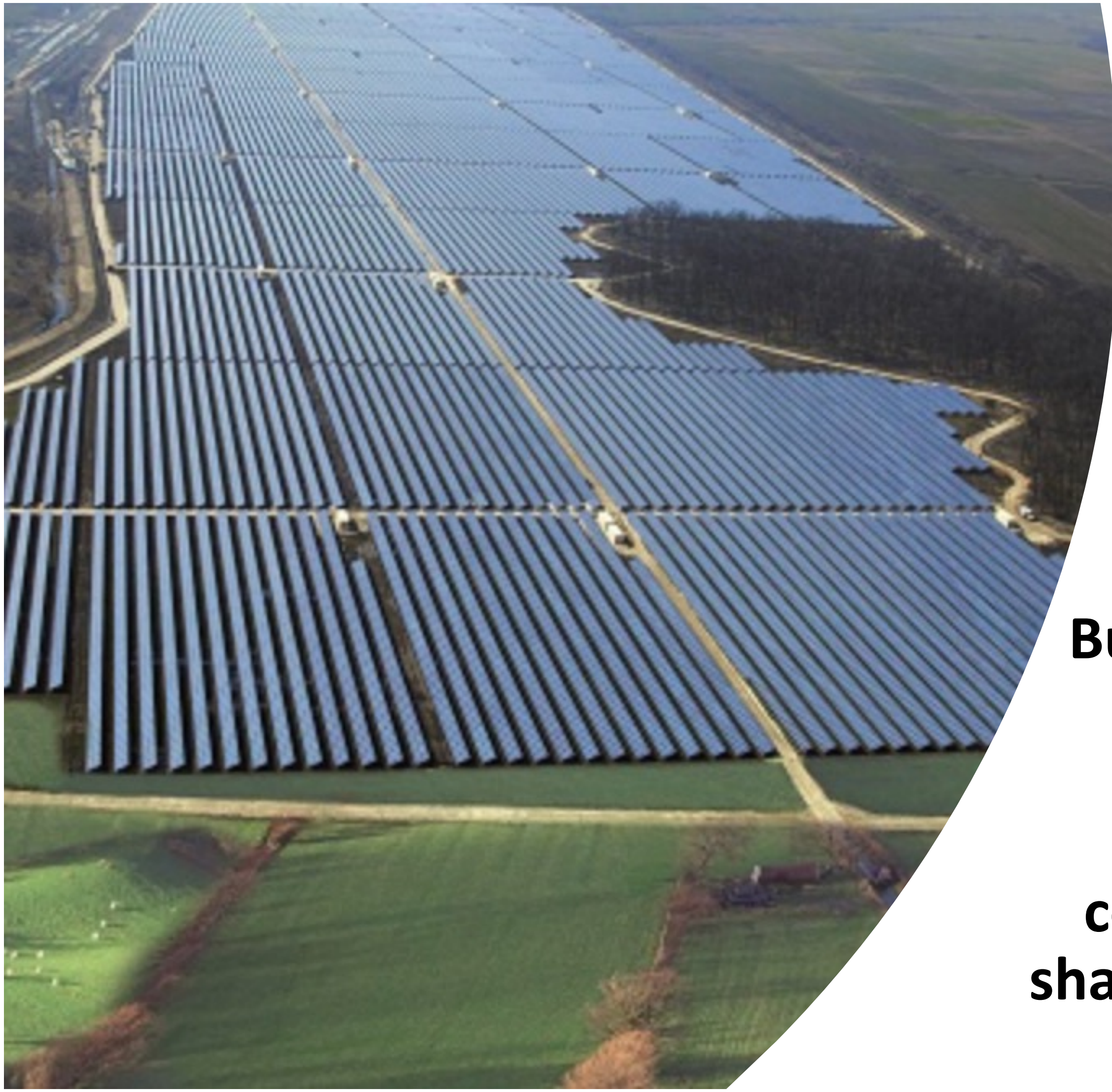


CLIMATE ENERGY FINANCE

Tim Buckley, Director CEF
tim@climateenergyfinance.org

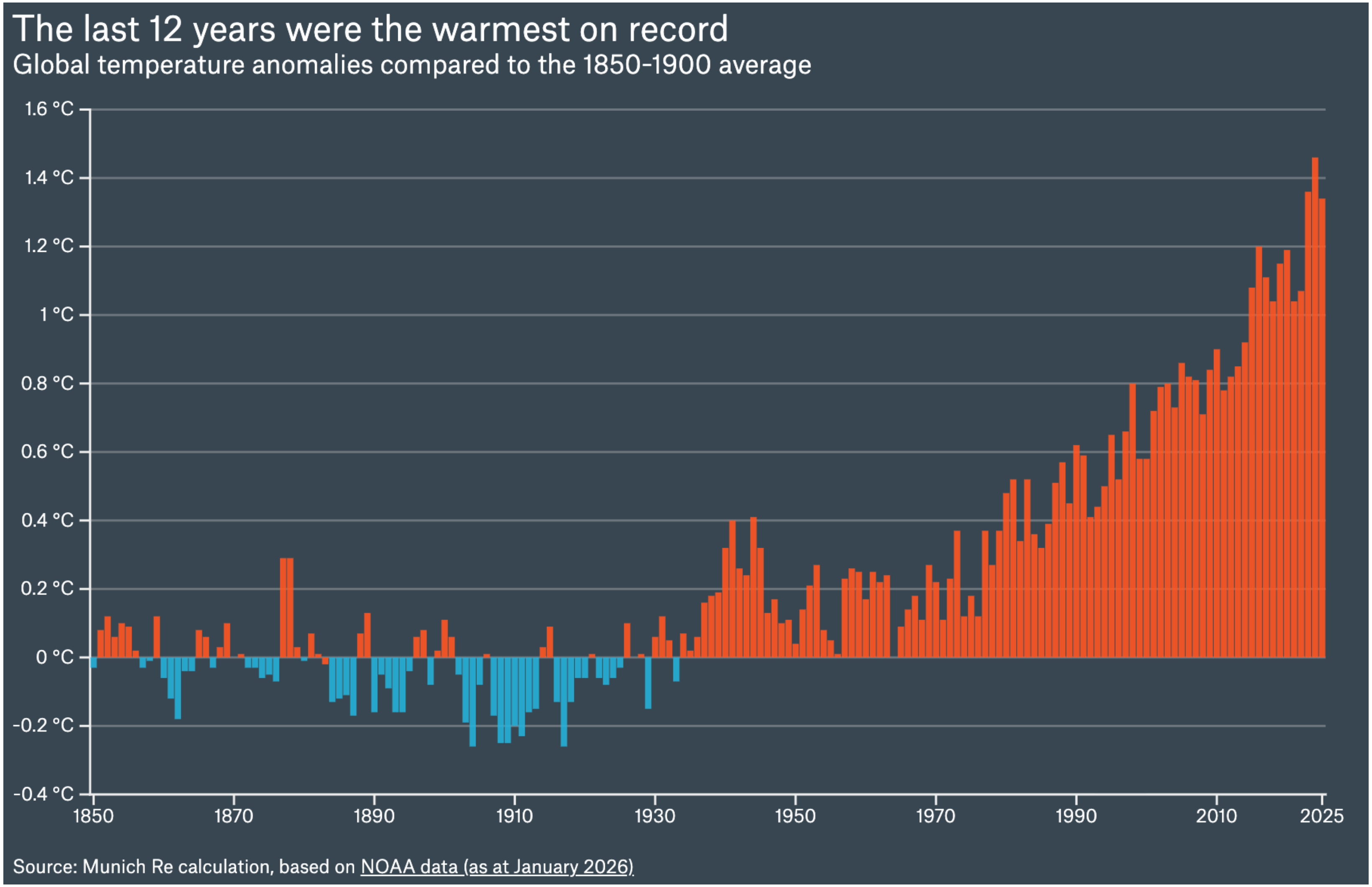
Renewable Energy Construction Summit: Building Australia's Clean Energy Future

From investment to construction: The forces shaping what gets built next

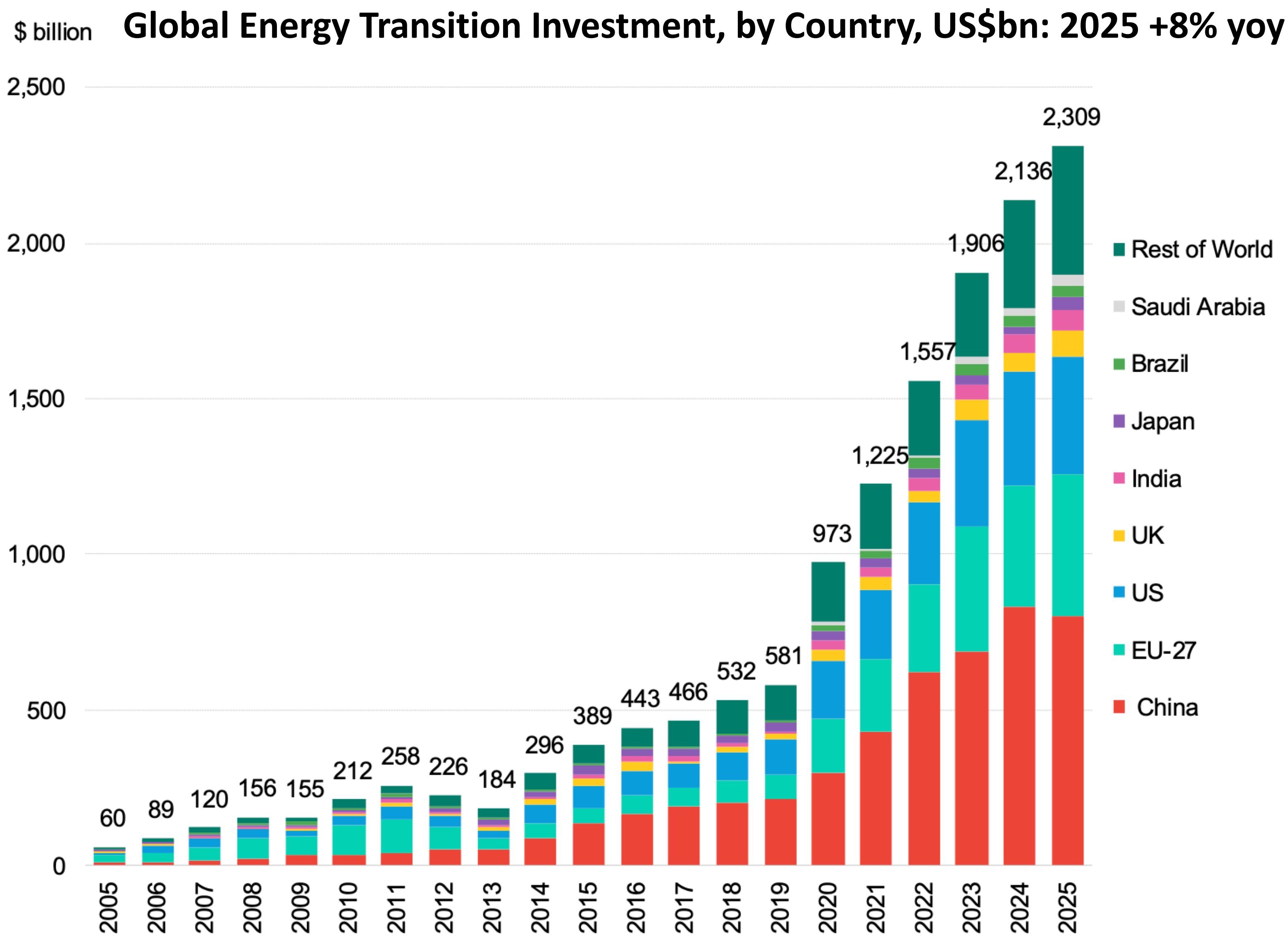
2 September 2026

CEF accepts the climate science

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



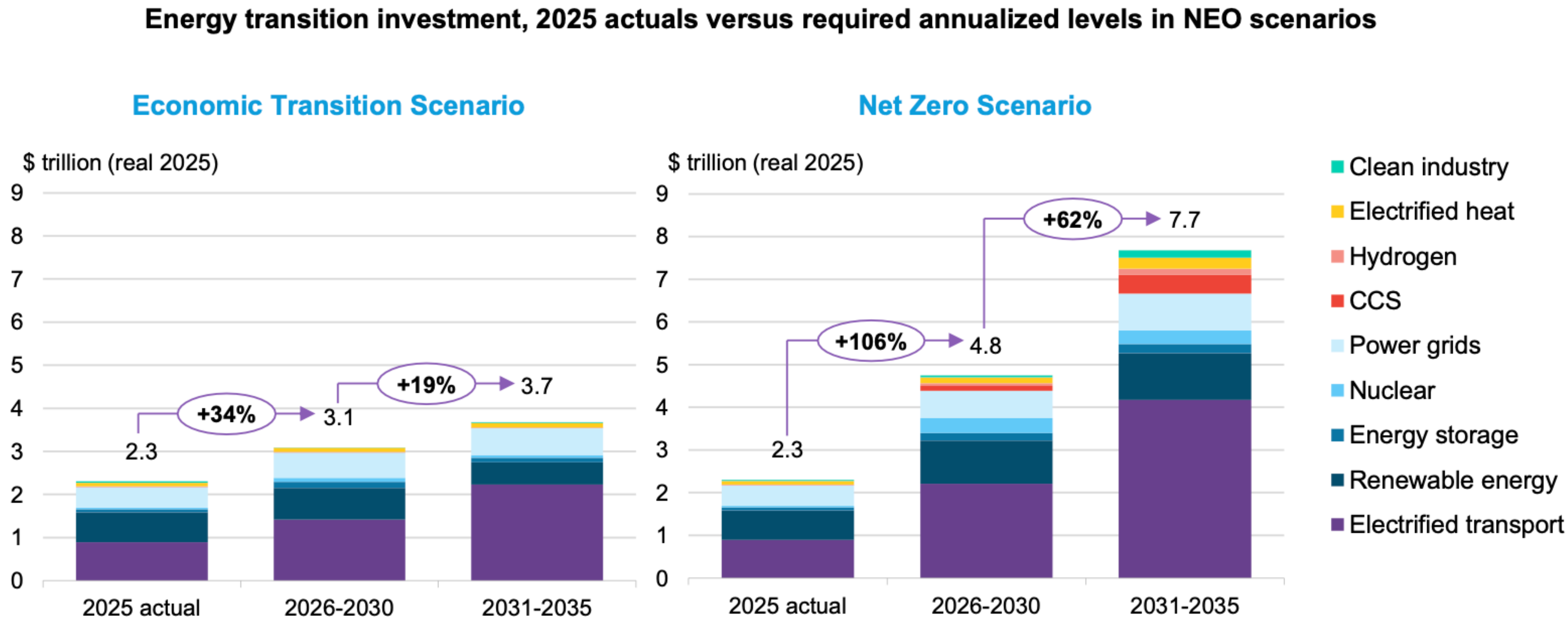
Renewables, EV & Grid outspend Fossil Fuels >2:1



Source: BloombergNEF, Energy Transition Investment Trends, January 2026

Annual Investment in Energy Transition neds to treble

Global Energy Transition Investment, by Technology, US$ Trillion pa



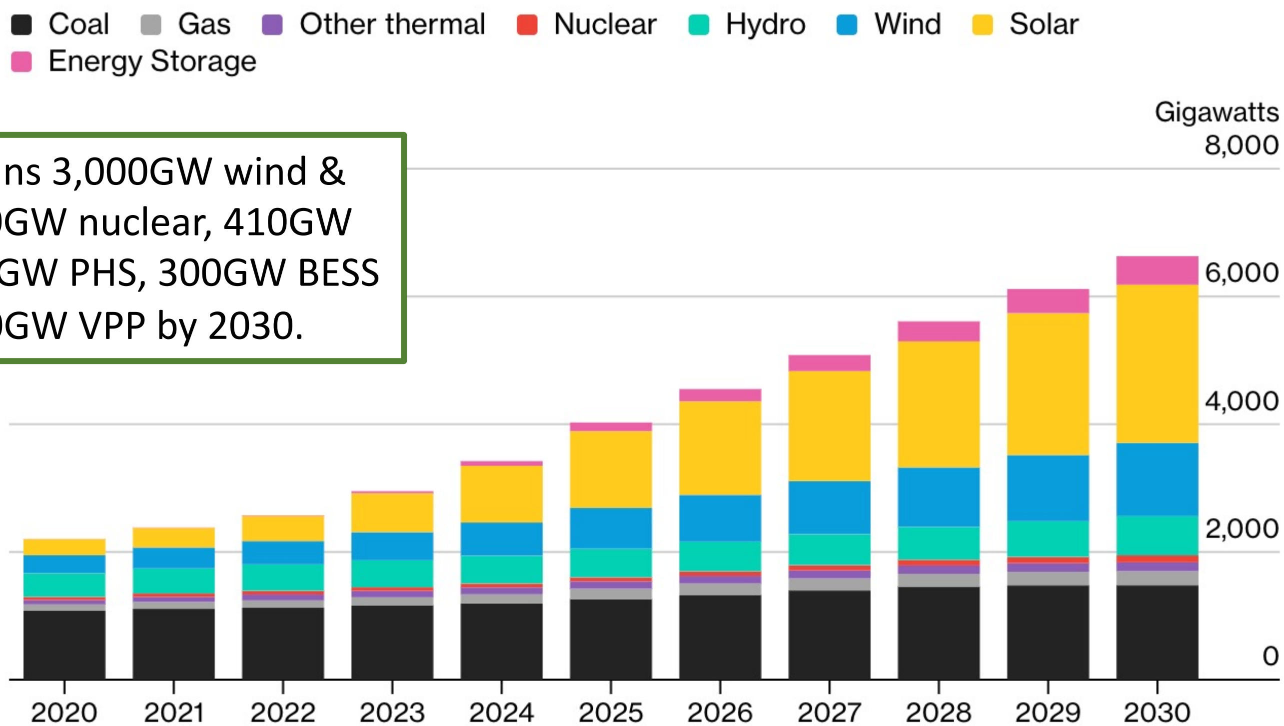
Source: BloombergNEF, NEO, 19 May 2026

China is Moving in Decarbonisation, Rapidly

The Global Energy Transition is Accelerating, led by China (manufacturing investment, R&D, domestic deployments, exports and OFDI => deflation)

China's Power Capacity Mix Diversifies as Wind and Solar Deployment Scales

China's cumulative installed capacity by technology



China plans 3,000GW wind & solar, 110GW nuclear, 410GW hydro, 160GW PHS, 300GW BESS and 50GW VPP by 2030.

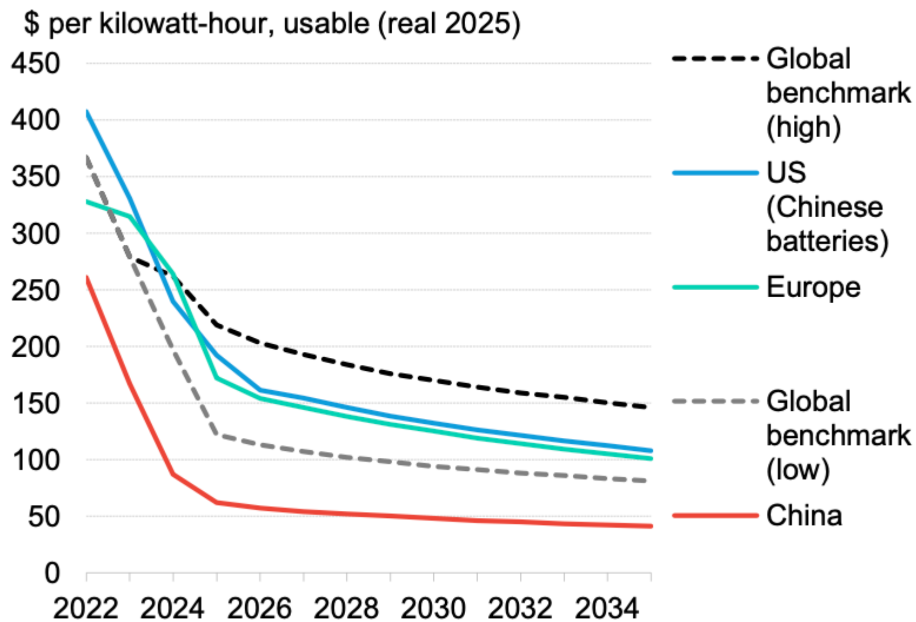
Note: Other thermal includes biomass and power generation from waste heat and pressure. Values are shown in alternating current.
Source: BloombergNEF, China Electricity Council, National Energy Administration.

Source: Bloomberg, Deutsche Bank Says China Is Energy 'Winner' in Age of War, 9 April 2026
https://www.bloomberg.com/news/articles/2026-04-09/deutsche-bank-declares-china-energy-winner-in-new-era-of-war?cmpid=BBD040926_GREENDAILY&utm_campaign=greendaily&utm_medium=email&utm_source=newsletter&utm_term=260409

Batteries are the biggest energy system disruption in 2026

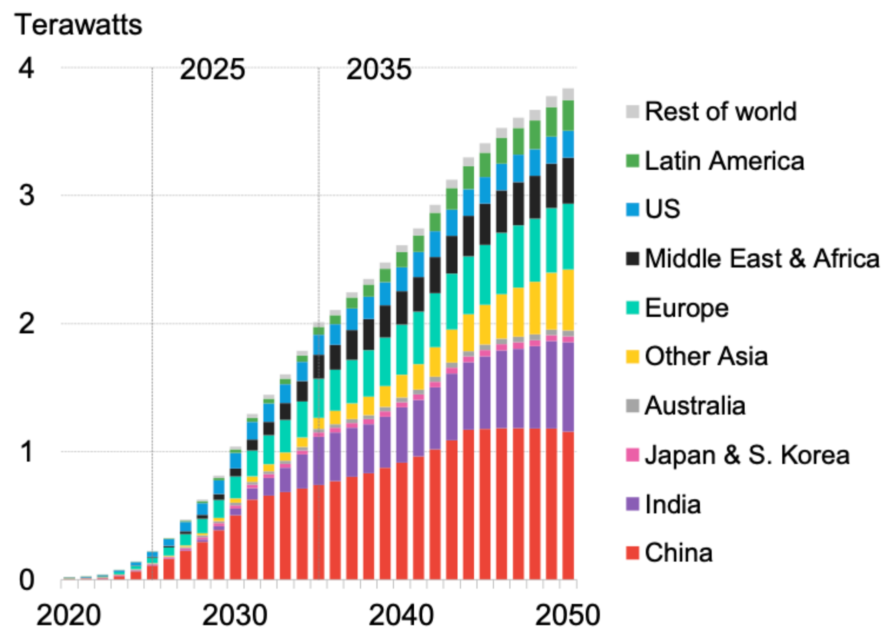
Battery technology continues to improve, and deflation is ongoing

Figure 7: Forecast capex for a 4-hour turnkey energy storage system using LFP batteries, by region



Source: BloombergNEF. Note: "LFP" stands for lithium iron phosphate battery. Pricing based on usable capacity.

Figure 8: Battery stationary storage cumulative installed capacity, Economic Transition Scenario



Source: BloombergNEF. Note: Includes residential and utility-scale batteries.

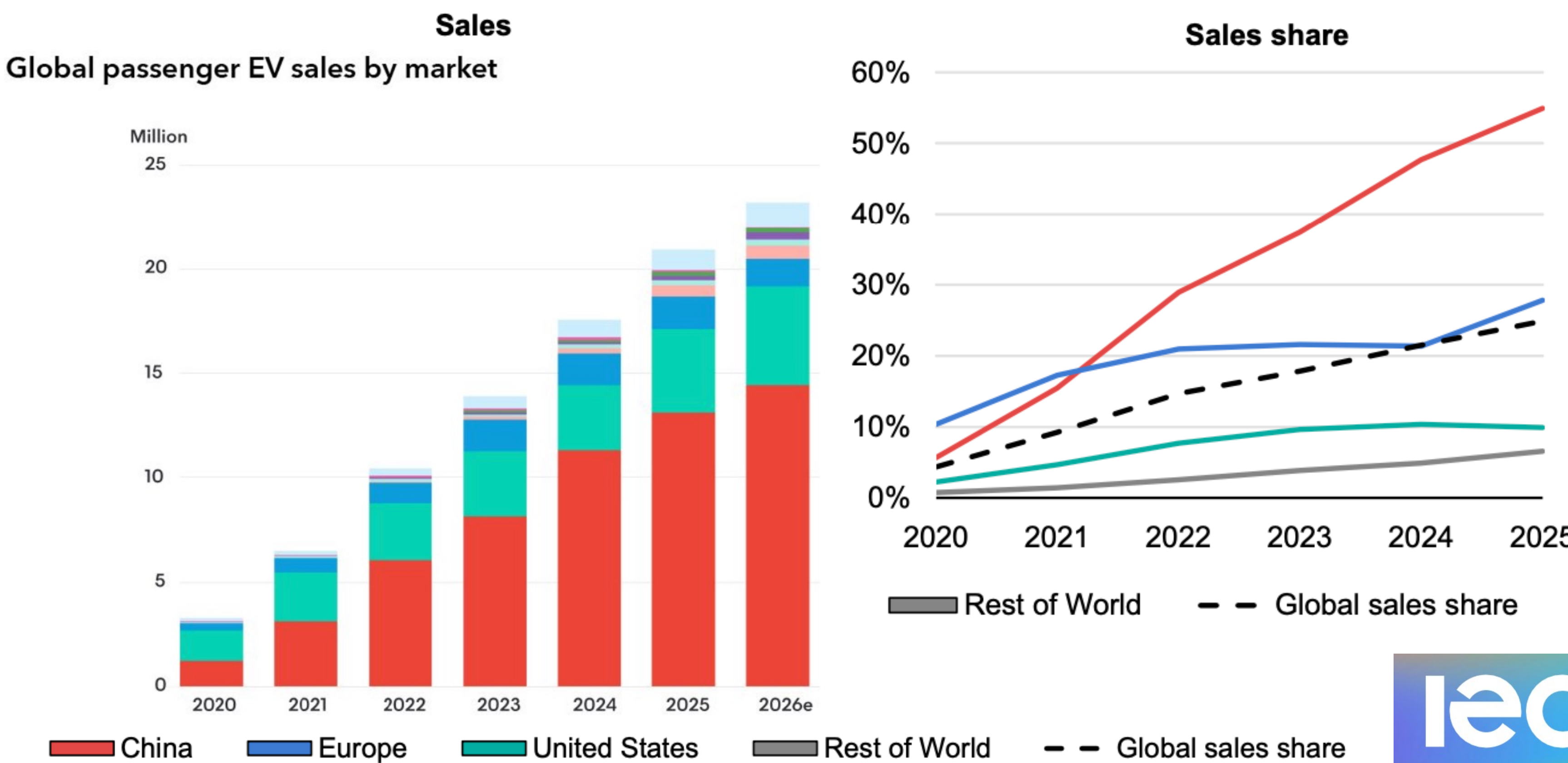
Source: BloombergNEF, NEO, 19 May 2026

In 2025, BMI reports global BESS installations surpassed 320GWh, up 50% yoy. In 2025, BESS cell shipments doubled compared to 2024, reaching >600GWh (with ~800GWh expected for 2026e). And **China** was >50% of global BESS installs and 10 of the top 10 battery cell suppliers globally.

The World is Pivoting to EVs, led by China

This makes V2G increasingly important as the US attacks more nations and pushes up the price of oil, driving EV adoption

Electric car sales globally and sales share for selected regions, 2020-2025



Source: BNEF, June 2026 (Left chart) & IEA Global EV Outlook, May 2026 (right chart)

China's passenger NEV share was a record 68% in the month of July 2026. China leads now in buses, freight and mining EV OEMs.

CEF Chinese FDI reports: Rising Tide and Raw Power

Climate Energy Finance
08 December 2025

CLIMATE ENERGY FINANCE

Rising Tide:

China's Outbound Cleantech Capital Surge Drives Global Collaboration Toward Net Zero

Authors:

Caroline Wang, China Analyst, CEF

Contributing editor:

Dr AM Jonson, Editorial director CEF

Climate Energy Finance
19 March 2026

CLIMATE ENERGY FINANCE

Raw Power:

China locks-in global dominance of critical minerals and metals with $120bn outbound investment surge

China's 'going global' strategy to secure value chains in zero-emissions industries is also boosting its partner economies, with lessons for Australia.

Authors:

Tim Buckley, Director, CEF
Matt Pollard, Net Zero Transformation Analyst, CEF

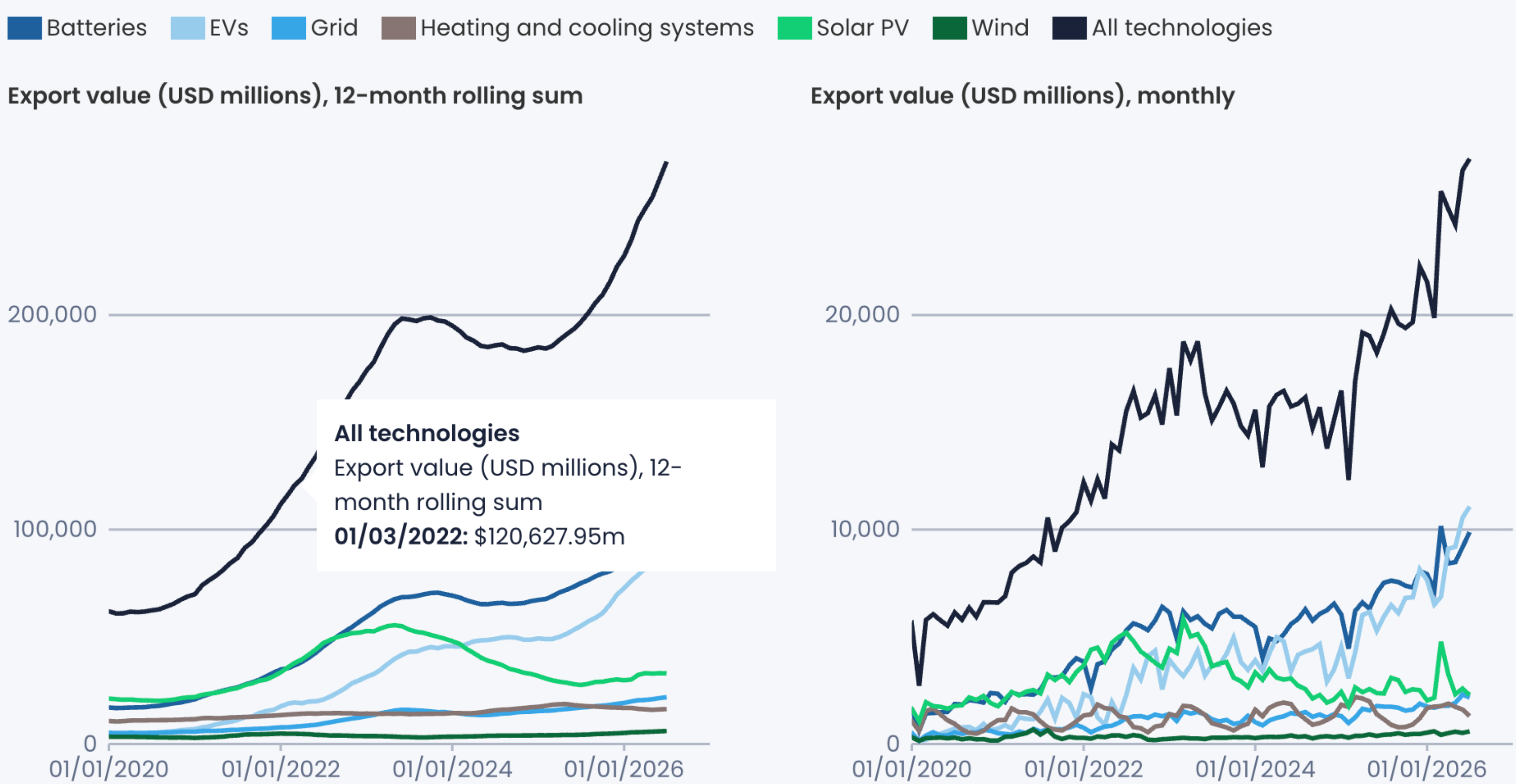
Contributing editor:

Dr AM Jonson, Editorial director CEF

https://climateenergyfinance.org/wp-content/uploads/2026/03/CEF_Raw-Power-China-FDI-into-Critical-Minerals-and-Metals_18Mar2026.pdf

China leads the world in cleantech R&D, manufacturing, domestic deployments, OFDI and in exports.

China’s global cleantech exports by value, Monthly (US$27,000m in July 2026)



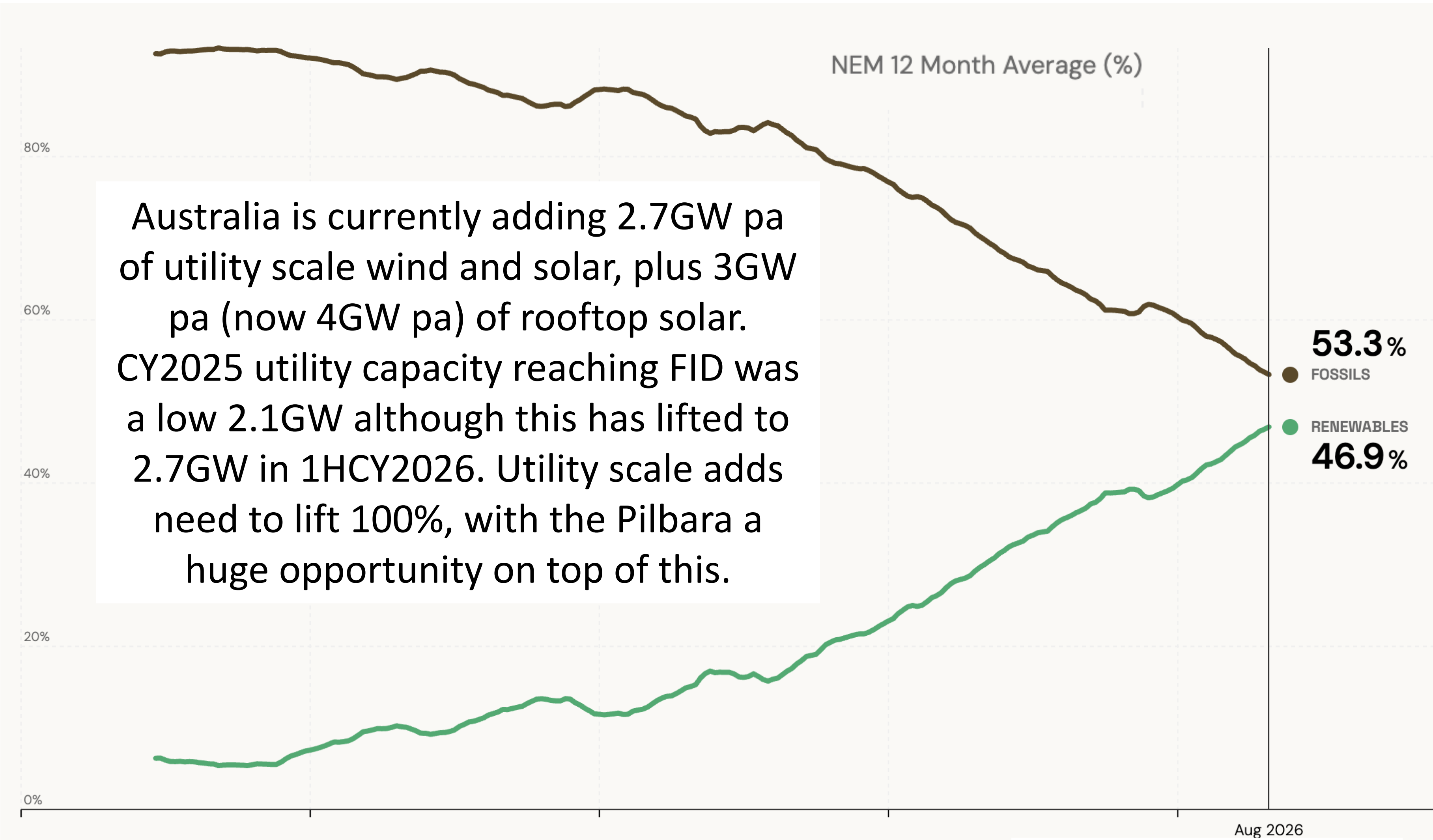
Source: General Administration of Customs of the People's Republic of China (GACC)
Batteries includes power storage systems, EV batteries, and consumer batteries. EVs includes battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Export value is displayed in nominal terms, as published. Full methodology

EMBER

https://ember-energy.org/data/china-cleantech-exports-data-explorer/

Australia's NEM Moving Towards 82% Renewables

Moving towards 82% renewables by 2030; good progress, but we need to go faster



Australia is currently adding 2.7GW pa of utility scale wind and solar, plus 3GW pa (now 4GW pa) of rooftop solar. CY2025 utility capacity reaching FID was a low 2.1GW although this has lifted to 2.7GW in 1HCY2026. Utility scale adds need to lift 100%, with the Pilbara a huge opportunity on top of this.

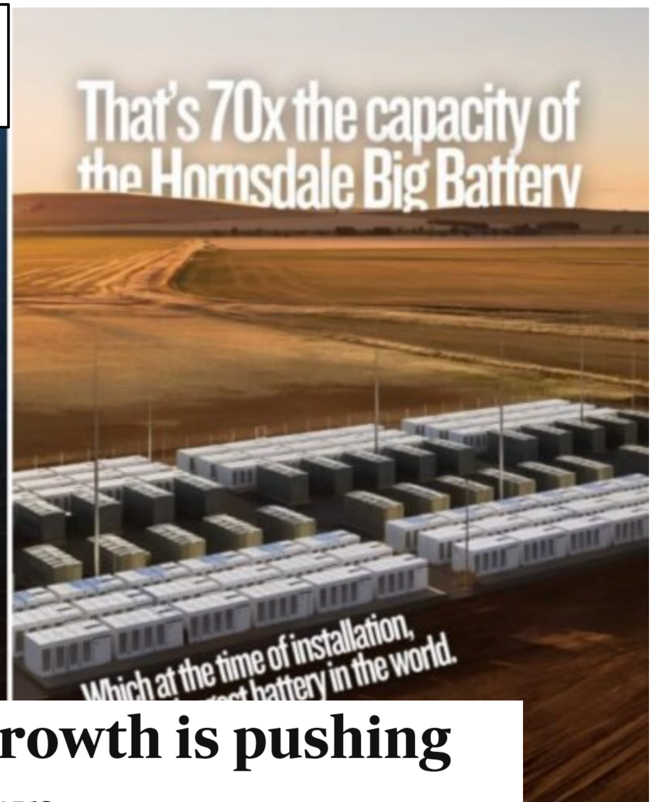
Source: TSI's Open Electricity 1 September 2026 https://openelectricity.org.au/

Open Electricity

Australia: $8bn Home Battery Scheme is World leading

Solar + BESS + V2G => Accelerated Energy System Transformation

>360,000 home battery installs in just 10 months.



Record battery growth is pushing power prices down

Ryan Cropp *Energy and climate reporter*

Apr 30, 2026 – 12.01am

FINANCIAL REVIEW

12 weeks later we are at >487,000 installs and ~14GWh.

Budget 2026 has $8bn funding.

=> Driving electricity deflation

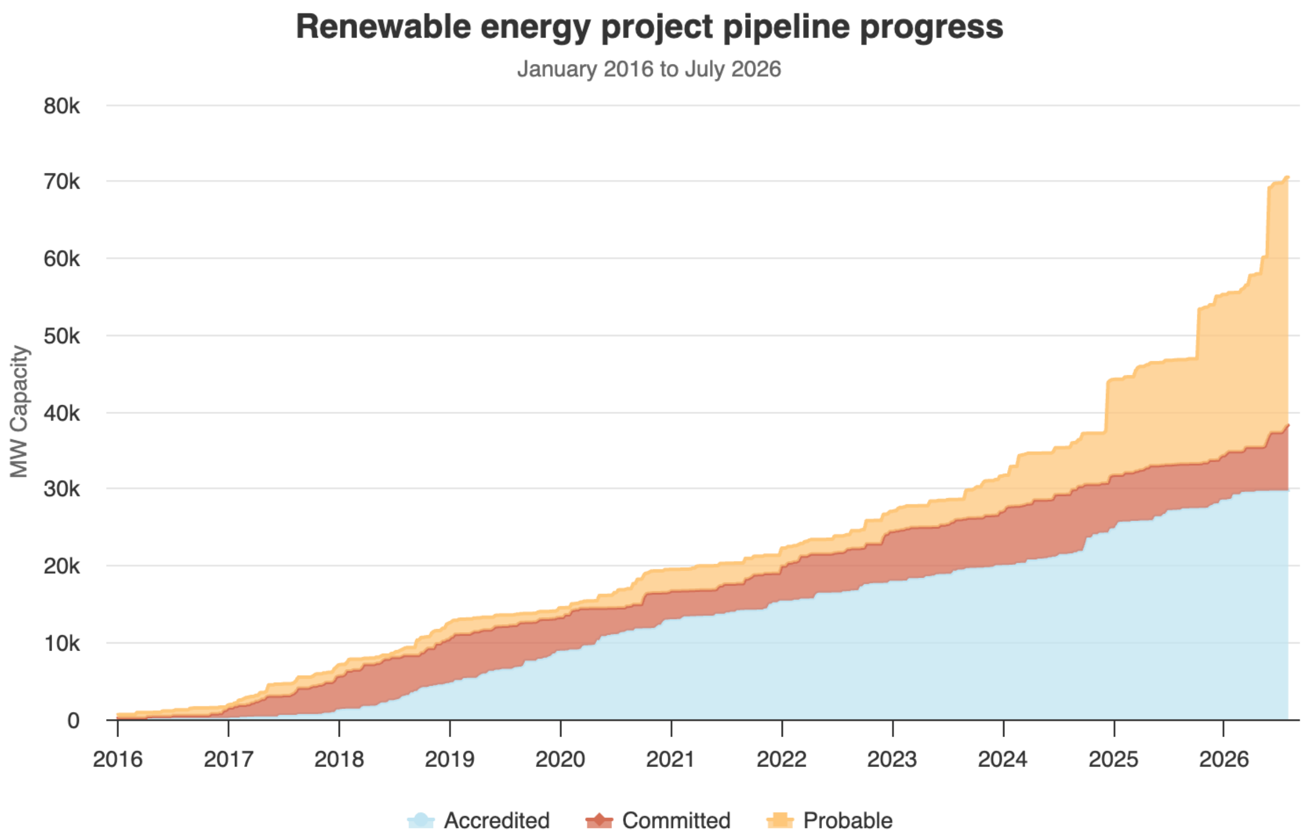
And 5 years ago EV + PHEV were 9% share to 36% in June 2026.

And some 86GW of C&I rooftop potential is now about being unlocked.

Source: Chris Bowen LinkedIn post via Giles Parkinson @ Renew Economy
https://reneweconomy.com.au/home-battery-installations-reach-the-430000-mark-but-get-smaller-as-new-settings-do-their-job/

Australia’s NEM / SWIS Moving Towards 82% Renewables

Moving towards 82% renewables by 2030; good progress, but we need to go a lot faster

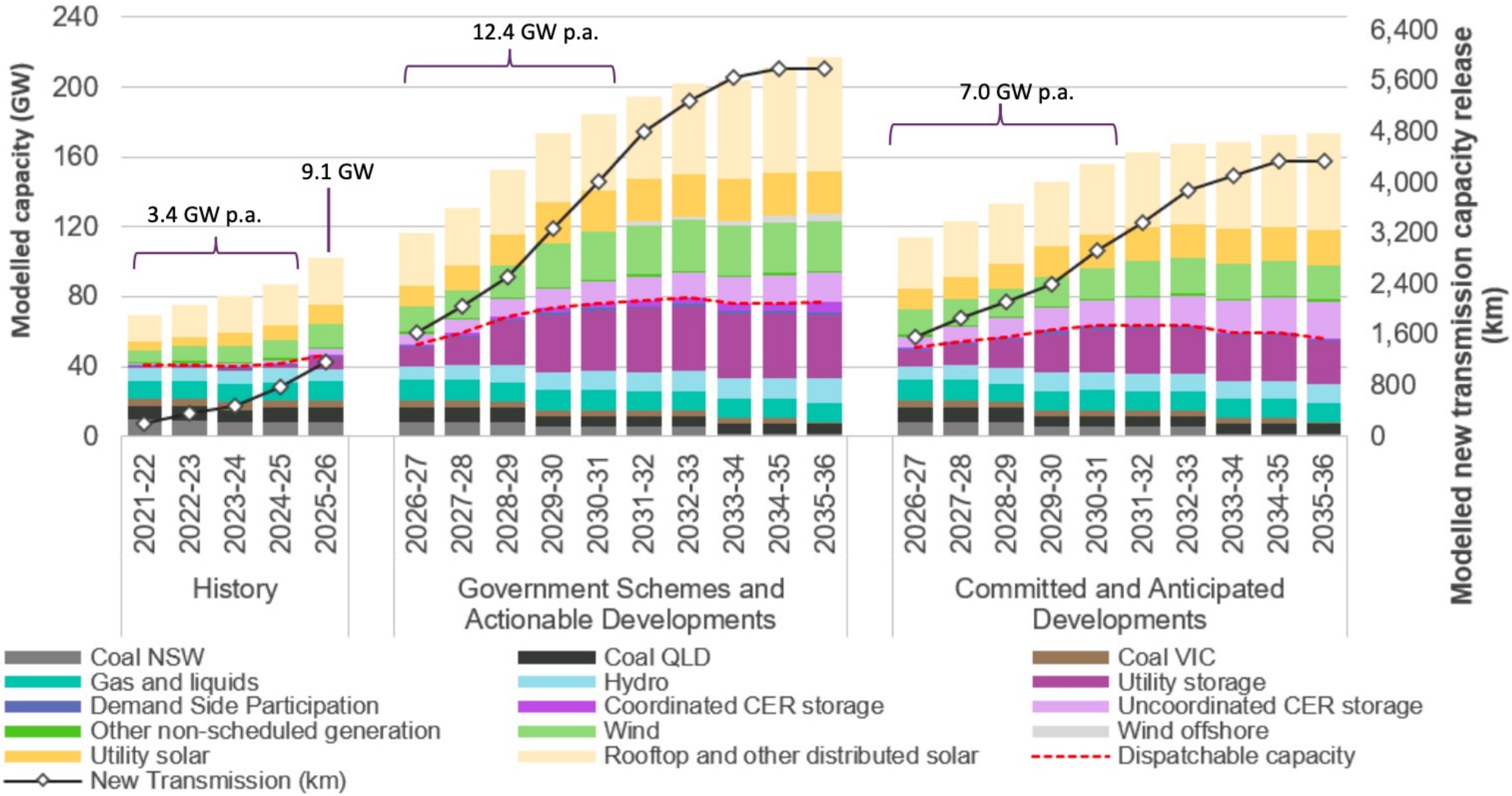


Australia’s total renewable energy projects (ex-rooftop solar) as of end July 2026 that are operating (29.8GW), committed via FID (7.5GW) and probable (32.3GW), that later meaning having either financing, a PPA or CIS underwrite.

Source: Australian Clean Energy Regulator, August 2026
https://cer.gov.au/markets/reports-and-data/large-scale-renewable-energy-data?utm_source=Clean+Energy+Regulator+-+Update&utm_campaign=d2a90845e4-EMAIL_CAMPAIGN_2026_04_16_11_27_COPY_01&utm_medium=email&utm_term=0_-1cd8792425-73688735

The NEM Transmission and Capacity Challenge

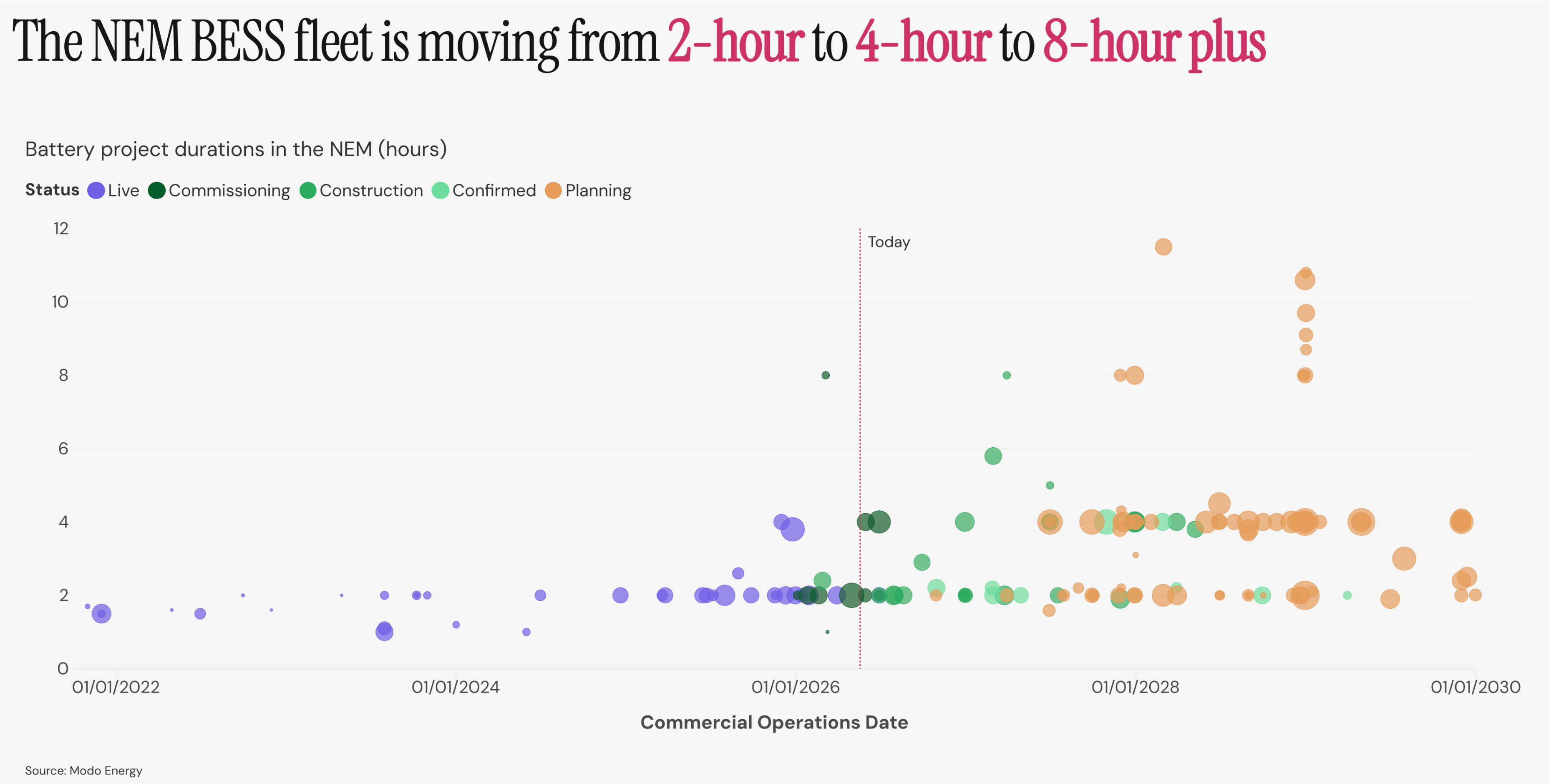
AEMO ESOO actual and forecast 10-year infrastructure development outlook (GW) – Rooftop solar & home batteries, and utility scale generation and storage (BESS + PHS)



Source: AEMO ESOO, August 2026 – note, coal closures as per owner plans, not earlier as assumed in AEMO's ISP; NEM not the SWIS.
https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2026/2026-electricity-statement-of-opportunities.pdf?rev=4f2e73fbd906456288198fdbc24b335a&sc_lang=en

BESS is covering longer and longer durations

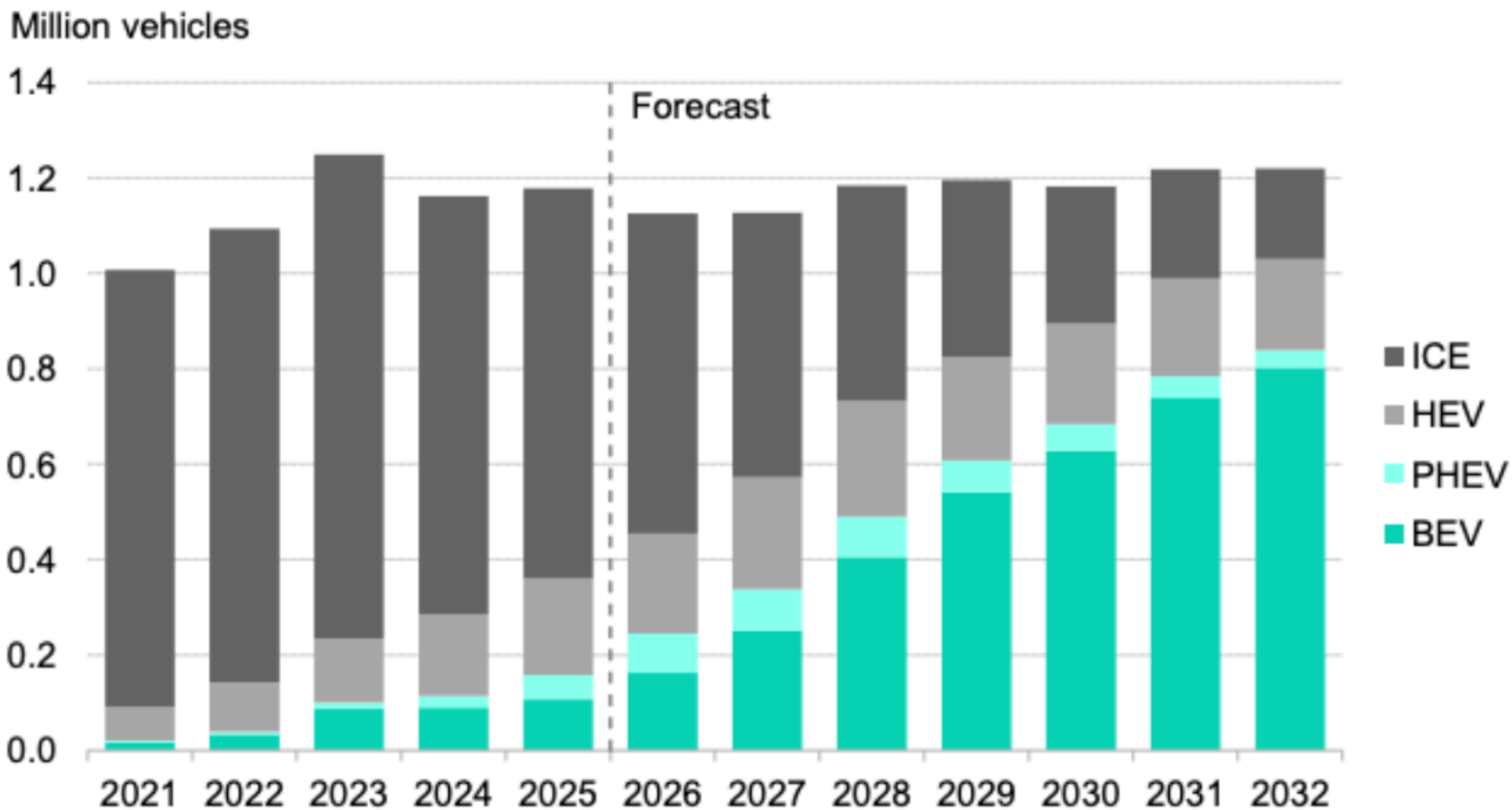
BESS is eating Gas' dinner, as Solar ate Coal power's lunch



Source: Modo Energy's Wendel Hortop, May 2026

Australia’s Energy System Transformation

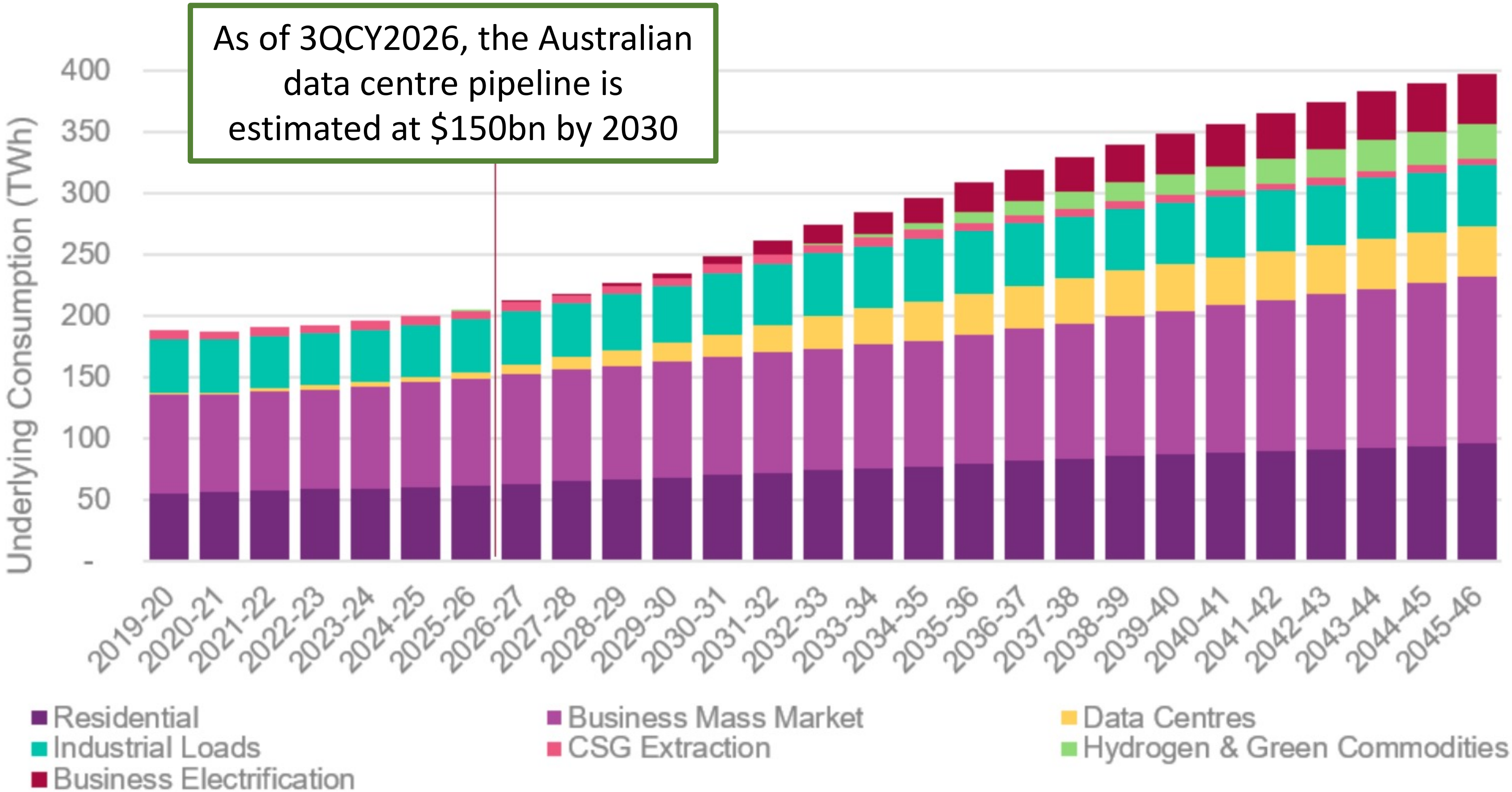
Australia - annual passenger vehicle sales, historical and forecast



Source: BNEF Australia Energy Transition Outlook 2H 2026

The NEM Transmission and Capacity Challenge

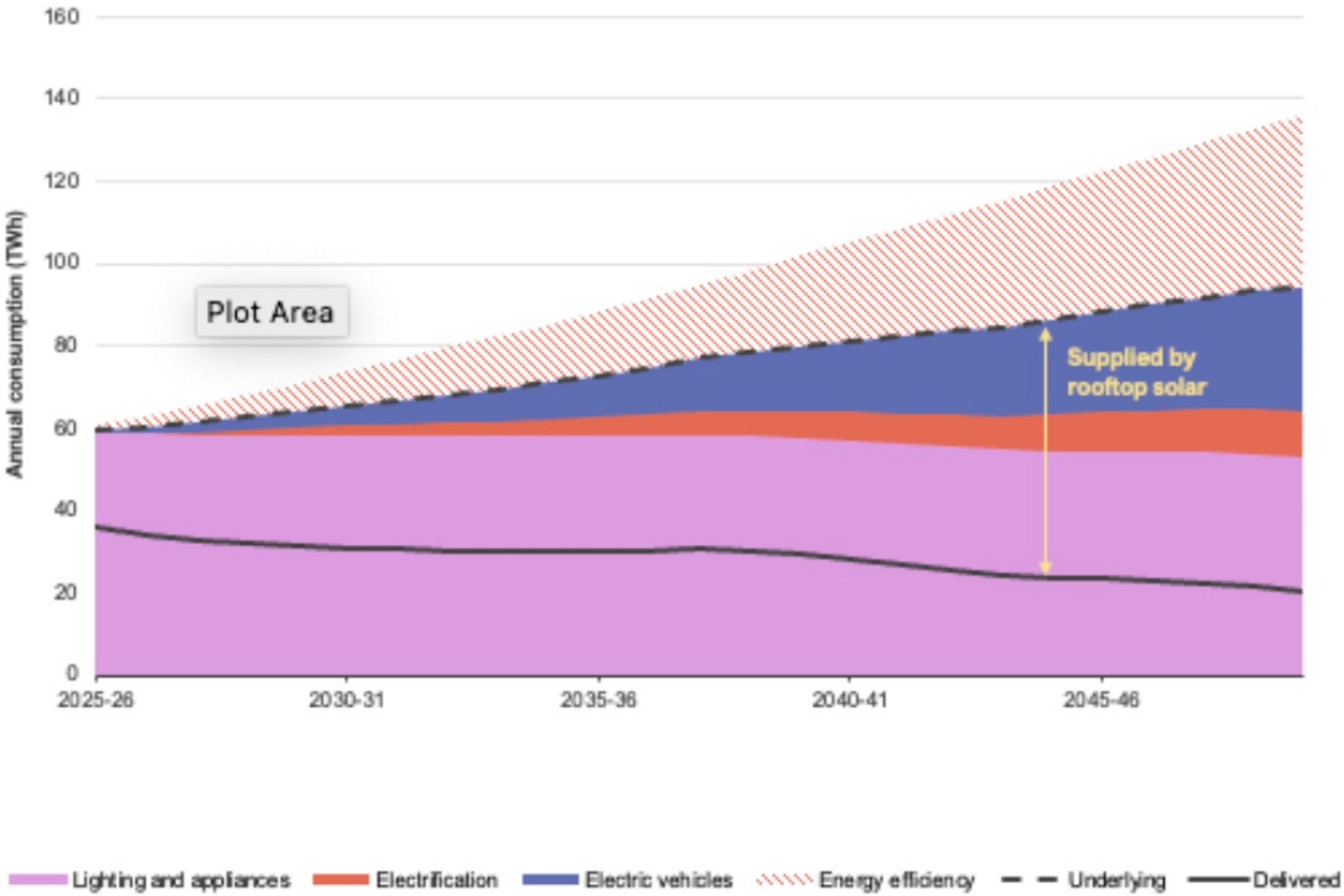
AEMO ESOO Actual and forecast NEM underlying electricity consumption by component, Step Change, FY2020 to FY2046 (TWh)



Source: AEMO ESOO, August 2026 – Note: in this figure, residential electrification is embedded within the residential sector, and transport electrification (EVs) is embedded within the residential and business mass market (BMM) sectors for residential and business EVs respectively. Other business electrification is reflected in the Business Electrification category.
https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2026/2026-electricity-statement-of-opportunities.pdf?rev=4f2e73fbd906456288198fdbc24b335a&sc_lang=en

Australia’s Energy System Transformation

Residential electricity consumption, NEM (TWh, 2025-26 to 2049-50, Step Change)



Source: AEMO Integrated System Plan 2026

XCMG Group in Xuzhou, China

Australia imports $50bn of diesel & oil with an $11bn pa subsidy; the mining EV technology is coming rapidly, but will require massive firmed RE + grid infrastructure investment across the Pilbara, which is currently ~60% imported diesel and just 2% RE powered.

The biggest truck in the world
Payload of 363t (diesel, yellow).
An autonomous EV mine haulage truck (white) and mine EV (green)

ACBC UTS-ACRI KPMG Briefing with DFAT

Australia-China trade a A$300bn pa high, Chinese investment to Oz a 2-decade low; hard to embrace the massive investment and construction boom potential whilst refusing to work constructively with our #1 trade partner: capital, EPC and supply chains.

1 July 2026, Sydney.
Chinese FDI into the Pilbara in iron ore and clean energy is evaluated as ‘low risk’.
https://www.linkedin.com/posts/tim-buckley-0a654313_renewableenergy-activity-7478007254080815106-fTZu?utm_source=share&utm_medium=member_desktop&rcm=ACoAAAK_xL4BN5TFIx7F-X4g0YfwtHJ1QLTvZoQ

CEF's Report Advocating for Carbon Pricing

Very hard to mobilise western capital while carbon pollution costs are externalised

Climate Energy Finance
05 June 2025

CLIMATE ENERGY FINANCE

A Price on Carbon: Building Towards an Asian CBAM

A focus on the harmonisation and integration of carbon pricing mechanisms in Asia-Pacific for the steel, aluminium and cement value chains.

Authors:
Matt Pollard, Net Zero Transformation Analyst, CEF
Tim Buckley, Director, CEF

Source: Climate Energy Finance, https://climateenergyfinance.org/wp-content/uploads/2025/06/CEF_A-Price-on-Carbon-Building-Towards-an-Asian-CBAM-Report_05June2025.pdf

Worth noting EU ETS carbon pollution pricing raised €43bn in revenues in 2025 alone. EU taxes on pollution raise revenues.

The Safeguard Mechanism was reformed in 2023. DCCEEW is doing a review 2HCY2026. CEF advocates for expansion to include the electricity sector.

Australia's #1 trade partner, China will expand its national ETS by 50% by 2027.

Australia needs to leverage the EU/UK ETS & CBAM into Asia to provide finance the price signal required.