

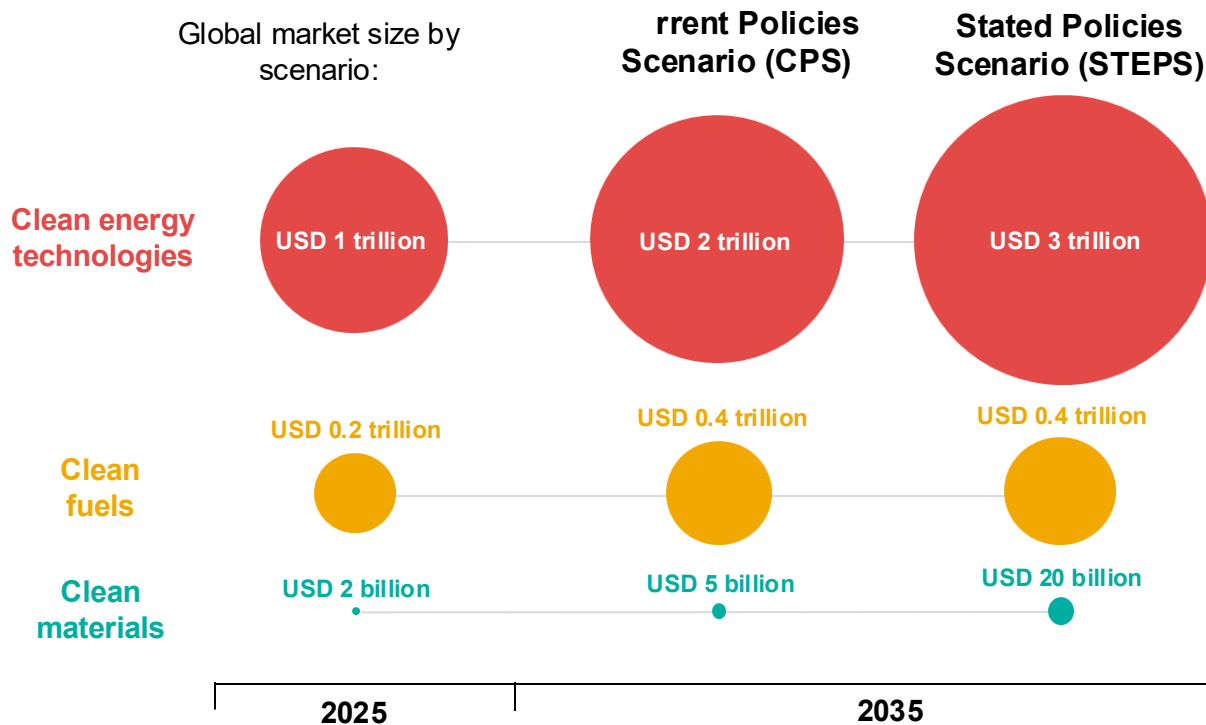


Energy Technology Perspectives 2026

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Clean energy technology markets grow in IEA exploratory scenarios



Mass-manufactured technologies drive global energy technology market value; in the CPS the growth is slowest but still eclipses the size of 2025 global oil market by 2035. Further policy support can lead to even larger markets.

Clean technology manufacturing is widespread and yet concentrated

Clean technology manufacturing facilities in operation, today

Solar PV

● Modules

Wind

● Nacelles

EVs & batteries

● Cells

● Electric vehicles

Electrolysers

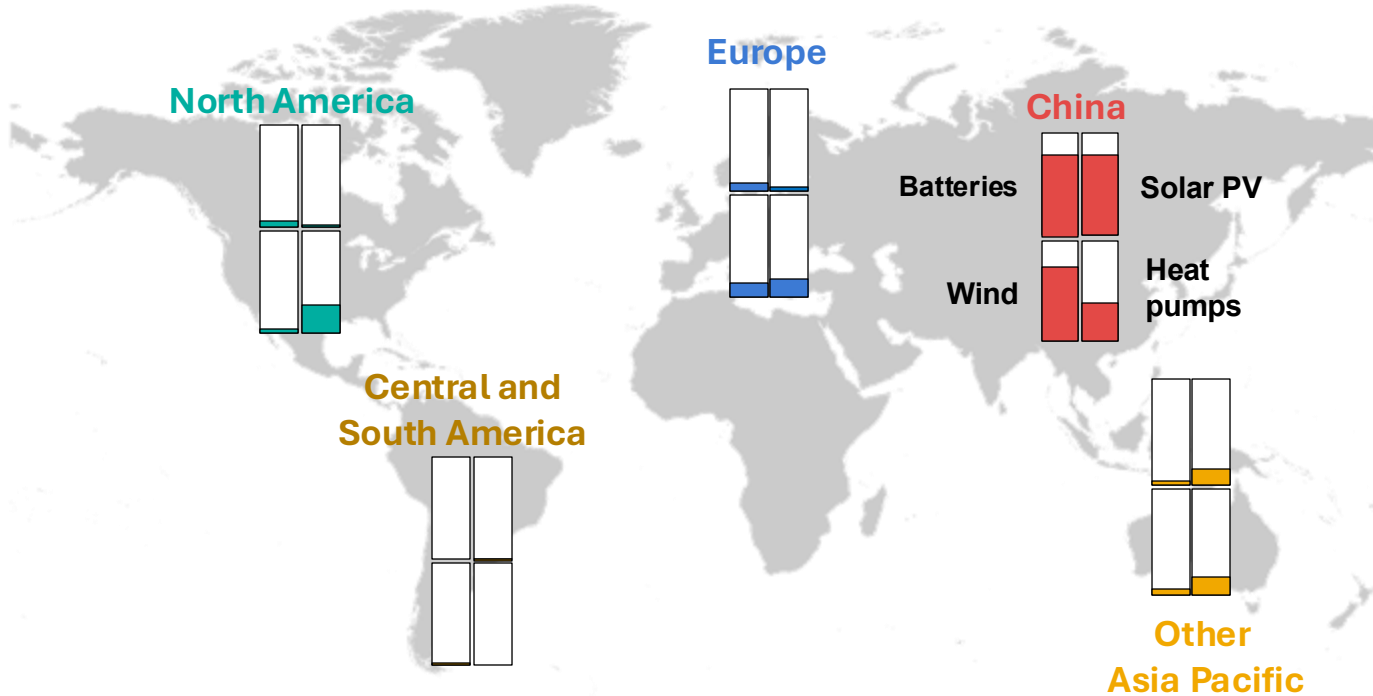
● Electrolysers



A recent surge in global clean energy technology manufacturing investment has led to facilities being built in many parts of the world, but investment has declined since its peak in 2023.

Clean technology manufacturing is widespread and yet concentrated

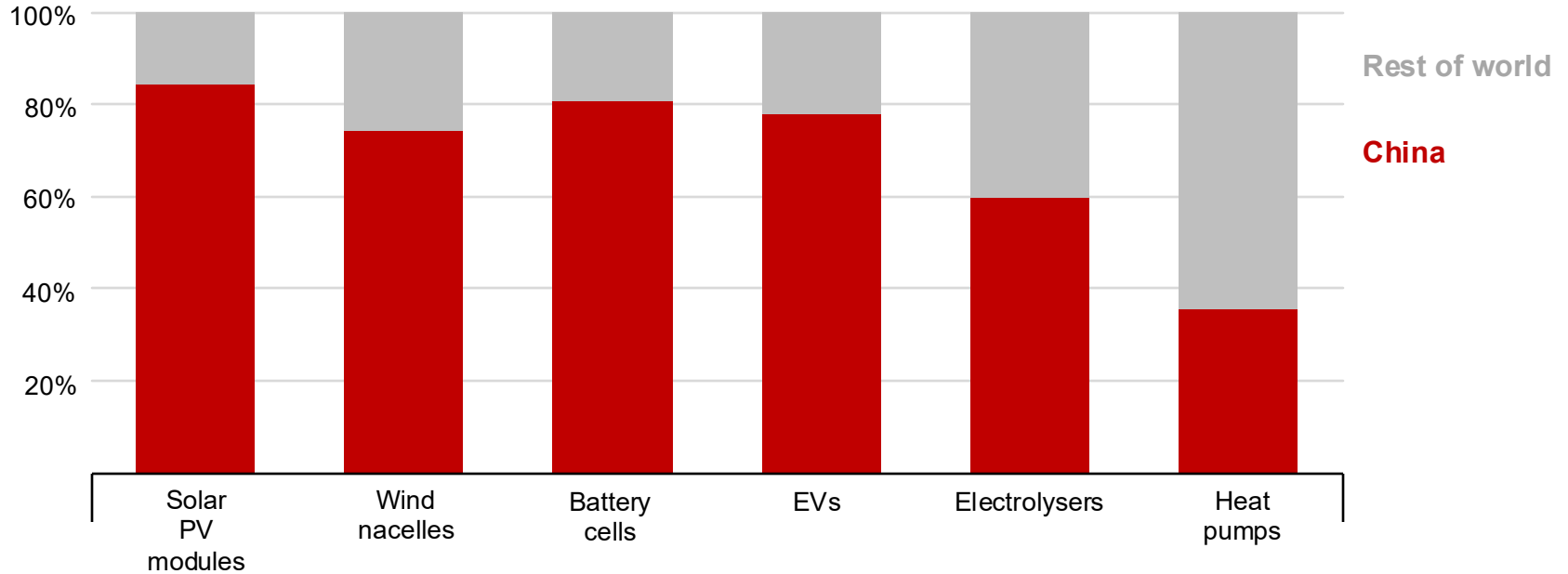
Regional shares in global production of clean energy technologies, today



China plays an outsized role in clean energy technology supply chains, individual companies and factories in China could meet the demand of entire continents on their own.

Clean energy supply chains remain heavily concentrated

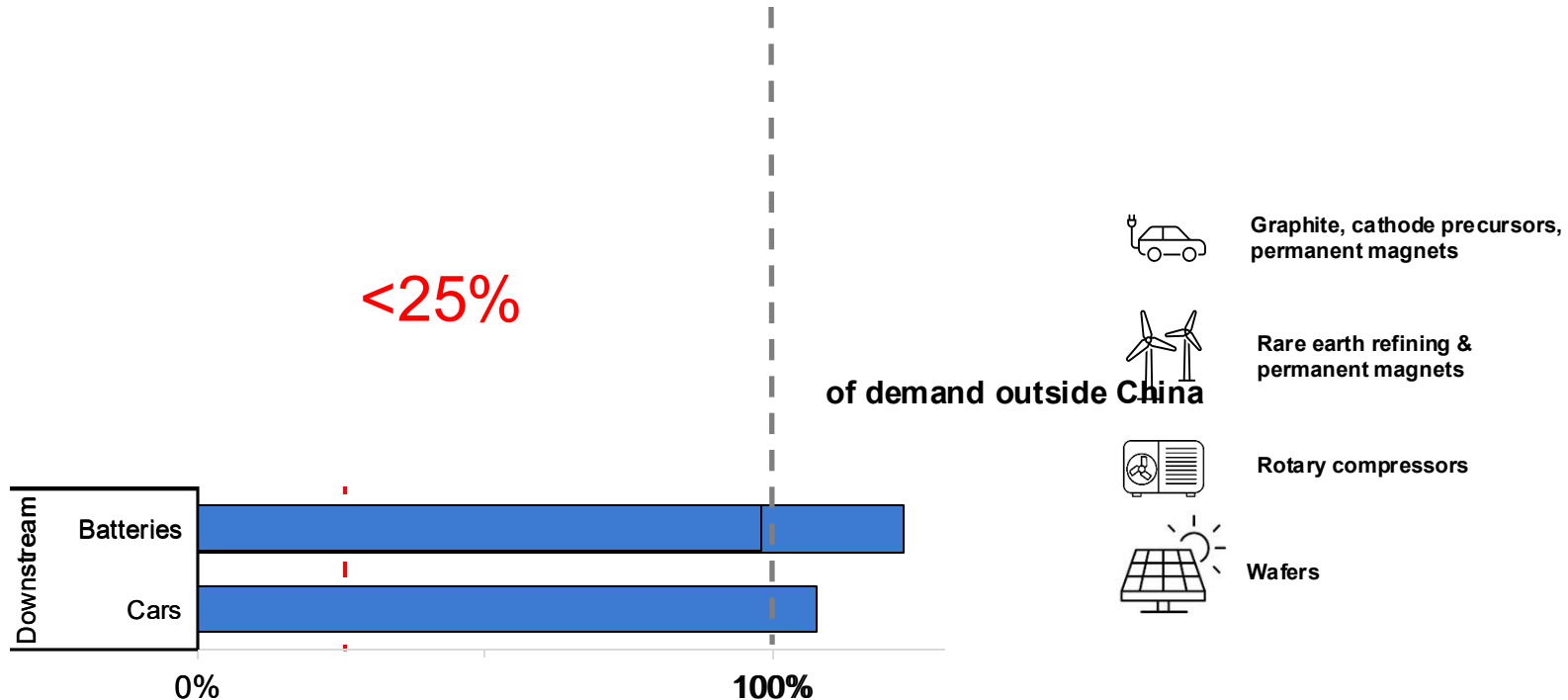
Share of energy technology manufacturing capacity, 2024



China plays an out-sized role in clean energy technology manufacturing, with around an 80% share of production capacity for Solar PV, battery cells and EVs

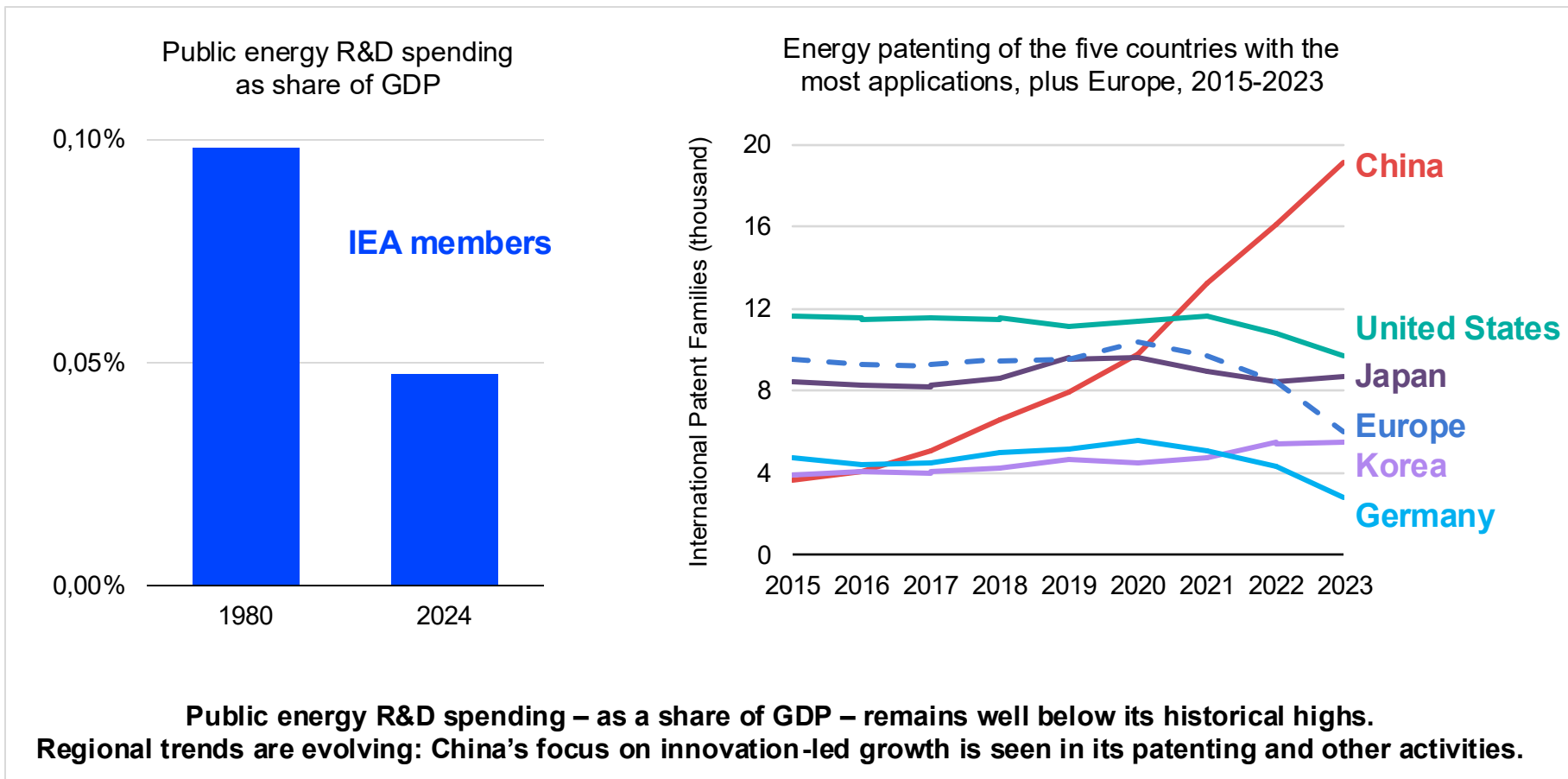
Supply chain concentration has economic security implications

Availability of production relative to demand outside China, ~~2020~~ **2030**



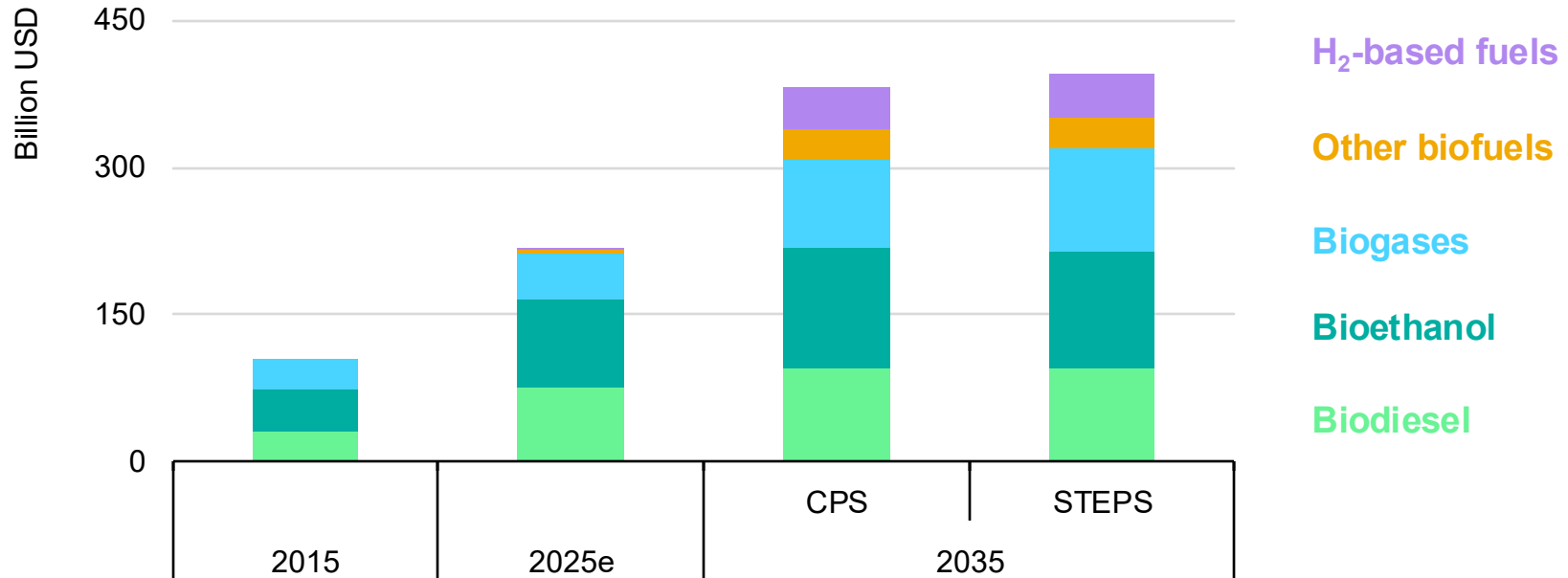
Reliable access to energy technology component supplies is important for downstream industries – for example, a one-month halt of Chinese battery supply chain exports could prevent the production of USD 17 billion worth of EVs.

The global energy innovation landscape is evolving



The low-emissions fuels market is dominated by established biofuels

Low-emissions fuels market size by fuel and scenario, 2015-2035



The market for low-emissions fuels doubles and diversifies by 2035 in the STEPS, With hydrogen-based fuels and biokerosene making up almost 20% of the value of the market



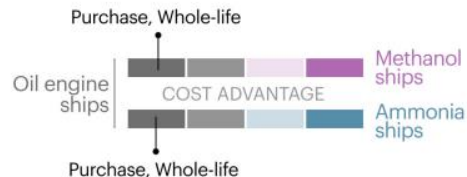
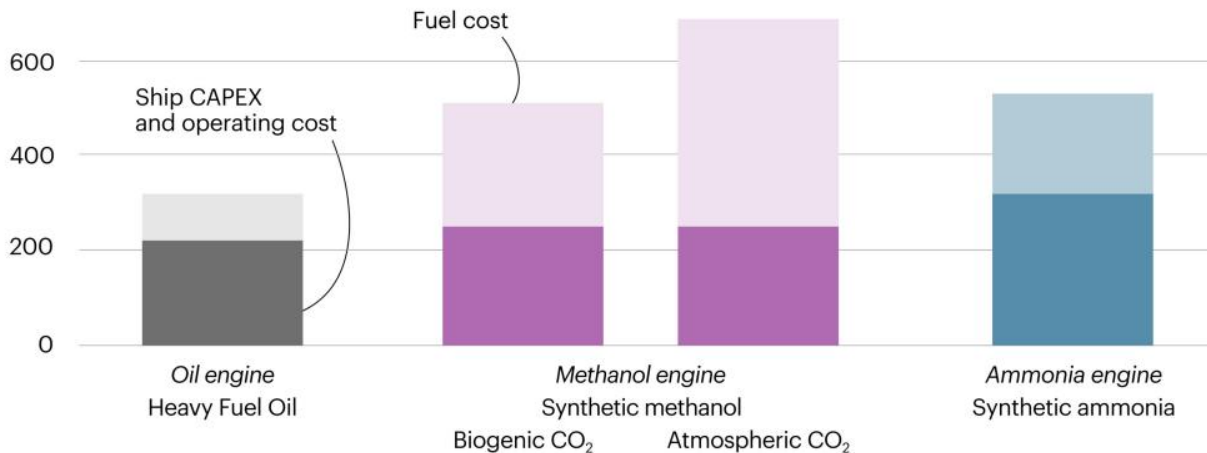
Competitiveness

Alternative propulsion ships are not competitive in the absence of GHG pricing

Total cost of ownership of a representative container ship in the STEPS, 2035

Million USD

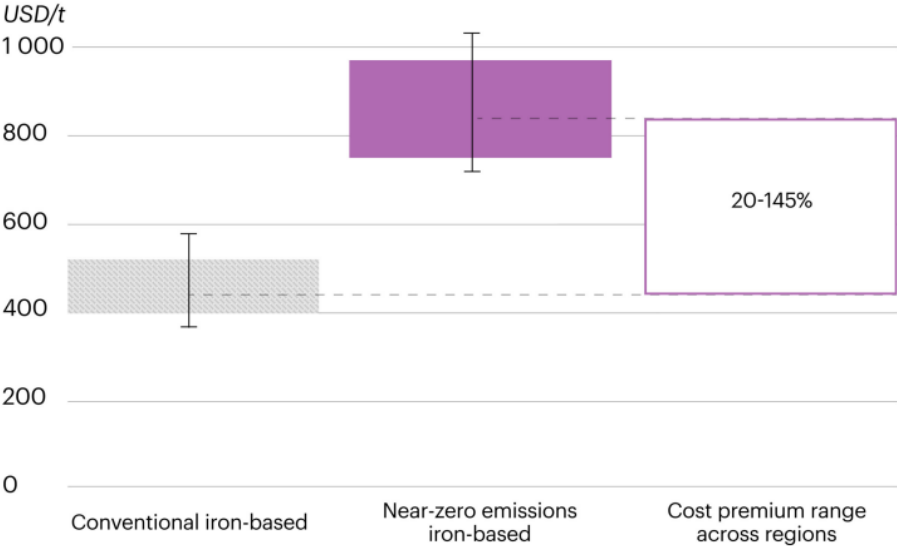
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Competitiveness

Cost premiums for initial projects are significant, but the impact on end products is more manageable



Impact of cost pass-through on final product price

Car

+1-2%

Solar PV

+1-7%

Wind turbine

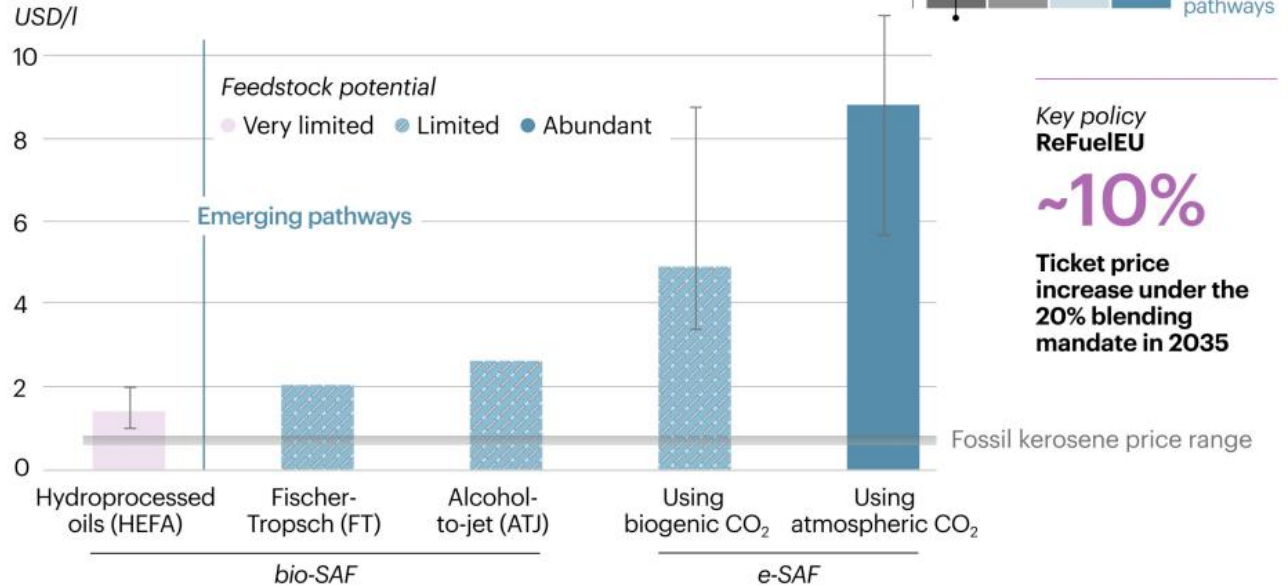
+1-9%



Competitiveness

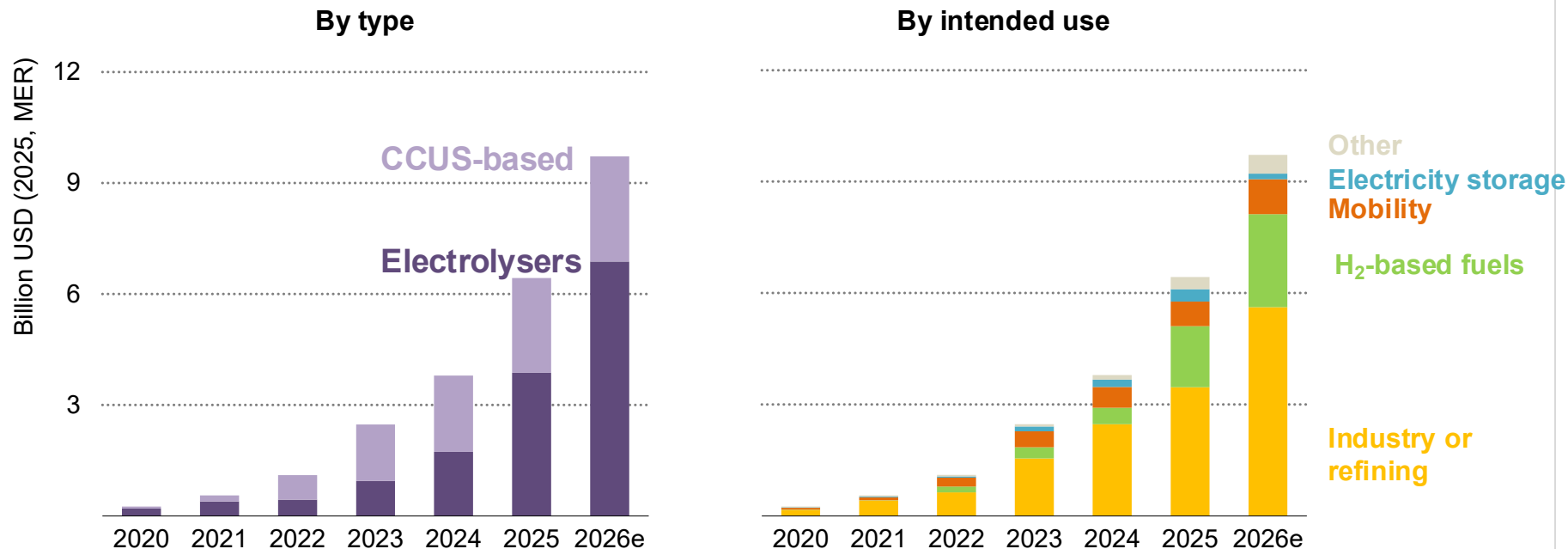
SAF at scale comes at a high price premium

SAF price (HEFA) and estimated production cost (emerging pathways), 2025



Low-emissions hydrogen investment is set to reach a new high in 2026

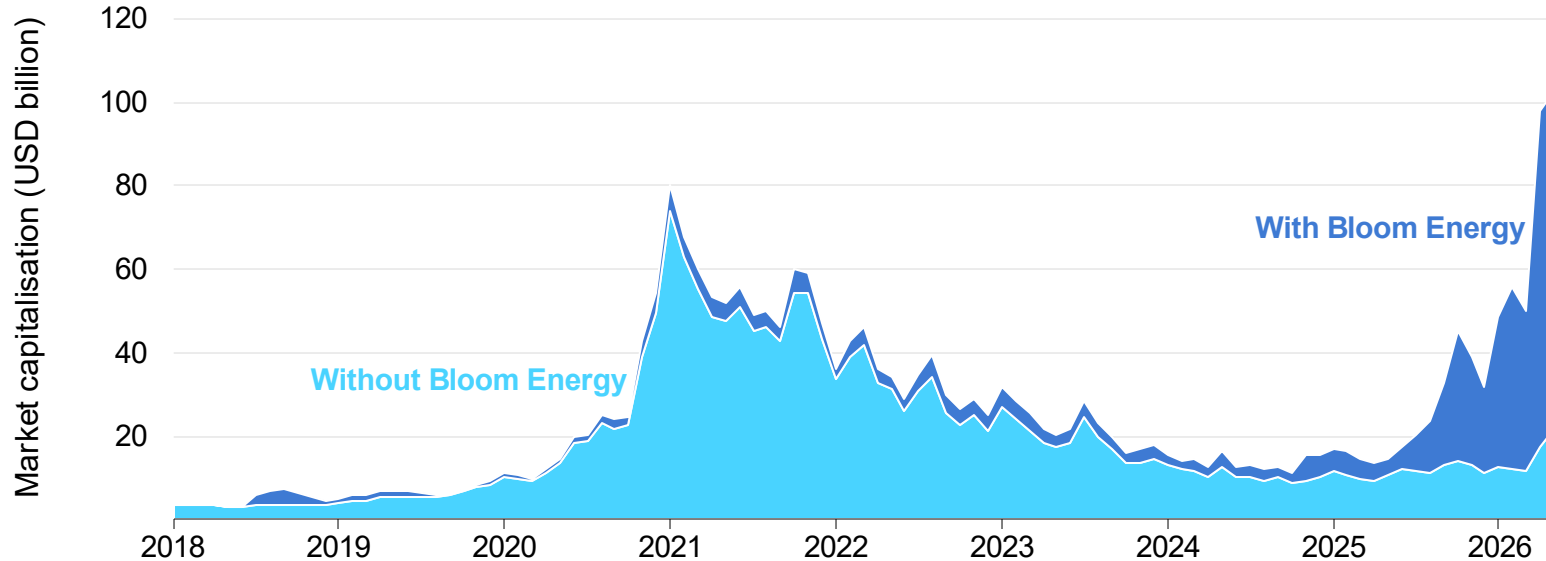
Average annual investment from committed projects in low-emissions hydrogen supply, 2020-2026



Low-emissions hydrogen investment nearly doubled in 2025 to almost USD 7 billion, around 0.7% of global energy supply investment, and could rise by 50% in 2026 if all committed projects proceed.

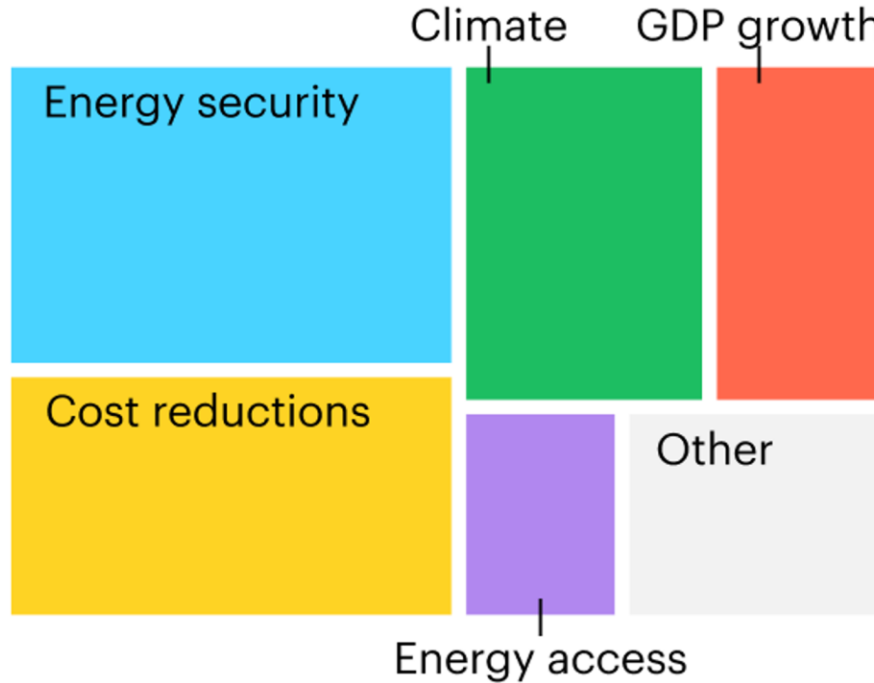
Total hydrogen company valuations are being driven to new highs

Market capitalisation of the IEA global hydrogen portfolio, 2018-2026



Electricity demand growth for AI is affecting the IEA hydrogen portfolio, disproportionately boosting the value of one firm selling natural gas fuel cells for data centres.

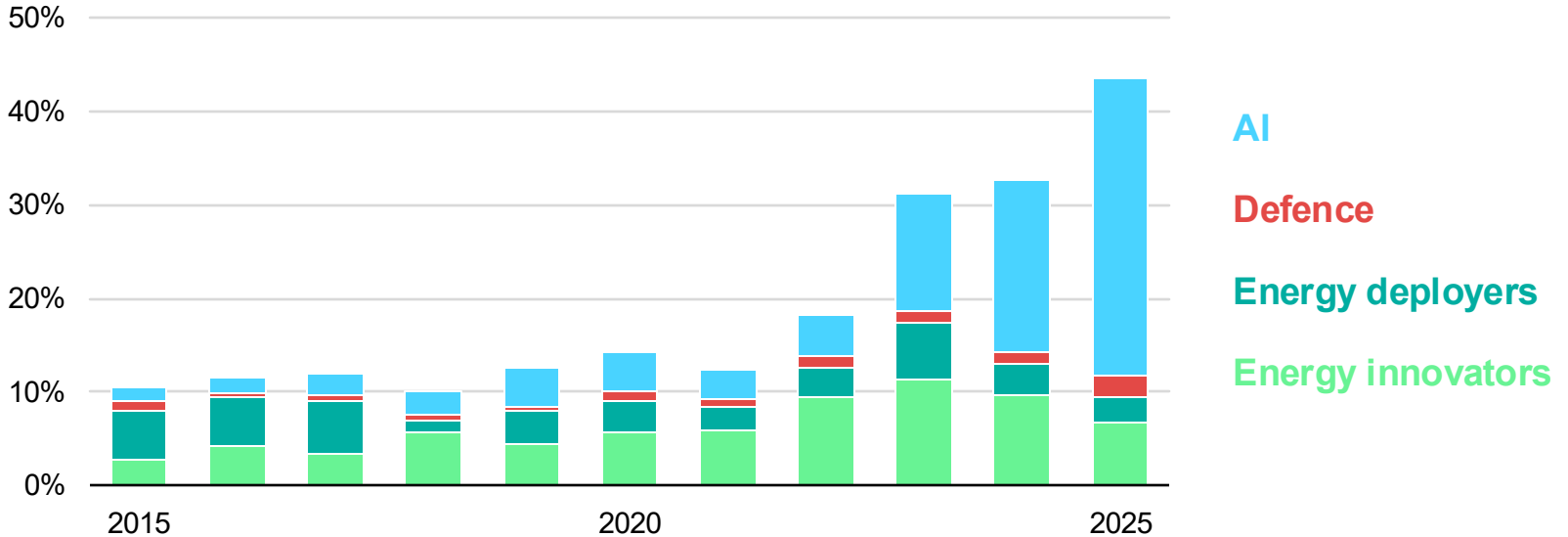
The context for energy innovation tilts to competitiveness & security



According to our survey, energy innovation is motivated by multiple strategic objectives. Businesses want efficiency. Governments see growth. And energy poor regions look to expand energy access.

There is rising competition with AI for venture capital funding

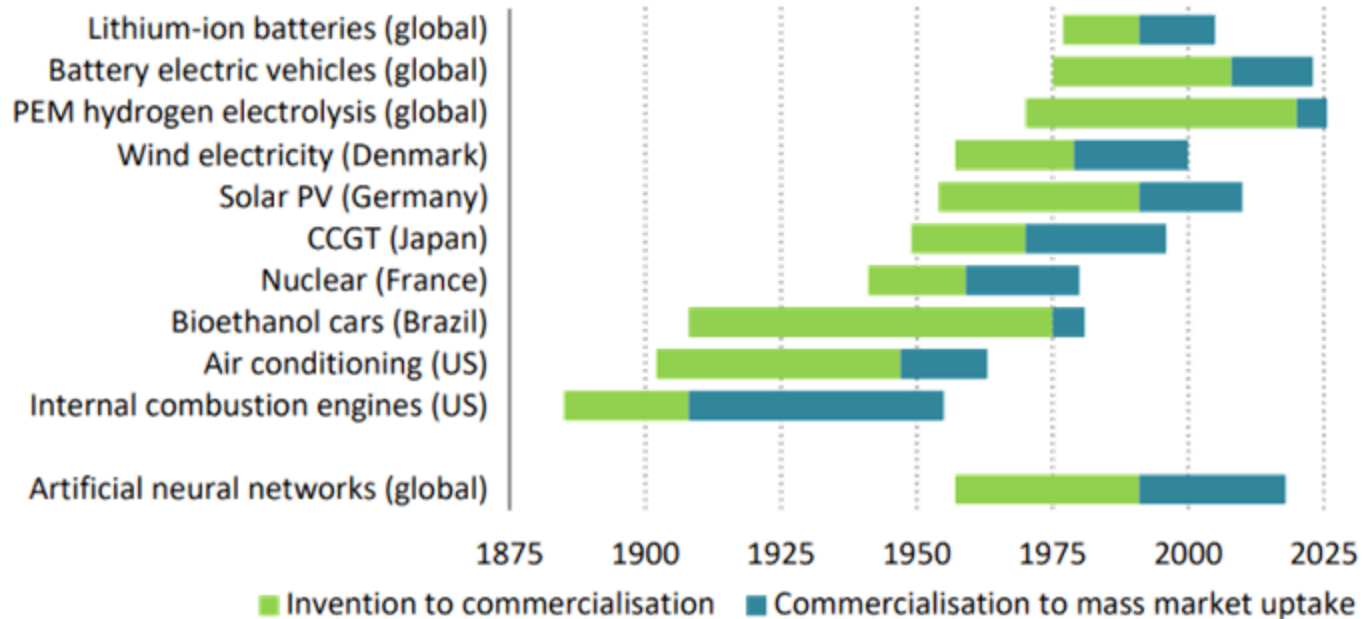
Energy, AI and defence as shares of total venture capital investment across all sectors, 2015-2025



**In 2025, AI deals represented one-third of all VC deal value.
However, a range of other drivers explain the decline in energy VC funding since 2022.**

The potential of AI to accelerate innovation

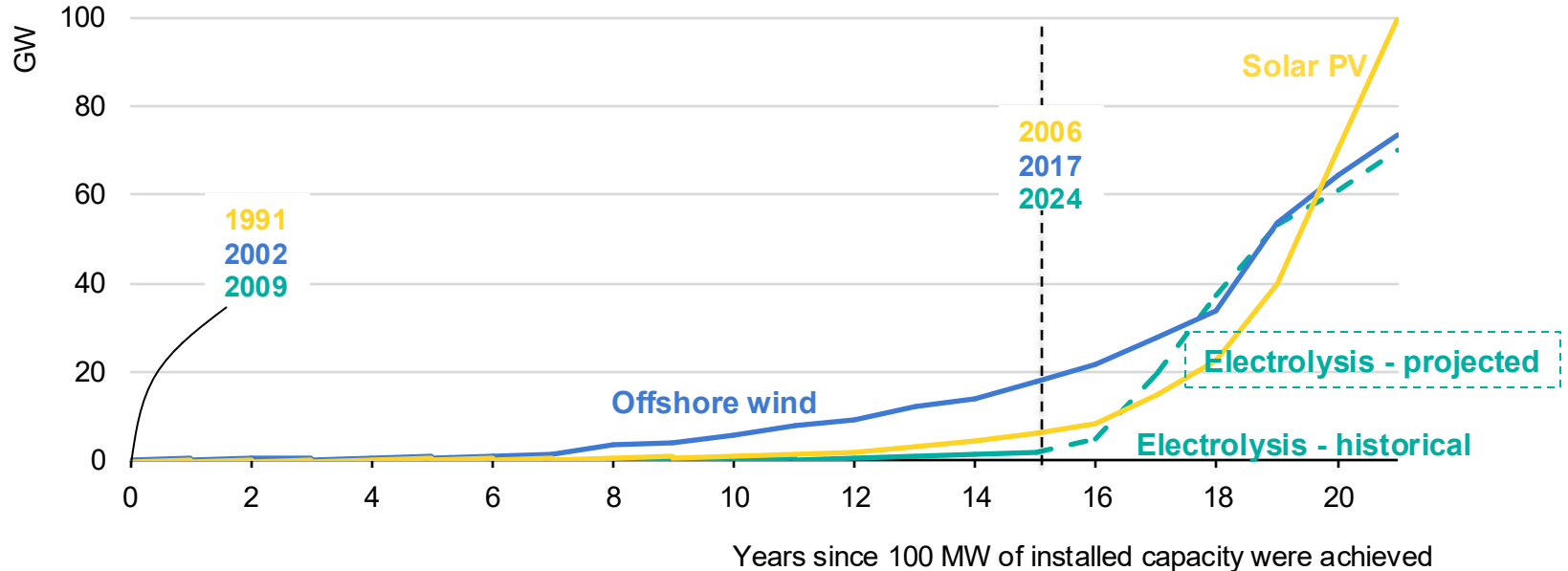
Innovation timelines for selected energy technologies and artificial neural networks



In the past, it has typically taken several decades for an energy technology to go from invention to commercialisation and a further 20 years to reach mass market uptake.

¿Se ha desinflado la burbuja del hidrógeno?

Capacidad instalada mundial de energía solar fotovoltaica, energía eólica marina y electrólisis en una fase inicial



El ritmo previsto de implantación de la electrólisis del agua no dista mucho de la vertiginosa expansión que se observó cuando la energía solar fotovoltaica y la energía eólica marina empezaron a extenderse

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