CLIMATE ENERGY FINANCE

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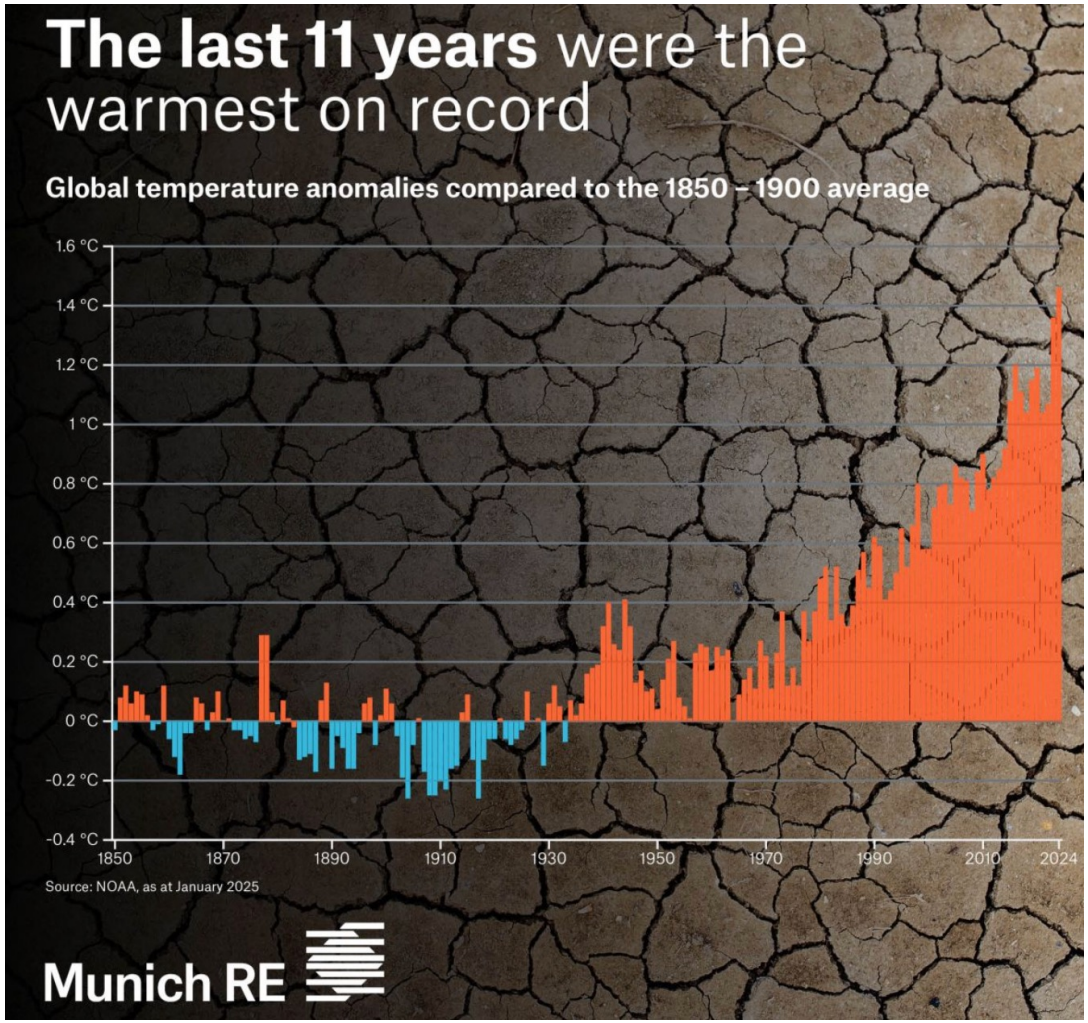
Rising Tide

The Accelerating Technology Driven Global Energy System Transformation and why we should remain hopeful!

28 November 2025

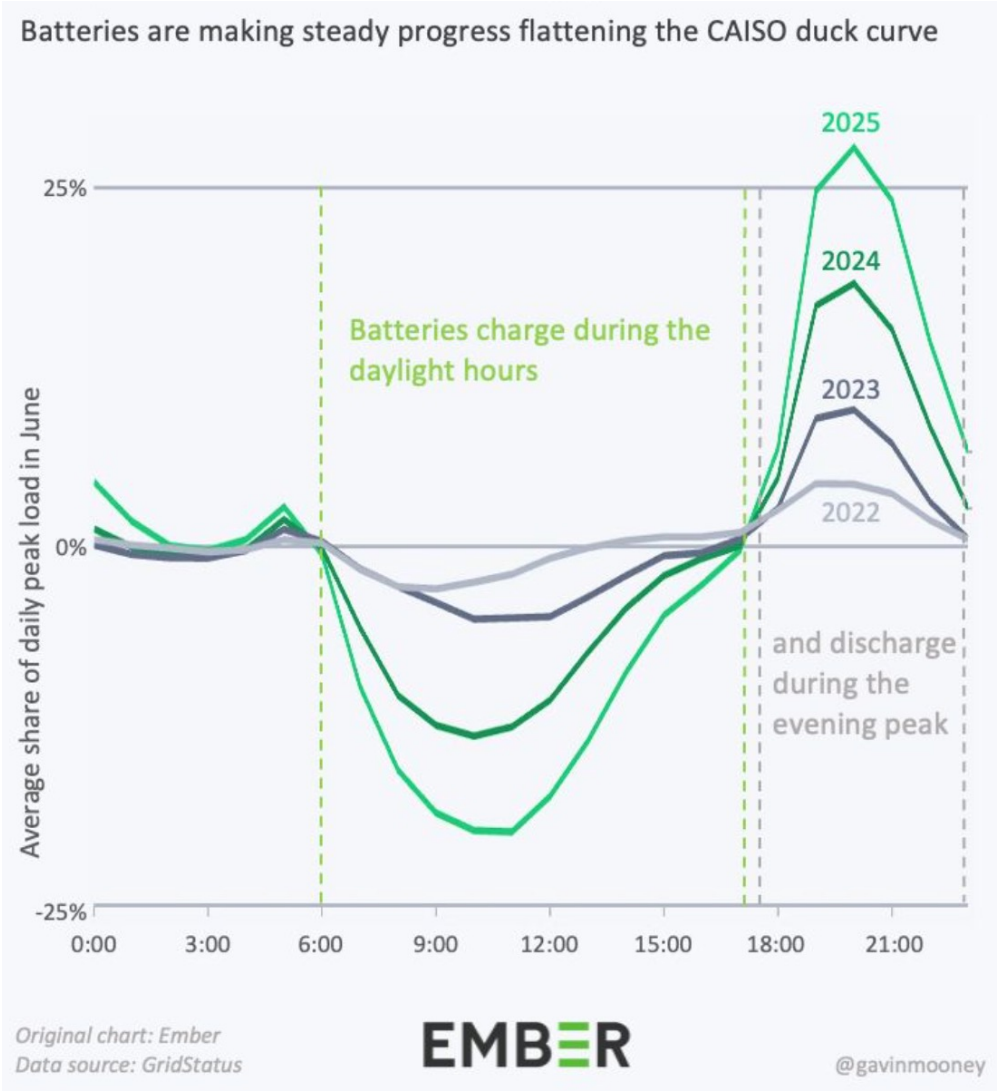
CEF accepts the climate science

CEF is a public interest thinktank with no government or corporate funding



Global Cleantech Investment is Accelerating

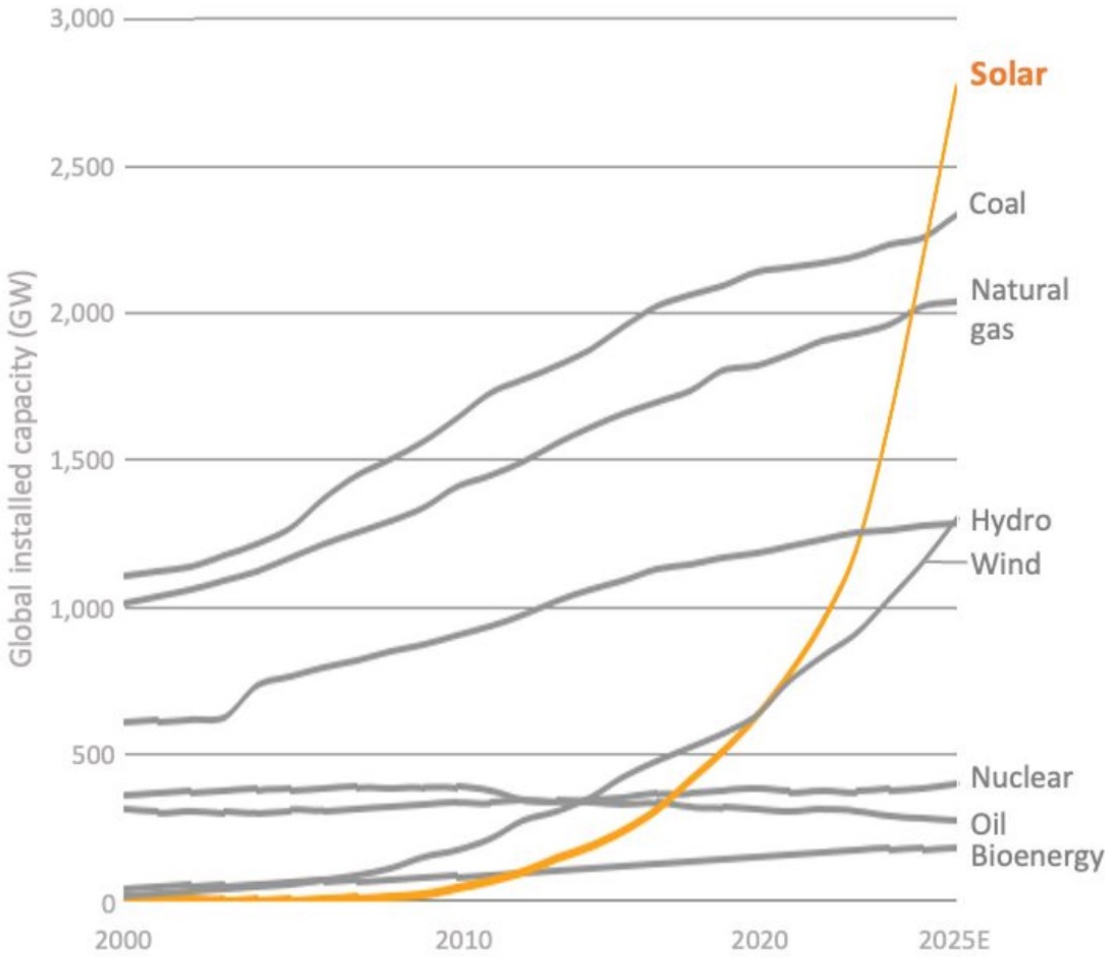
Solar + BESS + V2G => Accelerated Energy System Transformation: California



Source: Gavin Mooney, Kaluza

Global Cleantech Investment is Accelerating

Solar has gone from the smallest to the largest source of capacity (not generation) globally in just 15 years



EMBER

@gavinmooney

Source: Gavin Mooney, Kaluza, EMBER, BNEF. September 2025

China is Moving in Decarbonisation, Rapidly

China is still adding flexible coal power plants (too much!), but utilization rates are down to average just 46% in 10MCY2025, balancing ever more VRE! China deployed 331GW of renewable energy capacity in 10M to-date CY2025, +40% yoy.
China deploys as much VRE every 5 days as Australia does each year.

New Capacity Installed in China in Jan-Oct' 2025

		Jan-Oct 25	% Share of new adds	% yoy change	Oct-25	% Share of new adds
Fossil Power	GW	65	16%	54%	8.4	27%
Hydropower	GW	8	2%	-6%	1.2	4%
Nuclear Power	GW	2	0%	29%	-	0%
Wind Power	GW	70	18%	53%	8.9	29%
Solar Power	GW	253	64%	39%	12.6	41%
Total capacity added	**GW**	**398**	**100%**	**42%**	**31.1**	**100%**
Renewable Energy adds	GW	331	83%	40%	22.7	73%
Zero Emissions Capacity Adds	GW	333	84%	40%	22.7	73%

Source: National Energy Administration; CEF Estimates

China is Moving in Decarbonisation, Rapidly

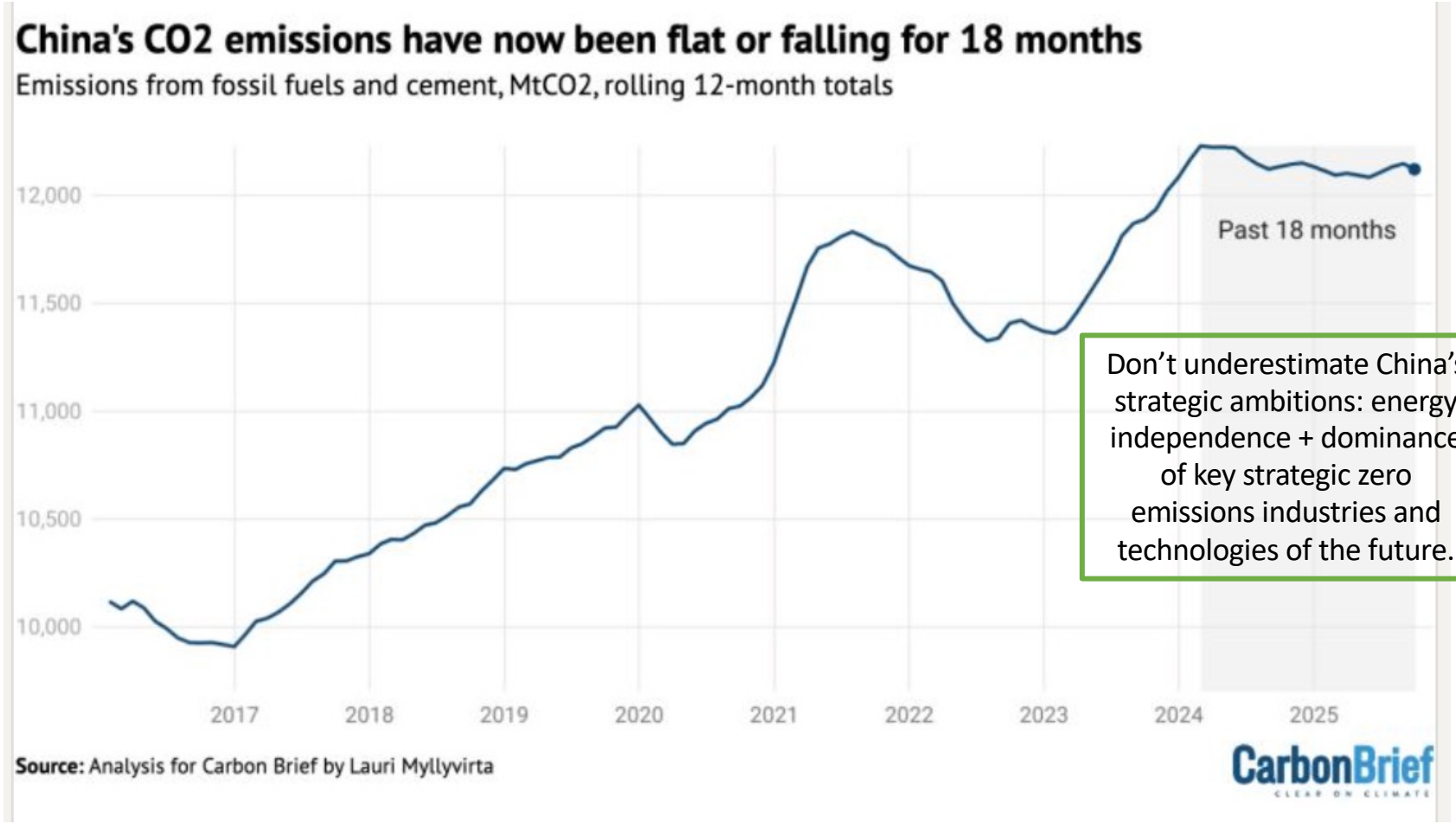
China's coal power generation in the first 10 months of 2025 was -0.7% yoy. Not a dramatic decline, but potentially pivotal relative to 5.4% yoy overall electricity demand growth – electrification of everything, and >100% of new generation from zero emissions sources.

China Generation	Oct'2025 TWh	Month Share	Change yoy	YTD 10M2025 TWh	YTD Share	Change yoy
Coal	473.5	55.2%	7.3%	4,788.7	55.3%	-0.7%
Gas	24.3	2.8%	13.9%	245.8	2.8%	5.4%
Other fossil	1.4	0.2%	12.9%	14.2	0.2%	4.6%
Hydro	136.0	15.9%	29.1%	1,142.0	13.2%	2.5%
Nuclear	38.8	4.5%	4.4%	397.5	4.6%	4.6%
Wind	80.4	9.4%	-7.4%	894.1	10.3%	11.9%
Solar	86.5	10.1%	26.1%	1,002.8	11.6%	42.3%
Total generation TWh	857.6	100.0%	10.4%	8,653.3	100.0%	5.4%

Source: NEA, EMBER, CEF Calculations

China’s electrification leadership drives decarbonisation

China’s electrification is about energy security i.e. permanently reducing reliance on imported fossil fuels. Combined with lower steel and cement production => national emissions in China have plateaued.

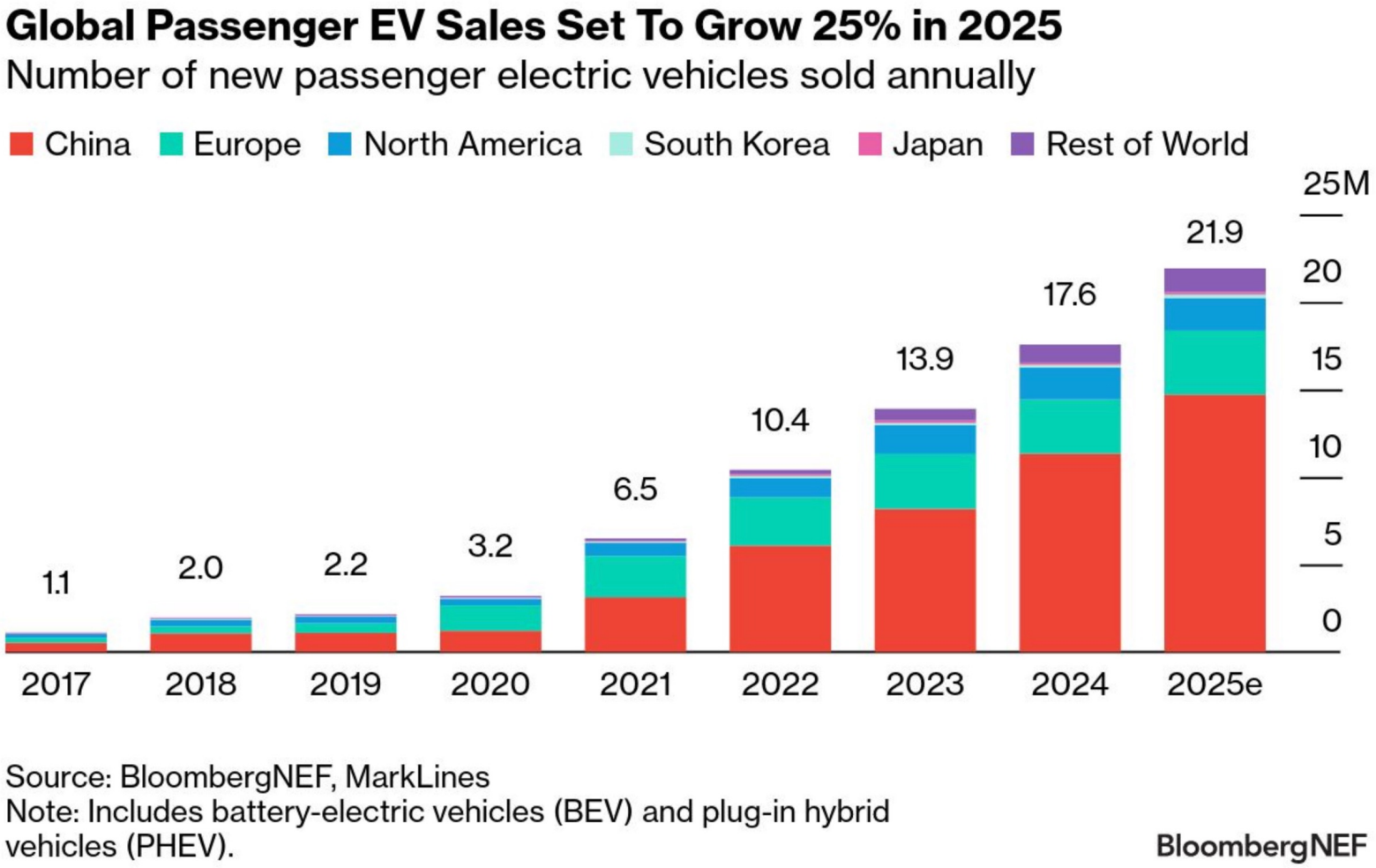


Don’t underestimate China’s strategic ambitions: energy independence + dominance of key strategic zero emissions industries and technologies of the future.

Source: CarbonBrief; https://www.carbonbrief.org/analysis-record-solar-growth-keeps-chinas-co2-falling-in-first-half-of-2025/

China's Global Cleantech Investment Dominance

Global EV Sales By Region
Rho Motion calculates global EV sales 9MCY2025 +26% yoy



China's Global Cleantech Investment Dominance

There's a Race to Power the Future. China Is Pulling Away

Beijing is selling clean energy to the world, Washington is pushing oil and gas. Both are driven by national security.

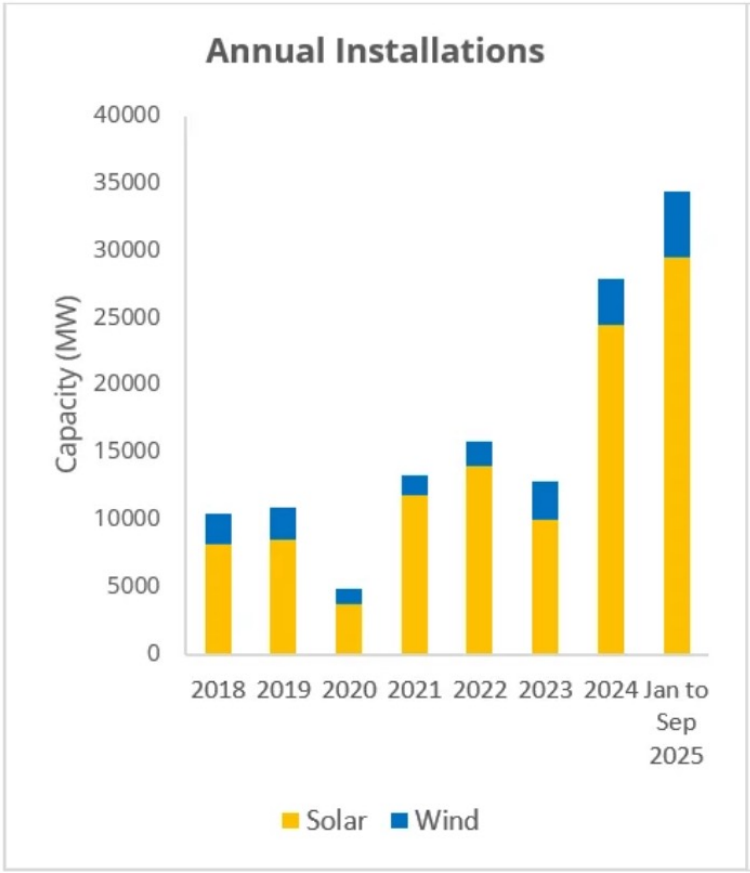
By David Gelles in New York; Somini Sengupta in Brasília and in Tirunelveli, India; Keith Bradsher in Beijing; and Brad Plumer in Washington June 30, 2025 The New York Times

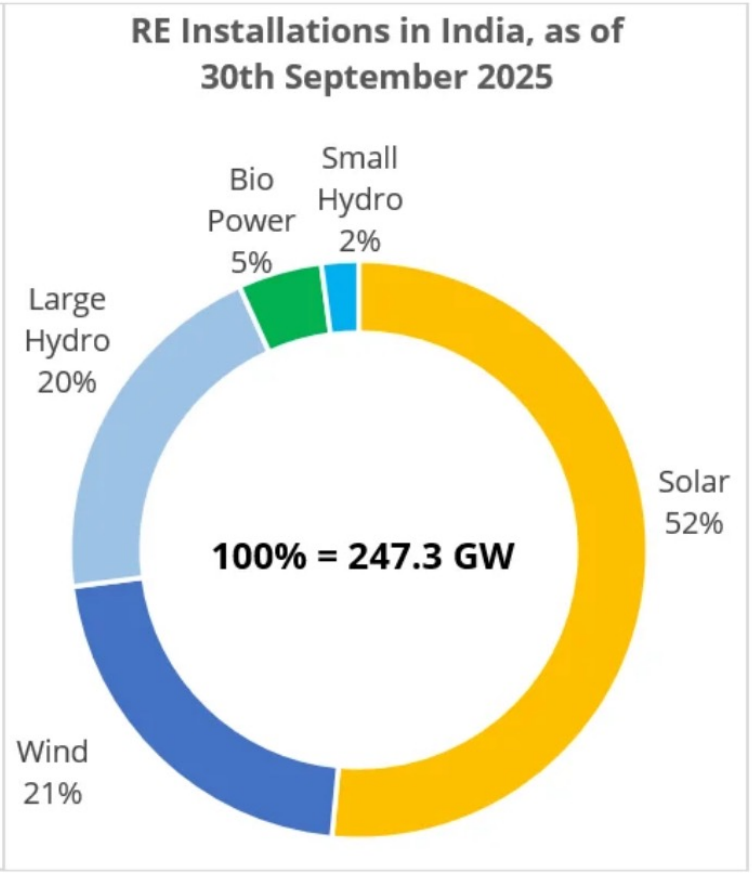
In China, more wind turbines and solar panels were installed last year than in the rest of the world combined. And China's clean energy boom is going global. Chinese companies are building EV and battery factories in Brazil, Thailand, Morocco, Hungary and beyond.

New York Times 30 June 2025: https://www.nytimes.com/interactive/2025/06/30/climate/china-clean-energy-power.html?unlocked_article_code=1.S08.97P-.69ar3PZIzbe2&smid=url-share#

India

India Adds Record 34.4 GW of Solar and Wind Capacity in 9MCY2025





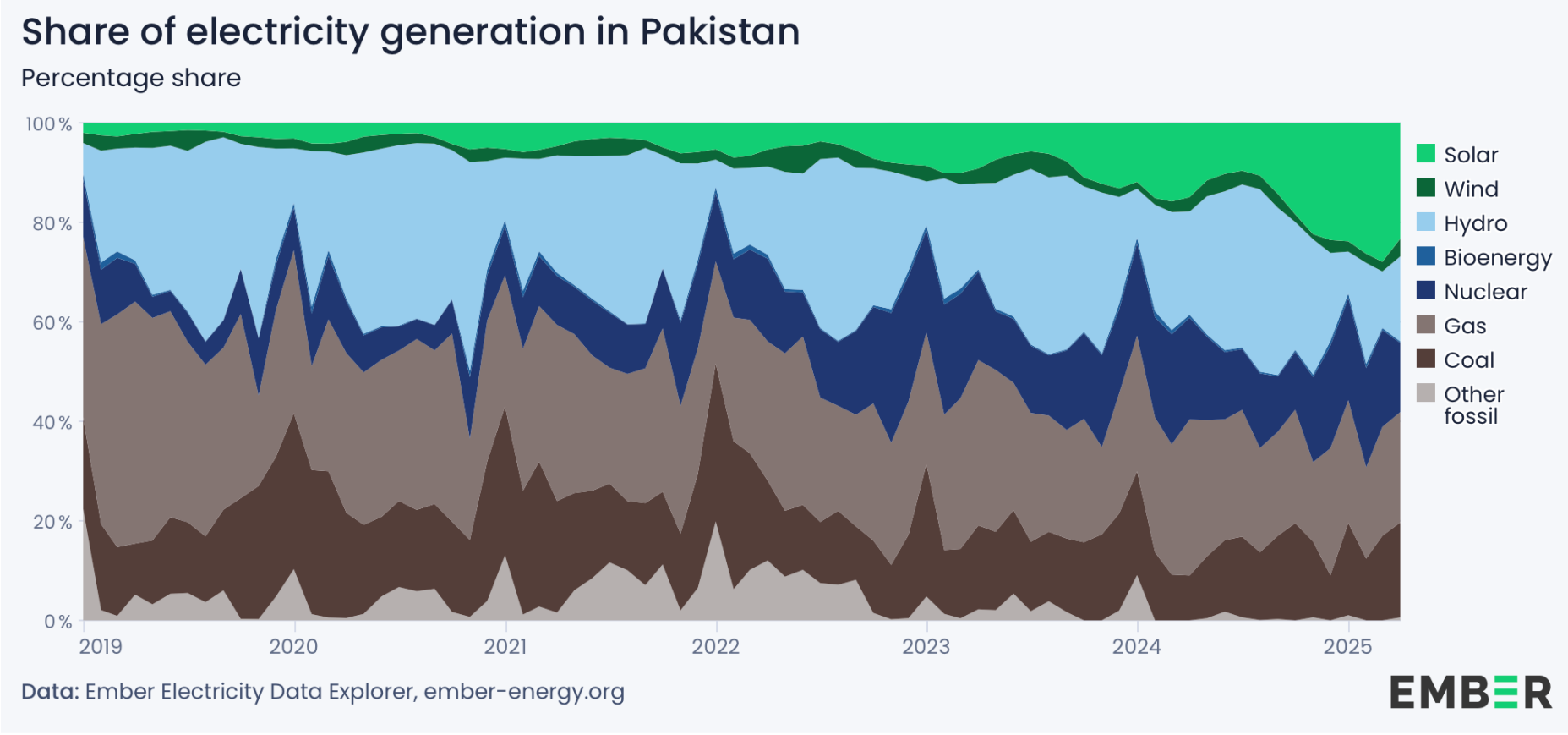
India generation share for Sept'2025:

Solar:	9%
Wind:	6%
Hydro:	15%
Nuclear:	3%
Coal:	66%
Gas:	2%

Source: JMK Research, 13 October 2025, https://jmkresearch.com/india-adds-record-34-4-gw-of-solar-and-wind-capacity-in-the-first-nine-months-of-2025/

Pakistan

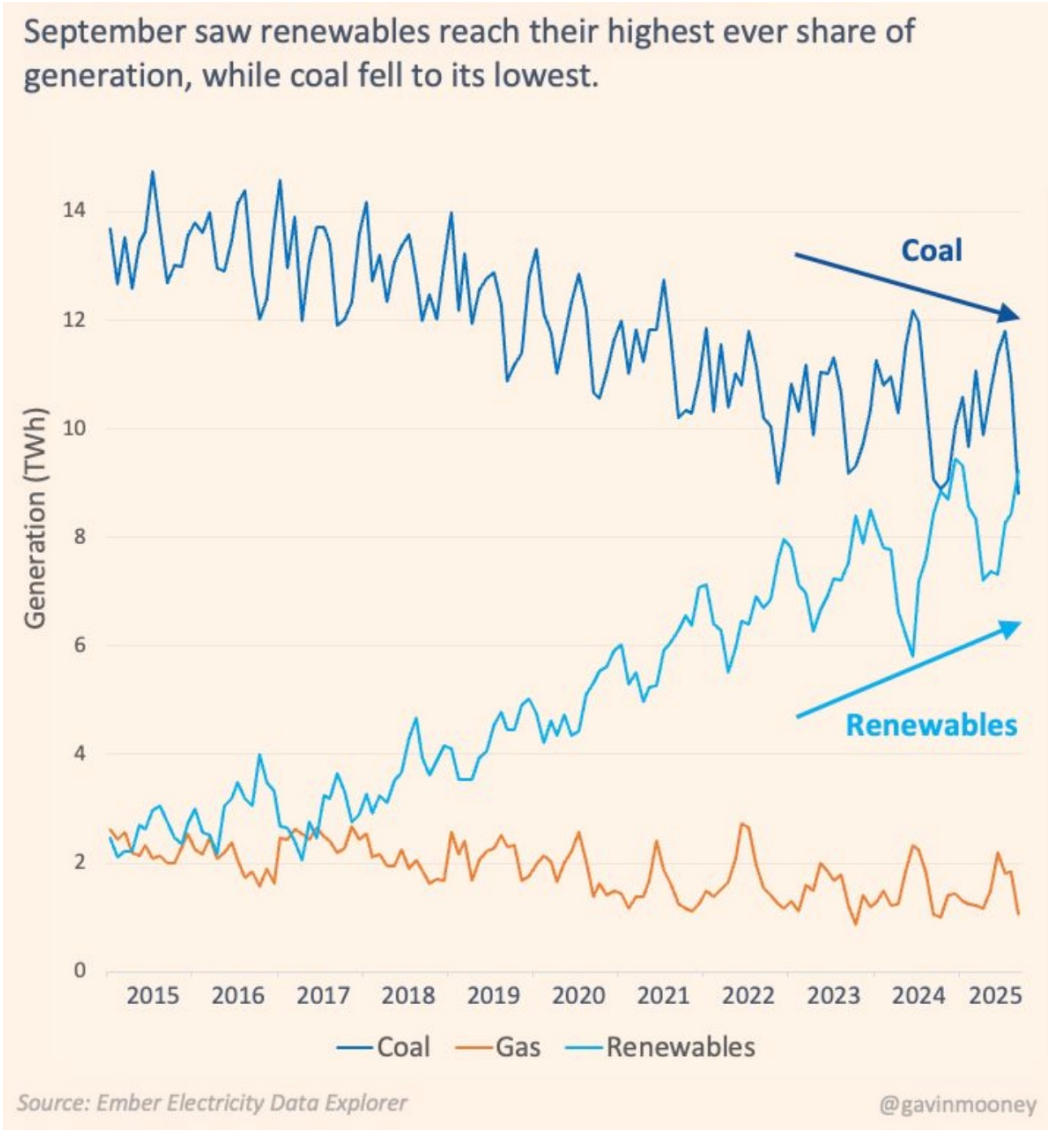
Share of Pakistan's electricity by fuel type - Monthly



https://ember-energy.org/data/electricity-data-explorer/?entity=Pakistan&metric=pct_share

Australia is Half-way to 82% Renewables by 2030

Australia has reached 49.9% renewable share in Oct'2025



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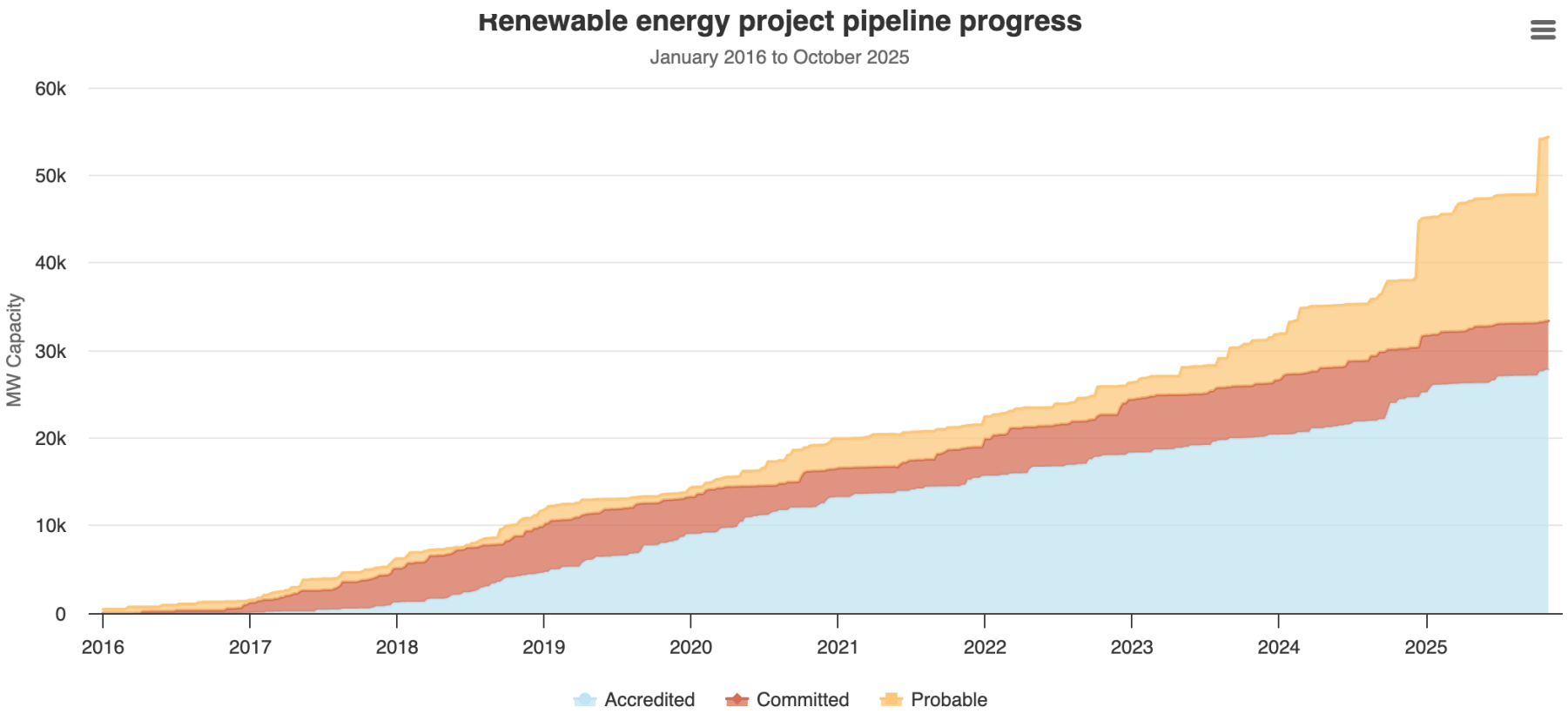
Australian Government
Clean Energy Regulator

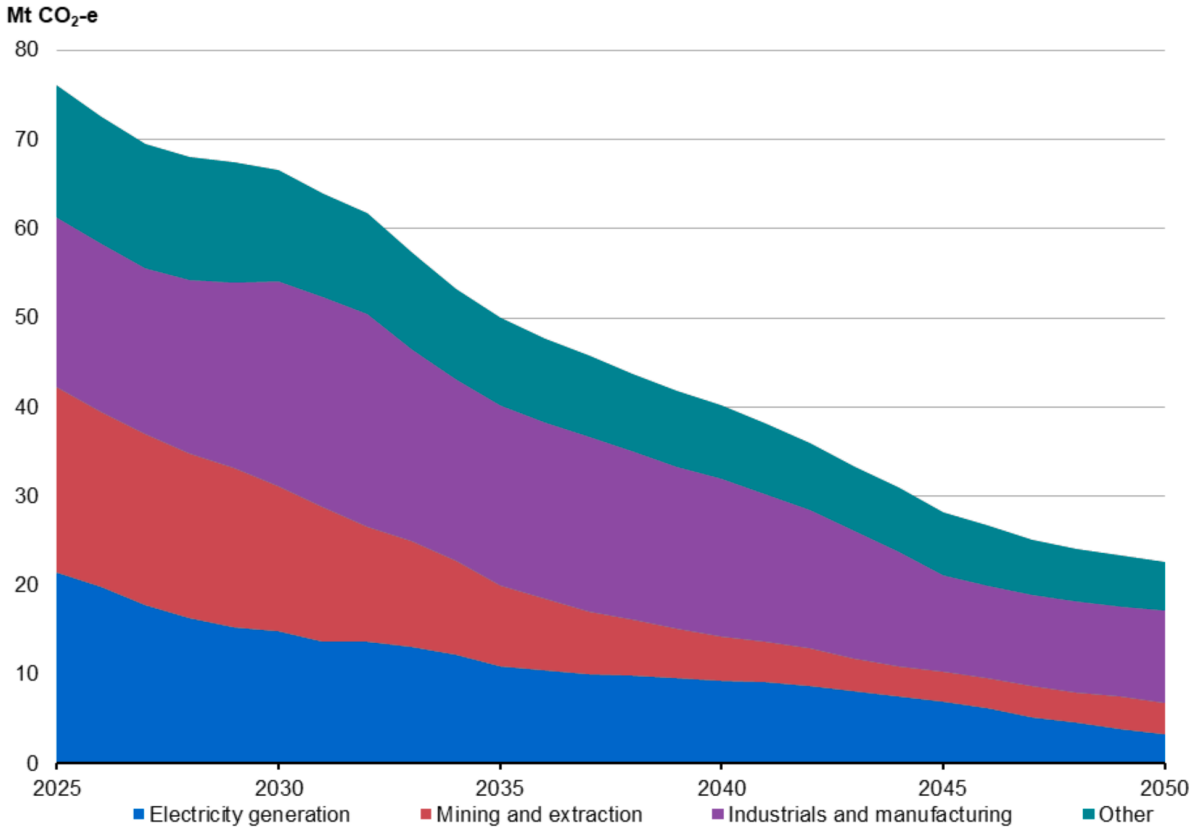


Clean Energy Regulator, 14 November 2025: https://cer.gov.au/markets/reports-and-data/large-scale-renewable-energy-data?utm_source=Clean%20Energy%20Regulator%20-%20Update&utm_campaign=224b7d448d-EMAIL_CAMPAIGN_2025_11_12_04_58&utm_medium=email&utm_term=0_-224b7d448d-73688735

Pivoting from Petrostate to Electrostate

Methane is not a transition fuel – it is a fossil fuel, and in decline

Chart 3.12: Projected emissions from domestic gas use by industry grouping, Baseline Scenario



Note: 'Other' includes agriculture, built environment, and transport industries. Some emissions reduction from the use of gas is achieved via carbon capture and storage technologies.

Source: Federal Treasury, September 2025 https://treasury.gov.au/publication/p2025-700922

Australian thermal coal exports

Australian coal export volumes peaked back in 2019/20, all our trade partners are investing in renewables instead

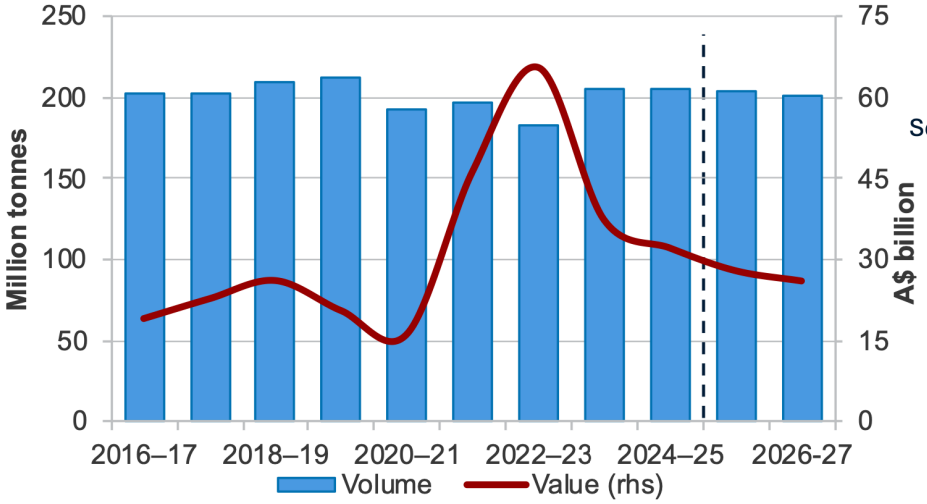
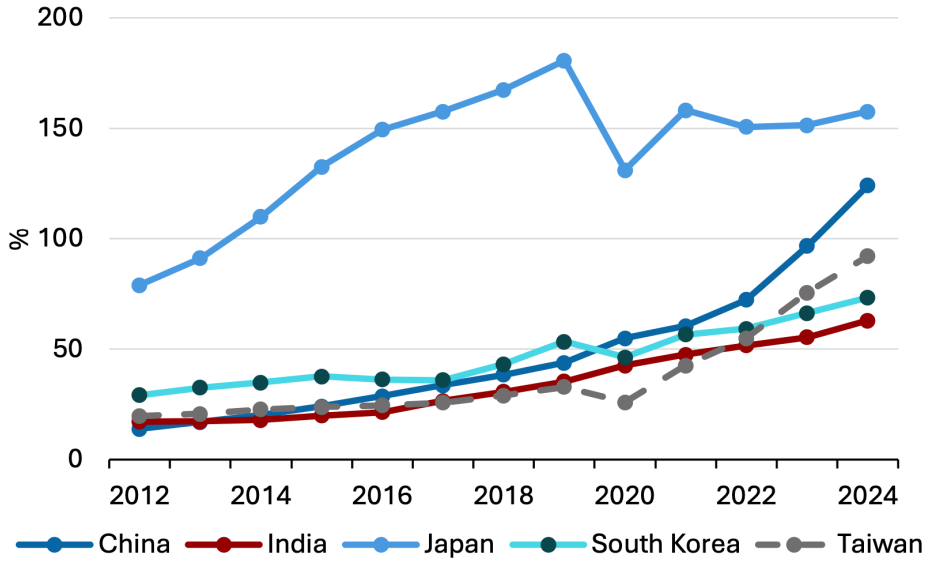


Figure 5.2: Ratio of renewable energy capacity to coal capacity



Source: Wood Mackenzie (2025)

Source: Federal OCE, September 2025 https://www.industry.gov.au/sites/default/files/2025-10/resources-and-energy-quarterly-september-2025.pdf

Coal Exports will cease when our trade partners stop importing

REPUBLIC OF KOREA AND BAHRAIN JOIN THE POWERING PAST COAL ALLIANCE AT COP30

17 NOV, 2025 | NEWS, PRESS RELEASES

PPCA Powering Past Coal Alliance

Belém, Brazil, 17th November 2025: Today at the UN Climate Summit COP30, the Republic of Korea (RoK) and Bahrain joined the Powering Past Coal Alliance (PPCA), a global coalition of over 180 national and subnational governments, businesses and organisations working to advance the transition from unabated coal power generation to clean energy. This announcement further demonstrates momentum in discussions on how to accelerate the transition away from fossil fuels at COP30.

The Republic of Korea currently operates the 7th largest coal fleet in the world. The share of coal generation has decreased from 42.5% in 2015 to 30.5% in 2024 but still represents a significant source of emissions, and several new coal units have only begun operation in the last few years.

By joining the PPCA, the Korean government has officially announced, for the first time, its commitment to stop building new unabated coal power plants and phasing out existing and unabated coal power plants. Out of 61 existing coal power plants, 40 coal power plants are confirmed to phase out by 2040. The phase out date for the remaining 21 coal power plants will be determined based on economic and environmental feasibility after public discussion, and a specific plan is scheduled to be established next year. The Alliance will support the Korean government in accelerating the phase-out of coal in a way that leaves no worker or community behind and increases economic growth and energy security.

The Korean government has also pledged to work with other members of the PPCA to advance the coal-to-clean transition globally. The Republic of Korea is the second country in Asia to join the PPCA and will play a key role in supporting the transition away from coal power in the Asia-Pacific region.

https://poweringpastcoal.org/news/republic-of-korea-and-bahrain-join-the-powering-past-coal-alliance-at-cop30/