

MONTHLY CHINA ENERGY UPDATE

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China electricity statistics - Apr 2025

In the first four months of the year, wind and solar power generation capacity accounted for 89% of new capacity (see Figure 1 below). Solar showed significant growth of +75% yoy during this period, with 105GW added during this period. This was over 8 times more than thermal, and 5 times more than wind. In the month of April alone, 45.2GW of solar was added, more than Australia's total cumulative solar power capacity.

Thermal capacity grew by 13 GW in the first four months of 2025, however, with renewable energy sources (including hydro) comprising 91% of new capacity additions so far this year and total combined wind and solar surpassing thermal in [February 2025](#), coal's structural decline in the power system is clear. and ongoing. No nuclear was added. The average coal plant in China ran for a record low 46.4% of the time in 4MCY2025. Put another way, China keeps adding idle new coal fired power capacity (to enhance flexibility and grid stability, not add new generation).

Grid investment investment for the 4MCY2025 was US\$20 billion, up 15% yoy, indicating sustained infrastructure upgrades to support renewables growth.

Figure 1

New Capacity Installed in China in Jan-Apr 2025

		Jan-Apr 2025	% Share of new adds	% yoy change	Apr-25	% Share of new adds
Thermal Power	GW	13.0	9%	42%	3.7	7%
Hydropower	GW	2.7	2%	-3%	0.5	1%
Nuclear Power	GW	-	0%	0%	-	0%
Wind Power	GW	20.0	14%	19%	5.3	10%
Solar Power	GW	104.9	75%	75%	45.2	83%
Total capacity added	GW	140.5	100%	58%	54.8	100%
Renewable Energy adds	GW	127.5	91%	60%	51.1	93%
Zero Emissions Capacity Adds	GW	127.5	91%	60%	51.1	93%
YTD power grid investment	US\$bn	20		15%		

Source: National Energy Administration

Total installed power capacity as at April 2025 reached 3,487GW, up 16% yoy (see Figure 2 below). Again, wind and solar continue to show outsized growth, rising 18% and 48% respectively, compared with thermal's 4% growth.

CEF expects coal generation to plateau over 2025, possibly also 2026, which would see China deliver early on its pledge to peak national emissions well before 2030 (in fact, possibly back in March 2024, as Lauri Myllyvirta has discussed this month in [Carbon Brief](#)).

Put another way, this means that new zero emissions electricity generation in China in the first four months of 2025 more than covered all new electricity demand growth (which was +3.8% yoy to 3,218TWh (including distributed energy, e.g behind the meter solar).

Figure 2

Total Installed Capacity in China as of April 2025

		As of Apr- 2025	Share of Capacity	Change (yoy %)	As of Apr- 2024
Thermal Power	GW	1,455	42%	4%	1,398
Hydro Power	GW	438	13%	3%	425
Nuclear Power	GW	61	2%	7%	57
Wind Power	GW	541	16%	18%	458
Solar Power	GW	992	28%	48%	671
Total Installed Capacity	GW	3,487	100%	16%	3,010
Renewable Energy Capacity	GW	1,971	57%	27%	1,555
Zero Emissions Capacity	GW	2,032	58%	26%	1,612

Source: National Energy Administration

Beyond covering all new demand growth, this means new zero emissions generation eats into thermal power's contribution in absolute terms. This was led by solar generation +42.9% yoy to 350TWh (a record high 11% share for solar in China, including rooftop and distributed solar systems), a world record for any four months for any country in world history. China's wind generation was up 16% yoy to 412TWh (a 13% share of total generation). Nuclear generation also contributed, up for 4MCY2025 +12.7% yoy to 159TWh (a 5% share of total generation) due to the 3.9GW of new capacity added over CY2024.

Figure 3

China's Power Generation Mix in Jan-Apr 2025

		Jan-Apr 25	% Change yoy	Share of generation	Apr-25	% Change yoy
Thermal Power	TWh	1,931	-3.6%	60%	438	-1.7%
Coal	TWh	1,837	-3.6%	57%	416	-1.7%
Gas	TWh	89	-3.6%	3%	20	-1.8%
Other Thermal	TWh	5	-3.7%	0%	1	-1.7%
Bioenergy	TWh	61	-3.6%	2%	16	8.4%
Hydropower	TWh	306	3.5%	9%	79	-5.7%
Nuclear Power	TWh	159	12.7%	5%	41	12.4%
Wind Power	TWh	412	16.0%	13%	105	19.5%
Solar Power	TWh	350	42.9%	11%	96	38.4%
TOTAL POWER GENERATION	TWh	3,218	3.8%	100%	775	5.0%
Variable Renewable Generation	TWh	762	27.0%	24%	201	27.8%
Zero Emissions Power Generation	TWh	1,287	17.1%	40%	337	15.3%

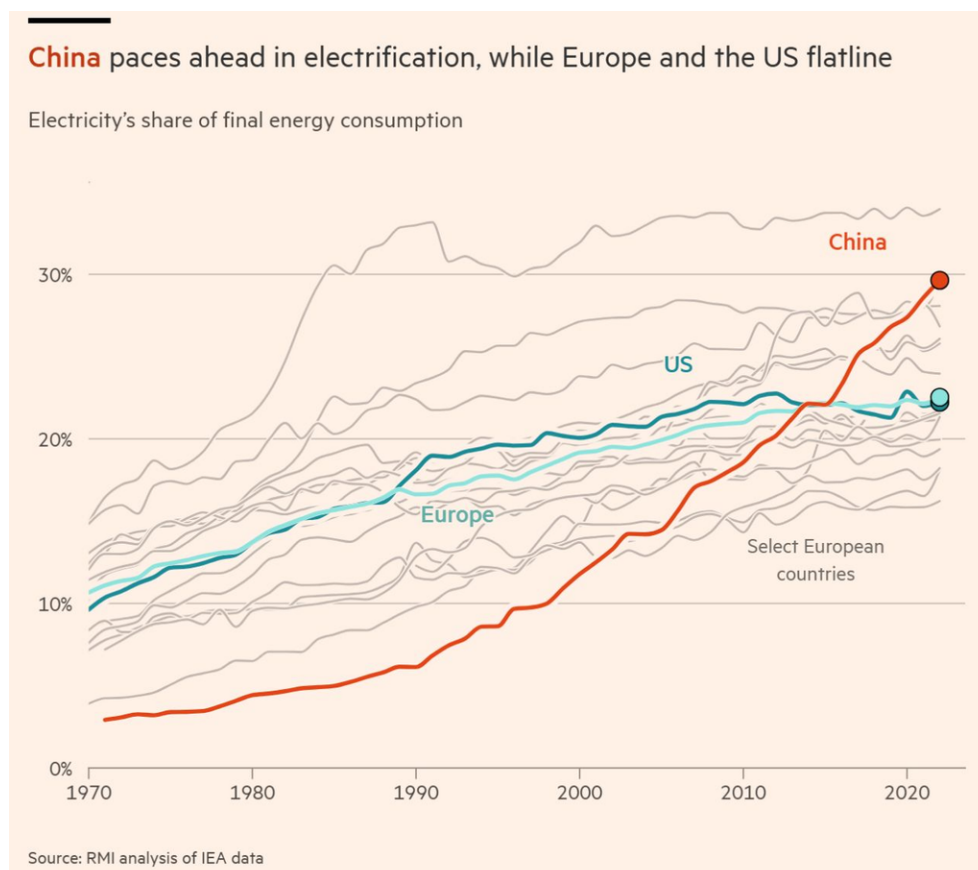
Source: National Bureau of Statistics, Ember, CEF Estimates

China is the world's first electrostate

A strong [article](#) published in the Financial Times on 12 May 2025 spotlights the reality that “China is the world’s first major “electrostate”, with a growing share of its energy coming from electricity and an economy increasingly driven by clean technologies”. The article quotes CEF’s Director Tim Buckley, stating “this trade war has really emphasised the whole point of energy security and electrification because one of the most-traded commodities in the world is fossil fuels.” China’s rapid electrification trend has leapfrogged the West since the mid-2010s (see Figure 4 below).

RMI [analysis](#) notes scale and innovation drove down domestic prices — now exports are booming. CEF has tracked that Chinese companies have, since the start of 2023, committed \$156bn in outbound foreign direct investment worldwide across more than 200 clean technology transactions, with the majority of this investment going into the Global South.

Figure 4



Policy and economic developments

China will release its 2035 NDC before COP30

China will release its 2035 NDC targets before COP30. Under the Paris Agreement, countries must update their Nationally Determined Contributions (NDCs) every five years. China's targets from 2015 and 2020 pledge to peak carbon emissions before 2030 and reach carbon neutrality before 2060. Although the deadline for the next round of NDCs was February 10, 2025, only 17 countries met it.

On 23 April 2025, President Xi Jinping [reaffirmed](#) China's climate goals in a speech at the Leaders Meeting on Climate and the Just Transition, announcing the upcoming release of its economy-wide, all-GHG 2035 NDC before COP30 in Belém. He concluded: "No matter how the international situation changes, China will not slow down its efforts to address climate change, promote international cooperation, or stop building a community with a shared future for mankind".

China's emissions decline for the first time due to clean power

China's CO₂ emissions fell in early 2024 for the first time despite rapid power demand growth—a milestone that underscores the scale and impact of the country's clean energy transformation. According to CREA's Lauri Myllyvirta [writing](#) for *Carbon Brief*, this **historic emissions decline** was **driven by the massive surge in renewable deployment**, with solar, wind, hydropower, and nuclear meeting **more than 100% of new electricity demand**, thereby displacing fossil fuels.

This outcome is the result of long-term industrial policy, notably China's **"Made in China 2025" strategy** launched in 2015, which provided an ambitious vision and policy framework for achieving domestic leadership in advanced manufacturing and clean technologies. This committed, long-term national strategy and investment has paid dividends – China now dominates 80–90% of

the world's clean tech manufacturing supply chains, especially solar PV, batteries, and electric vehicles.

Having positioned themselves at the forefront of the global energy transition, Chinese firms are “already quietly leapfrogging to the front of the development race” of the next critical frontier – industrial decarbonisation, which will “bridge its carbon peaking and carbon neutrality milestones, reshaping global climate technology markets in the process”, according to comprehensive [testimony](#) by Shanghai-based energy expert David Fishman before a recent U.S.–China Economic and Security Review Commission [hearing](#).

China's CO₂ emissions drop due to clean energy for first time

Emissions from fossil fuels and cement, MtCO₂, rolling 12-month totals



Source: Analysis by Lauri Myllyvirta for Carbon Brief

CarbonBrief
CLEAR ON CLIMATE

Source: [Carbon Brief](#)

China's new-type energy storage capacity to exceed 200GW by 2030

The China Energy Storage Alliance (CNESA) released its *Energy Storage Industry White Paper 2025*, reviewing 2024 developments and projecting trends to 2030. By 2024, China's new-type energy storage—mainly lithium-ion batteries, along with other technologies like compressed air and gravity storage—reached 78GW,

surpassing pumped hydro to become the dominant energy storage type (57%), with lithium-ion accounting for 98.5% of this.

Following the cancellation of mandatory installation policies, CNESA forecasts 2025 additions are expected to drop below 2024's 44GW but still exceed 30GW, taking total capacity to 112–126GW. CEF is far more bullish on China's likely BESS installs trajectory, and notes that far from declining, BYD stationary storage shipments in 1QCY2025 were a record 52.6GWh, up 77% yoy. From 2026 to 2030 (15th Five-Year Plan), growth will shift from policy- to market-driven, with annual additions averaging 26–36GW and total capacity projected to reach 236–391GW by 2030.

NEA releases Hydrogen Energy Development Report (2025)

On 30 April, the NEA released China's *2025 Hydrogen Energy Development Report*, outlining a strategic roadmap to establish the country as a global leader in hydrogen energy. China now accounts for a world leading 50% of global green hydrogen production capacity. The plan aligns with China's broader 2030/2060 carbon neutrality goals, positioning hydrogen as a pillar of its clean energy transition. Further analysis can be found in this [S&P article](#).

Ministry of Transport releases new policy to accelerate decarbonisation

China's Ministry of Transport and nine other departments released [Guiding Opinions to Facilitate the Integrated Development of the Transport Industry and the Energy Sector, Transport Planning and Development](#) to accelerate the integration of transport and energy systems for decarbonisation. It targets a 10% share of electricity in transport energy use by 2027 and a clean, low-carbon energy system by 2035. Key measures include coordinated infrastructure planning, promotion of clean energy and new energy vehicles, development of green fuels, and adoption of smart technologies, supported by financial incentives and regulatory frameworks.

CEF's discussions with China's XCMG heavy equipment OEM indicate China will readily deliver on this new ambitious target, as XCMG is now possibly the world's largest mine and haulage electric vehicle supplier, with a target of 20,000 unit sales in 2025.

Green bilateral and regional engagement with China intensifies

 **In March–May 2025, 45+ countries across ASEAN, Europe, South America and Africa deepen green energy and climate engagement with China**

In recent months, countries worldwide have been forging and deepening green energy and climate partnerships with China. These diplomatic efforts underscore a global recognition of China's pivotal role in advancing green energy and climate goals.

New agreements signed

Colombia joins the Belt and Road Initiative

- On 14 May, Colombia signed a **Belt and Road cooperation plan** with China in Beijing, its Foreign Minister Laura Sarabia [calling](#) it the country's "**boldest step in decades**".
- Colombia sees this new Strategic Partnership with China as enabling it "market access, promotion of projects such as rail corridors and renewable energy, and increased opportunities for domestic producers."  [Colombian MFA](#) | [Chinese MFA](#)
- As at May 2025, 146 to 150 countries (including China) are members of the BRI, according to the [Green Finance and Development Centre](#)

 **China–CELAC strengthen political and economic ties, encompassing energy cooperation**

- Around 30 Member States of the Community of Latin American and Caribbean States (CELAC) met with China at the [4th Ministerial China-CELAC Forum](#) in Beijing
- Significant as it was attended for the first time by President Xi and some heads of State, namely Brazil, Chile and Colombia
- A 2025–2027 [China-CELAC Joint Action Plan](#) was adopted with major China commitments, notably **US\$9 billion in credit funds**, 3,500 Chinese government scholarships and 10,000 training opportunities, 300 development projects, and expanded cultural/media programs.

China-Brazil Deepen Strategic Ties

- Brazil's President Luiz Inácio Lula da Silva met with President Xi Jinping in Beijing and signed 3 major cooperation agreements, focussed on **alignment of the development strategies of the two countries, cooperation in sustainable mining and AI**:  [China's NDRC](#) |
- Released a [Joint Statement of the People's Republic of China and the Federative Republic of Brazil on Strengthening the China-Brazil Community with a Shared Future for a More Just World and a More Sustainable Planet and Jointly Upholding Multilateralism](#)
- President Lula also met with [Chinese corporates](#), including Envision Energy, which announced it would build Latin America's first **zero-carbon industrial park** in Brazil

China Strengthens ASEAN Ties

- President Xi visited **Vietnam, Malaysia, and Cambodia** amid global tariff tensions, signing major economic and green tech cooperation deals.
 - In Malaysia: 31 agreements on **AI, digital trade, green industry, and IP**:  [SCMP](#)
 - In Cambodia: focus on **BRI, industrial zones, and AI collaboration**: [China's NDRC](#)

 **Chile signs Energy Transformation MoU with China**, prioritizing storage, transmission, and investment from Chinese firms like CATL and BYD.

- Chile is home to **world-leading solar and lithium resources**, with China helping develop a 2GW + 11GWh storage facility. 📄 [Chilean Ministry of Energy](#)

🇪🇸 **Spain–China Expand Trade and Green Tech Cooperation**

- On 11 April, Spain’s Prime Minister met with President Xi and Premier Li in Beijing, being his third visit to China in 2 years
- Spain and China **signed 7 agreements** to promote trade, culture, science and education collaboration, and a [Joint Action Plan on Strengthening Comprehensive Strategic Partnership \(2025–2028\)](#)
- Spain’s PM also met with a dozen major Chinese companies in the automotive, battery, and renewable energy sectors
- Spain is emerging as an **EU hub for Chinese EV and battery firms** like CATL, Chery, and Envision. 📄 [Spanish Ministry of Economy](#)

🇨🇱 **Chile–China sign Energy Transformation MoU**

- On 31 March, Chilean Energy Minister and a cross-party group of parliamentarians [visited China](#) to strengthen energy cooperation
- “Chile aims to learn from China’s experience in energy security and clean energy, in order to develop more effective national policies and attract greater investment from Chinese energy companies,” [stated](#) the Minister Pardow
- Chile is one of the world’s largest suppliers of copper and lithium—both critical minerals for the energy transition. China’s CATL and BYD have been [engaged](#) to supply BESS for Chile’s 2GW Solar + 11GWh BESS facility.

🇬🇧 **UK–China signed a Clean Energy Partnership MoU**

- On 15–17 March, UK Energy Minister Ed Miliband met with China’s NEA and signed a new MoU covering offshore wind, hydrogen, power markets, and CCUS.
- Minister Ed Miliband: *“It is simply an act of negligence to today’s and future generations not to engage China on how it can play its part in taking action on climate.”* 📄 [UK Gov Release](#)

Trilateral Talks Resume (22 Mar)

- China, Japan, and South Korea agreed to “promote a future-oriented cooperation” in the context of Trump’s tariffs and advance a **trilateral leaders' summit** and economic cooperation in **green transition and population policy**.
- Also held the **6th China–Japan Economic Dialogue** focused on green economy and mutual benefit.  [Japan MFA](#)

Other bilateral engagements included:

-  **Mongolia’s Energy Minister visits China**  [China’s NEA](#)
-  **Honduras’ Energy Minister visits China** [China’s NEA](#)
-  **South African Energy Minister visits China**  [The Post](#)
-  **China–Kenya Climate Dialogue**  [China’s NDRC](#)
-  **China–France hold 4th Energy Dialogue**  [China’s NEA](#)
-  **Kuwait–China signed renewable energy cooperation agreements**  [NEA China](#)
-  **China–France joint declaration on climate change cooperation**  [French MFA](#)
-  **Germany–China hold 10th Energy Efficiency Working Group Meeting**  [China’s NDRC](#)
-  **China–Japan hold Carbon Emission Reduction Policy Dialogue**  [China’s NDRC](#)