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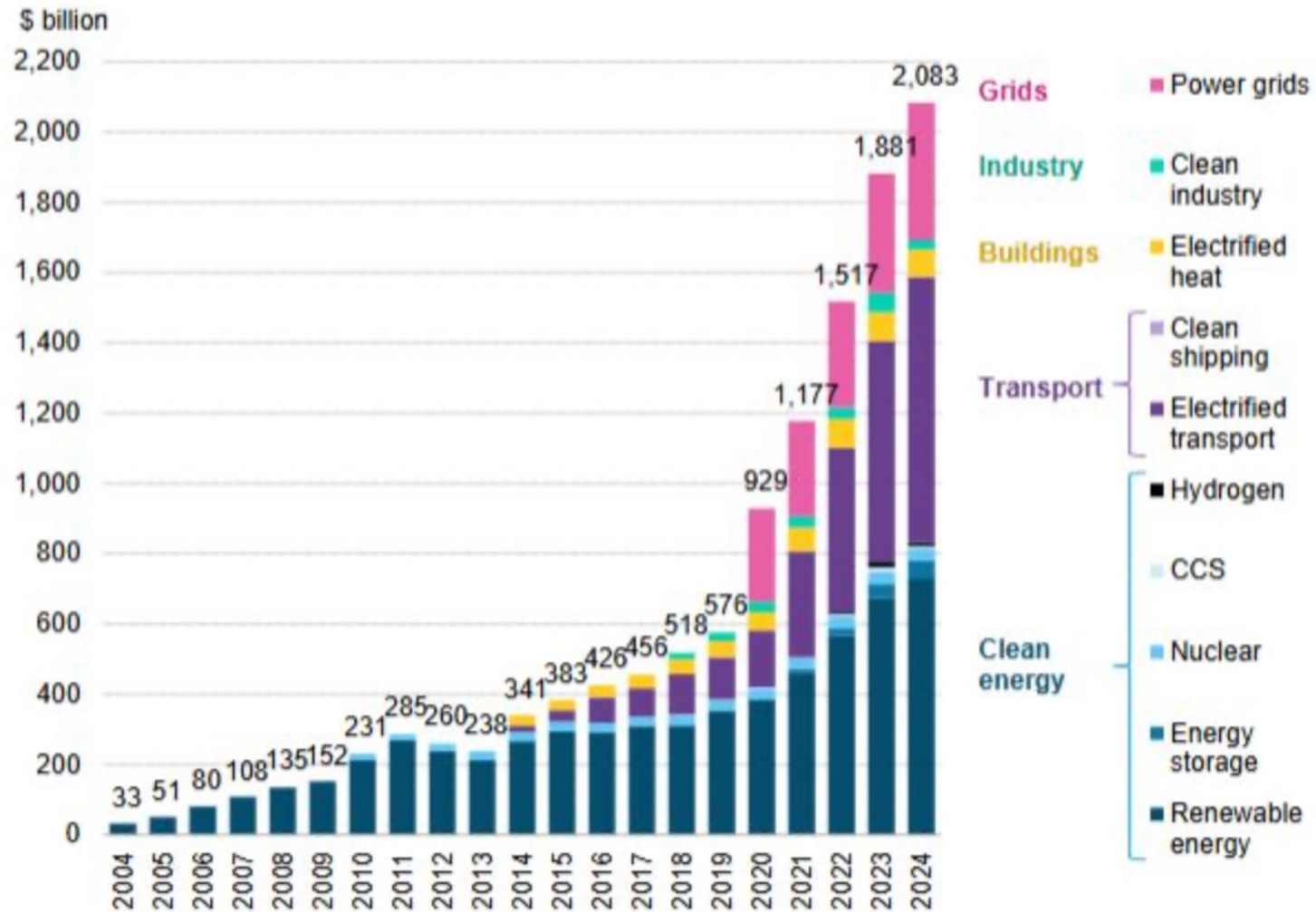
**SOLAR &  
STORAGE**  
LIVE Queensland

**Powering the future:  
government & finance  
collaborating for solar  
& storage growth**

**27 March 2025**

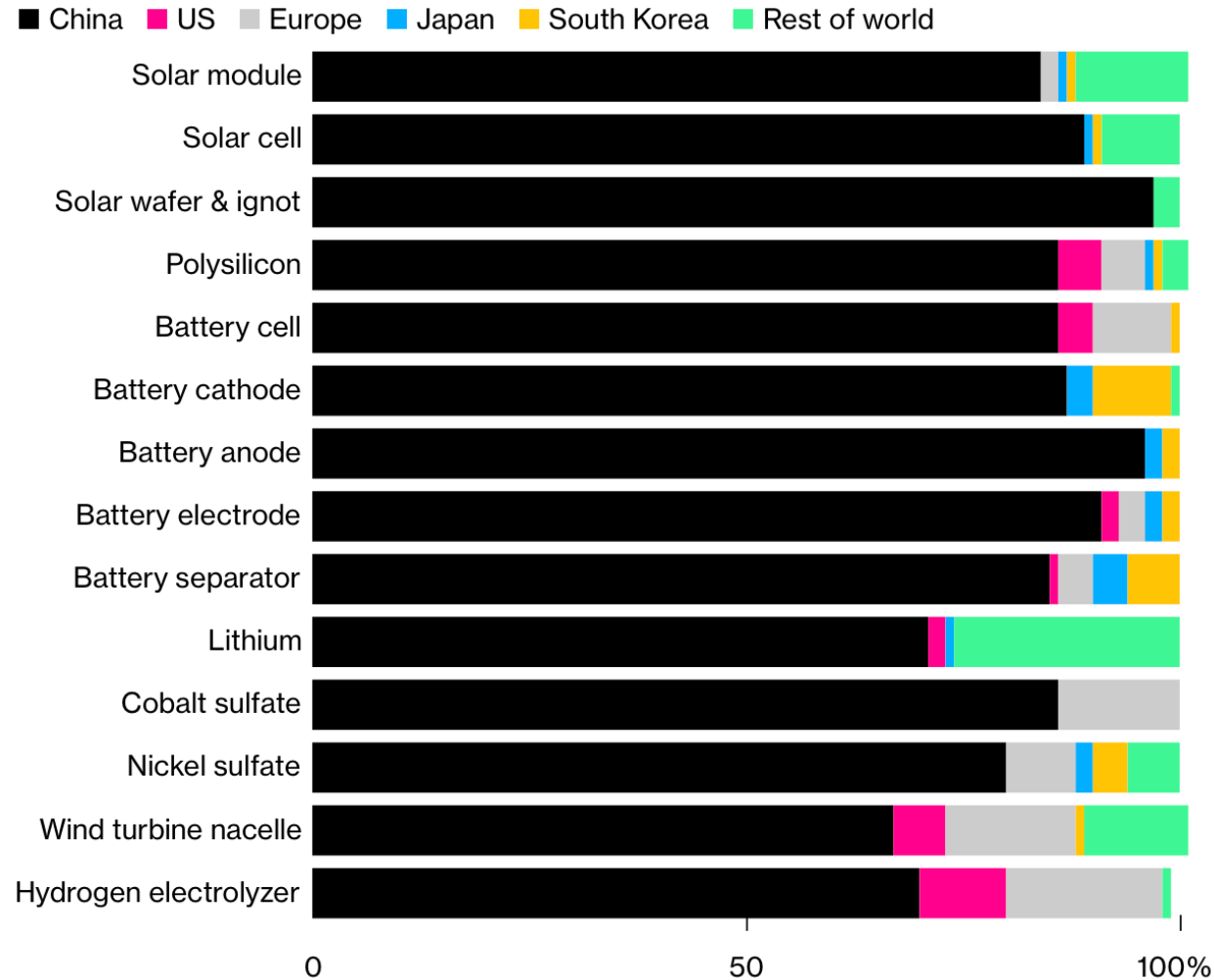
# China's Cleantech Manufacturing Dominance

The world invested US\$2.1 trillion in cleantech in 2024, +11% yoy



# China's Cleantech Manufacturing Dominance

China now dominates global cleantech manufacturing, RD&D, domestic installs, exports and OFDI



# China is Moving in Decarbonisation, Rapidly

China leads the world in firmed renewable energy globally, by far, with a staggering 375GW of zero emissions capacity additions in CY2024.

## New Capacity Installed in China in Jan-Dec 2024

|  |                | Jan-Dec<br>2024 | Share of<br>new adds<br>(%) | Change<br>(yoy %) | Dec-24       | Share of<br>new adds<br>(%) |
|--|----------------|-----------------|-----------------------------|-------------------|--------------|-----------------------------|
| Thermal Power                              | GW             | 54.1            | 13%                         | 4%                | 6.7          | 6%                          |
| Hydropower                                 | GW             | 14.4            | 3%                          | 3%                | 4.4          | 4%                          |
| Nuclear Power                              | GW             | 3.9             | 1%                          | 7%                | 2.7          | 2%                          |
| Wind Power                                 | GW             | 79.3            | 18%                         | 18%               | 27.6         | 25%                         |
| Solar Power                                | GW             | 277.2           | 65%                         | 45%               | 70.9         | 64%                         |
| <b>Total capacity added</b>                | <b>GW</b>      | <b>429.0</b>    | <b>100%</b>                 | <b>15%</b>        | <b>112.3</b> | <b>100%</b>                 |
| Renewable Energy adds                      | GW             | 370.9           | 86%                         | 25%               | 102.9        | 92%                         |
| Zero Emissions Capacity Adds               | GW             | 374.8           | 87%                         | 25%               | 105.6        | 94%                         |
| Investment in Completed Power Grid Project | 1 billion yuan | 608.3           |                             | 15%               | 79.3         |                             |

Source: NBS, CEF Estimates

# China is Moving in Decarbonisation, Rapidly

China leads the world in firmed renewable energy globally, by far, adding another 50GW of renewables capacity in 2MCY2025 YTD.

## New Capacity Installed in China in Jan-Feb 2025

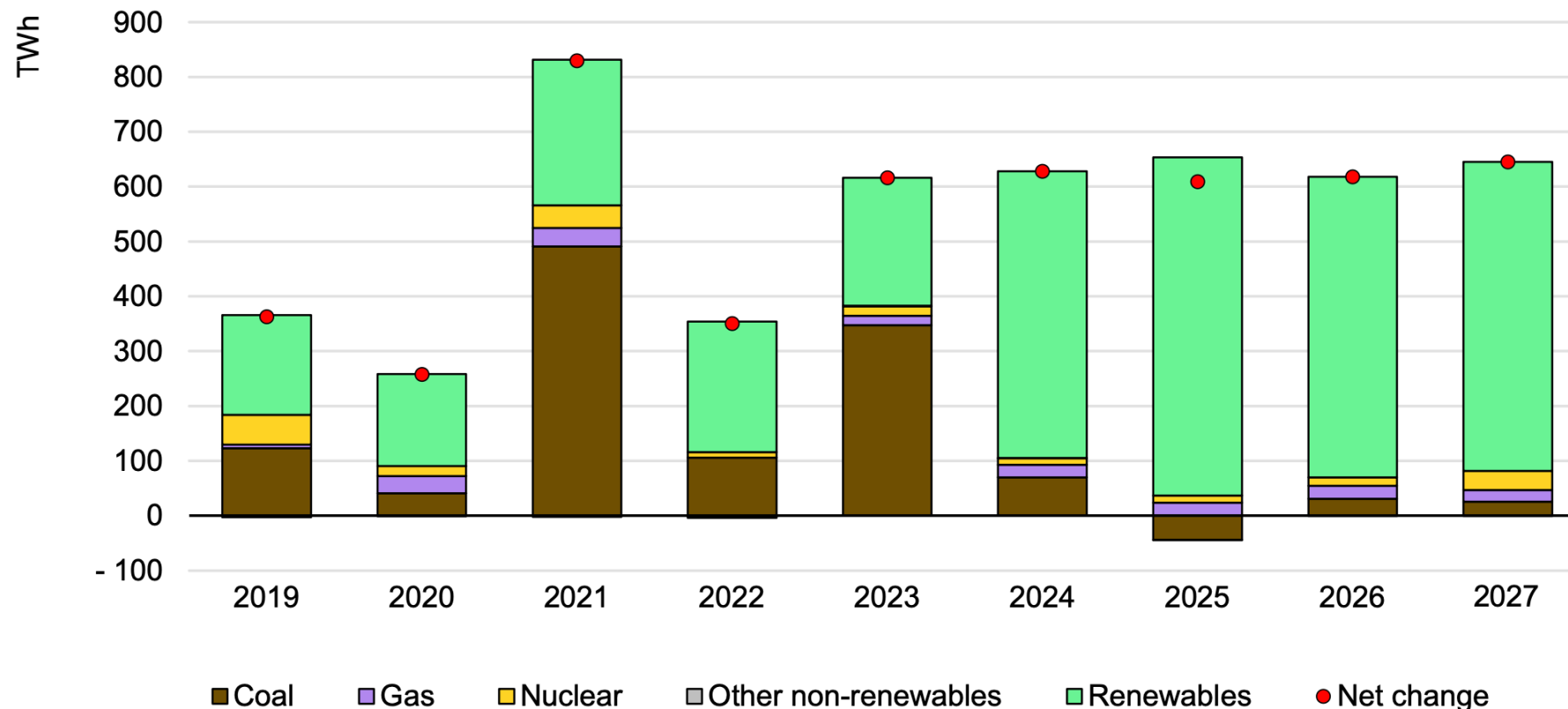
|  |           | Jan-Feb 25  | % Share of total new adds | % yoy change | Jan-Feb 24  | % Share of new adds |
|--|-----------|-------------|---------------------------|--------------|-------------|---------------------|
| Th Office on the web Frame               | GW        | 3.6         | 7%                        | -6%          | 3.9         | 7%                  |
| Hydropower                               | GW        | 1.3         | 2%                        | 45%          | 0.9         | 2%                  |
| Nuclear Power                            | GW        | -           | 0%                        | 0%           | -           | 0%                  |
| Wind Power                               | GW        | 9.1         | 17%                       | 1%           | 9.0         | 17%                 |
| Solar Power                              | GW        | 39.6        | 74%                       | 3%           | 38.4        | 74%                 |
| <b>Total capacity added</b>              | <b>GW</b> | <b>53.7</b> | <b>100%</b>               | <b>3%</b>    | <b>52.2</b> | <b>100%</b>         |
| Renewable Energy adds                    | GW        | 50.0        | 93%                       | 4%           | 48.3        | 93%                 |
| Zero Emissions Capacity Adds             | GW        | 50.0        | 93%                       | 4%           | 48.3        | 93%                 |
| Total new spent on power grid investment | US\$bn    | 6.0         |                           | 34%          |             |                     |

Source: National Energy Administration, Climate Energy Finance Calculations

# China is Moving in Decarbonisation, Rapidly

The IEA models peak coal in China in 2024, and ~95% of electricity generation growing being zero emissions

Year-on-year change in electricity generation in China, 2019-2027



Source: IEA Electricity 2025

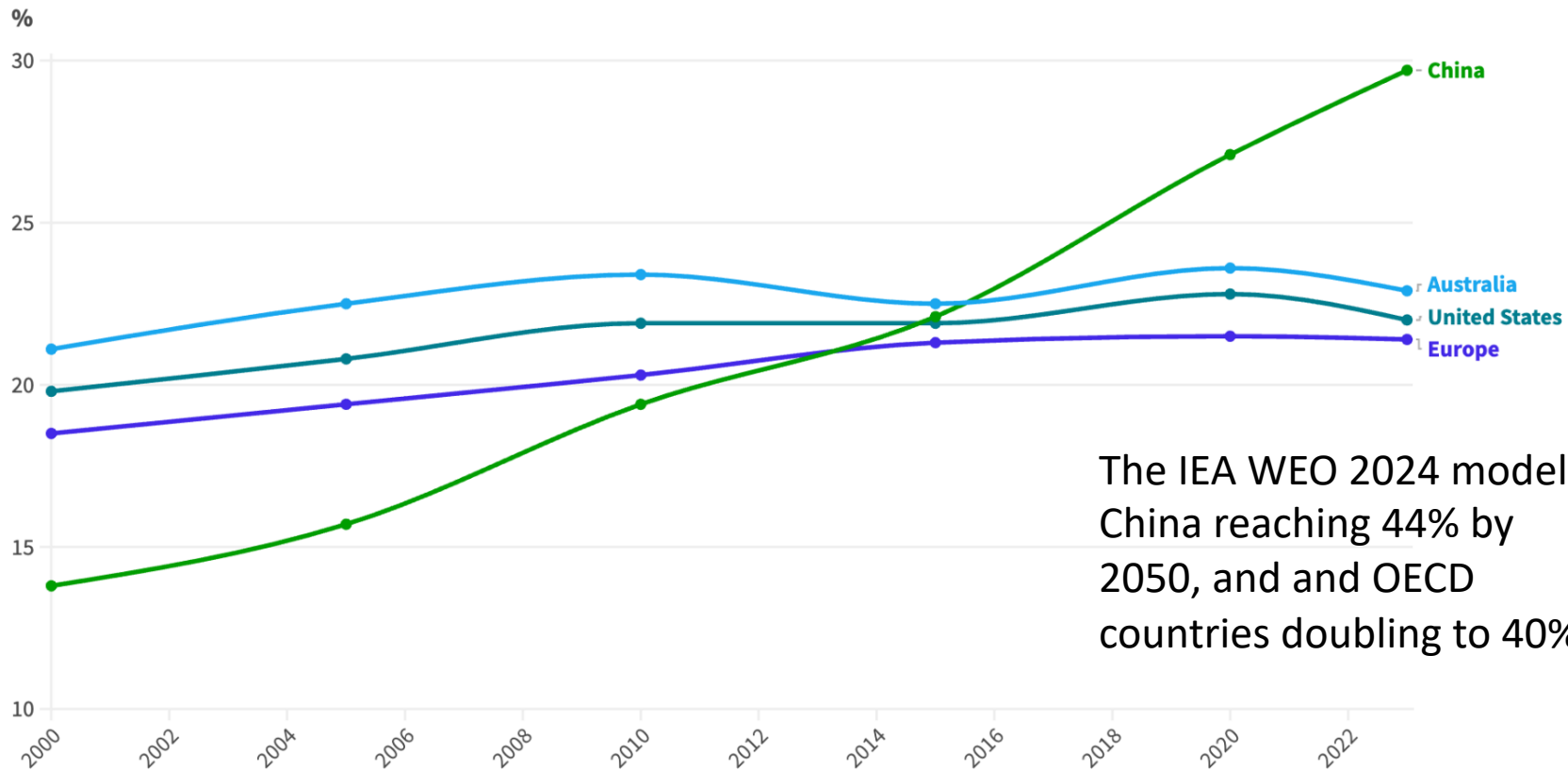
<https://iea.blob.core.windows.net/assets/77522eb7-49c8-4611-851e-59bd5b93454c/Electricity2025.pdf>

# China's Electrification of Everything

## China Leads the world on Progressive Electrification of Everything

### Share of final energy from electricity

China has leapfrogged United States, Europe and Australia in electrification



The IEA WEO 2024 models China reaching 44% by 2050, and and OECD countries doubling to 40%.

Source: CEF calculations, [Enerdata](#)

# China's US\$141bn Cleantech ODFI since 2023

## China's response to the growing US and EU anti-China trade barriers: US\$141bn of Outbound Foreign Direct Investment in Cleantech, Globally

### China's great green march across the globe

The Middle Kingdom wants to control the global clean-tech sector. Can it save the planet, too?

BY TAN DAWN WEI, DAVID FOGARTY AND WAHYUDI SOERIAATMADJA | PUBLISHED: MAR 22, 2025

**THE STRAITSTIMES**

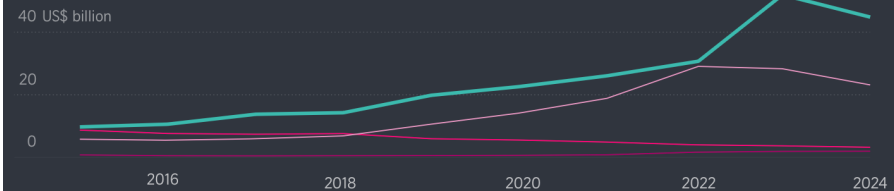
BEIJING/SINGAPORE/JAKARTA – On the outskirts of the Indonesian city of Semarang in Central Java, a new factory is cranking out solar cells and assembling solar panels with the help of robots, while autonomous carts whizz around ferrying parts and components.

The Trina Mas Agra Indonesia solar panel plant, operational since October 2024, is a US\$100 million joint venture between China's Trina Solar, Indonesian conglomerate Sinar Mas and Indonesian state utility PLN.

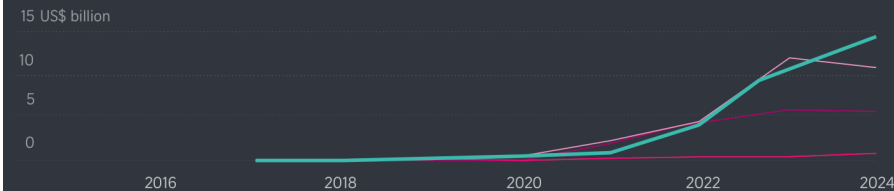
With an annual one gigawatt (GW) total panel capacity that is set to increase to 3GW, the plant is the first and largest integrated solar cell and solar panel manufacturer in Indonesia. It is helping to accelerate a much-needed energy transition in South-east Asia's largest economy, and could in future bring green electricity to Singapore.

The **Global South** has emerged as a major destination for Chinese clean-tech exports, vying with the **EU**, **US** and **UK**.

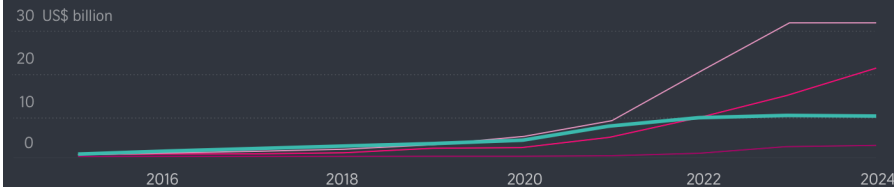
#### Solar



#### Electric vehicles



#### Batteries



Source: CEF Report: **China Outbound FDI, Oct'2024**

<https://climateenergyfinance.org/wp-content/uploads/2024/10/final--CEF-Report-China-Outbound-FDI-2-October-2024-2.pdf>

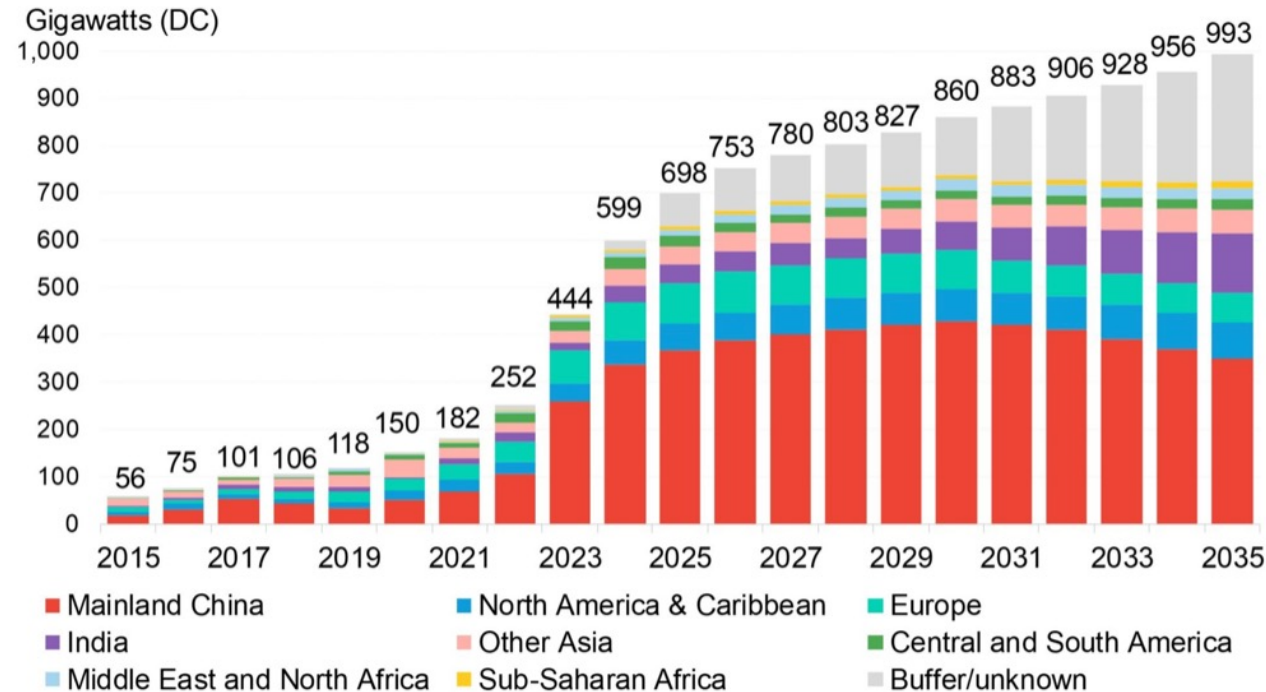
The Straits Times 22 March 2025: <https://www.straitstimes.com/multimedia/graphics/2025/03/china-great-green-march-globe/index.html?shell>



# The World is Responding to China's Challenge

The world is accelerating solar deployments rapidly, with BESS deployments leveraging grid T&D utilisation & time-shifting solar to evening peak.

## PV installations, historical and forecast



Source: BloombergNEF. Note: Full data in BNEF's Capacity tool ([web](#) | [terminal](#)).

Source: BloombergNEF

# The World is Responding to China's Challenge

## The European Commission announced another €100bn for clean industrial investments

### Europe's clean industrial future

27 February 2025

Yesterday, one of the year's most awaited legislative pronouncements was unveiled, as European Commission President Ursula von der Leyen [presented the EU Clean Industrial Deal](#) — a roadmap to strengthen Europe's industrial competitiveness & accelerate decarbonisation.

Bringing together energy-intensive industries & clean-tech innovation, the **Clean Industrial Deal** sets the course for a climate-neutral and resilient European economy. Landing as a response to geopolitical tensions, economic slowdowns, and increasing global competition, the deal has been labelled a big win for clean-tech manufacturers and industrial decarbonisation aiming to ensure that Europe's industries remain at the forefront of the green transition. Key initiatives are:

- €100+ billion mobilised for clean industrial investments, including a new Industrial Decarbonisation Bank.
- "Made in Europe" incentives to ensure EU procurement prioritises sustainable, locally produced clean tech.
- Support for energy-intensive sectors (steel, cement, chemicals) to cut emissions while maintaining competitiveness.
- An [Affordable Energy Action Plan](#) to lower energy bills for industries, businesses and households and speed up the roll-out of clean energy and accelerate electrification and interconnectivity, making the link between security of supply and competitiveness abundantly clear.
- Looser state aid rules to help industries transition to low-carbon production and green manufacturing.
- New Circular Economy & Raw Materials Plan in 2026 to reduce waste and secure key industrial materials.
- Skills & workforce development to create new green jobs in industrial regions.
- Carbon Border Tax (CBAM) adjustments to protect EU industries from carbon-intensive imports.

# Australia is Responding to China's Challenge

Strategic public capital is a key facilitator, in the absence of a CO<sub>2</sub> price signal

FMIA, CIS, RTN, NRF, Future Fund, CEFC, ARENA, EFA, NAIF

## Capacity Investment Scheme

The Capacity Investment Scheme (CIS) is an Australian Government revenue underwriting scheme to accelerate investment in:

- 23 GW of renewable capacity representing \$52 billion in investment
- 9 GW of clean dispatchable capacity representing \$15 billion in investment.

South Australia

Australian  
Associated Press

20 Feb 2025

Troubled Whyalla steelworks gets \$2.4bn government bailout as hunt for new owner begins

**“Crucial support:” Federal Labor launches \$2bn green aluminium production credit scheme**

\$19bn

Rewiring the Nation Fund

 **RENEW ECONOMY** Andrew Brown Jan 20, 2025

The \$19 billion Rewiring the Nation (RTN) Fund is a significant expansion of CEFC investment capacity, with a particular focus on facilitating the timely delivery of grid and transmission projects, using CEFC capital to accelerate the benefits of grid transformation to consumers, including helping to lower consumer energy costs.

**Rio Tinto says aluminium could run on renewables and batteries**

**FINANCIAL REVIEW**

Feb 6, 2025

\$200 million investment in critical minerals to build Australia's future

The Hon Ed Husic MP

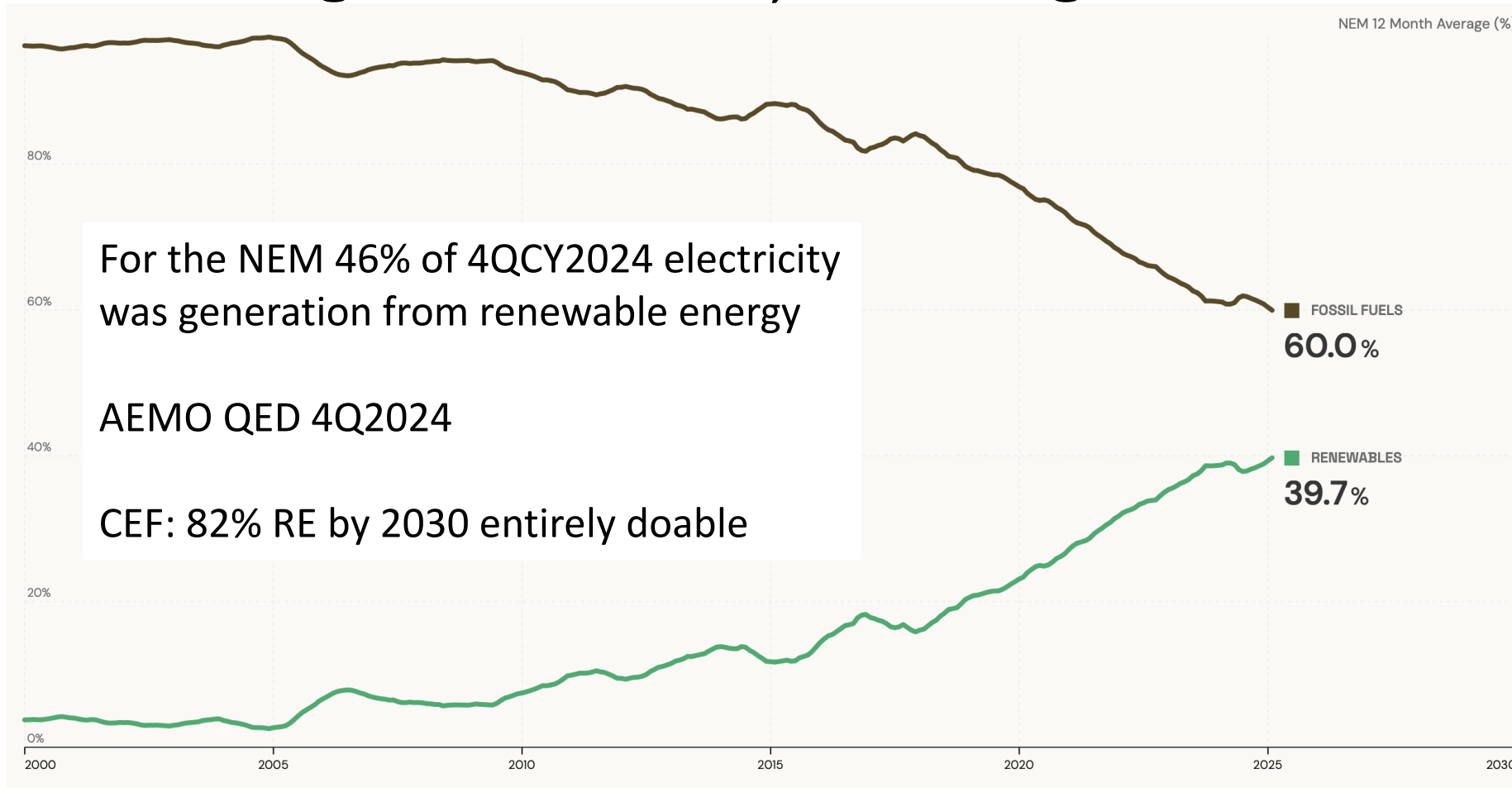
Minister for Industry and Science

15 January 2025

The Albanese Government's National Reconstruction Fund Corporation (NRFC) will invest \$200 million in Arafura Rare Earths to help build Australia's Future.

# Australia's Electricity System Decarbonisation

## Electrification & Decarbonisation – National Electricity Market (NEM) CY2024 @ 39.3% renewables; 2MCY2025 @ 44.0%



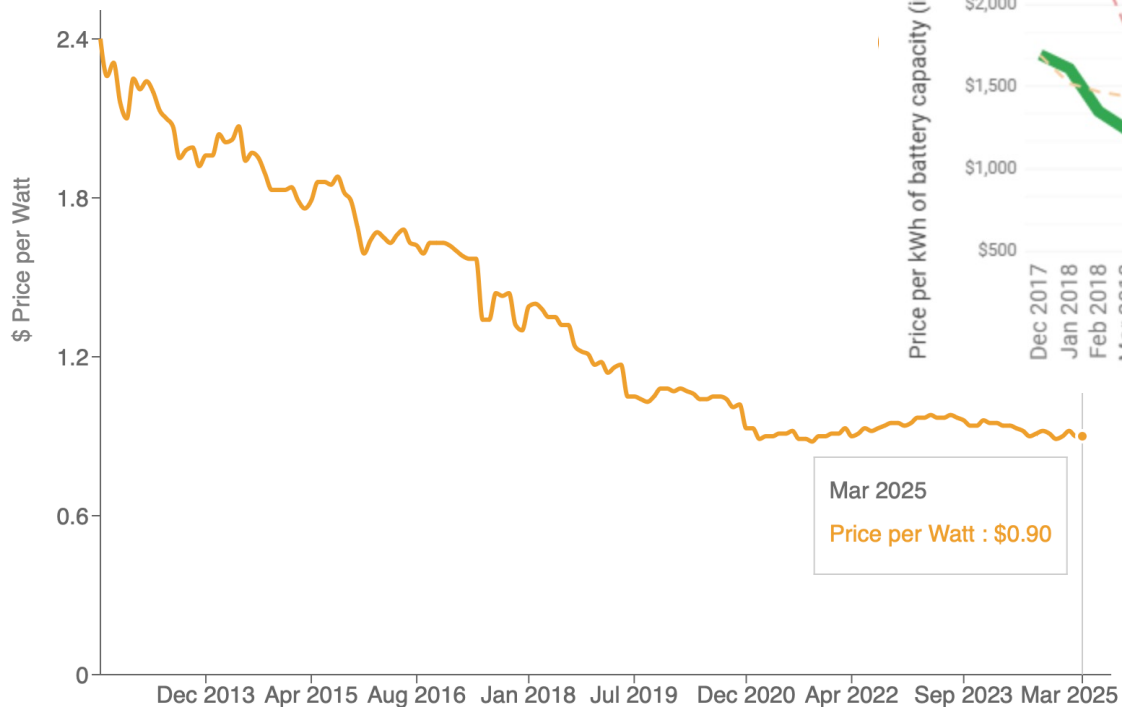
Source: Open Electricity, <https://openelectricity.org.au>

AEMO QED 4QCY2024 <https://aemo.com.au/energy-systems/major-publications/quarterly-energy-dynamics-qed>

# Australia's Electricity System Decarbonisation

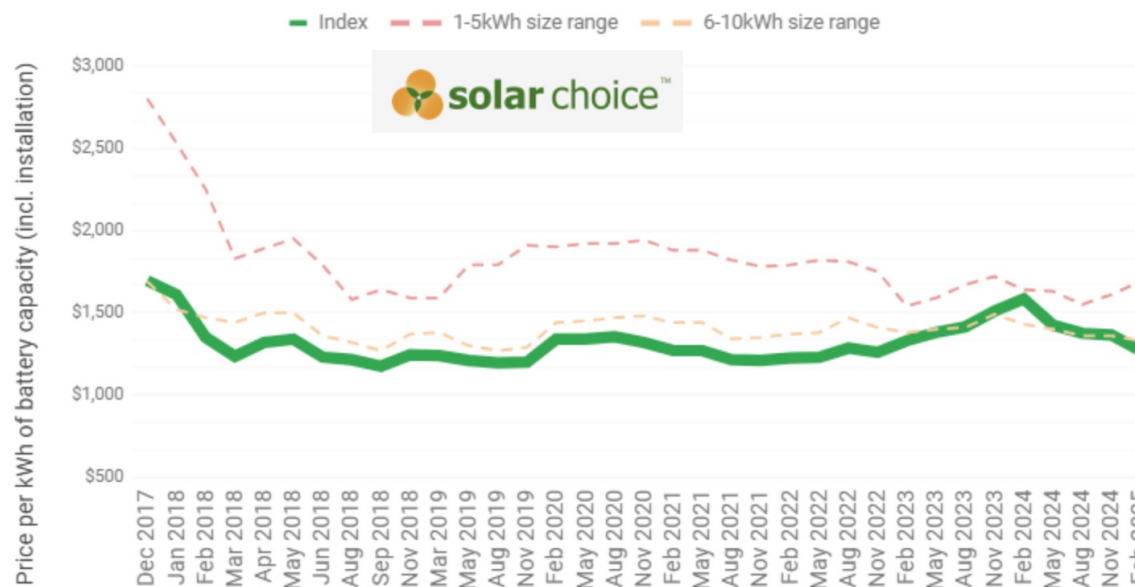
## Rooftop Solar, Behind the Meter Storage & V2G – Needs to be Accelerated

### National Solar Choice Price Index



National NSW

### Solar Choice Battery Price Index



# Australia's Electricity System Decarbonisation

Massive deflation, manufacturing capacity expansion and technology development: Solar + BESS => Accelerated Energy System Disruption



CLIMATE ENERGY FINANCE

## International Solar PV and BESS Manufacturing Trends

*Solar PV's disruption is happening at a speed beyond imagination, turbocharged by BESS firming*



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