International Energy Agency

Global trends on decarbonising industry & power

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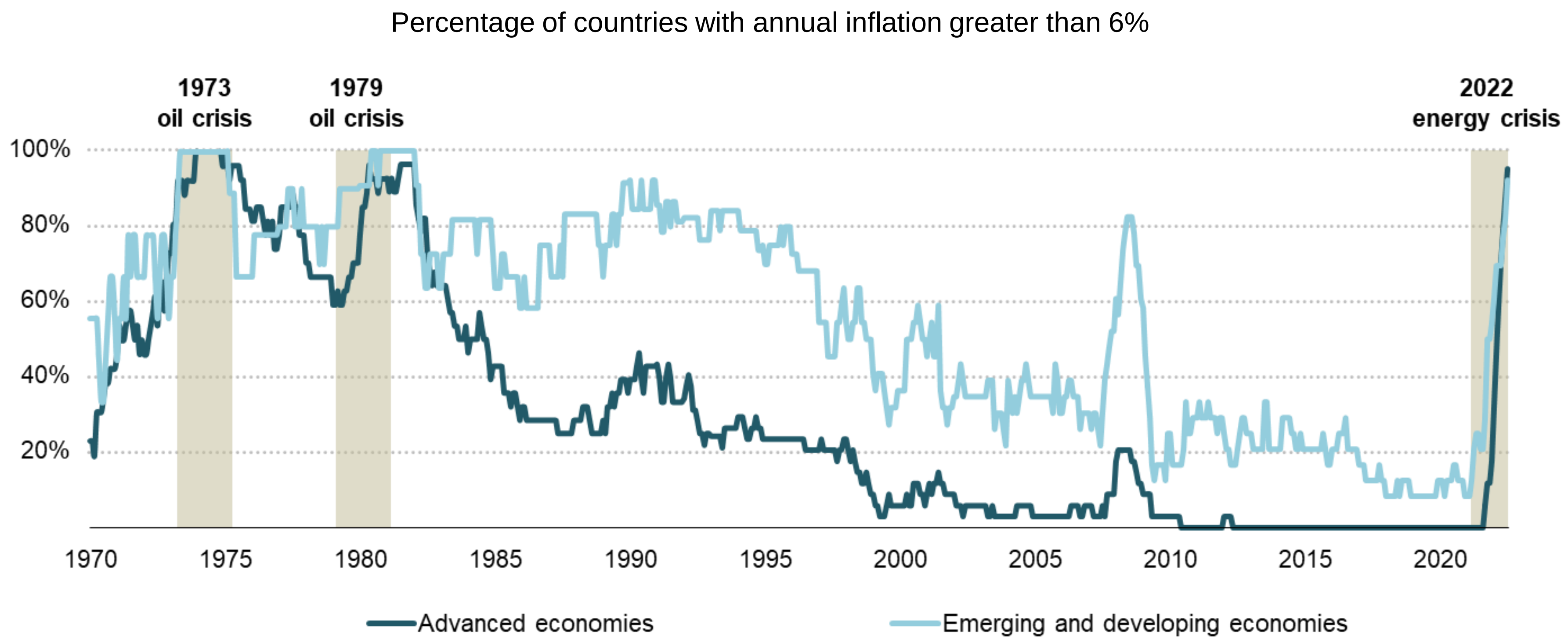
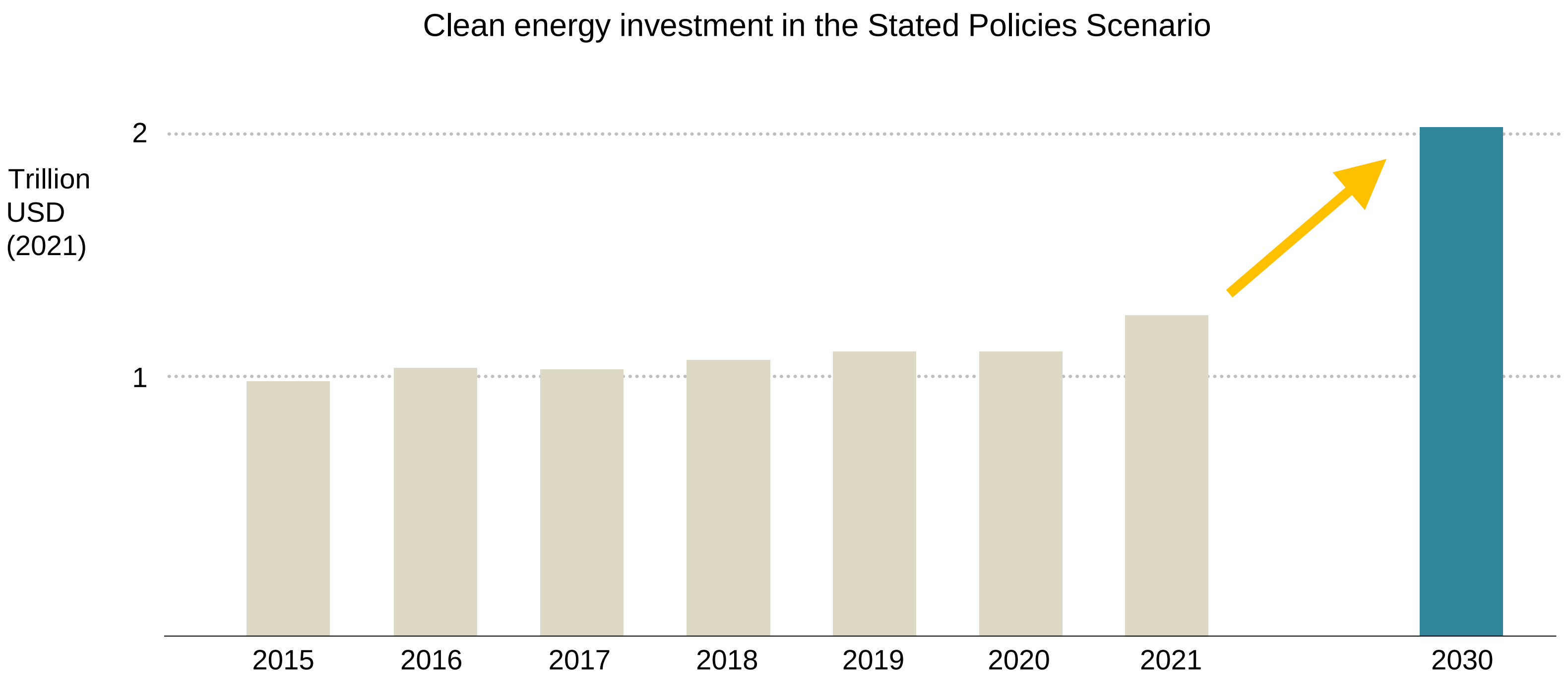
An energy shock of unprecedented breadth and complexity



Exacerbating already tight energy markets, the Russian invasion of Ukraine has tipped the world into a global energy crisis of unprecedented breadth and complexity, affecting all countries and the vulnerable in particular

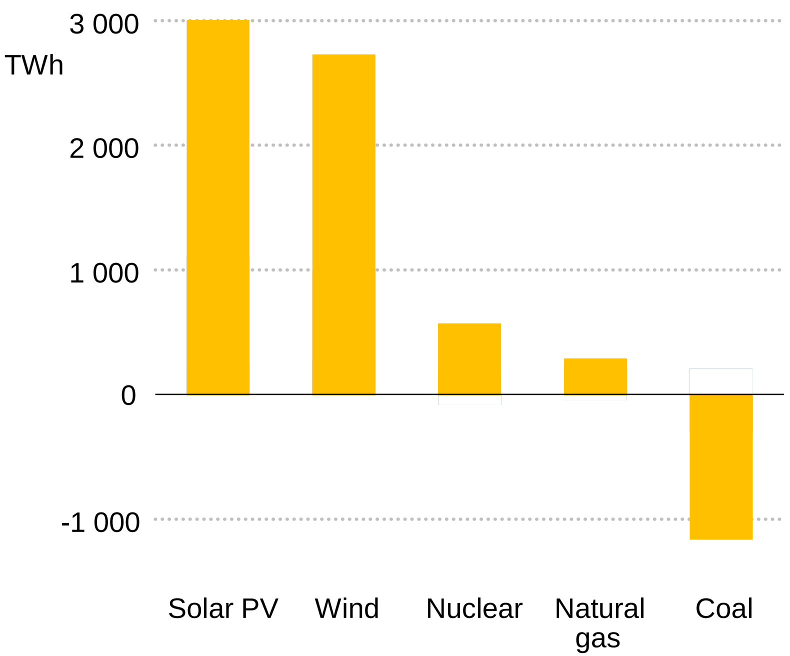
Government responses are fast-tracking the clean energy economy



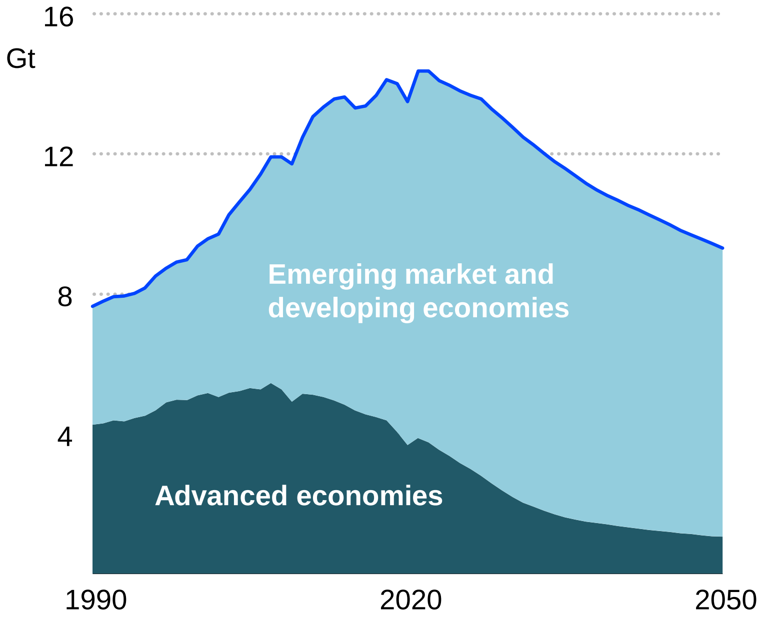
The US Inflation Reduction Act, the EU's Fit for 55 package, Japan's GX, China's new clean energy targets and India's solar revolution propel clean energy investment to new highs, but $4 trillion is needed by 2030 to be on track for 1.5 °C

Electricity is turning the corner

Change in generation in the STEPS, 2021-2030



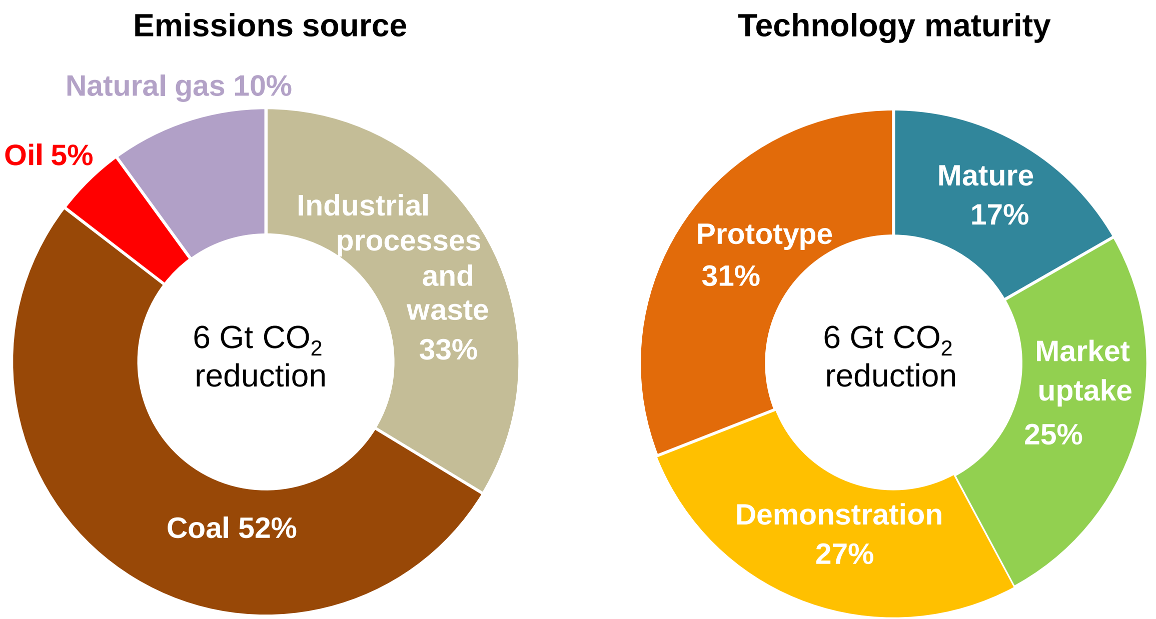
Power sector CO_2 emissions



As markets rebalance, the upside for coal is temporary as renewable generation rises by 90% to 2030; the peak in power sector emissions needs to be followed by a much steeper decline to be consistent with global climate goals

Emissions reduction in industry depends on innovation

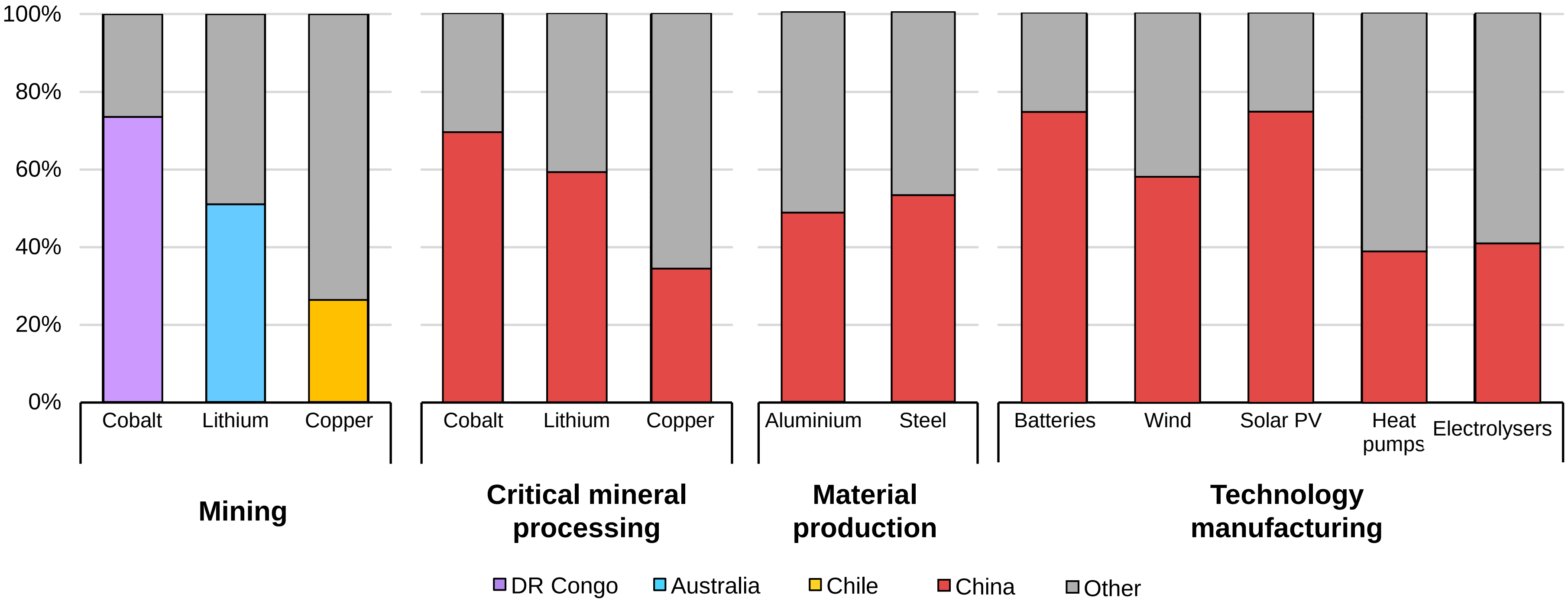
Reductions in CO_2 emissions from heavy industries in the NZE Scenario, 2021-2050



More than half of emissions reductions depend on technologies currently at prototype and demonstration phase. Advanced economies are at the forefront of their development but most of the deployment is in emerging economies

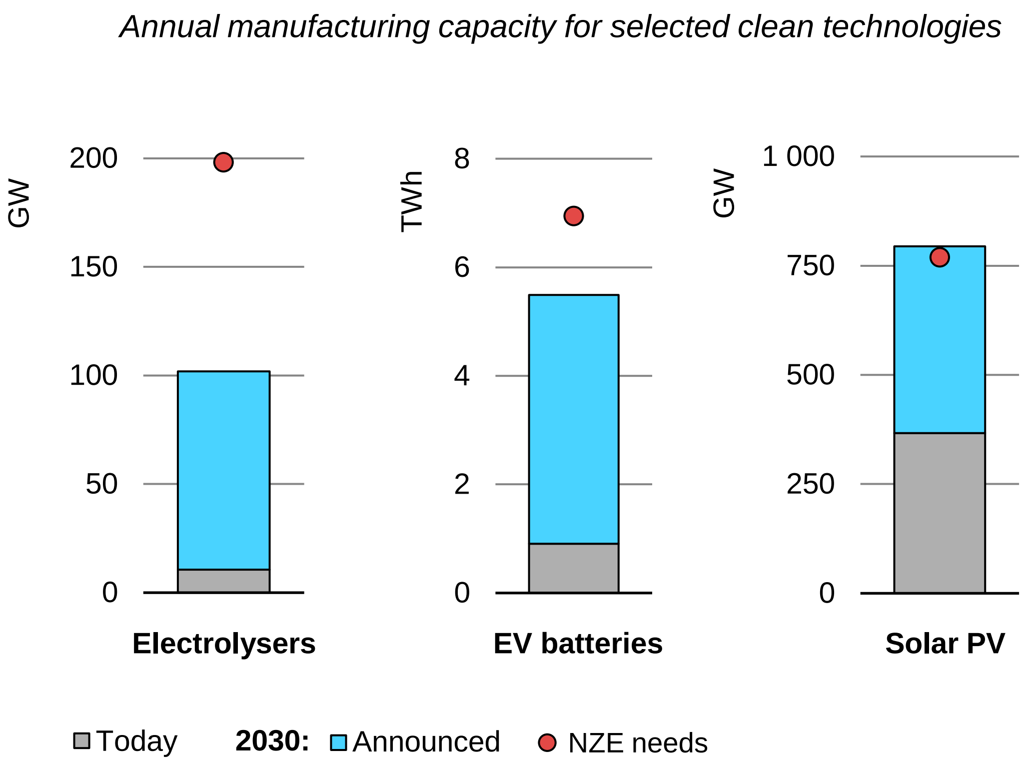
Clean technology supply chain concentration risks extend beyond mining

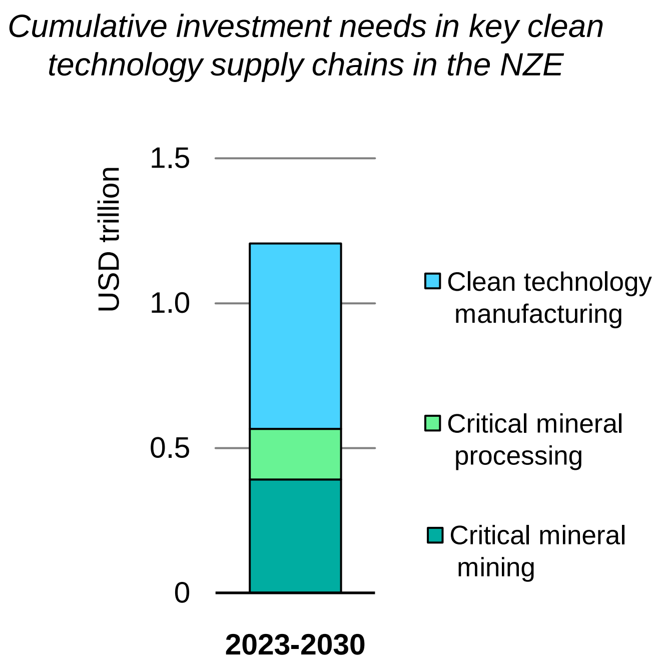
Current share of global production/capacity by country



The top three countries together account for over 70% of global capacity for manufacturing key clean technologies. China is the single largest producer in all major clean technology supply chain steps except mining.

Investment in clean technology supply chains is on the rise

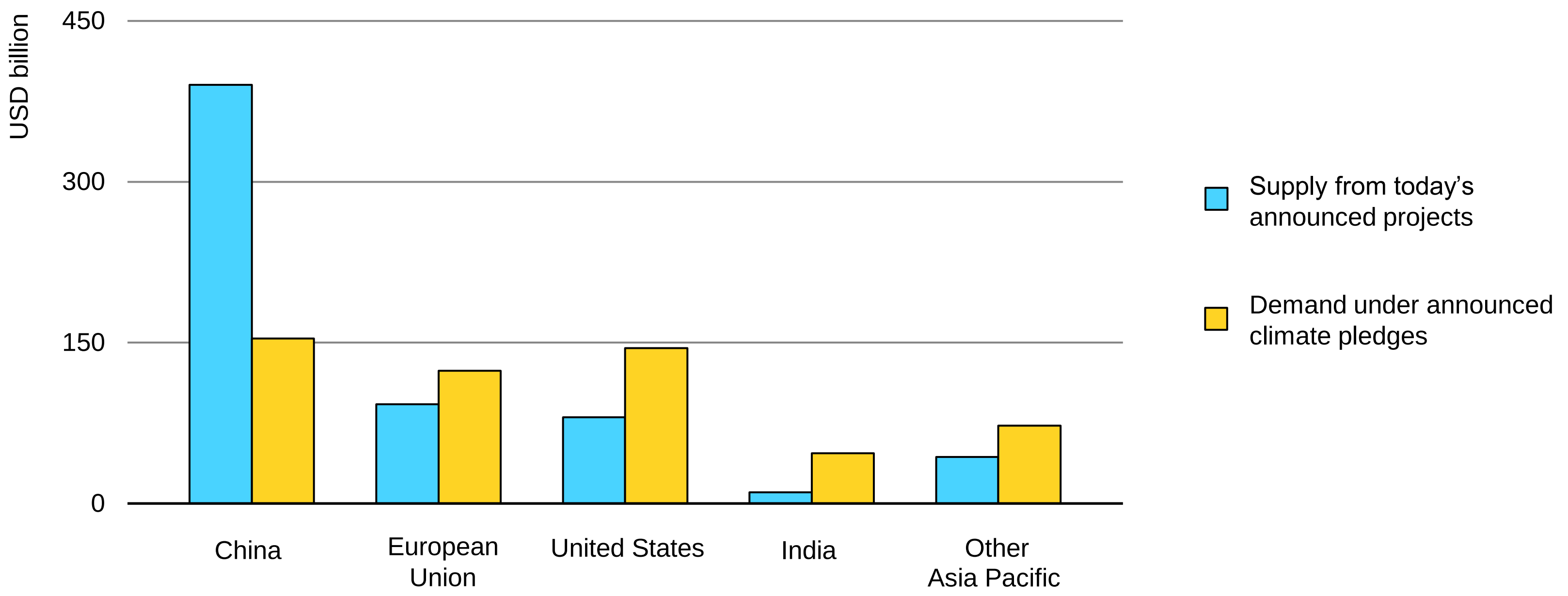




Clean technology manufacturing is increasing rapidly, owing in part to short project lead times. If they materialise, announced manufacturing projects would fulfil two-thirds of the investment needs to 2030 in the NZE.

Markets for clean technologies constitute a major opportunity

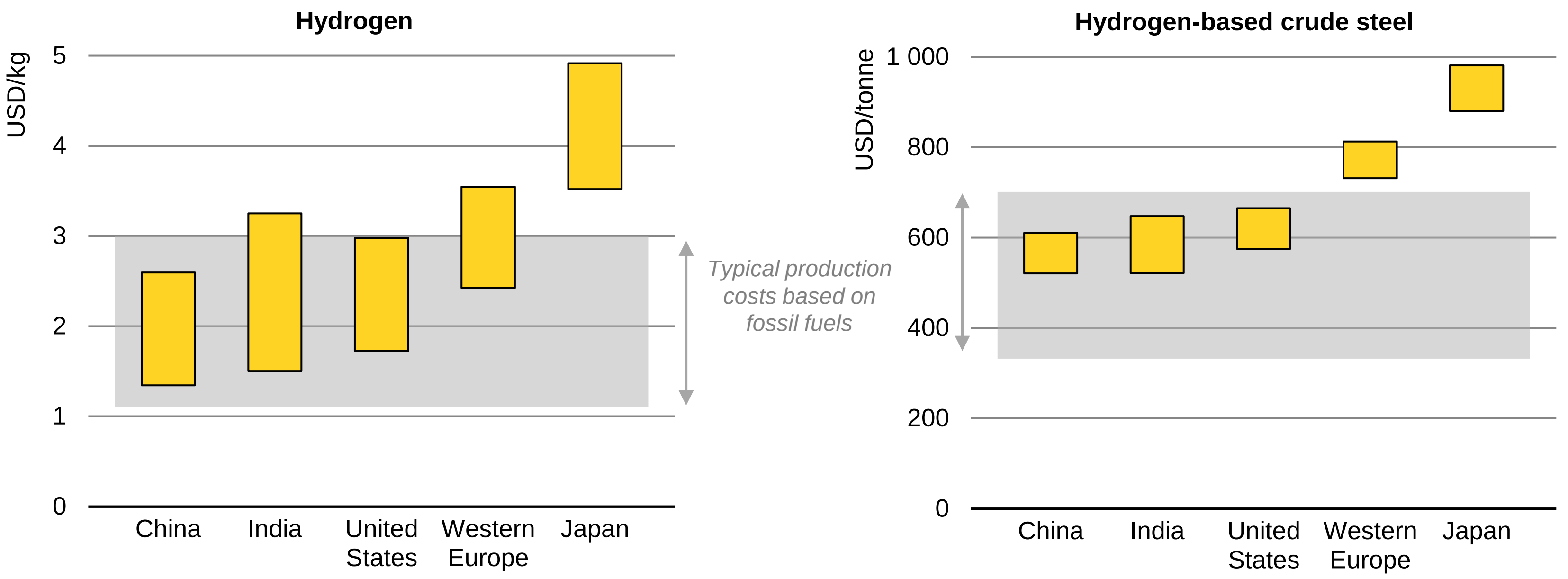
Market sizes for supply from announced projects and demand under announced pledges for key clean technologies, 2030



Committed projects in the United States and the European Union account for less than 20% of domestic expansion plans, leaving significant opportunity to increase production in fulfilling announced climate pledges.

Competitiveness is a key consideration for industrial strategies

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



Climate goals and innovation policy are driving new project announcements for energy intensive commodities, but persistent cost competitiveness gaps indicate the need for strategic partnerships and international collaboration.