

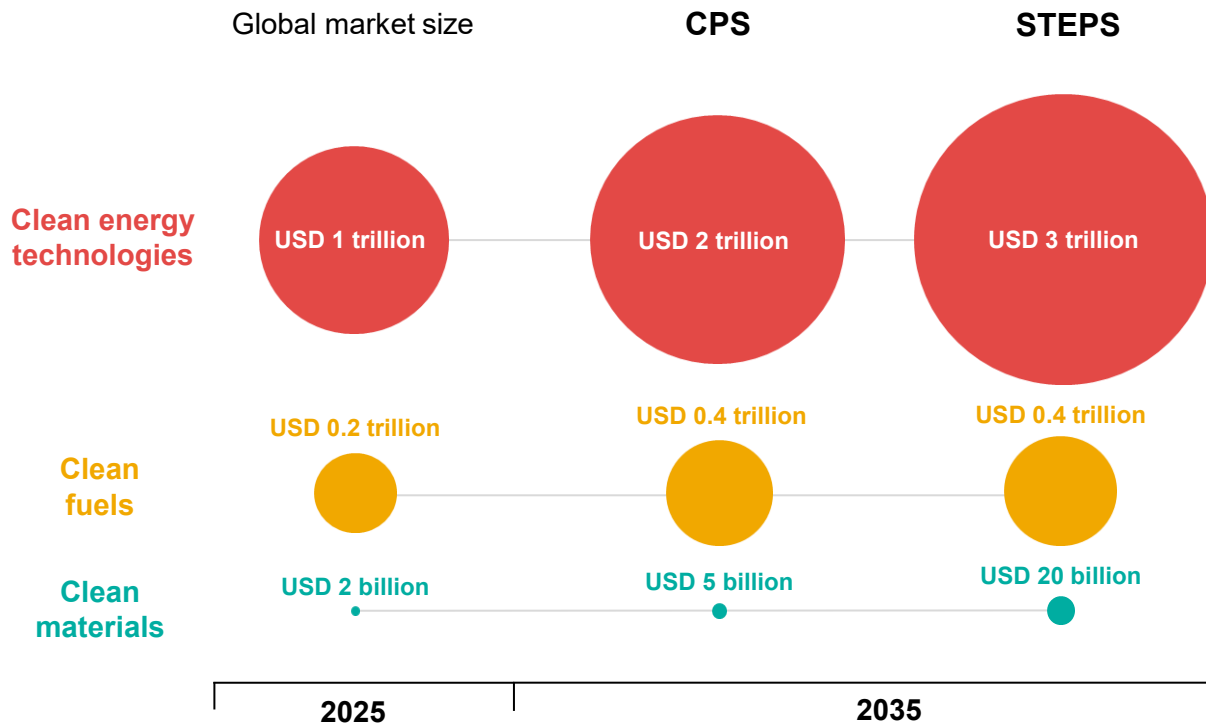


Energy Technology Perspectives 2026

Dr. Timur Gül, Chief Energy Technology Officer, IEA

Tokyo, 19 June 2026

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

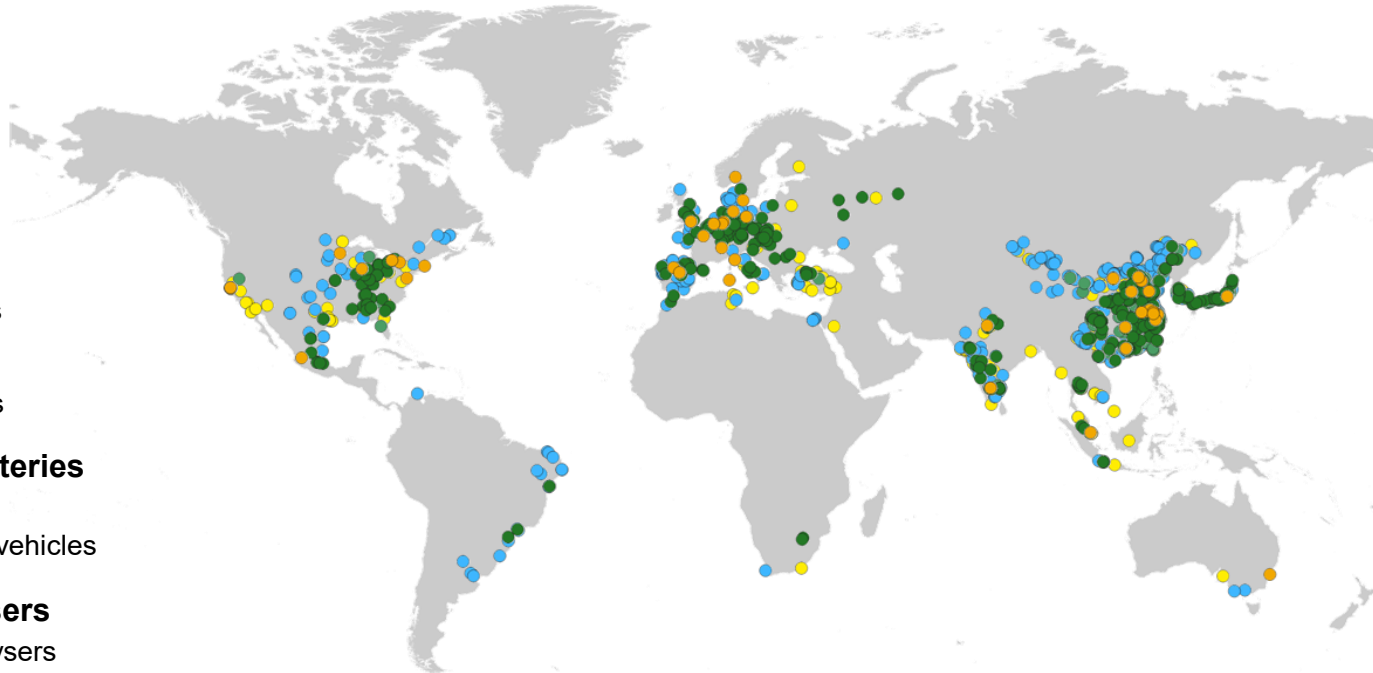
- Nacelles

EVs & batteries

- Cells
- Electric vehicles

Electrolysers

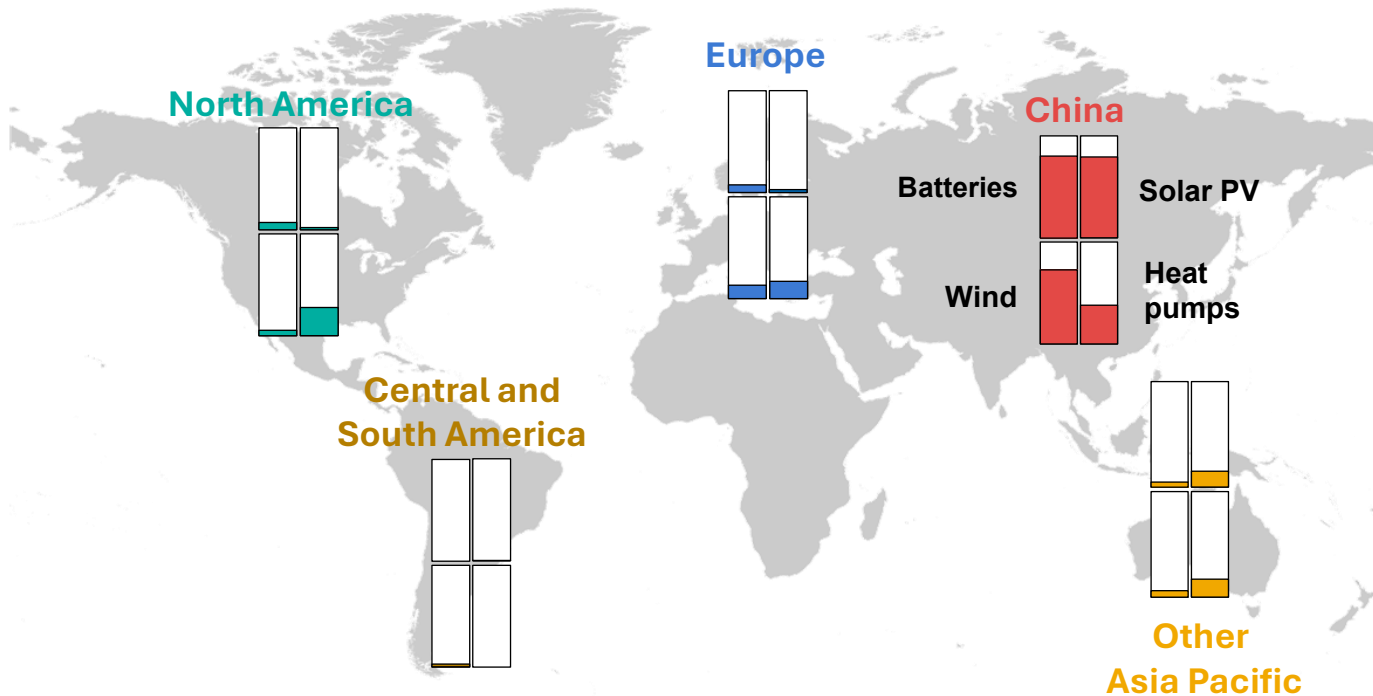
- Electrolysers



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

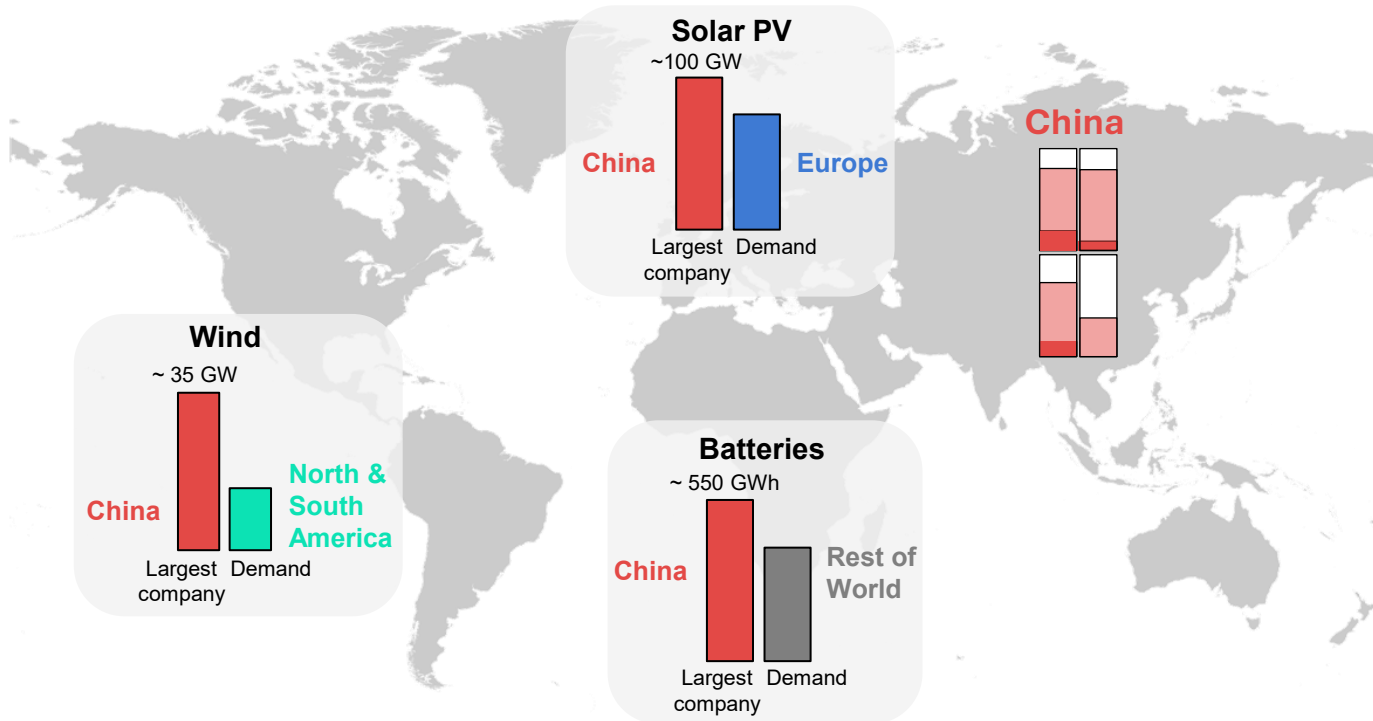
Regional shares in global production of clean energy technologies, today



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 technology manufacturing is widespread and yet concentrated

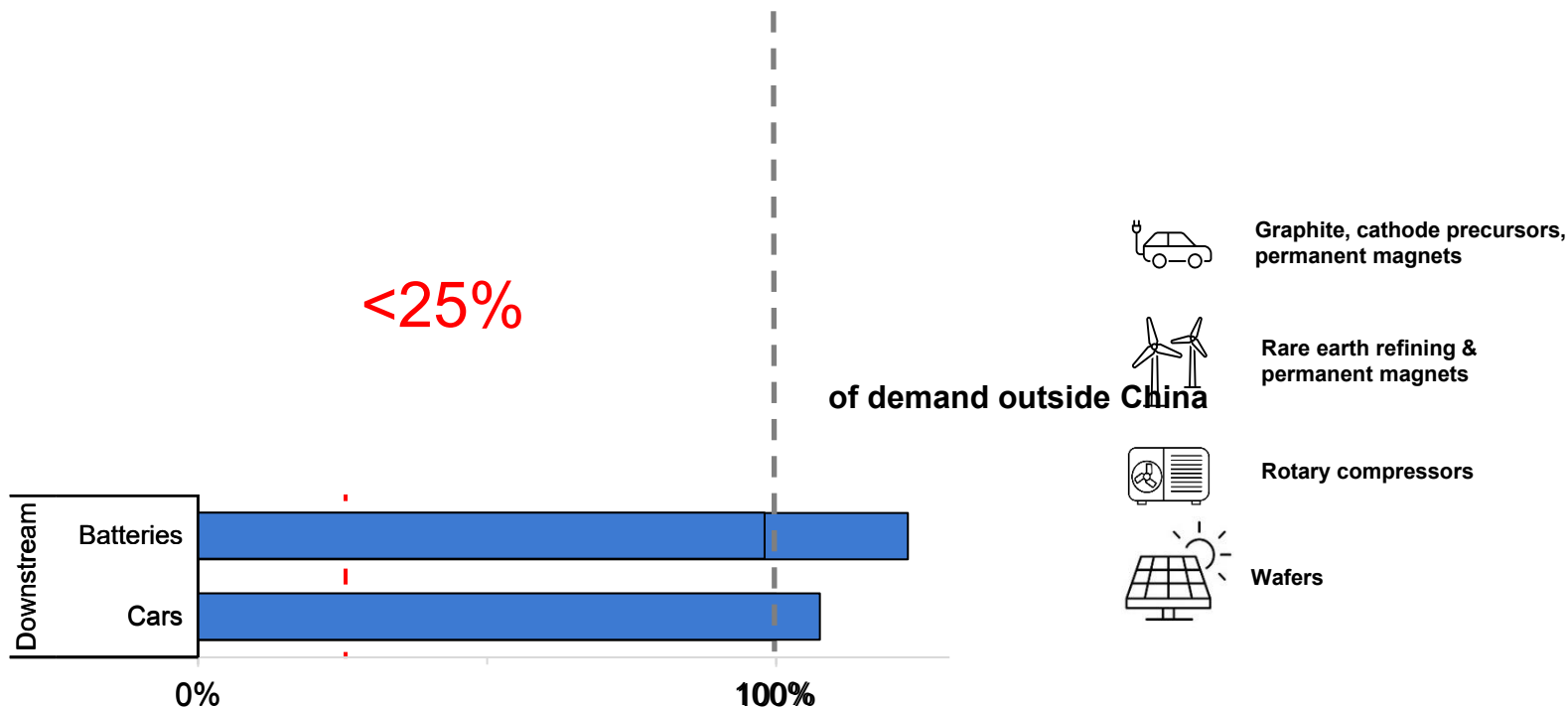
Maximum potential output of largest **company** compared to regional demand, today



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.

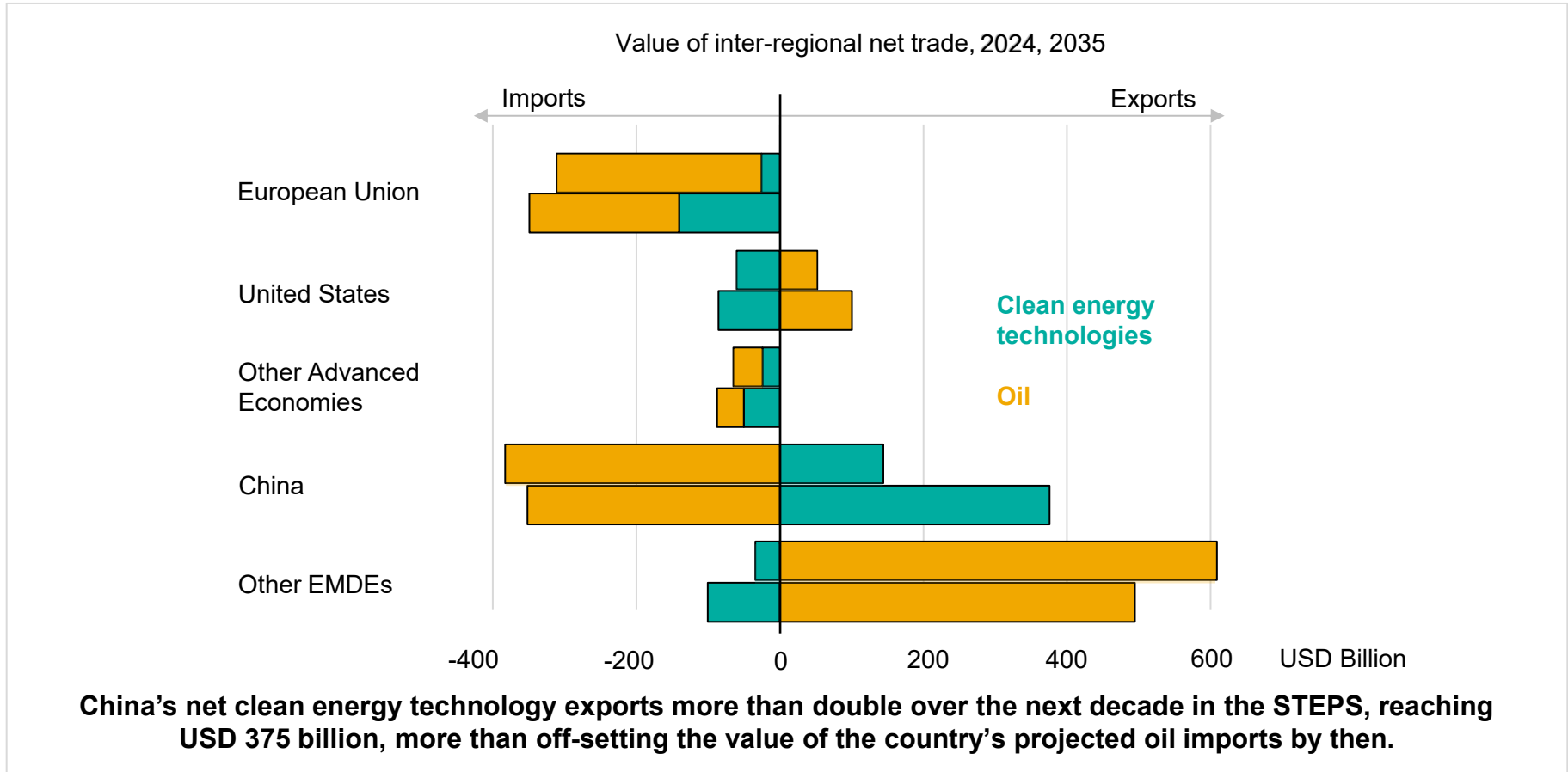
Supply chain concentration has economic security implications

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

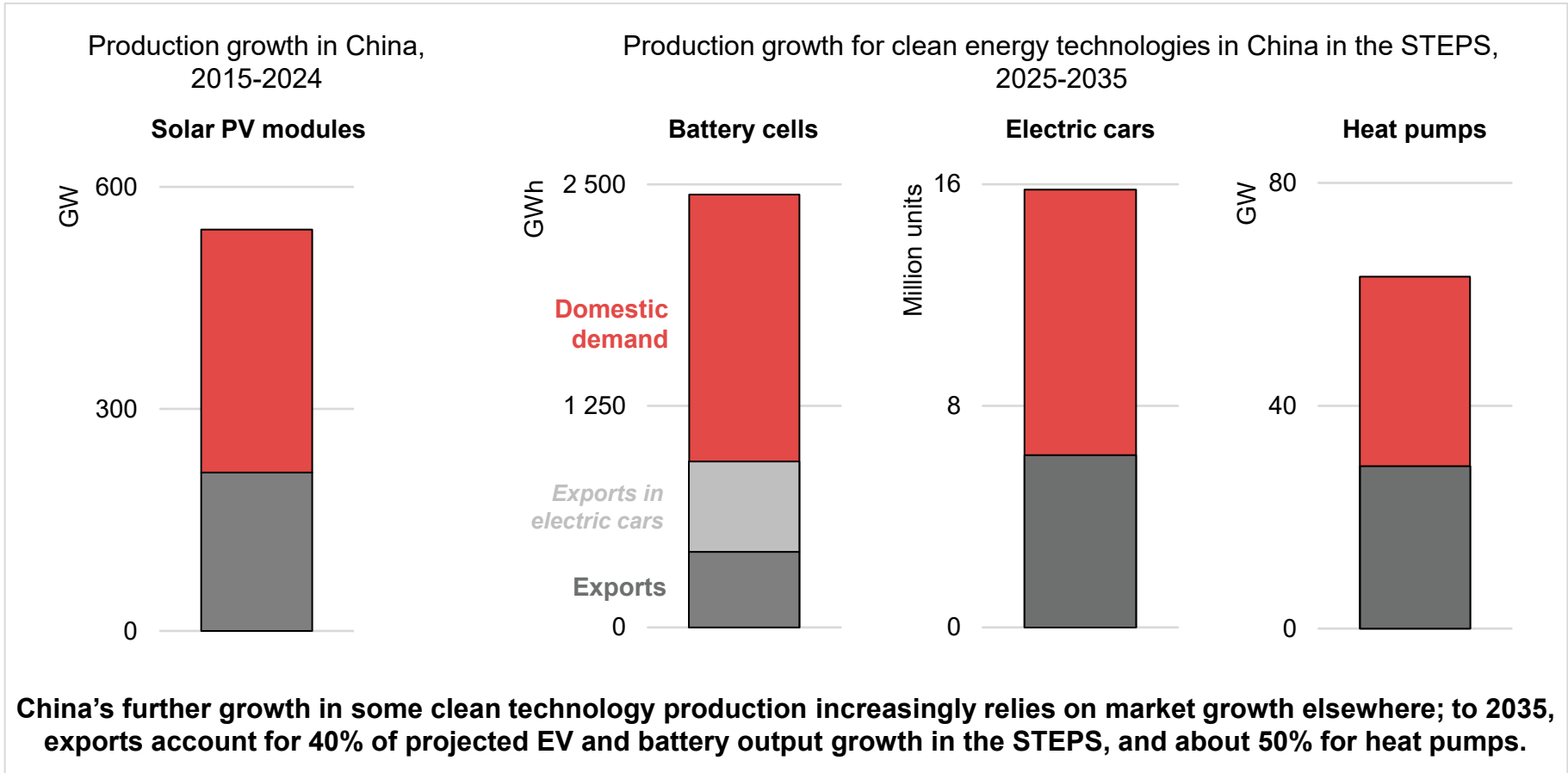


Reliable access to energy technology component supplies is important for downstream industries – for example, a one-month halt of Chinese battery supply chain exports could prevent the production of USD 17 billion worth of EVs.

Trade remains an important feature of technology supply chains

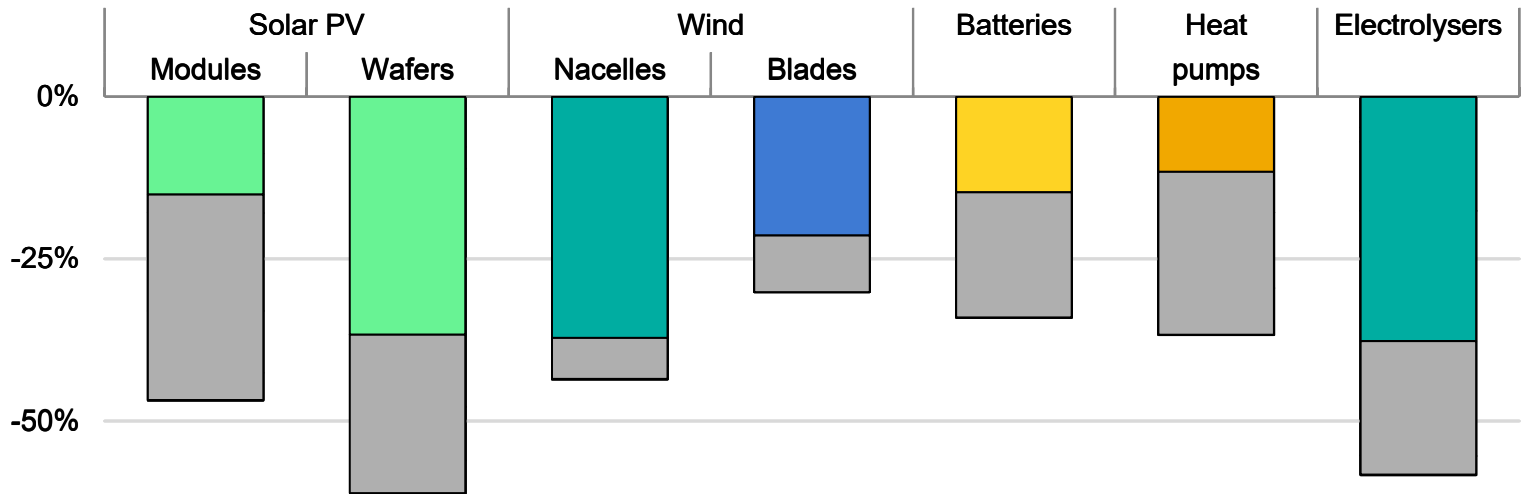


China's clean technology manufacturing drives global markets



There are multiple factors behind China's competitive edge

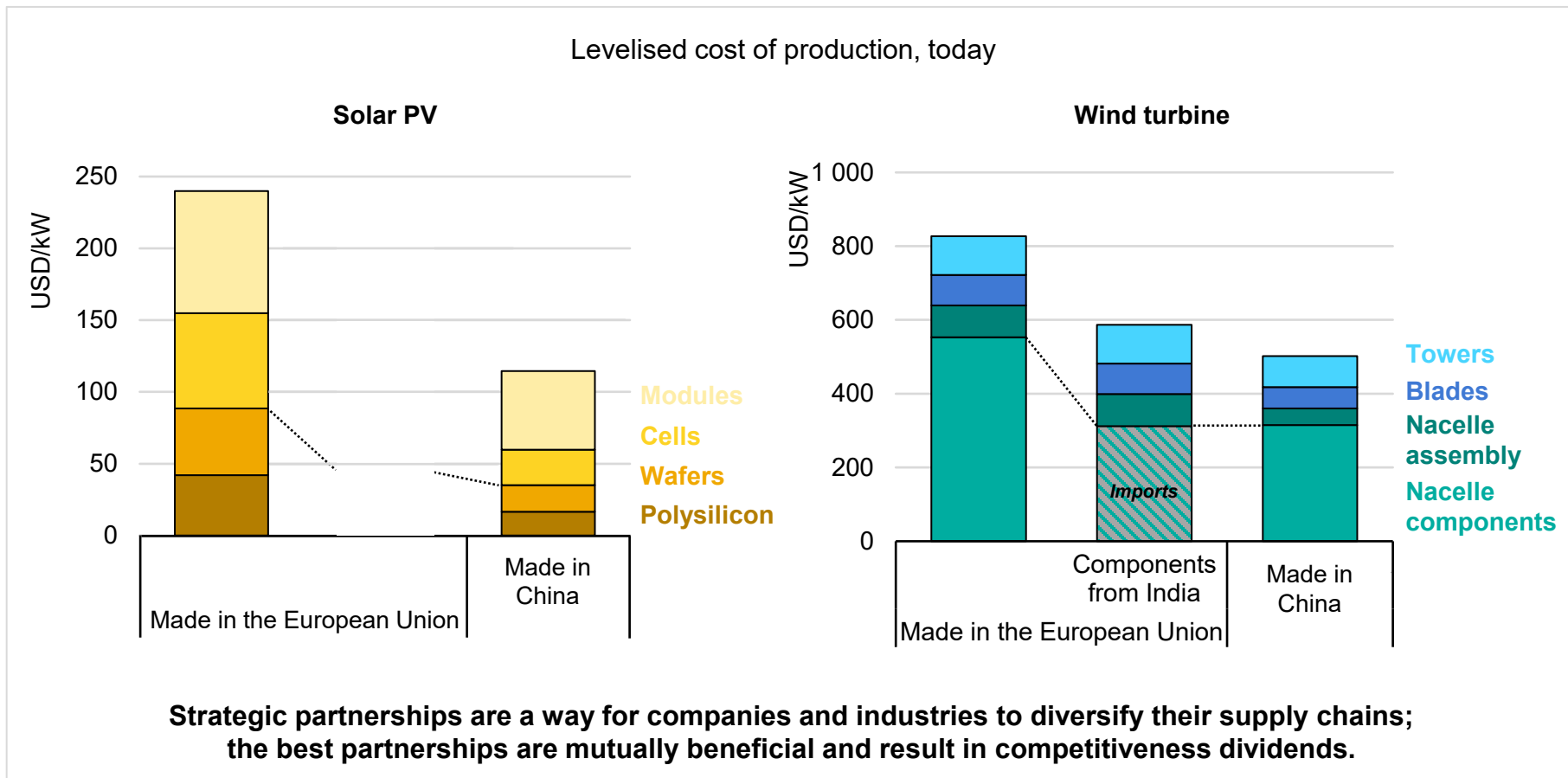
Levelised cost of production gap between the European Union and China, today



Main factors: Plant construction and equipment, Labour, Energy, Components, Manufacturing efficiency, Plant size, Components

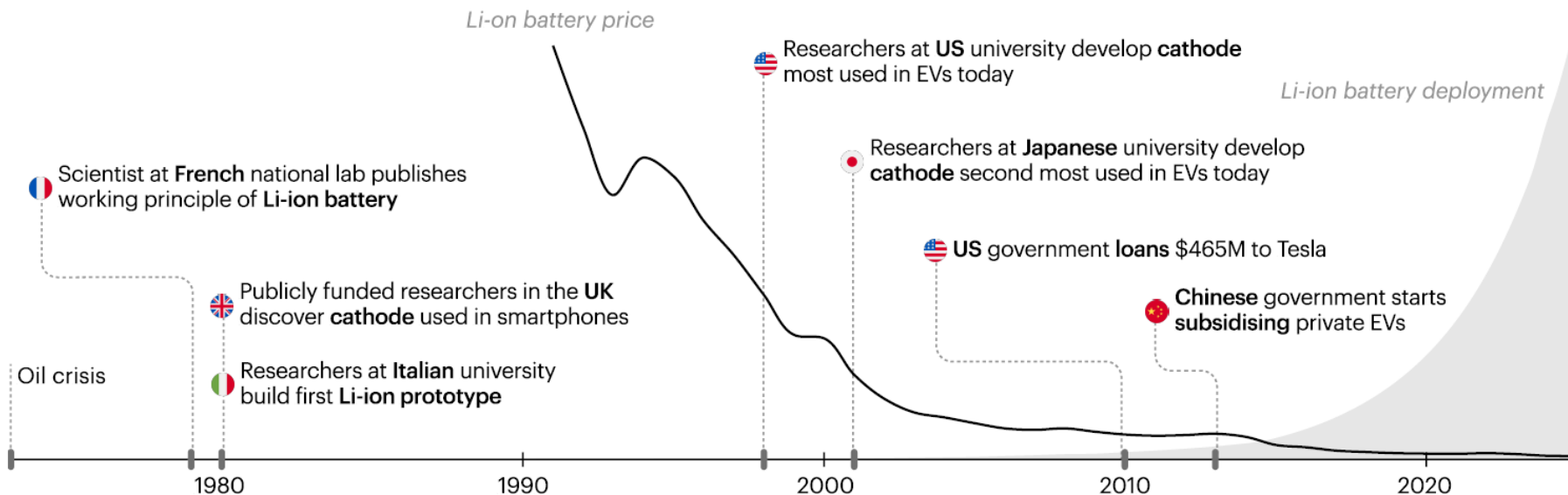
There is no single recipe for bridging the competitiveness gap with China; there are different underlying factors to address for each technology and component.

International collaboration helps diversification & competitiveness



Public R&D is behind any step forward for energy technologies

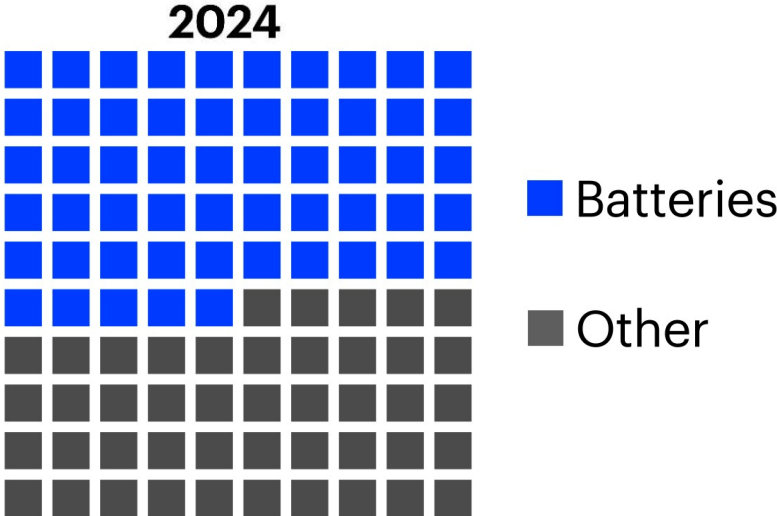
Global deployment, price and key publicly-funded milestones for lithium-ion batteries, 1973-2025



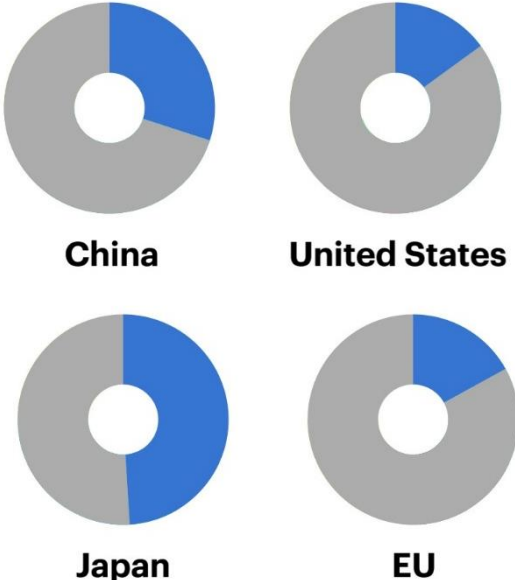
Li-ion battery invention was underpinned by public funding and followed by many research successes in public laboratories. Today, the annual market for this battery technology is worth \$150 billion.

Battery innovation is accelerating further

Share of energy patents



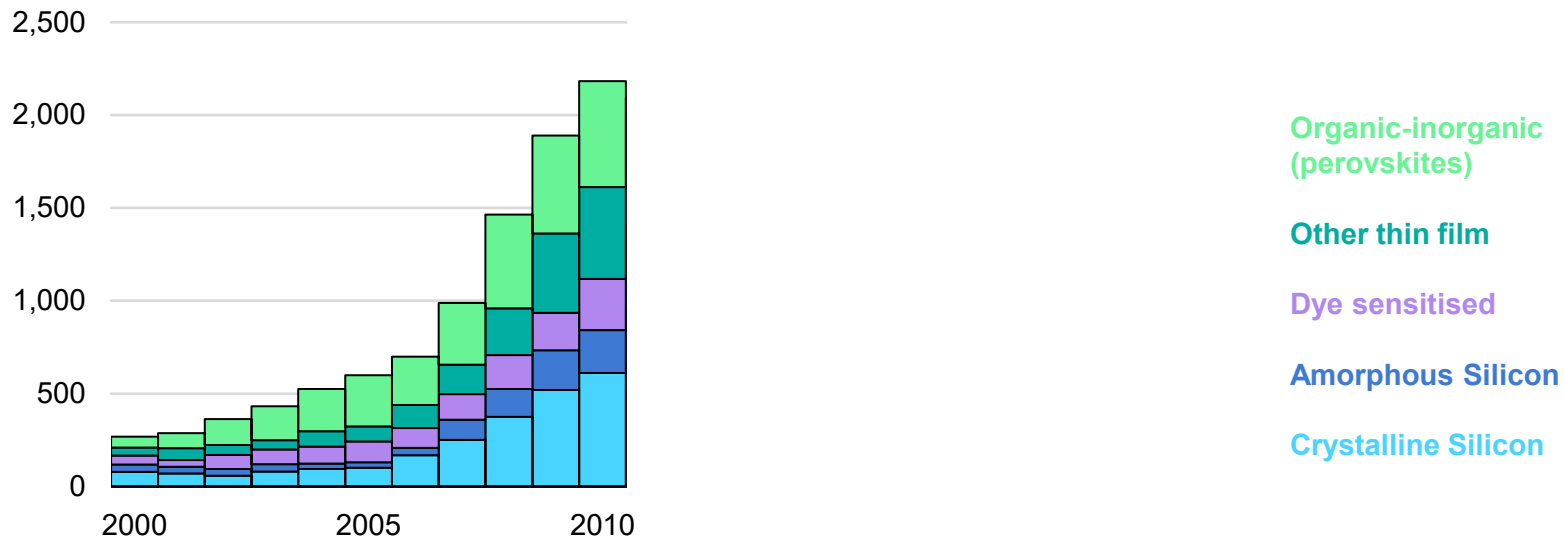
Share of energy patents by country, 2019-2024



Battery patents account for almost 50% of global energy patents, an unprecedented share for a technology. The energy sector is an innovation powerhouse: one in 10 patents worldwide is related to energy.

Mature technologies do not stand still

Number of international patent families for solar PV by material



A slowdown in patenting activity since 2010 reflects the maturity of the global solar PV industry. Patenting activity increasingly focuses on solar perovskites, which now account for the majority of solar PV patents.

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