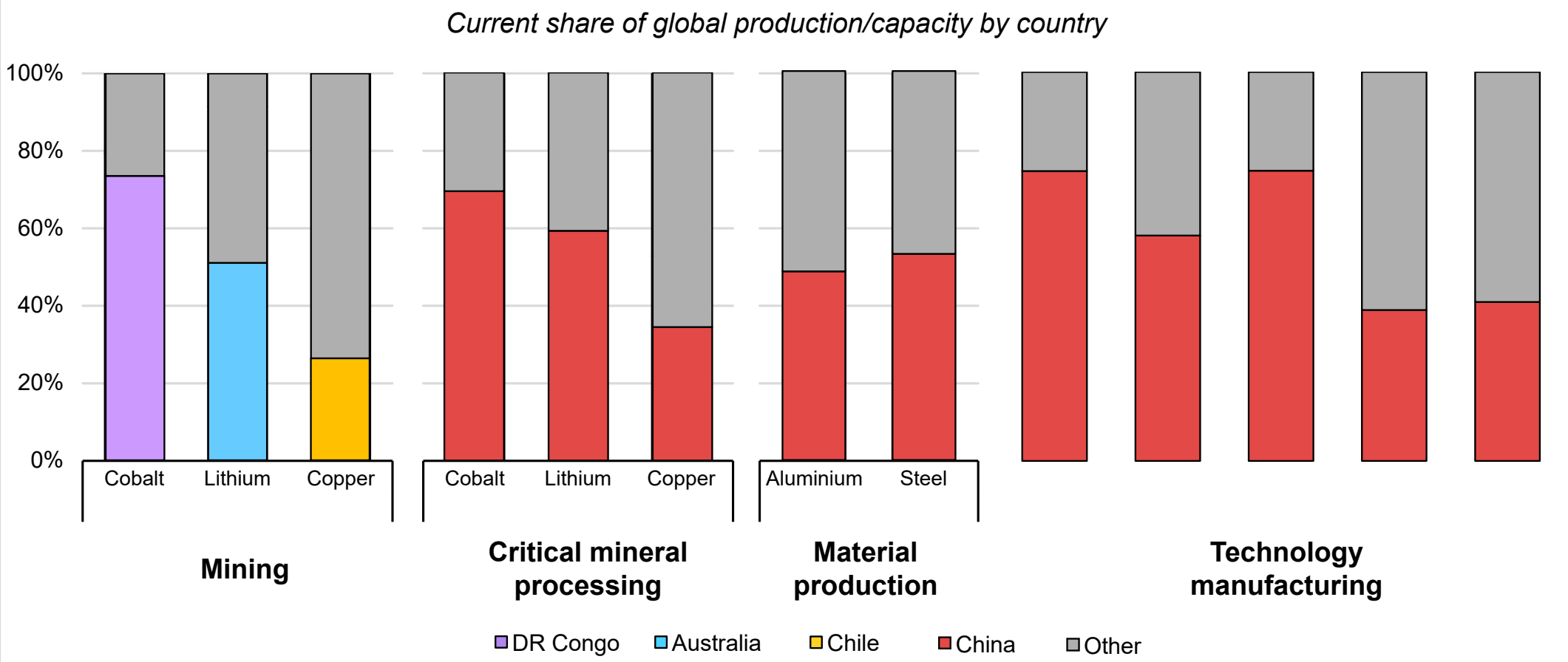
Energy Technology Perspectives 2023

Dr. Timur Gül, Head Energy Technology Policy Division, IEA

IEEJ, Tokyo, 3 February 2023

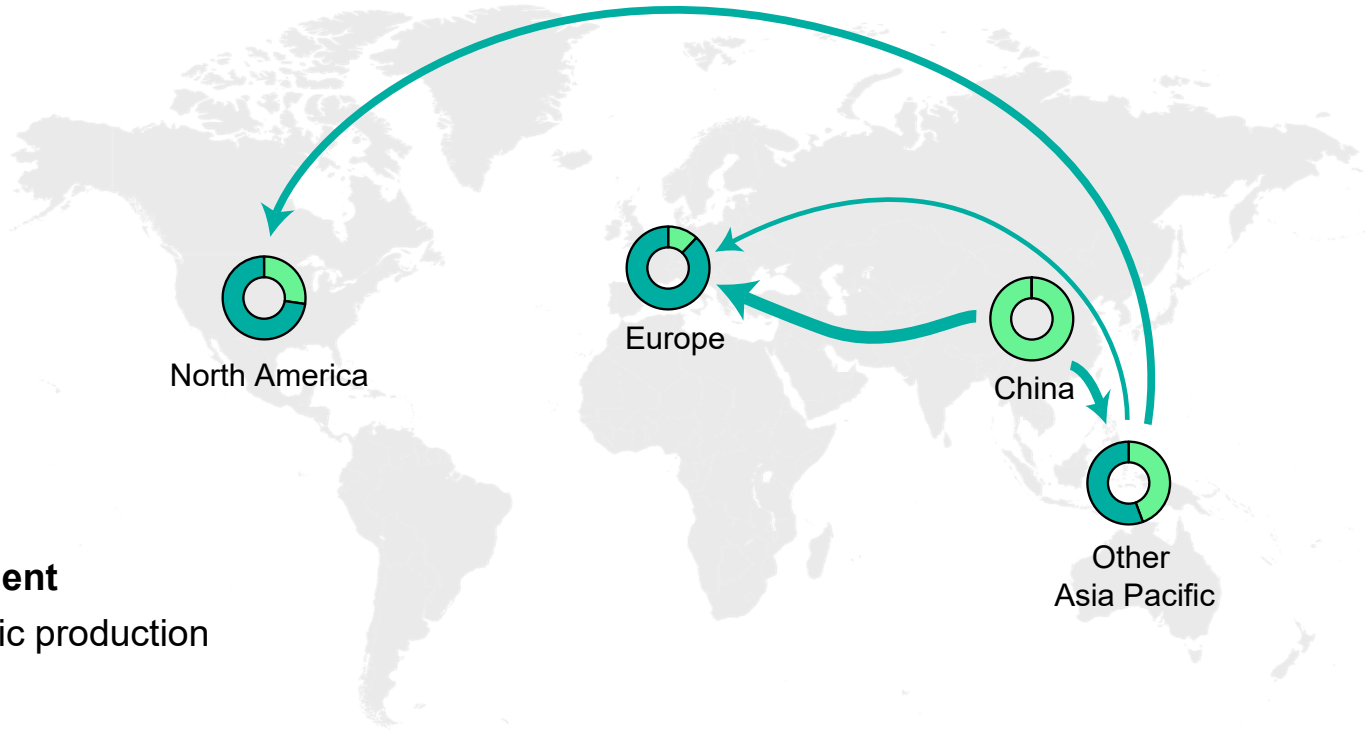
International Energy Agency

Clean technology supply chain concentration risks extend beyond mining



Clean technology supply chains benefit from international trade

Main net trade flows for selected clean technologies, 2021



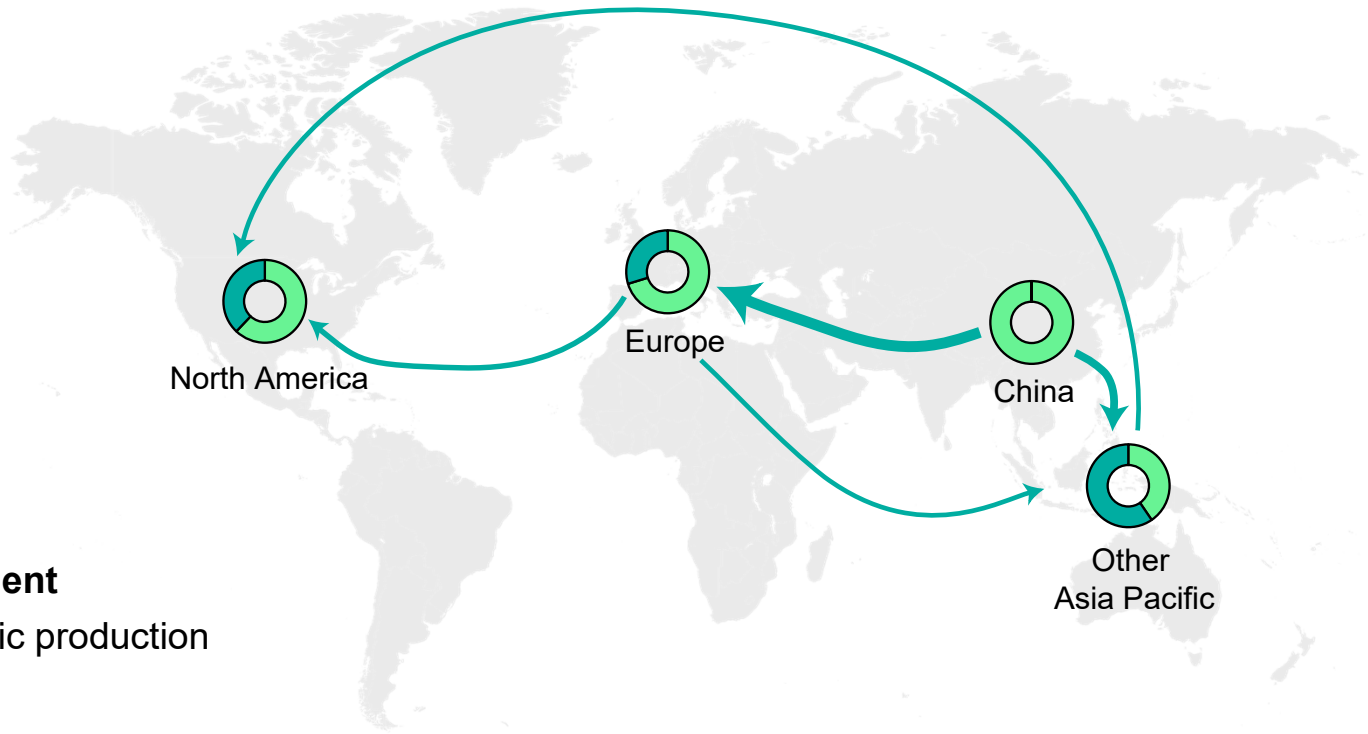
Solar PV modules

Share of trade in global deployment:

~60%

Clean technology supply chains benefit from international trade

Main net trade flows for selected clean technologies, 2021



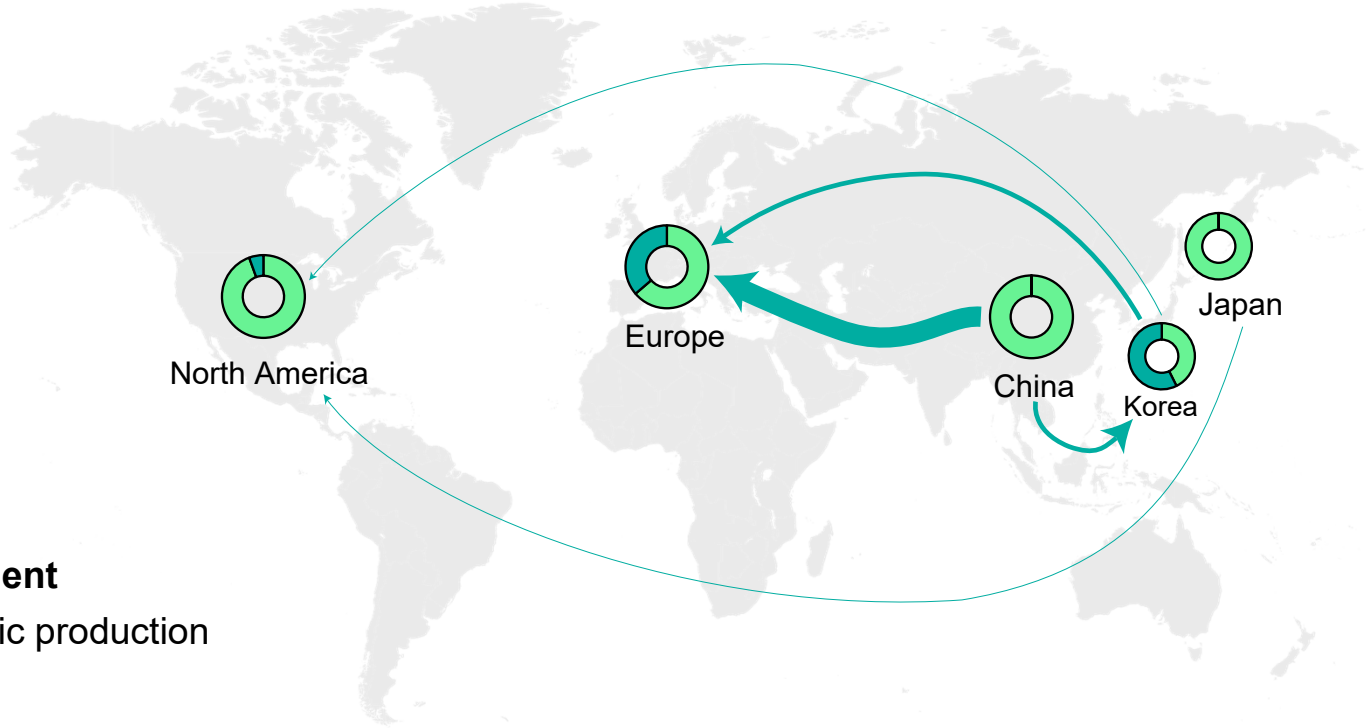
Wind

Share of trade in global deployment:

~20%

Clean technology supply chains benefit from international trade

Main net trade flows for selected clean technologies, 2021



EV batteries

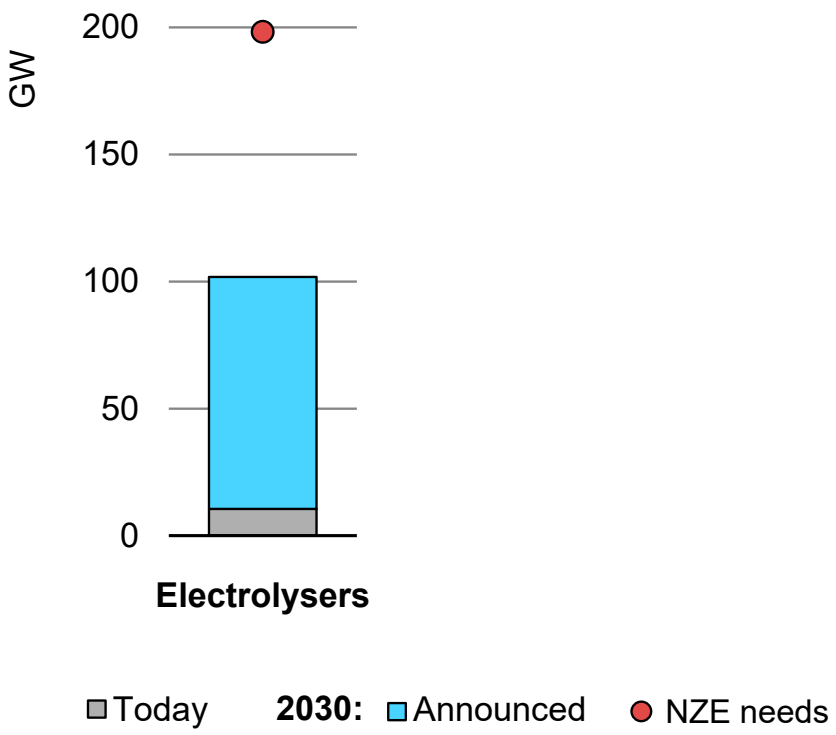
Share of trade in global deployment:

~10%

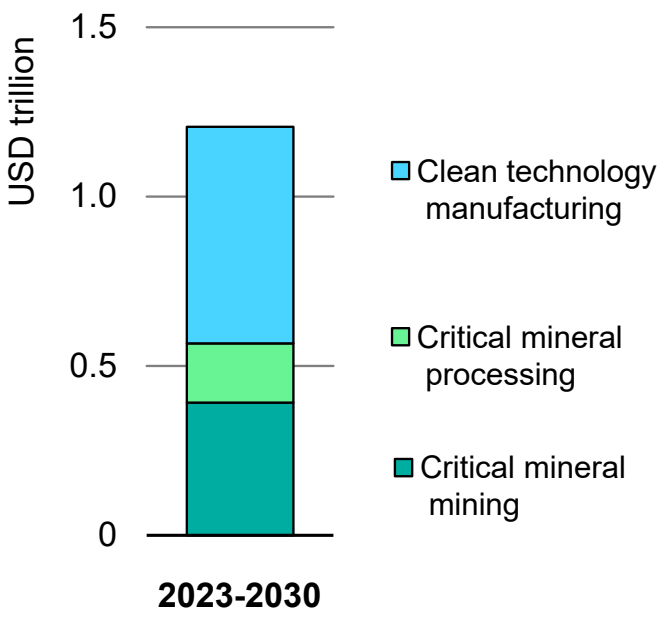
A large domestic market created by rapid clean technology deployment, combined with concerted industrial policy, have made China the dominant player in global clean technology manufacturing and trade.

Investment in clean technology supply chains is on the rise

Annual manufacturing capacity for selected clean technologies

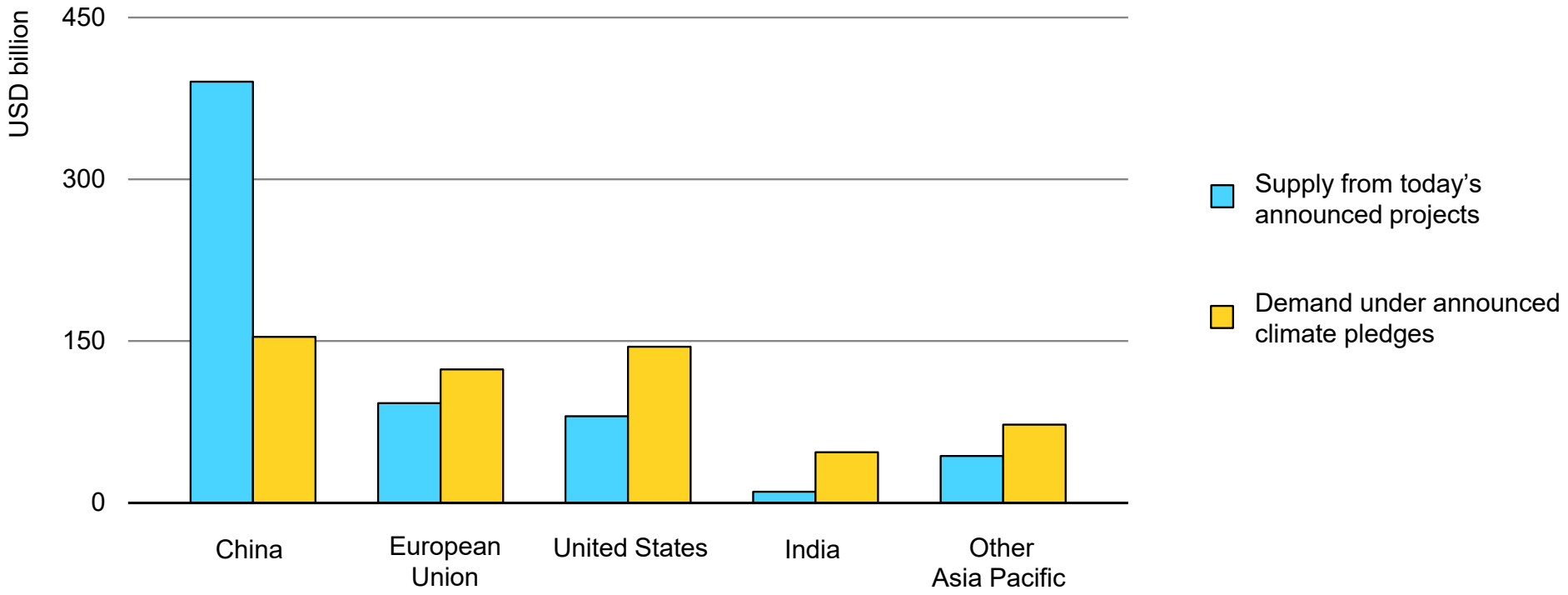


Cumulative investment needs in key clean technology supply chains in the NZE



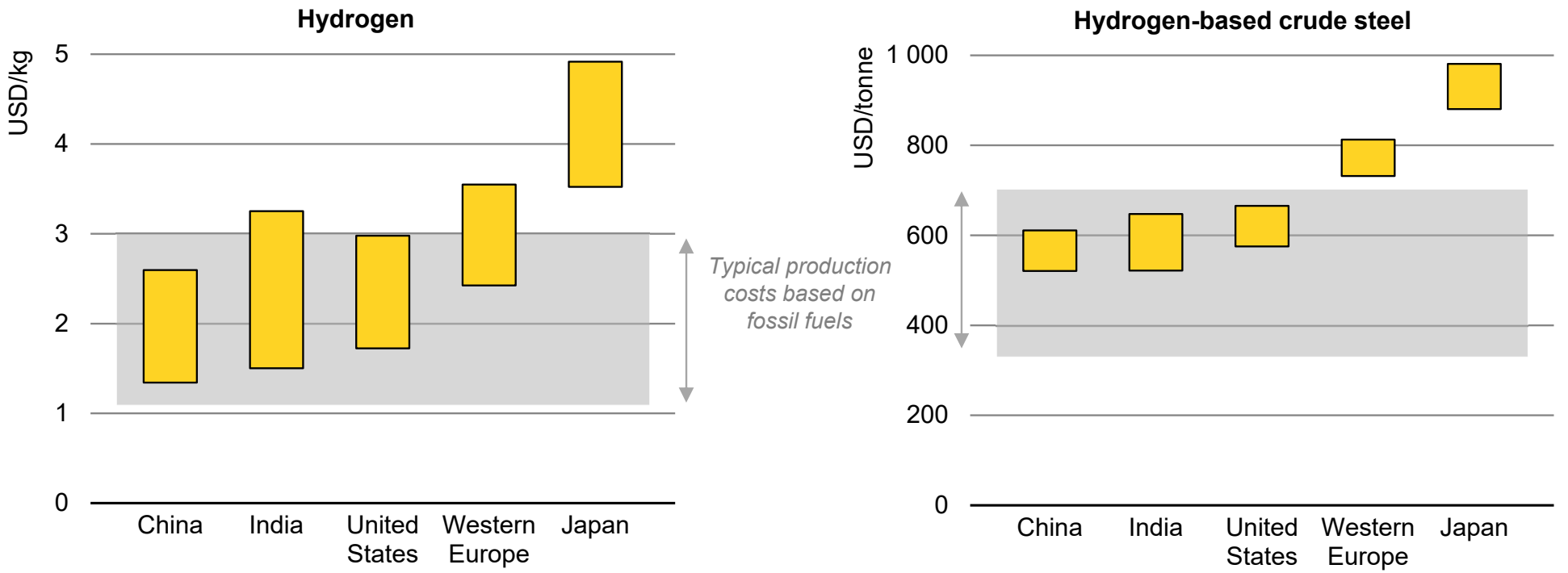
Markets for clean technologies constitute a major opportunity

Market sizes for supply from announced projects and demand under announced pledges for key clean technologies, 2030



Competitiveness is a key consideration for industrial strategies

Production costs using electrolysis and variable renewables under announced climate pledges, 2030



Key takeaways

- The energy world is in the early phase of a new industrial age – the age of clean energy technology manufacturing; reaping the benefits requires an **all-of-government approach**.
- High geographical and market concentrations threaten **supply security;** the policies to deal with such threats differ by supply chain, and must build on competitive advantages and strengths.
- Boosting **supply chain resilience** and **sustainability** is crucial; market disruptions and input price fluctuations can have profound cost implications.
- Participating in the emerging new energy economy requires **industrial strategies** that build on a **mapping of domestic opportunities** and **identify strategic partnerships**.
- **Time is of the essence** for clean energy technology supply chains; governments hold the key to accelerating deployment and tapping into economic opportunities.