



EUROPEAN CENTRAL BANK

EUROSYSTEM

The global green transition: where do we stand?

Banco de Mexico

Mexico City, 9 April 2025

**I thank Niklas Jutting, Ferdinand Dreher and Benedikt Scheid for input and comments. Views expressed are personal and do not necessarily reflect those of the ECB.*

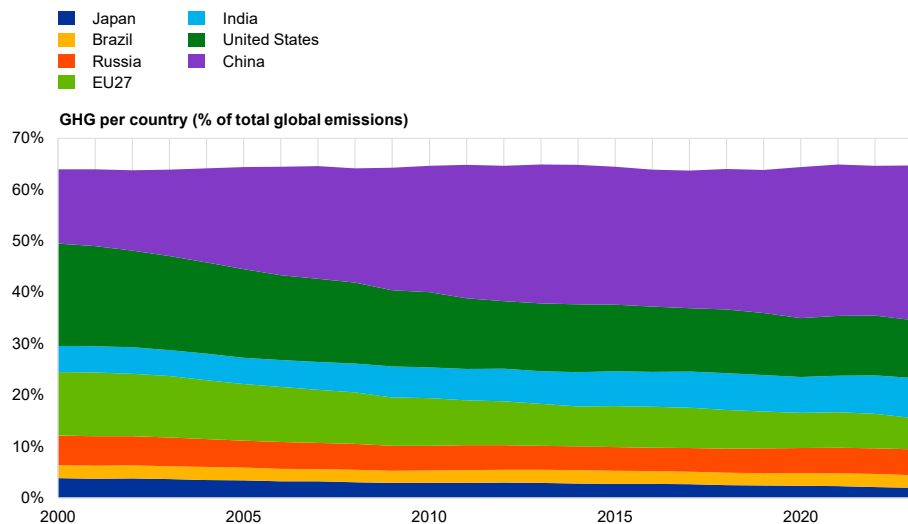
Livio Stracca*

European Central Bank



Bulk of global emissions comes from few countries

Top GHG emitters and their global shares

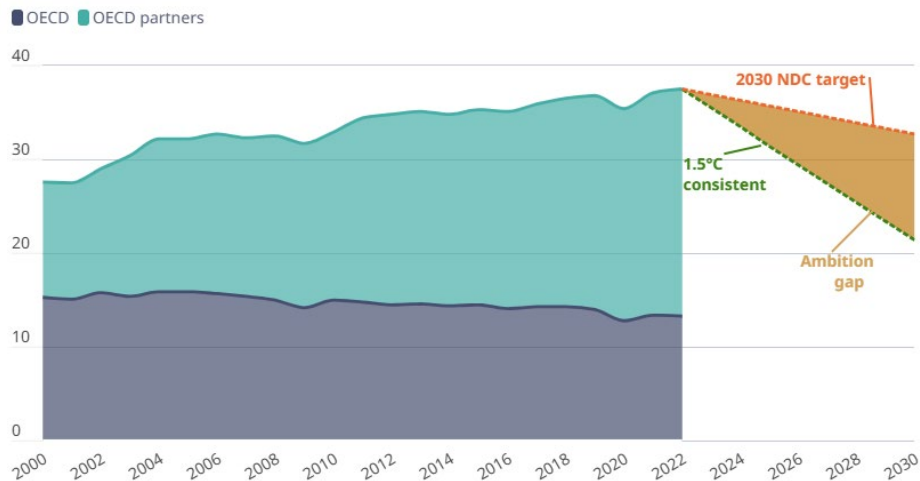


Sources: [EDGAR - Emissions Database for Global Atmospheric Research](#). GHG emissions include CO₂ (fossil only), CH₄, N₂O and F-gases. They are aggregated using Global Warming Potential values from IPCC AR5 (GWP-100 AR5).

The transition has been delayed in recent years

Ambition gap for greenhouse gas emissions

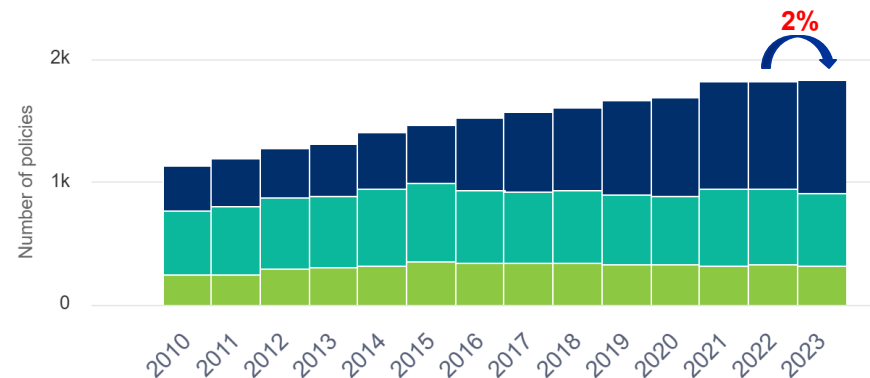
(Gt of CO₂ eq)



Source: OECD (2024) "Climate Action Monitor" and [UNEP 2024 Emission Gap Report](#).

Number of adopted policies by policy stringency

Legend: High stringency (dark blue), Medium stringency (teal), Low stringency (light green)

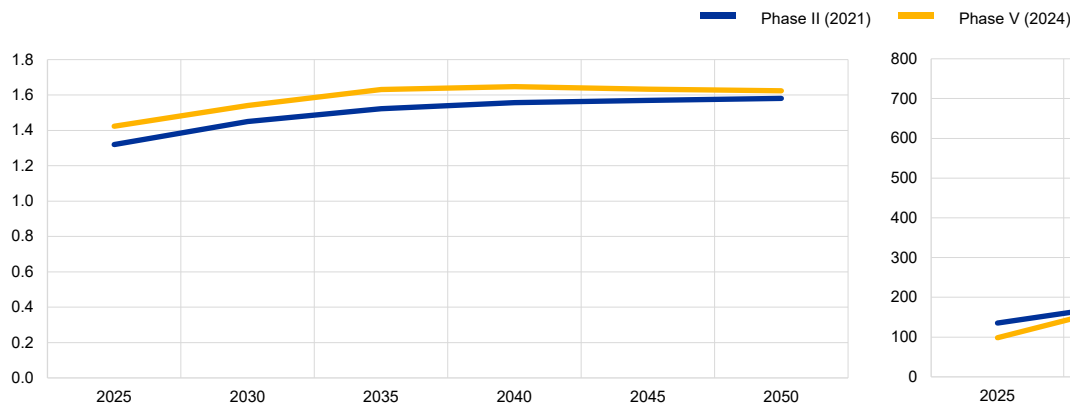


Source: Based on data from OECD, IEA, ITF, World Bank and others using the methodology of Nachtigall, D. et al. (2022): "The climate actions and policies measurement framework: A structured and harmonised climate policy database to monitor countries' mitigation action", OECD Environment Working Papers, No. 203, OECD Publishing, Paris, <https://doi.org/10.1787/2caa60ce-en>.

The transition has been delayed in recent years

Temperature evolution under NGFS Net-Zero 2050 scenario

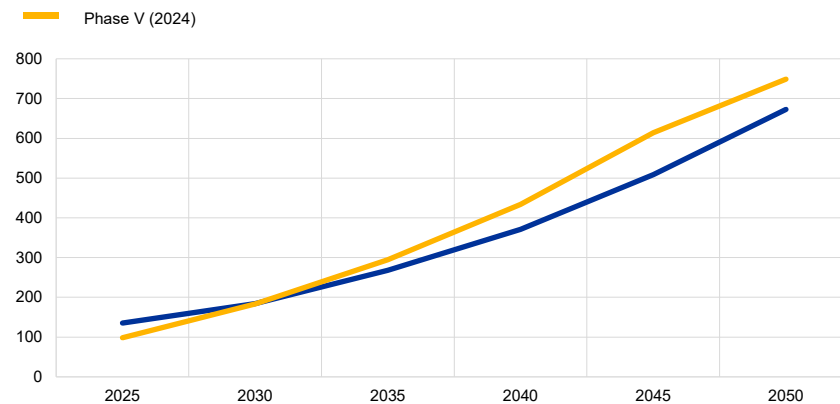
(°C global mean surface temperature compared to pre-industrial level)



Source: [IIASA NGFS Climate Scenarios Database](#), MAGICC model

Shadow carbon price under NGFS Net Zero 2050 scenario

(US\$2010/tCO₂/year)



Source: [IIASA NGFS Climate Scenarios Database](#), MagPIE 2.1-4.2 model

Update of NDCs is stalling

NDCs 2.0 (2020)

- **45 parties** submitted their NDCs in time with **major absences**, including the US, India and China.
- By Dec 2021, the **number of submissions increased** to 128, covering 85% of global emissions.

Assessment of the NDCs 2.0 (Global Stocktake COP28, 2023):

- **NDCs 2.0 insufficient** – upon full implementation of the targets, projected warming of ~3°C.
- NDCs 3.0 should reflect the need to:
 - **Reduce global GHG emissions by 43%** by 2030 relative to 2019 (global GHG emissions were 1.9% higher in 2023¹).
 - **Triple renewable energy and double energy efficiency** by 2030 relative to 2022 (global renewable energy capacity increased by 14%² and energy efficiency by 2% in 2023³).

NDCs 3.0 (2025)

- **Low submission rate** – Only **13 out of 195 parties** met the deadline in February 2025, e.g., US, UK, Brazil, and six more submitted since then (21% of global emissions are covered).
- **Ambition gap persists** – So far only the UK's NDC 3.0 is 1.5°C compatible according to The Climate Action Tracker.

Next steps:

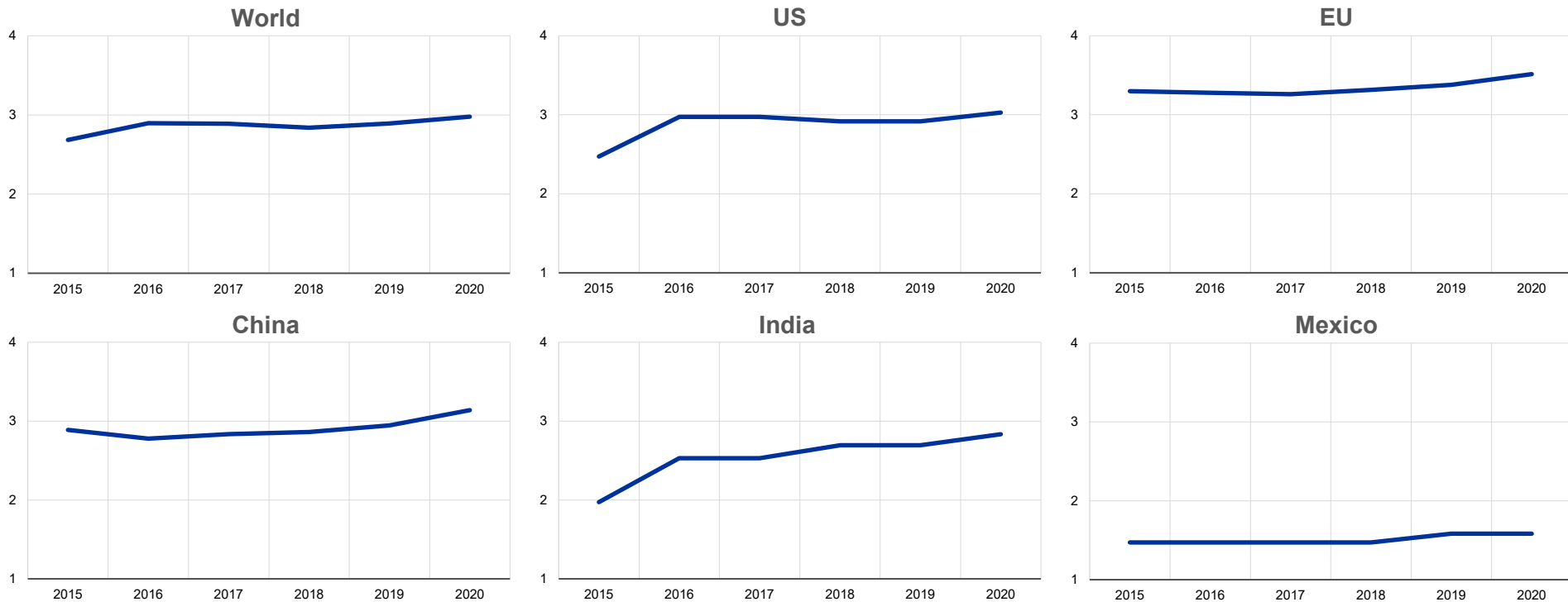
- Countries encouraged to submit by **September 2025** for inclusion in the **NDC Synthesis Report**.
- Findings to be discussed at **COP30 (Brazil, 2025)**.

¹ Jones et al. (2024)

² Ember

³ International Energy Agency

OECD environmental policy stringency indicators

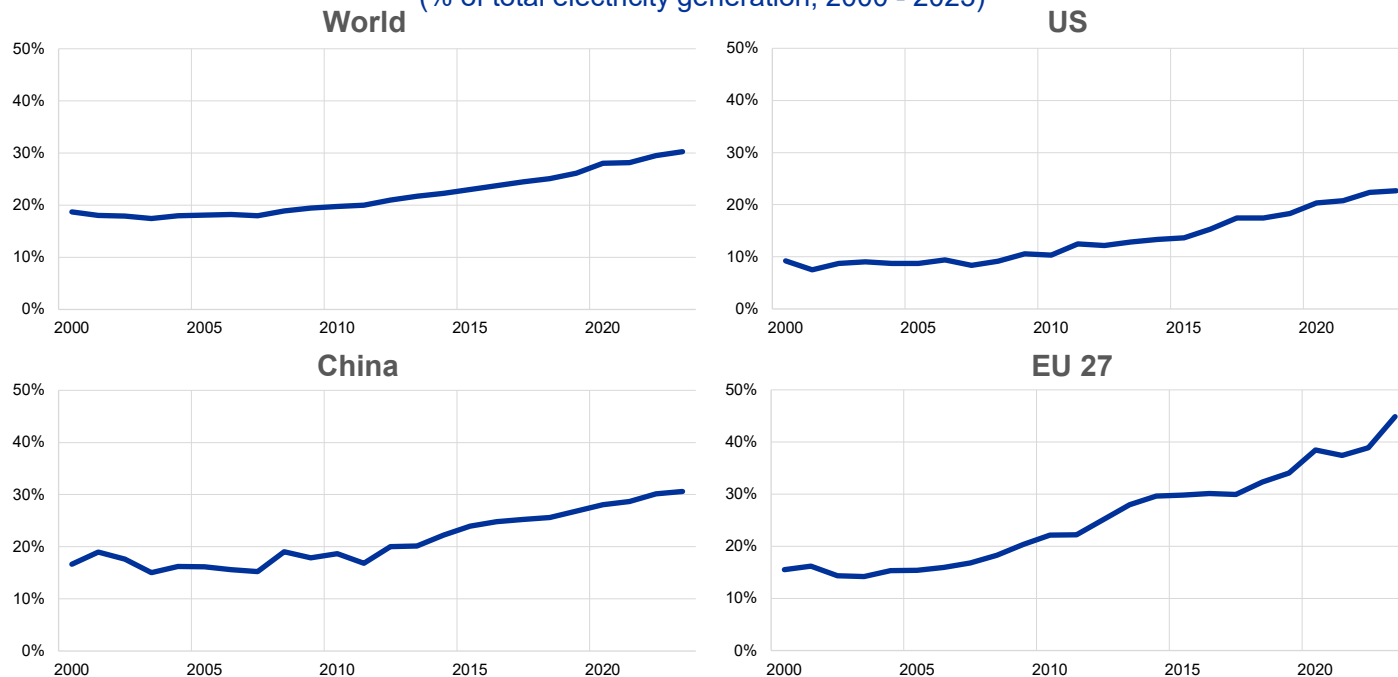


Source: [OECD](#) The index measures the strictness of environmental policies across countries, focusing on market-based and non-market-based regulations, including taxes, emissions trading systems, and standard setting. EU and World are country-level averages weighted by GDP p.c.

Renewables becoming central for electricity

Renewable electricity production

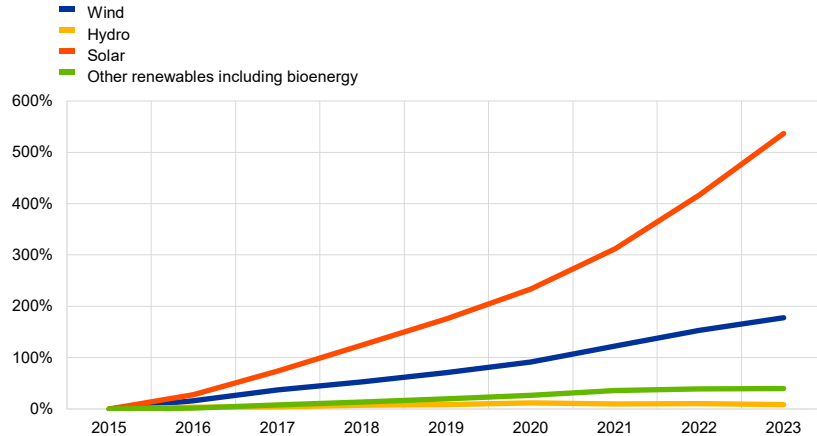
(% of total electricity generation, 2000 - 2023)



Source: [Energy Institute - Statistical Review of World Energy \(2024\)](#)

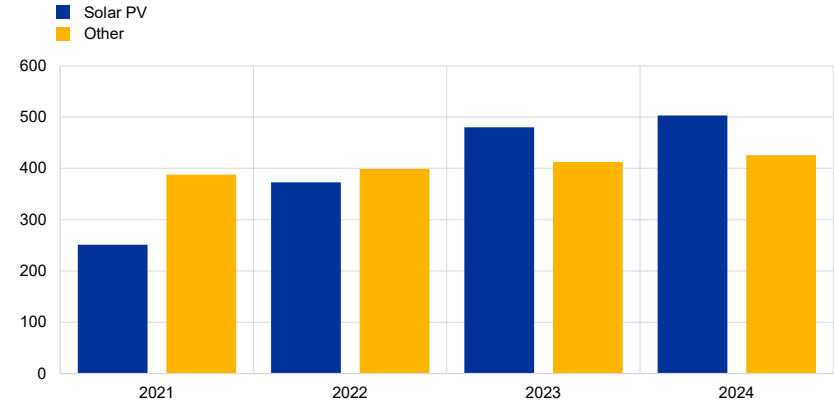
Solar is prevailing among renewables

Global energy generation from renewables (% of 2015 levels)



Source: [EMBER](#), [Energy Institute - Statistical Review of World Energy](#)

Global annual investment (in billion USD 2023)

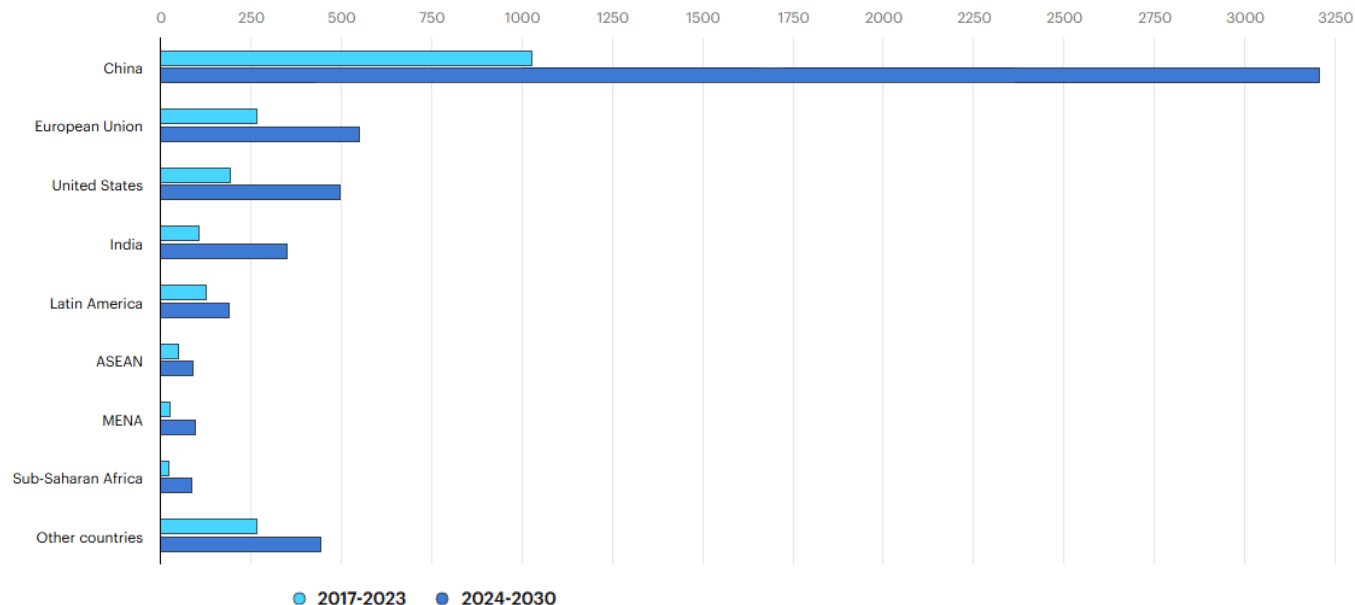


Source: [IEA](#)

Renewable capacity additions: China with a central role

Renewable electricity capacity growth by country/region, main case, 2017-2030

GW

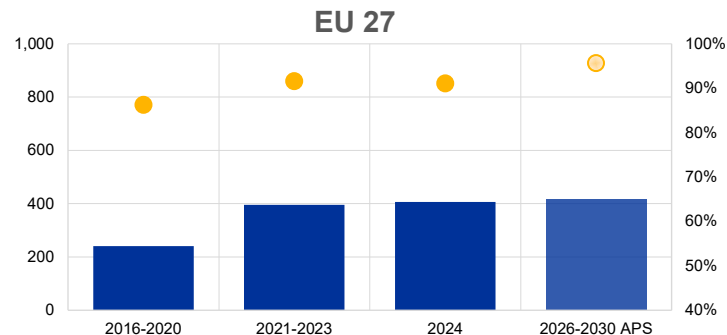
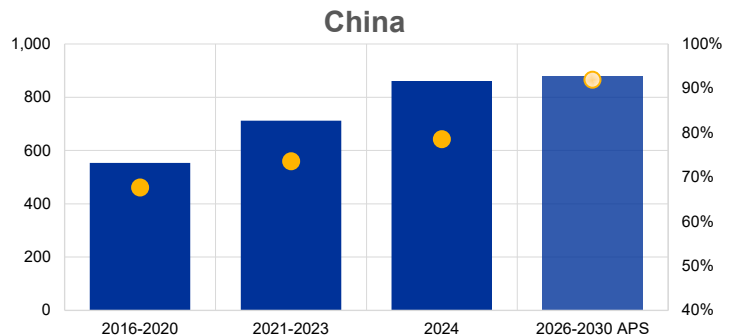
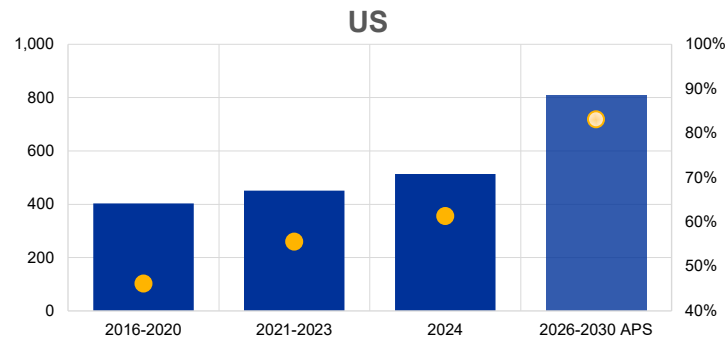
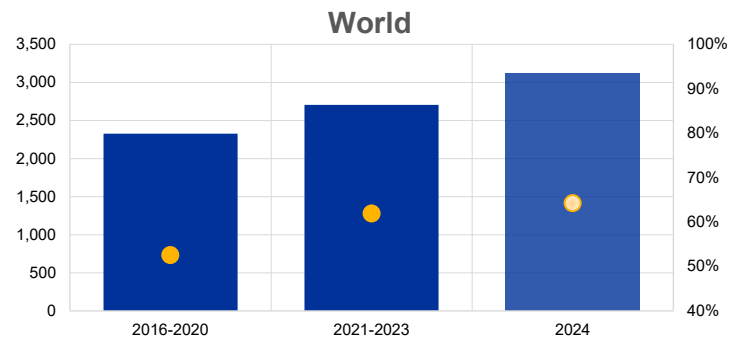


Source: IEA [Renewables 2024](#)

Clean energy investment on the rise

Total investment & clean energy investment

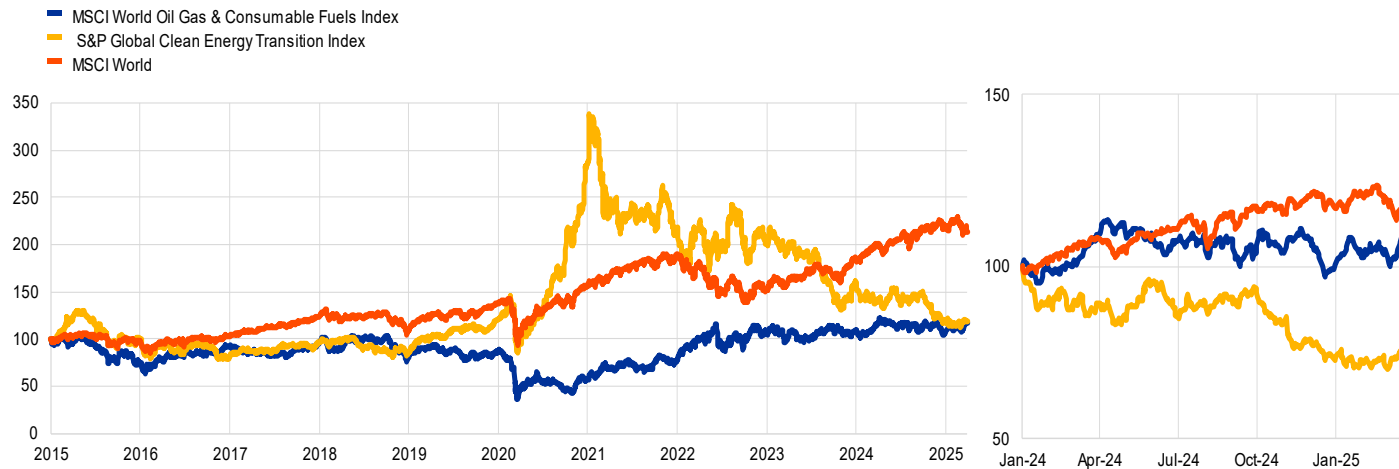
■ Total investment (LHS, in billion USD 2023) ● Clean (RHS, in % of Total)



Source: [IEA](#). Clean energy includes investments into renewable power, grids and storage, energy-efficiency and end-use, nuclear and other clean power, low-emission fuels.

APS: Announced Pledges Scenario.

Market valuations for clean energy have declined



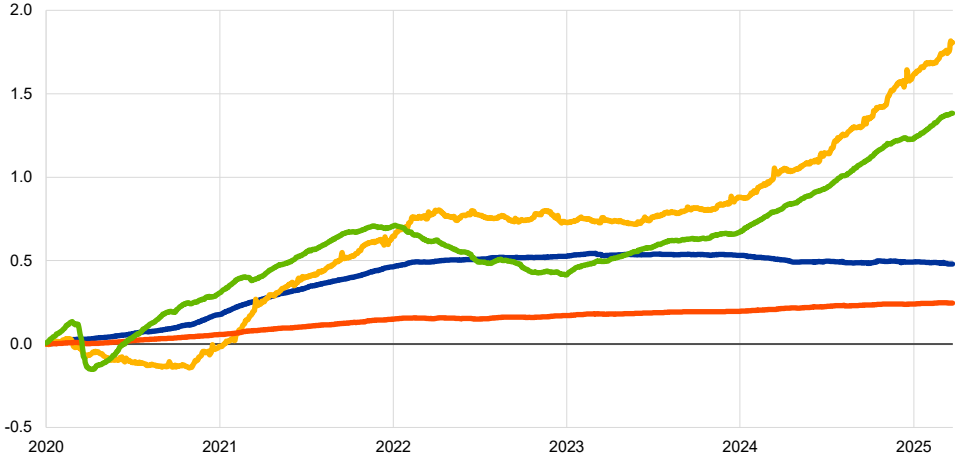
Source: Bloomberg.

Notes: Indices are equal to 100 as of January 1st, 2015 in the LHS chart. Indices are equal to 100 as of January 1st, 2024 in the RHS chart. Data spans from January 2015 to 31st March 2025

Is the ESG brand in trouble?

- Global SRI/ESG equity funds
- Global non-SRI/ESG equity funds
- Global SRI/ESG bond funds
- Global non-SRI/ESG bond funds

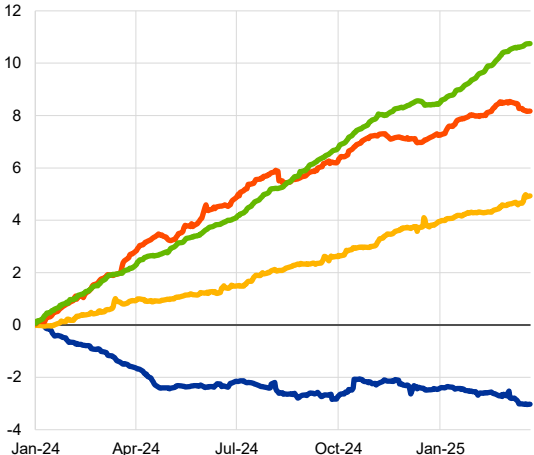
Cumulative fund flows in USD trillions



Source: EPFR

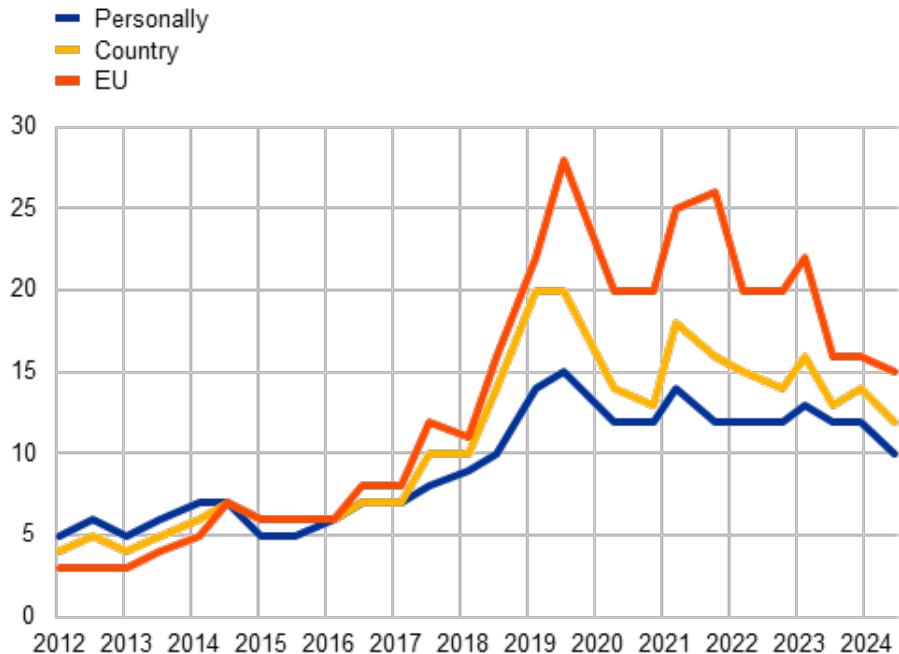
- Global SRI/ESG equity funds
- Global non-SRI/ESG equity funds
- Global SRI/ESG bond funds
- Global non-SRI/ESG bond funds

Cumulative fund flows as percentages of total net assets



What citizens tell us in surveys: Europe

The environment and climate change have soared as a top concern of EU citizens at a personal, country, and EU level
(percent of respondents)



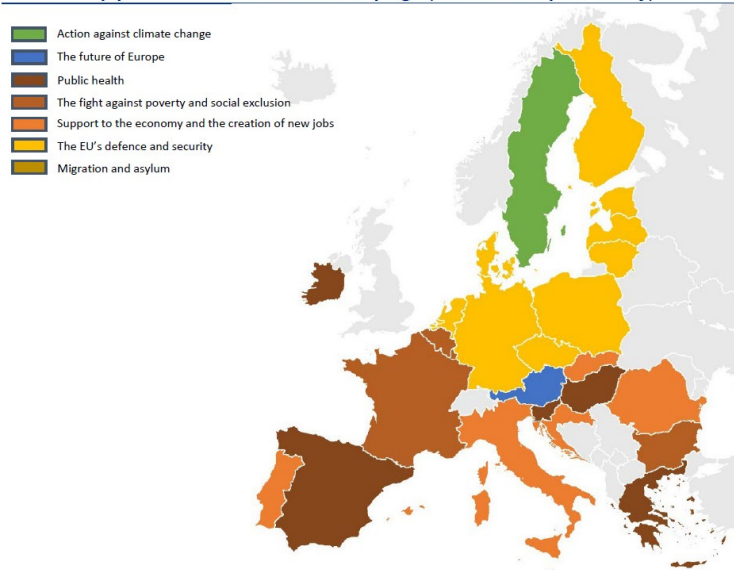
Source: European Commission Standard Eurobarometer.

Notes: Survey participants are asked: "What do you think are the two most important issues facing you personally / our country / the EU at the moment?" and can choose max 2 from around 15 different answers on average across survey waves. The plotted answer for the country and personal level is "The environment, climate and energy issues" until end-2019, and "The environment and climate change" thereafter. The plotted answer for the country and personal level is "Climate change" until end-2019, and "The environment and climate change" thereafter.

Voter preferences

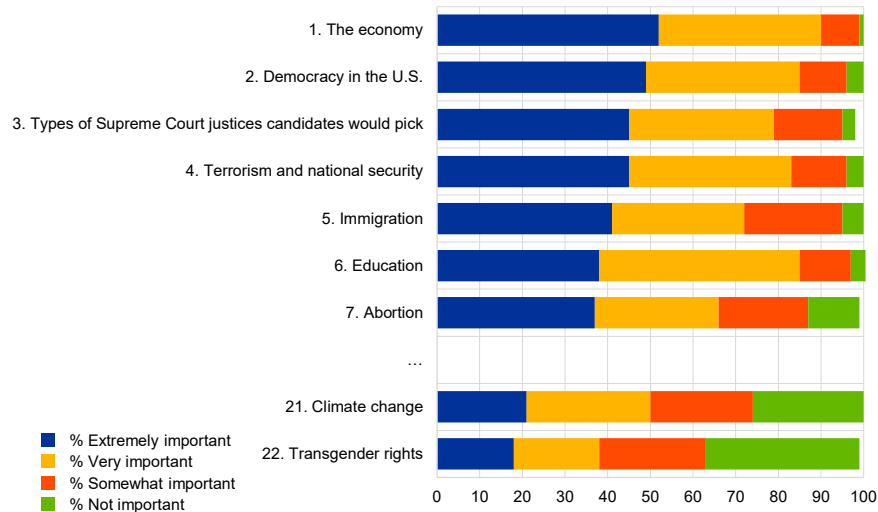
European voters' preferences in 2024 EP elections

Citizens' top priorities for EP electoral campaign (main answer per country)



Source: European Parliament Barometer Spring 2024.

US voters' preferences in 2024 US presidential election



Source: [Gallup](#).

Major stakeholders are withdrawing from climate alliances

U.S. Withdrawals:

- **Paris Agreement (Jan 2025):** U.S. exits for the second time under President Trump (previously rejoined in 2021).
- **International Partners Group (Mar 2025):** Exiting agreements within the alliance, the U.S. cut its funding for several developing nations' energy transitions.
- **Network for Greening the Financial System (Jan 2025):** The U.S. Federal Reserve Board withdraws its membership.

Financial Institutions' Exits:

- Major Departures from Glasgow Financial Alliance for Net Zero (GFANZ)*:
 - Net Zero Asset Managers Initiative (NZAM): **BlackRock departed** in January 2025, causing NZAM to put its activities on hold.
 - Net Zero Banking Alliance (NZAB): Major banks including **JPMorgan Chase, Goldman Sachs, Wells Fargo, Citigroup, and Bank of America** exited between December 2024 and January 2025.

*The Glasgow Financial Alliance for Net Zero (GFANZ) was established ahead of COP26 in April 2021 under the leadership of Mark Carney and Michael Bloomberg as a coalition of financial institutions collectively overseeing USD 130 trillion in assets, aiming to align portfolios with the Paris Agreement's 1.5°C target.

Summarising the evidence

- The global green transition is proceeding, but has slowed down and falls short of net zero ambitions
- On the supply side, increasingly driven by solar energy and China
- Market valuations and surveys point to “climate agenda fatigue”
 - 2017-2022 was a “golden moment” for the climate change agenda
 - It could have been capitalised more on