Transformation of The Global Energy Landscape With The Rise of Renewables

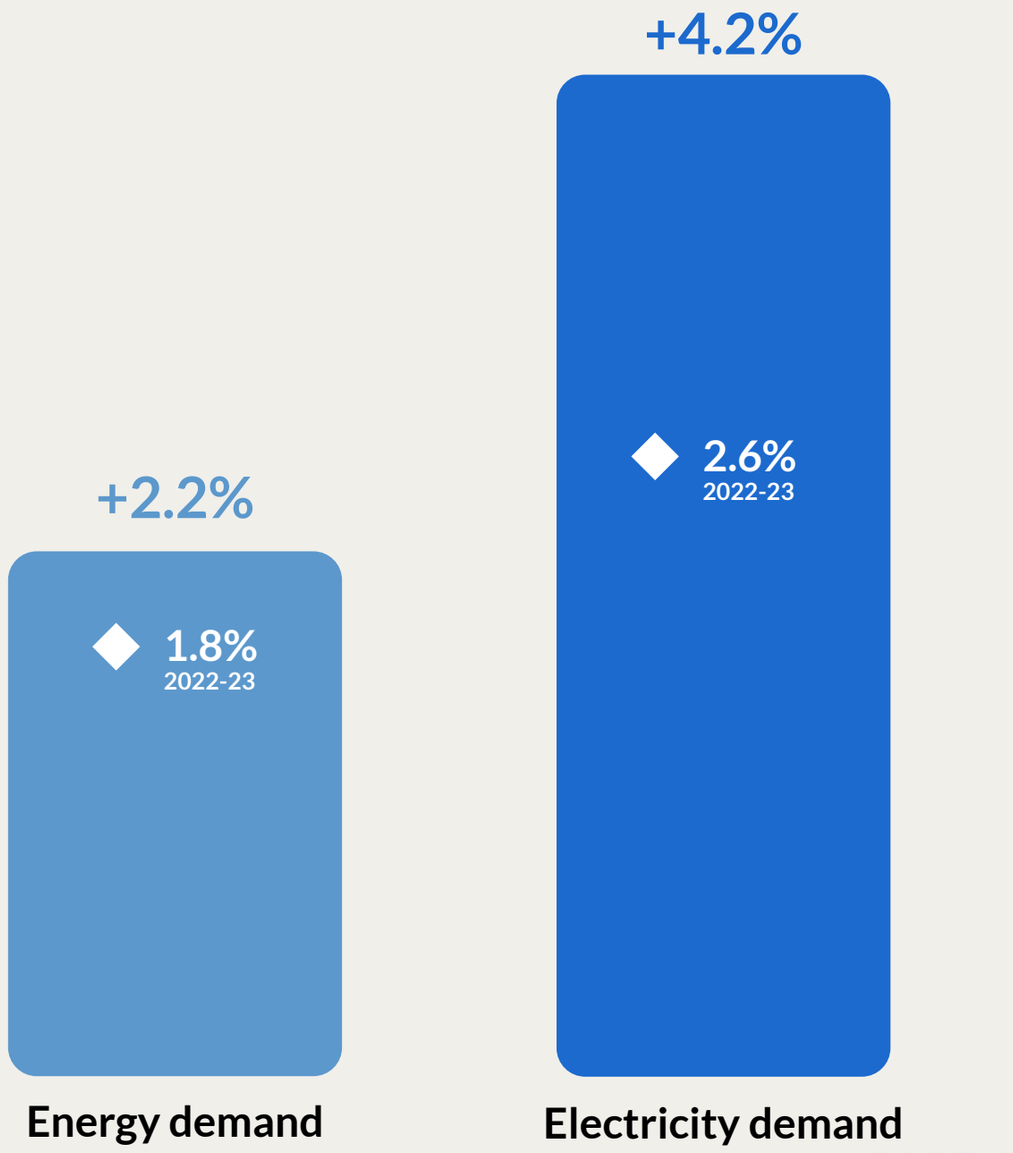
The global energy landscape is rapidly evolving, driven by the rise of renewables. Countries are transitioning from fossil fuels to cleaner sources like solar and wind to meet growing electricity demands. It's no surprise that 2024 marks the first year since the 1940s that low-carbon sources have supplied over 40% of global electricity. A significant driver of this rising demand is data centres and electric vehicles, which have doubled their electricity consumption in just five years.

This surge is placing increasing strain on grids and accelerating the need for smart energy systems. To stay on course and tackle staff and skills shortages, companies must invest in skilled energy professionals to maintain their competitive edge.

Global energy demand was largely driven by electricity, reflecting the structural change in power consumption patterns

Electricity demand increased by 4.2% in 2024 — faster than energy demand and GDP.

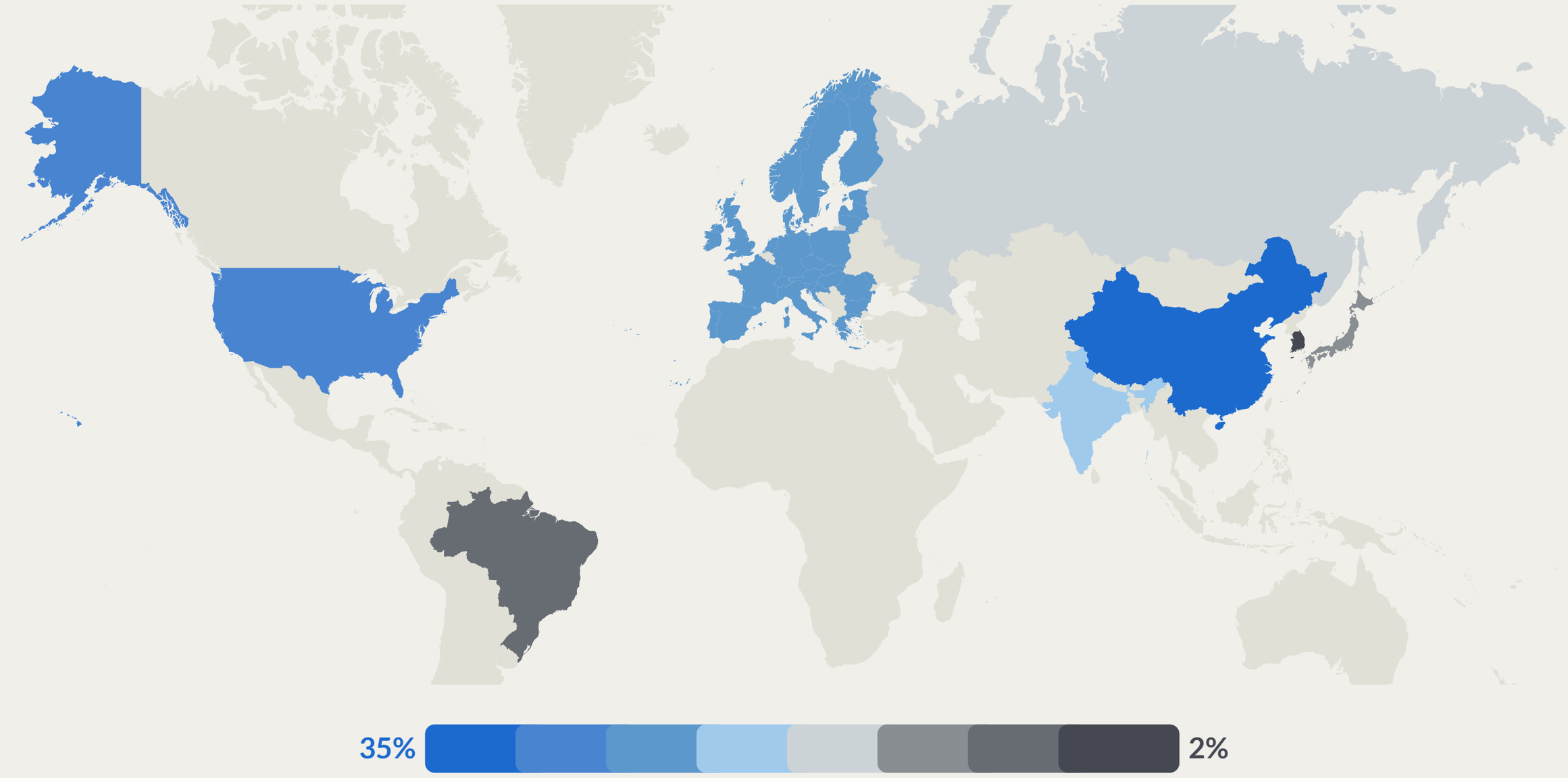
This was driven by greater use of electricity-intensive appliances (e.g. air conditioning) and the growing demand from digitalisation, data centres and AI.



Source: IEA Global Energy Review 2025

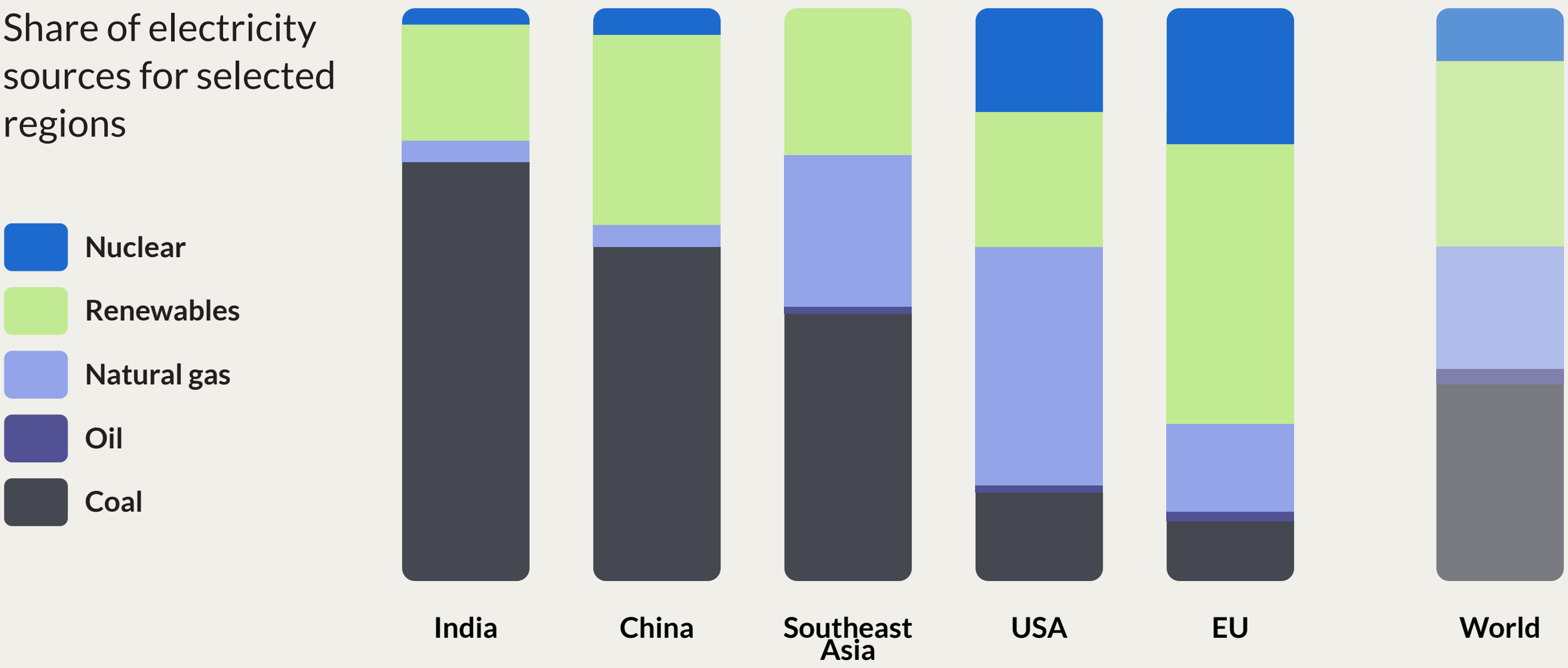
China was responsible for almost third of the world electricity demand, followed by the US and EU with 14% and 9%, respectively

Share of the global electricity demand for economies contributing 2% or more



Renewables supply more than half of electricity in the EU, while coal still dominates the power generation in the emerging markets

Share of electricity sources for selected regions



Sources: EMBER Global Electricity Review 2025, IEA Global Energy Review 2025

2024 marks the first year since 1940s that low-carbon sources provided more than 40% of global electricity

41%

Of global electricity generated from low-carbon sources in 2024, up from 39% in 2023

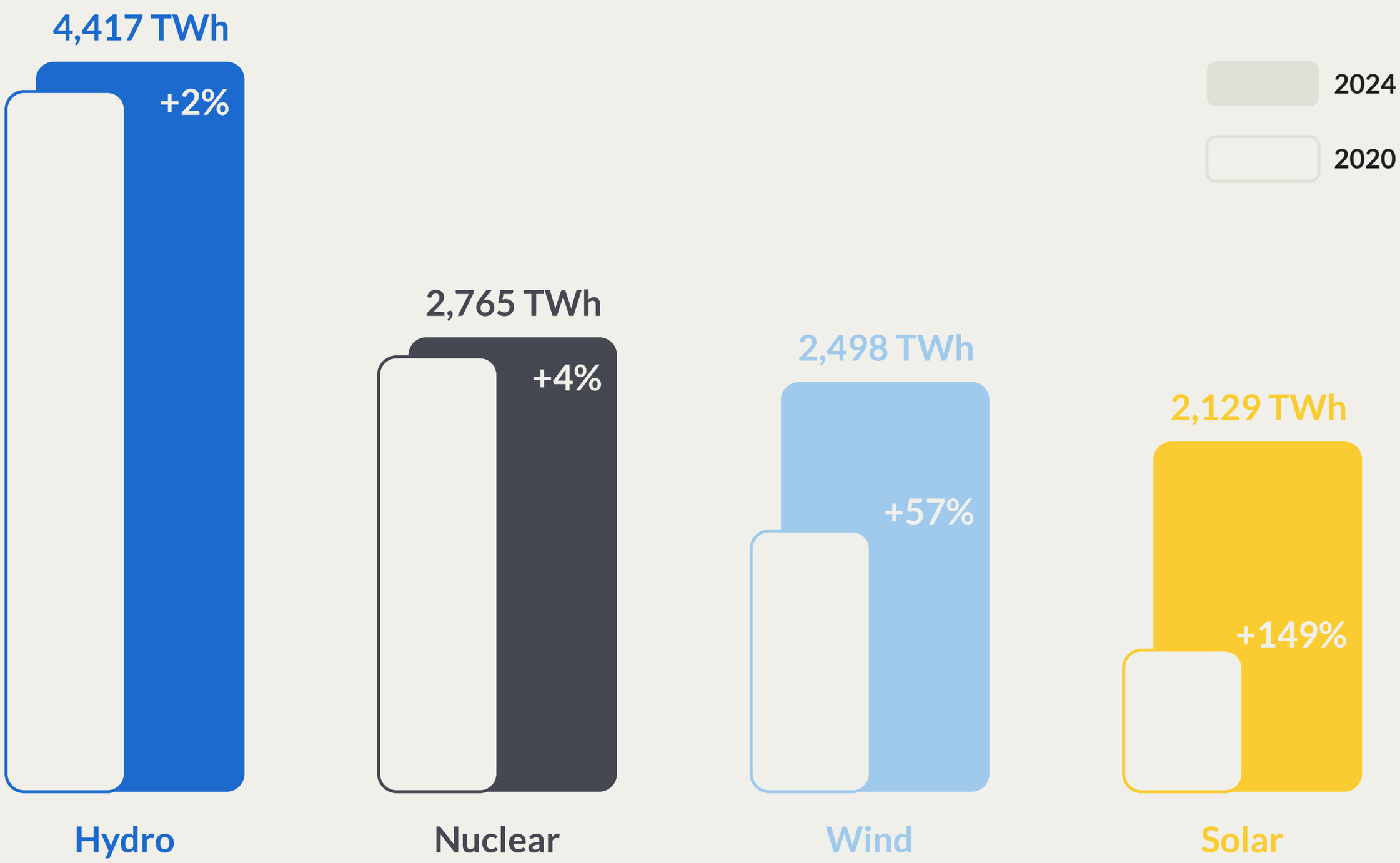
14%

Of electricity generated by hydropower — the largest source of clean energy in 2024

Hydro is the world leading source of renewable power, however solar shows the record growth

Despite a 7% increase in global hydro capacity since 2020, output in 2024 was only 2% above the previous peak — highlighting the physical limits of expanding hydro generation.

Solar generation, on the other hand, increased by 29% in 2024 and almost 2,5 times since 2020. Driven the declining prices of solar installations and policy incentives, solar has become the fastest-growing source of electricity for the 20th consecutive year.

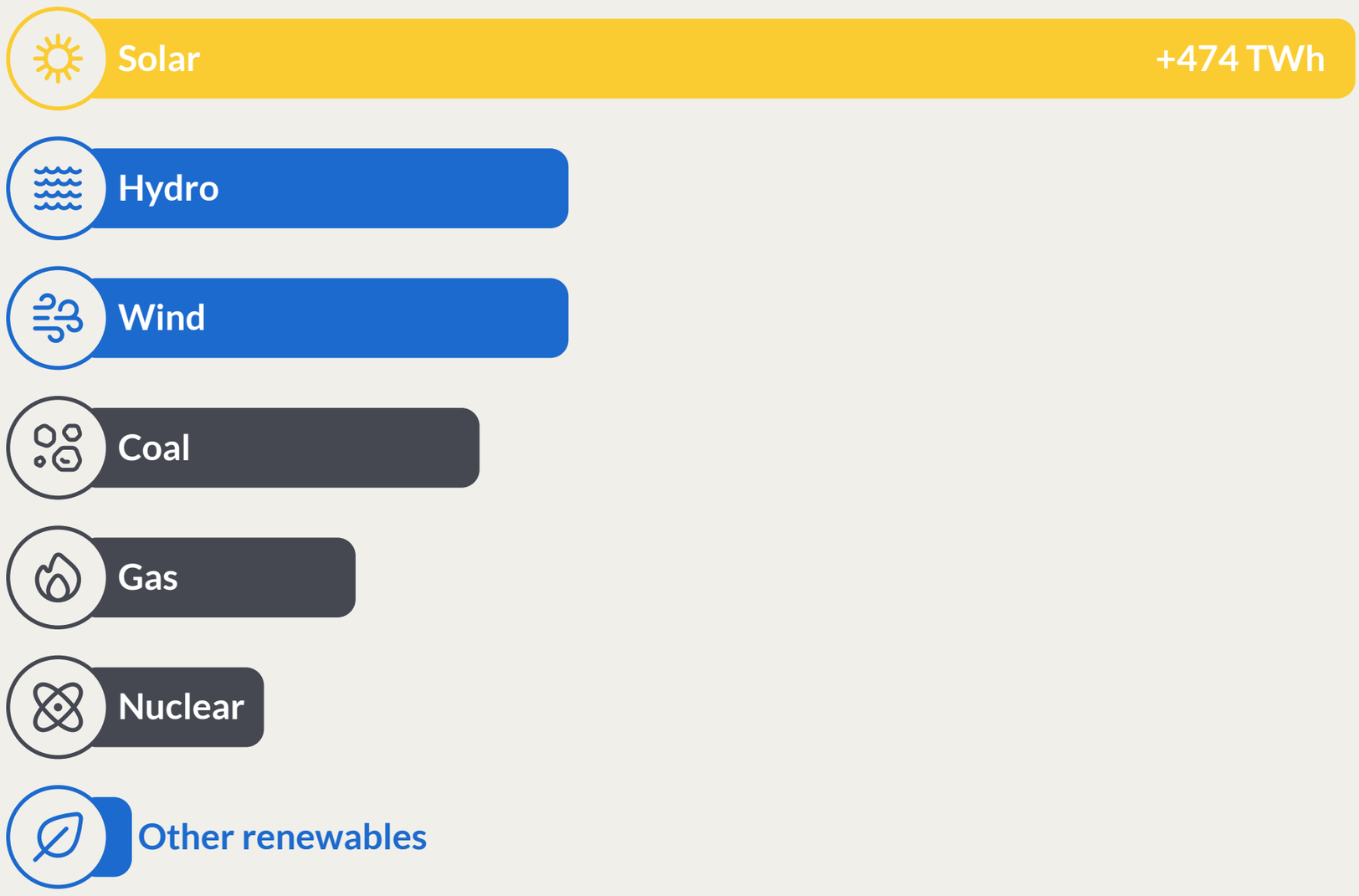


Sources: EMBER Global Electricity Review 2025

Solar energy contributed twice as much to the global electricity generation growth as any other source

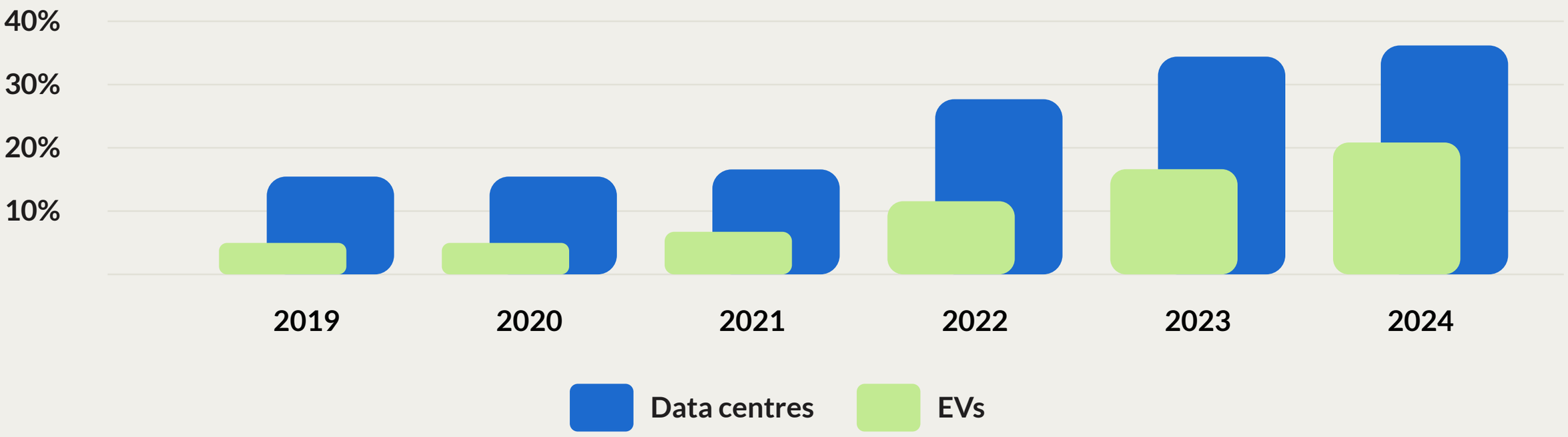
2,131 TWh

Of electricity was generated from solar sources in 2024 — double the amount of 2021.



Data centres and electric vehicles have doubled electricity demand compared to five years ago

Annual change in global electricity demand



Sources: EMBER Global Electricity Review 2025

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