all countries deliver on their current commitments

Knock-on effects and regional differences could drive significantly higher temperature increases locally

Global GHG emissions[1]

$GtCO_2$-eq p.a.



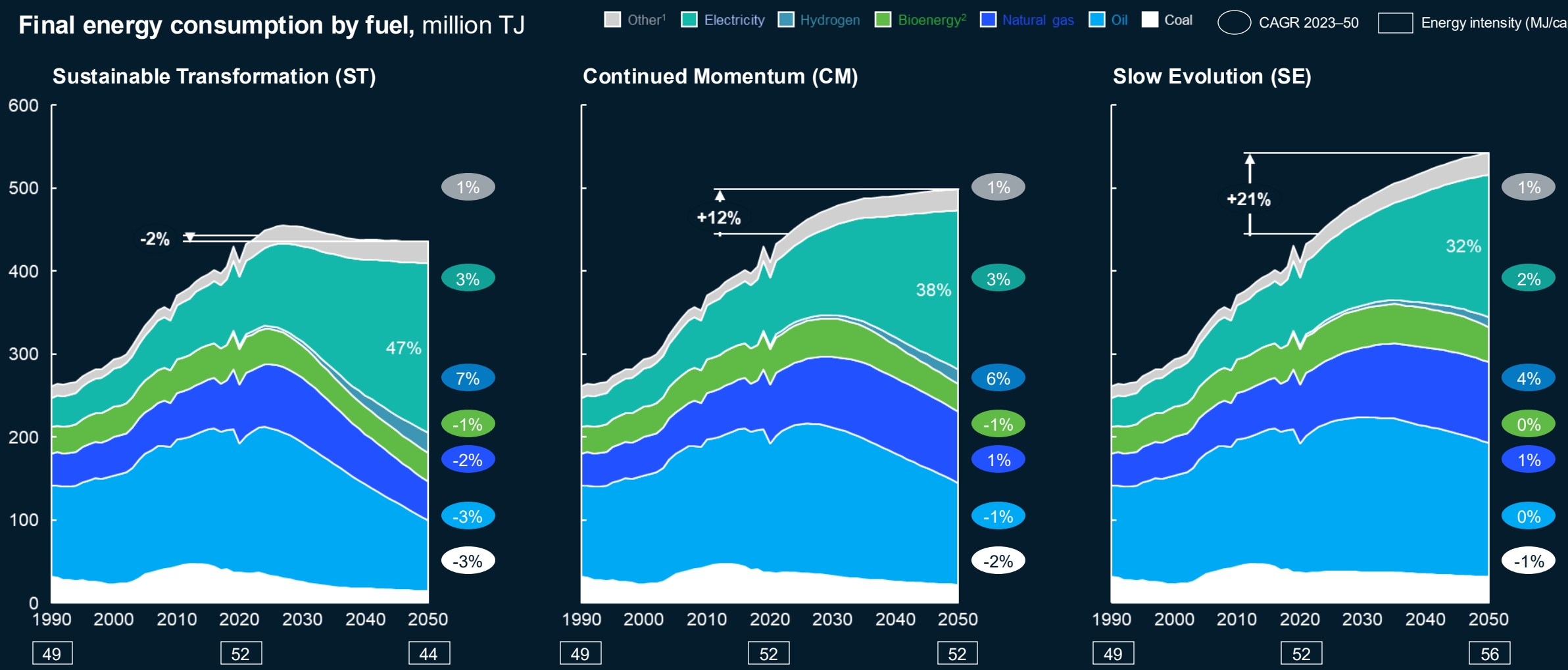
1. Includes process emissions from cement production, chemical production and refining, and negative emissions from applying CCUS
2. The remaining emissions in 2050 (i.e., ~4Gt) are compensated by negative emissions from DACCS, BECCS, and Reforestation

Source: IEA World Energy Balances; IEA Global Energy Review 2022; McKinsey Energy Solutions' Global Energy Perspective 2024

B| Faster transition scenarios show a faster uptake of electrification

Share of electricity in final consumption is projected to be 32–47% by 2050 across our scenarios

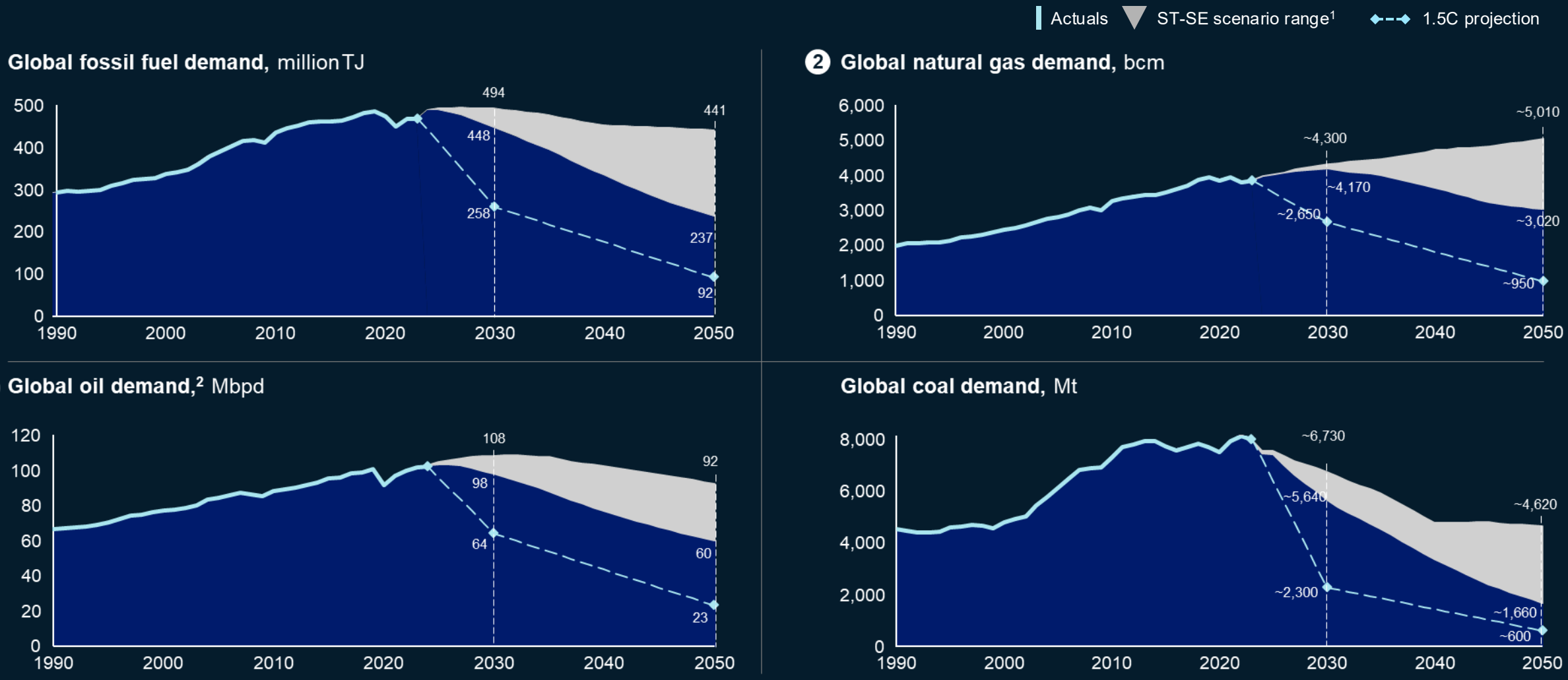
Final energy consumption by fuel, million TJ



1. Includes heat, geothermal and solar thermal. 2. Includes synthetic fuels, biofuels, and other biomass

Source: McKinsey Energy Solutions' Energy Perspective 2024

C| Fossil demand will remain an important part of the energy system, plateauing this decade



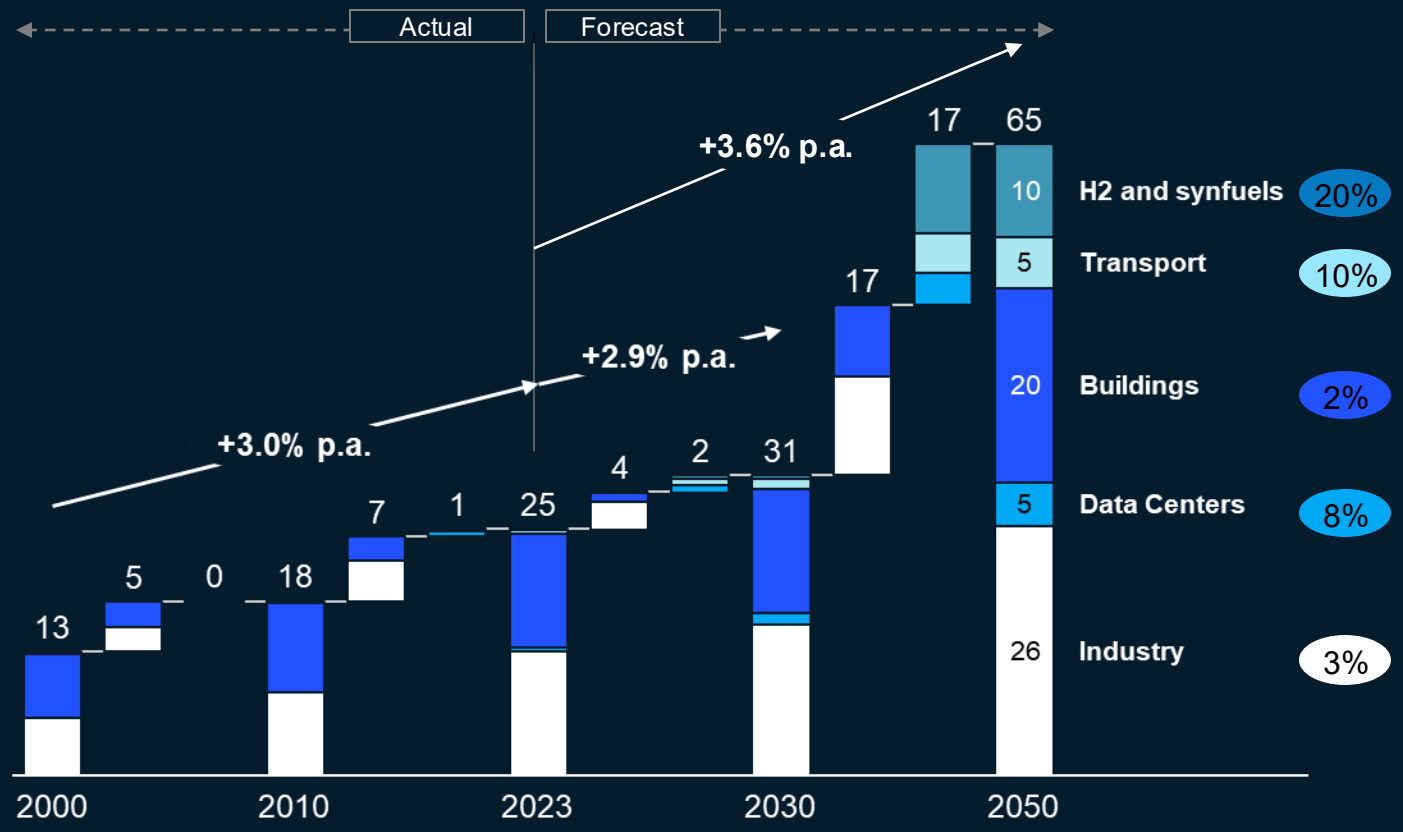
1. Scenario range between Sustainable Transformation and Slow Evolution.
2. Includes biofuels, synfuels. Remaining oil in 1.5C by 2050 mainly in Aviation/Maritime and Chemicals

Source: IEA World Energy Balances; McKinsey Energy Solutions' Global Energy Perspective 2024

D| Growth in electricity consumption expected to accelerate as new demand centers emerge

Continued Momentum

Global power consumption by sector
Thousand TWh



179

mtpa of green Hydrogen demand globally in 2050 (up from <1 mtpa today and 5 mtpa in 2030)

98%

Share of electric vehicles in global passenger car sales by 2050 (up from 18% today and 50% in 2030)

170

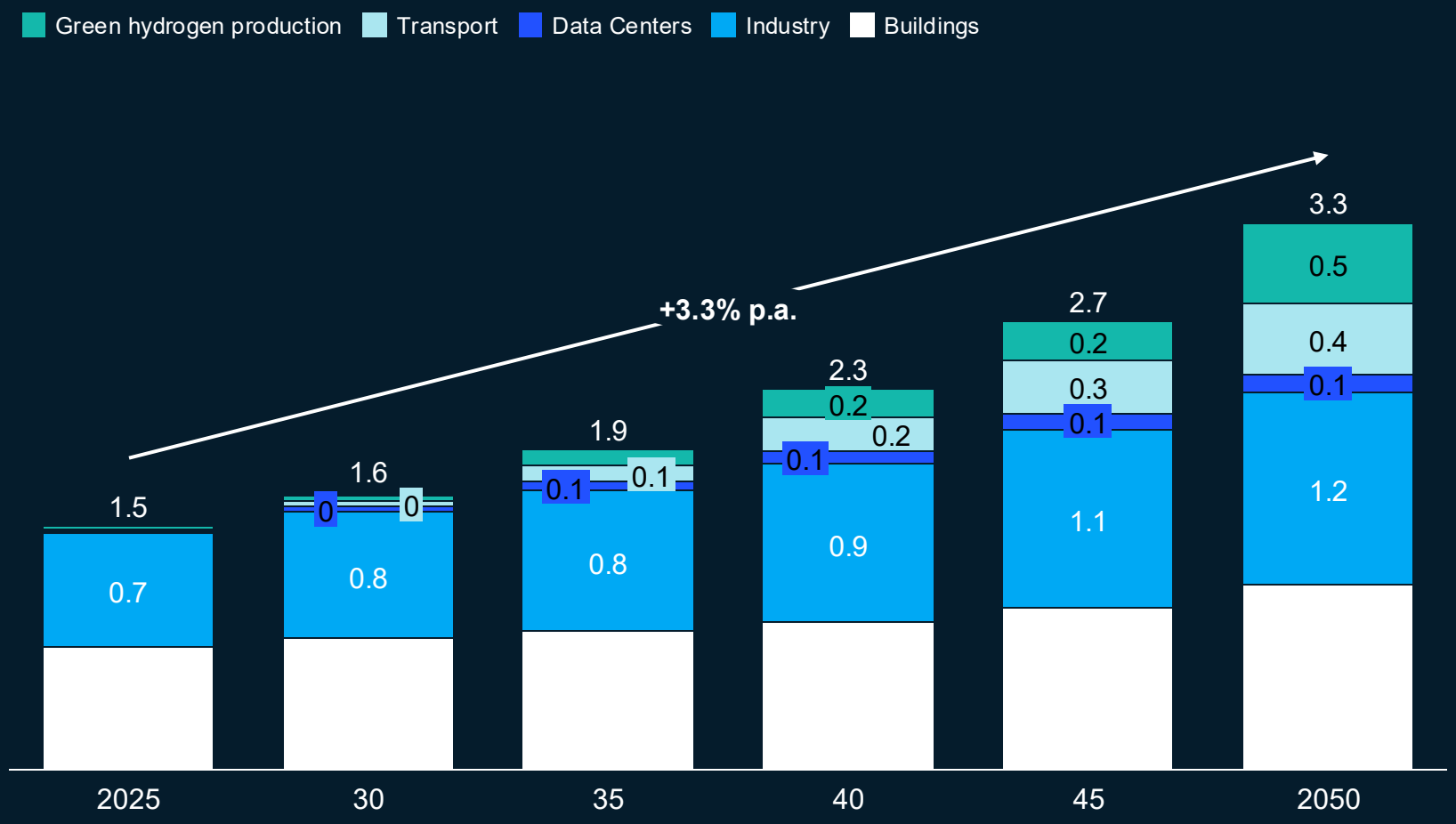
GW capacity of GPUs for data centers globally in 2030

Source: McKinsey Energy Solutions' Global Energy Perspective 2024, IRENA, IEA

Latin American perspectives

Demand: Latam power demand is expected to double to 3300 TWh by 2050

Latam Power Demand by sector[1], '000s TWh



1. Excluding T&D load and storage losses. Latam refers to countries in Central and South America, as well as Mexico
2. Non-coincidental net peak demand, equivalent to gross peak demand less DG generation. Only an estimation.

Source: McKinsey Energy Solutions

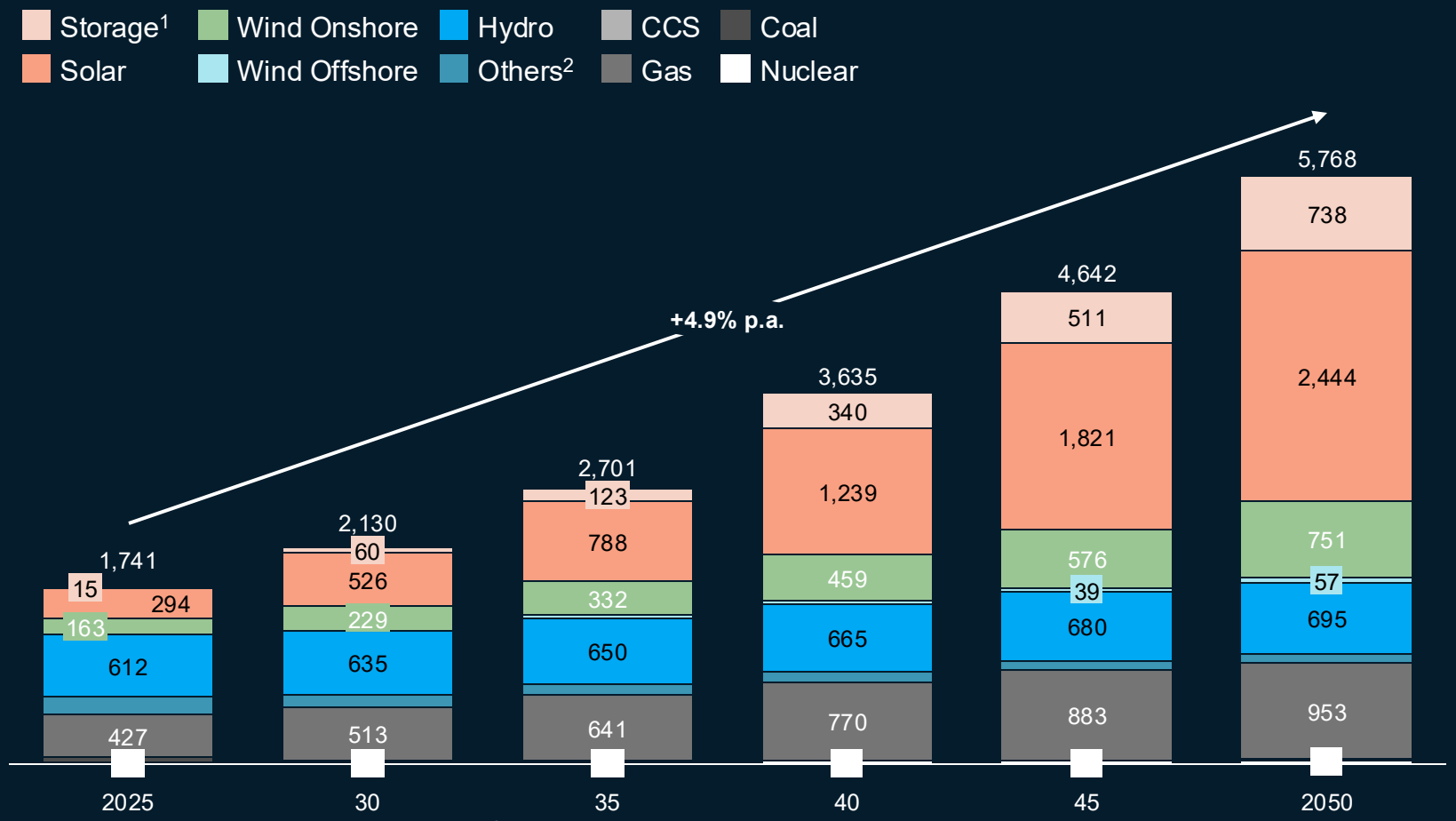
Key takeaways

Building and industry could continue to grow from 1500 TWh to 2300 TWh by 2050, driven by economic and population growth, as well as electrification

Other electrification opportunities, such as EV, green fuel production and data center, **could represent ~1/3 of the total demand by 2050**

Capacity: Capacity is expected to more than triple, with a diverse resource mix from solar, wind, hydro and gas

Latam installed capacity by technology, GW



1. Include battery storage, pumped hydro storage, LDES. For battery storage, include use cases such as ancillary service, energy arbitrage, capacity reserve and congestion management
2. Include Biomass, Oil, Hydrogen and Geothermal

Source: McKinsey Energy Solutions, McKinsey Power Model

Key takeaways

Installed capacity will triple to ~5,800 GW by 2050 (+5% p.a.), driven by **solar, gas, and onshore wind**.

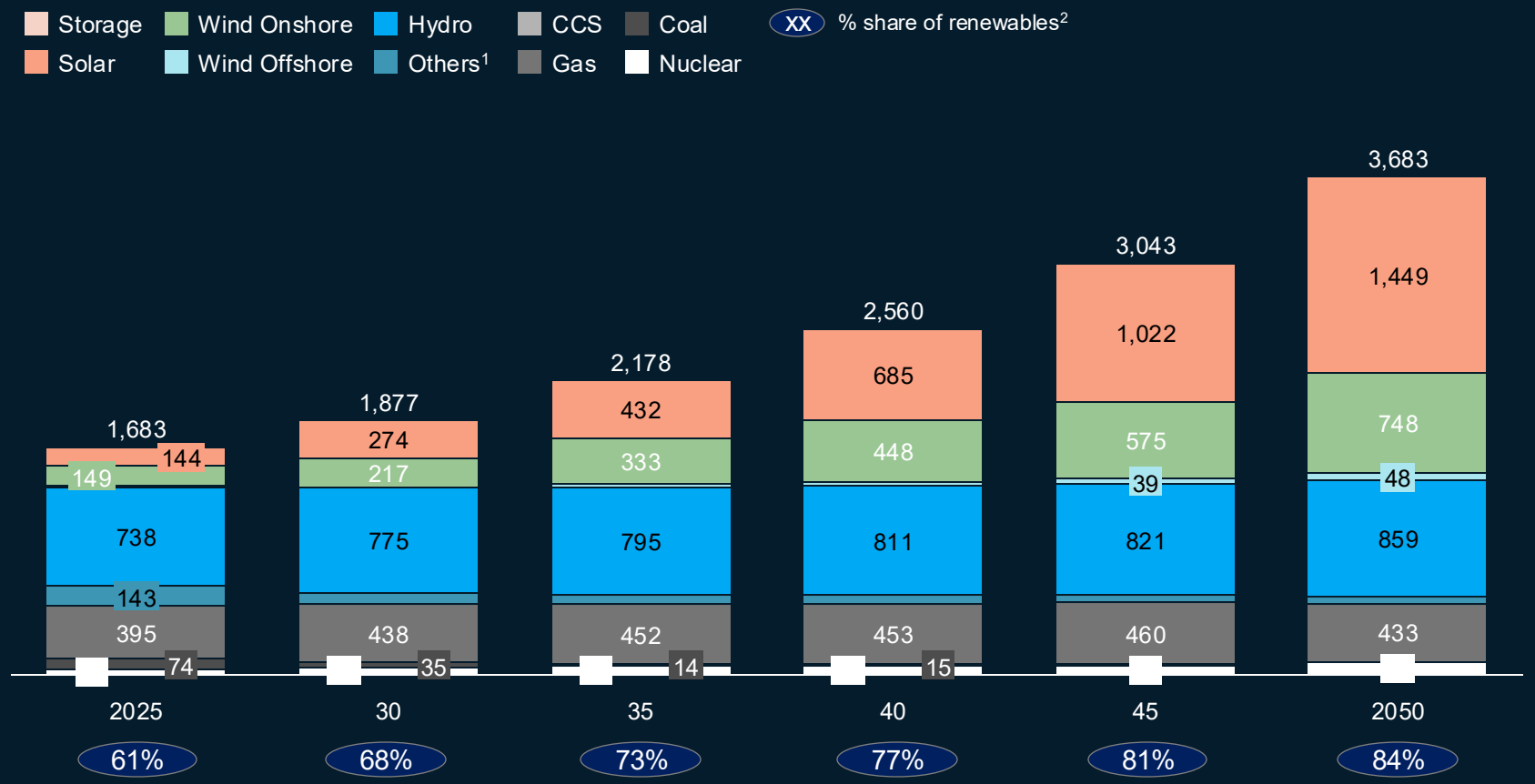
Hydro, the technology currently with most capacity, **is expected to grow modestly** due to rainfall shifts

Storage, mainly batteries, **expands strongly** to balance renewables

Generation: Renewables are expected to reach ~85% of generation by 2050

Latam power generation by technology, TWh

Continued Momentum Scenario



1. Include Biomass, Oil, Hydrogen and Geothermal
2. Include solar, wind and hydro

Source: McKinsey Energy Solutions, McKinsey Power Model

Key takeaways

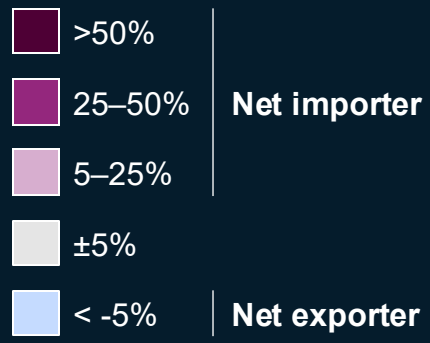
Renewables, including hydro, solar and wind, **could supply ~85% of the generation by 2050**, with most of the growth coming from solar and wind

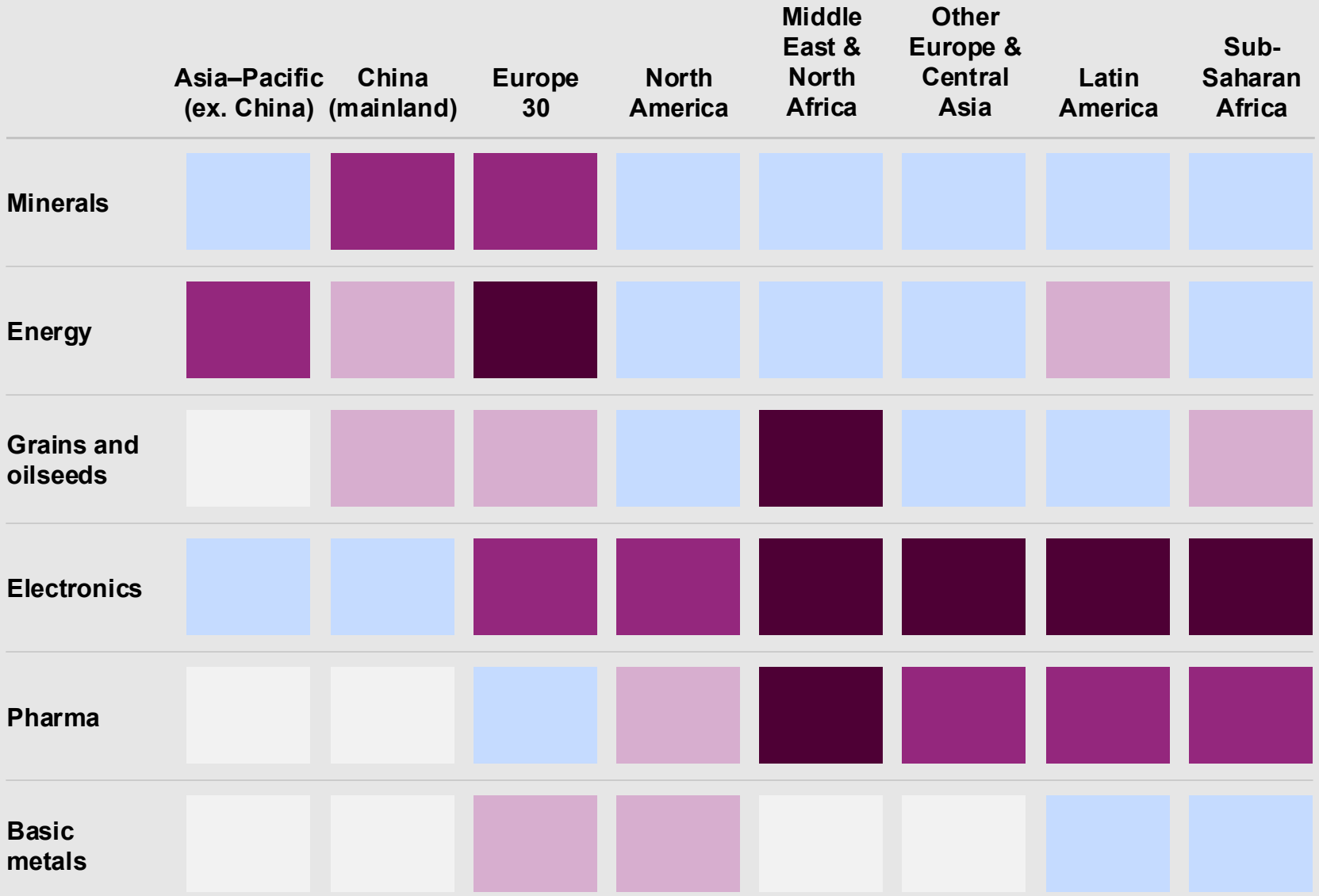
Gas generation might not change drastically over time, but it would serve a critical role of **balancing** and **reserve capacity** to **support** intermittent **renewables**

FDI and energy: connecting investment with transition

The world is interconnected

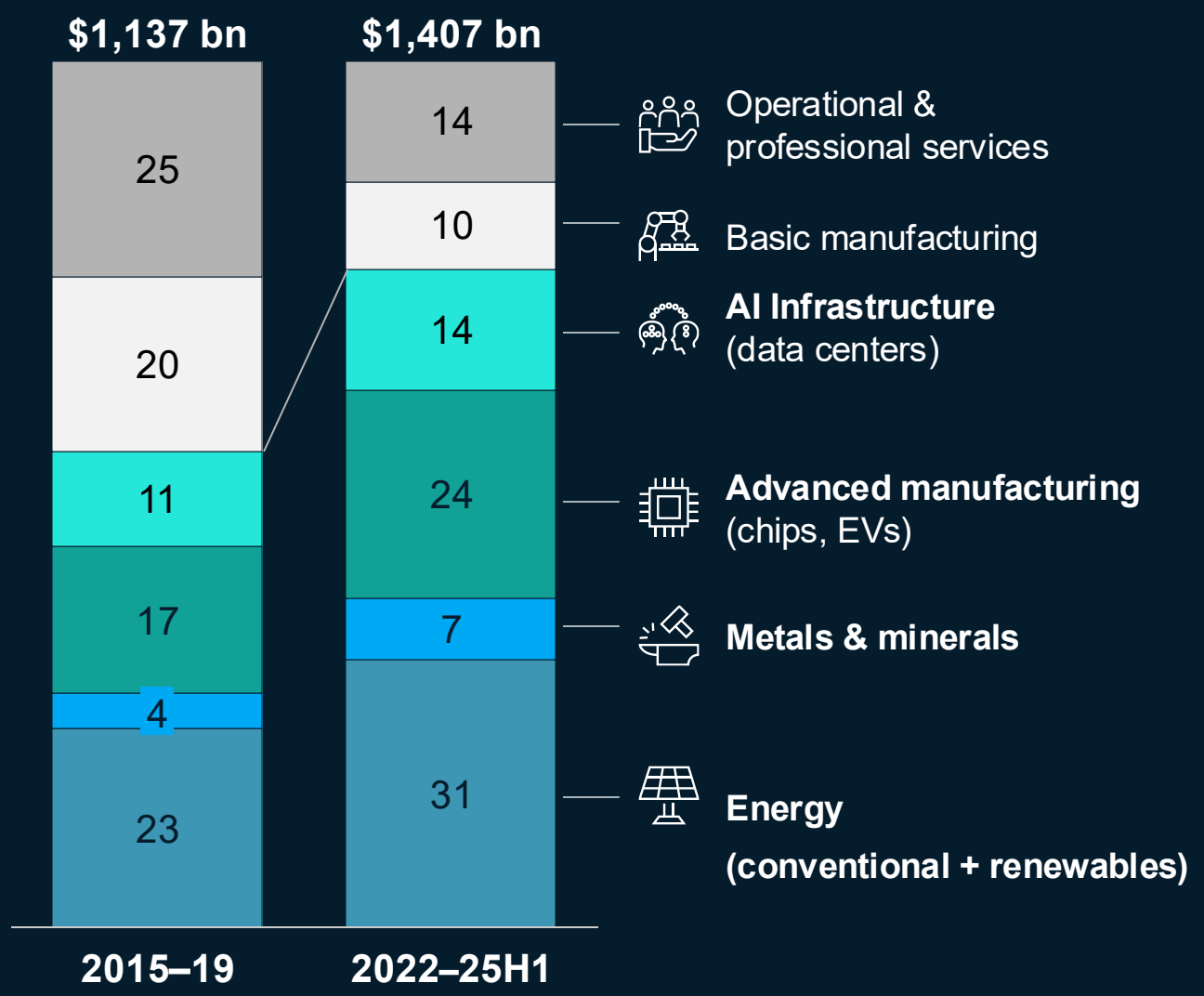
Net imports as share of domestic consumption, %, 2023 or most recent available





Capital is moving to the industries of the future…

Announced greenfield FDI, annual average 2015–19 and 2022–25H1, real $ billion and % of total

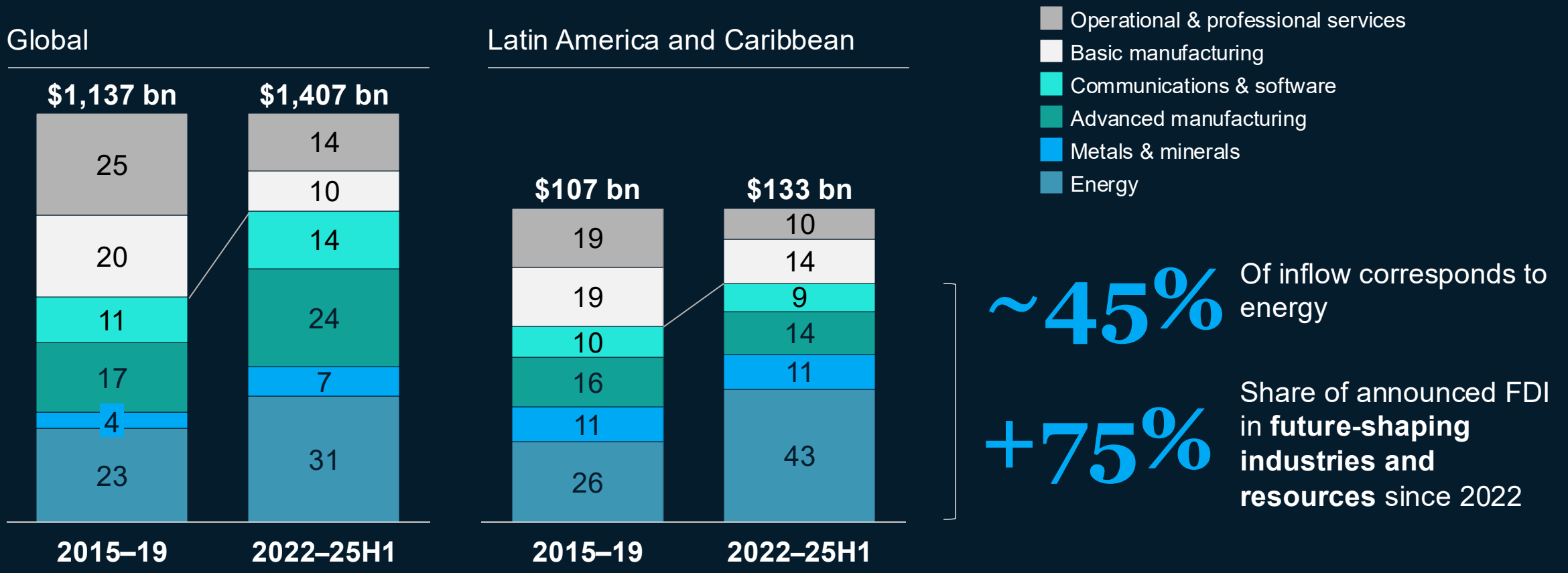


75%

Share of announced FDI in **future-shaping industries and resources** since 2022

… both globally and in Latin America

Announced greenfield FDI, annual average 2015–19 and 2022–25H1, real $ billion and % of total



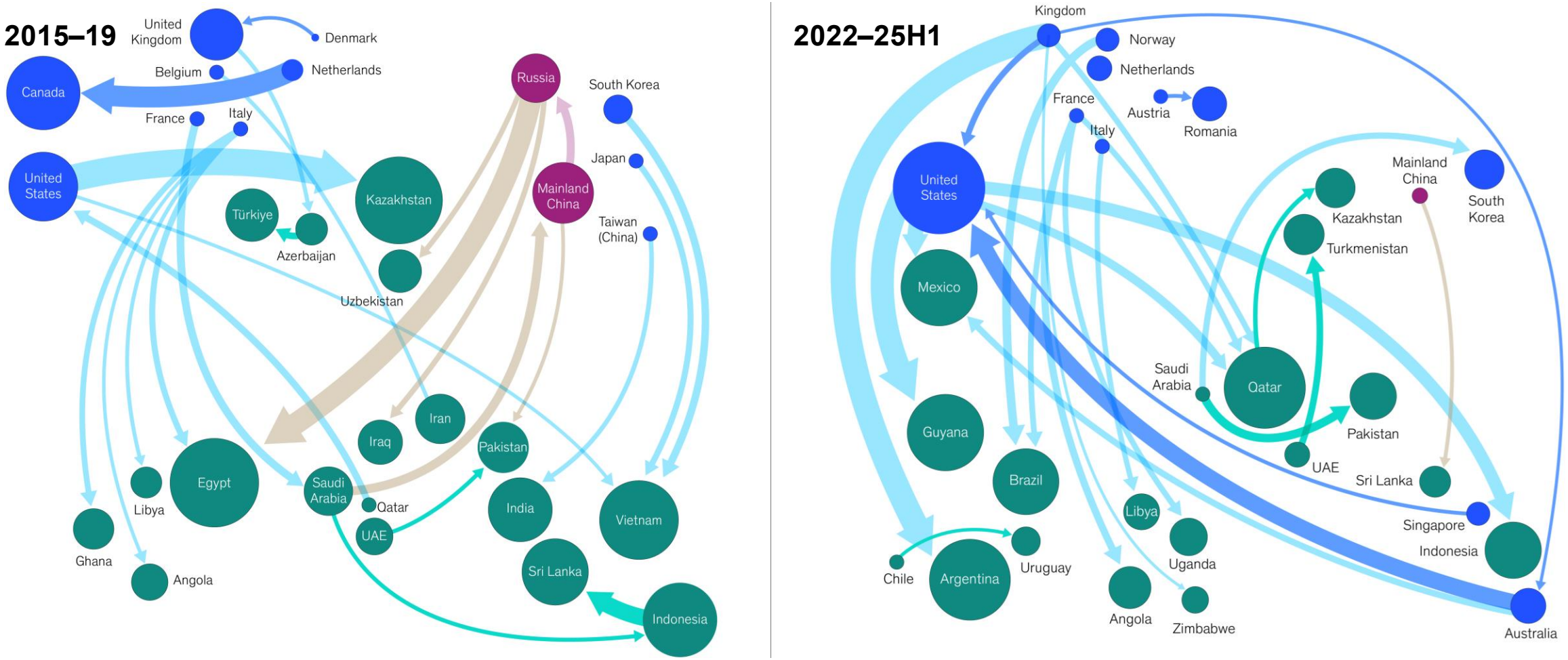
~45% Of inflow corresponds to energy

+75% Share of announced FDI in **future-shaping industries and resources** since 2022

FDI in fossil fuels flowed into Latin America, Qatar, and the United States

Oil and gas extraction and LNG: Top 25 corridors by announced greenfield FDI, real 2024 $ billion

Advanced economies Emerging economies Mainland China and Hong Kong Circle size = FDI inflows, $ Arrow width = corridor size, $

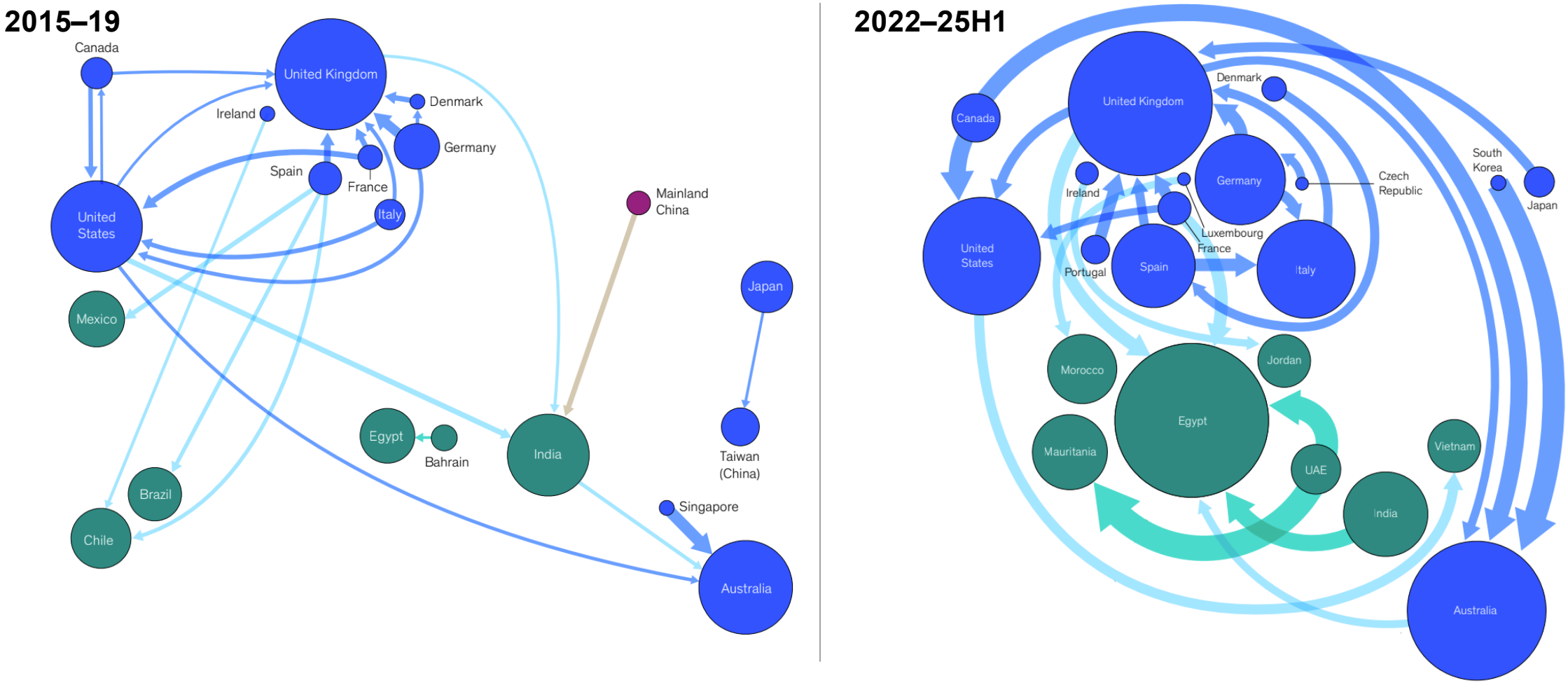


Source: Using data provided by fDi Markets; McKinsey Global Institute analysis

FDI in low-emissions energy grew in MENA and Europe, driven by hydrogen and wind projects

Renewables and hydrogen: Top 25 corridors by announced greenfield FDI, real 2024 $ billion

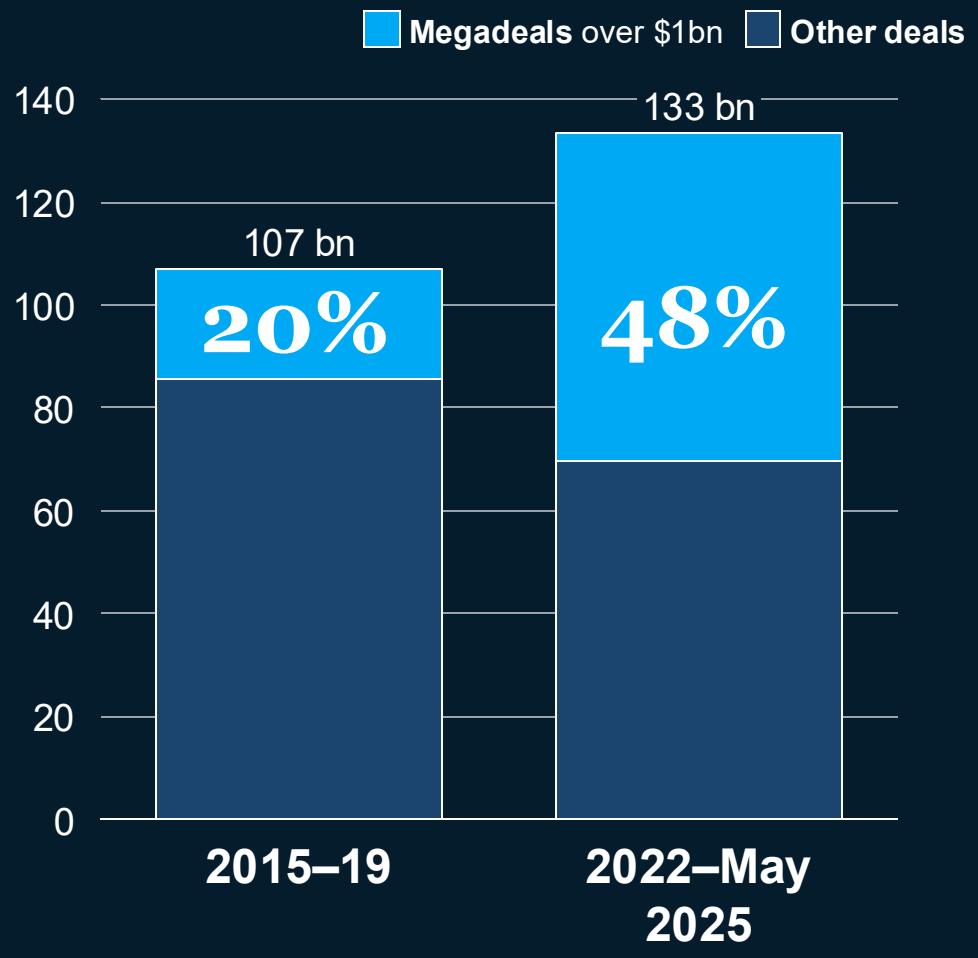
Advanced economies Emerging economies Mainland China and Hong Kong Circle size = FDI inflows, $ Arrow width = corridor size, $



Source: Using data provided by fDi Markets; McKinsey Global Institute analysis

Multinationals are placing bigger bets in Latin America especially in energy

Announced greenfield FDI, real $ billion, annualized averages



Top Megadeals in the last 3 years

2024

$30B
Shell PLC manufacturing deals in Argentina

2024

$15B
Mexico Pacific manufacturing energy deals in Mexico

2022 + 2023

Over $22B
Exxon Mobil Oil & Gas extraction in Guyana

2023

Up to $9B
Equinor Oil & Gas extraction in Brazil

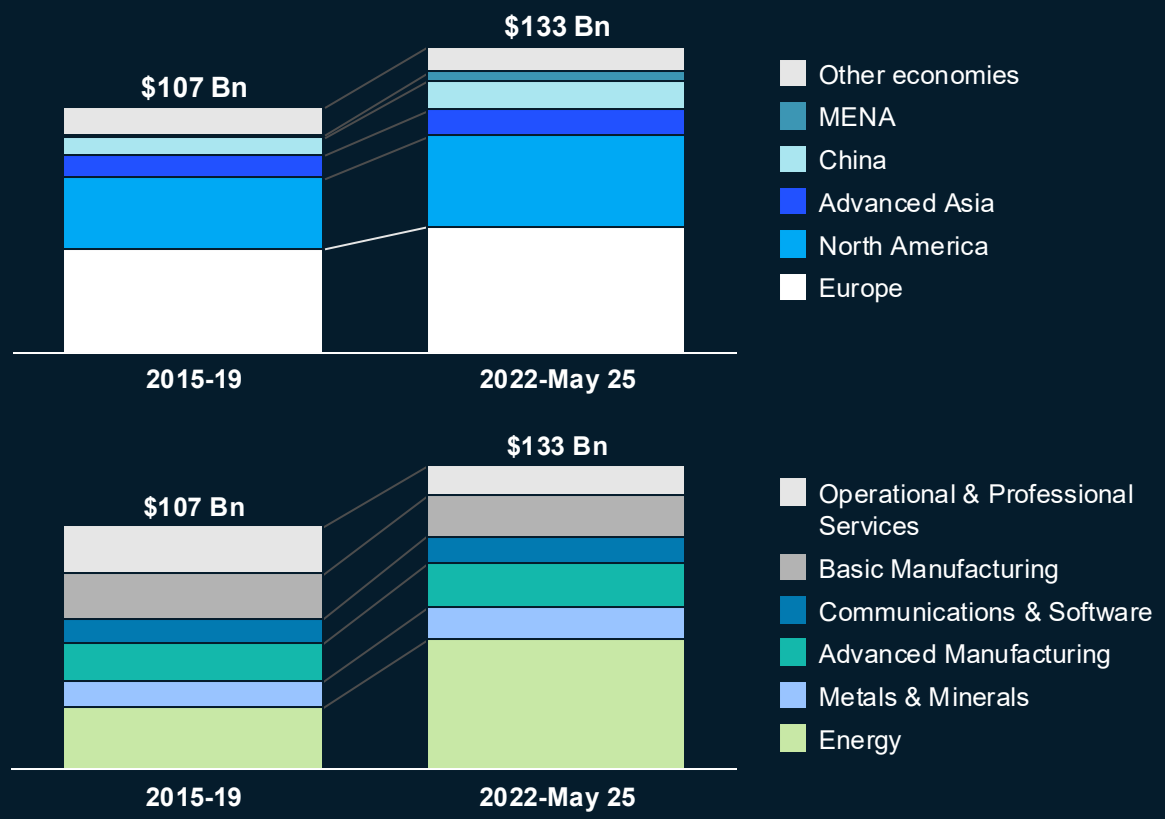
How today's flows may reshape Latin America's industry and trade

Analysis for greenfield FDI into and out of Latin America, all figures represent annualized averages, real 2024 US$

Summary of key findings

- **Latin America has long attracted disproportionate energy FDI**, which has intensified since 2022, accounting for over 80% of growth
- In Latin America, **FDI announcements in fossil fuels drove the step up**, with more investment from European and Middle Eastern firms focused on energy security
- **Projects in Argentina, Guyana and Mexico aim to bypass vulnerable shipping routes** like Suez and Hormuz
- **While energy was the major driver of FDI announcement growth Latin America**, a wider swath of sectors also received growing inflow between 2022 and 2024, with software and advanced manufacturing inflows up 23% vs. pre-COVID
- In the first five months of 2025, **FDI announcements declined substantially in Latin America**

Breakdown of annualized greenfield FDI announcements into Latin America, by sector and geography, as % of total



Note: Latin America includes Mexico, Central and South America, and the Caribbean
Source: fDi markets deal-level data 2015-25
1. All deals until May 2025 considered; 2. Future shaping industries include advanced manufacturing and communications and software; resources include energy and metals and minerals;

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Thank you!

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