

CLIMATE ENERGY FINANCE

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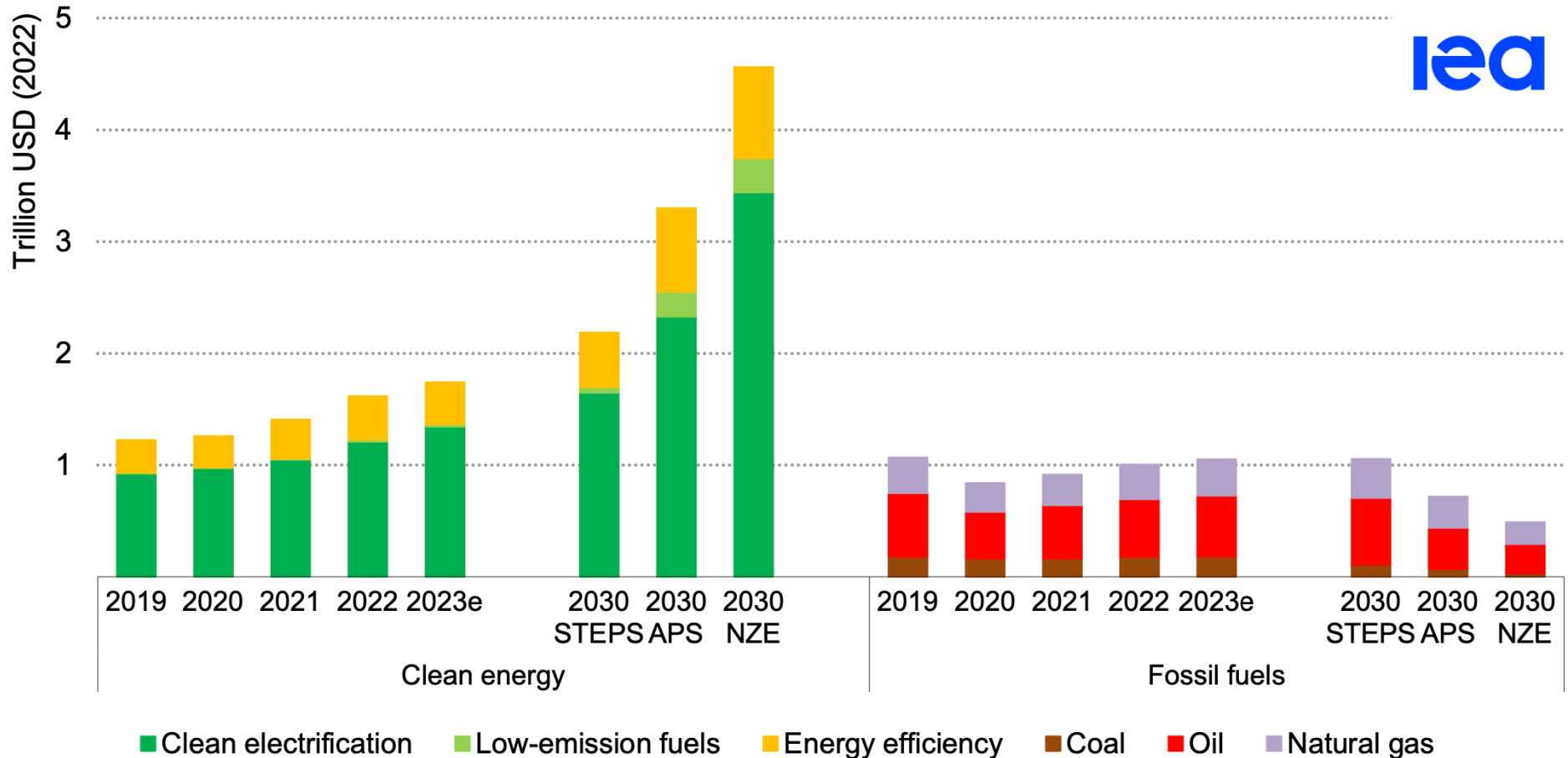
The energy transition is driving a global investment and policy race. What is the role of solar & the potential for Australia to lead the large-scale solar race?

Solar & Storage

1.40pm 1 May 2024

1. The Global Energy Transition

Global Investment Needed by 2030



Notes: STEPS = Stated Policies Scenario; APS = Announced Pledges Scenario; NZE = Net Zero Emissions by 2050 Scenario.

2. US Inflation Reduction Act 2022

~US\$1,000bn funding => a resurgence in US manufacturing post the IRA

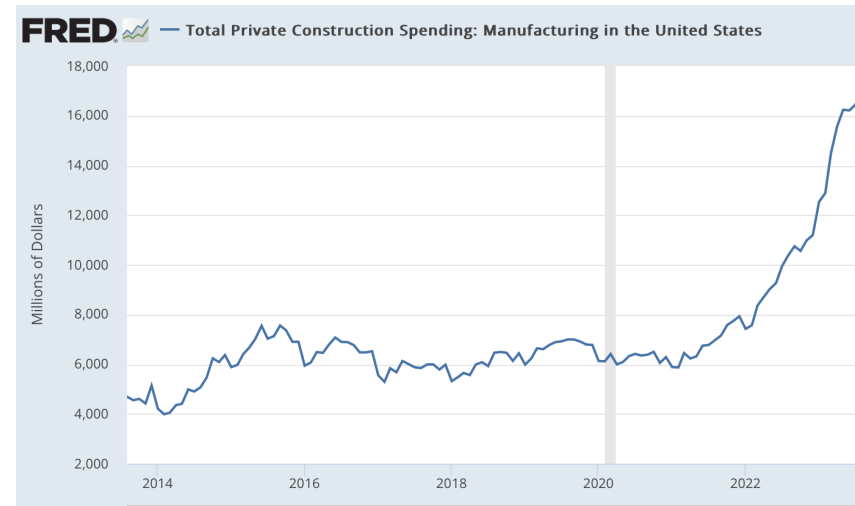


THE WHITE HOUSE

JULY 05, 2023

FACT SHEET: Bidenomics Has Driven \$500 Billion in Private Sector Investments Across the Country, Is Growing South Carolina's Economy From the Middle Out and Bottom Up

President Biden's economic agenda—Bidenomics—is growing the American economy from the middle out and the bottom up, not the top down. Tomorrow, President Biden will announce that companies have committed **over \$500 billion in manufacturing and clean energy investments** in the United States since the beginning of his Administration. The President will visit **South Carolina, where companies have announced \$11 billion** in manufacturing and clean energy investments, and the Biden-Harris Administration has already awarded **\$2.6 billion in funding for infrastructure projects**. The President will highlight that Enphase Energy is joining a growing list of companies beginning clean energy manufacturing operations in the United States—mobilized directly by President Biden's Inflation Reduction Act—**creating 1,800 new jobs nationwide, including up**



Source: The US Census Bureau, monthly to August 2023
<https://fred.stlouisfed.org/series/PRMFGCON>

2. China Leads the World in Renewable Installs

China installed 292.8GW of VRE in CY2023 (+99% yoy), and is on track to deliver their 1,200GW by 2030 RE target 6 years early

New Capacity Installed in China in Jan-Dec 2023

		Jan-Dec 2023	Share of new adds (%)	Change (yoy %)	Dec-23	Share of new adds (%)
Thermal Power	GW	57.9	16%	30%	11.5	12%
Hydropower	GW	8.0	2%	-66%	0.2	0%
Nuclear Power	GW	1.4	0%	-77%	0.2	0%
Wind Power	GW	75.9	21%	102%	28.5	31%
Solar Power	GW	216.9	60%	148%	51.9	56%
Total capacity added	GW	360.1	100%	78%	92.2	100%
Variable Renewable adds	GW	292.8	81%	99%	80.4	87%
Zero Emissions Capacity Adds	GW	302.2	84%	92%	80.7	88%

Source: NBS, CEF Estimates

2. Other Nations Are Responding to the US IRA

South Korea Finance Sector Pledges \$313 Billion in Green Funding



By [Heesu Lee](#)

19 March 2024 at 6:32 PM AEST



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Listen 0:52

South Korean financial institutions have pledged to provide 420 trillion won (\$313 billion) through the end of the decade for projects aimed at helping the country meet its climate goals.

The so-called green fund will be funded by five lenders, including [Korea Development Bank](#), [Export-Import Bank of Korea](#) and [Korea Credit Guarantee Fund](#), the Financial Services Commission and the Ministry of Environment said in a statement.

The funding announcement comes as Seoul seeks to zero-out emissions by mid-century. The five institutions have promised to provide 60 trillion won annually until 2030, which is up 67% from the five-year average, the FSC and ministry said.

LPO Announces MOU with the Export-Import Bank of Korea

MARCH 8, 2024

[Loan Programs Office](#) » LPO Announces MOU with the Export-Import Bank of Korea

On March 6, 2024, LPO Director Jigar Shah and Deputy Director Robert Marcum were pleased to welcome the Export-Import Bank of Korea (KEXIM) and its Chairman and CEO, Mr. Hee-sung Yoon, to the DOE for a signing of a Memorandum of Understanding (MOU), establishing a framework around export and infrastructure financing for LPO-supported energy projects.



3. Future Made in Australia Strategy



Australian Government

Critical Minerals Strategy 2023–2030

Create diverse, resilient and sustainable supply chains through strong and secure international partnerships

We will supply processed critical minerals to diversify global markets and support Australia's access to priority technologies. This includes working with international partners to build secure, resilient and sustainable supply chains that reduce market concentration. We will enhance our high environmental, social, and governance (ESG) credentials and our status as a trusted and reliable trading partner.

Build sovereign capability in critical minerals processing

We will move up the critical minerals value chain and increase Australia's footprint in downstream processing. We will make high-value products that build new industries and strengthen our domestic resilience to supply chain shocks.

Use our critical minerals to help become a renewable energy superpower

We will unlock our vast potential as a major supplier of the critical minerals needed to decarbonise the global economy. Australia's critical minerals sector will help the world decarbonise, including enabling Australia to reach our own legislated targets of 43 per cent below 2005 levels by 2030 and net zero by 2050.

Extract more value onshore from our resources – creating jobs and economic opportunity, including for regional and First Nations communities

This could add \$134bn to Oz GDP and create 262,600 new jobs by 2040 => "Proportionate" response:

- \$20bn Rewiring the Nation Fund into CEFC
- \$500m funding for NAIF
- \$225m to Geoscience Australia
- \$4bn EFA critical minerals facility
- NRF: \$15bn including \$3bn Low emissions tech & \$1bn Resources value-add
- \$50m Australian Critical Minerals R&D Hub
- \$57m Critical Minerals International Partners
- Powering the Regions Fund: \$1.9bn
- \$3.1bn Australian Apprentices Incentive
- \$500m Jobs & Skills Councils
- \$105m New Energy Apprenticeships
- \$2bn Hydrogen Headstart
- \$1bn Solar SunShot phase I
- \$1.3bn electrification of everything

***14 May 2024 Treasurer Jim Chalmers Budget:
Another \$100bn of public capital to crowd-in
\$200-300bn of private capital***

3. Future Made in Australia Strategy

82% Renewables by 2030: A \$12bn pa investment domestically



The Hon Chris Bowen MP
Minister for Climate Change and Energy



Delivering more reliable energy for all Australians

23 November 2023

The Albanese Government will deliver more reliable electricity to all Australians through the expansion of the existing Capacity Investment Scheme (CIS) and the National Energy Transformation Partnership (NETP), in conjunction with the states.

This investment will supercharge available power in the energy grid, delivering the long-term reliable, affordable and low-emissions energy system Australians deserve as our grid changes.

Under the last Government, 24 coal plants with a total capacity of 26.7 GW announced their closure dates, but the LNP failed to deliver any policy to ensure replacement capacity.

This dangerous and irresponsible approach – including their failure to deliver a capacity scheme - is one of the reasons Australia's grid could face a difficult summer.

In contrast, the Albanese Government's CIS underwrites new renewable generation and storage, providing certainty for renewable investors and cheaper, cleaner energy for households and businesses. It also recoups money for taxpayers when revenues are high.

This expansion will take the CIS from the current pilot stage to 9 GW of dispatchable capacity and 23 GW of variable capacity nationally – for a total of 32 GW nationally.

NEM Wholesale prices and RE Share:

2021: A\$75/MWh, 31.4%
2022: A\$191/MWh, 34.9%
2023: A\$93/MWh, 38.3%

Source: OpenNEM



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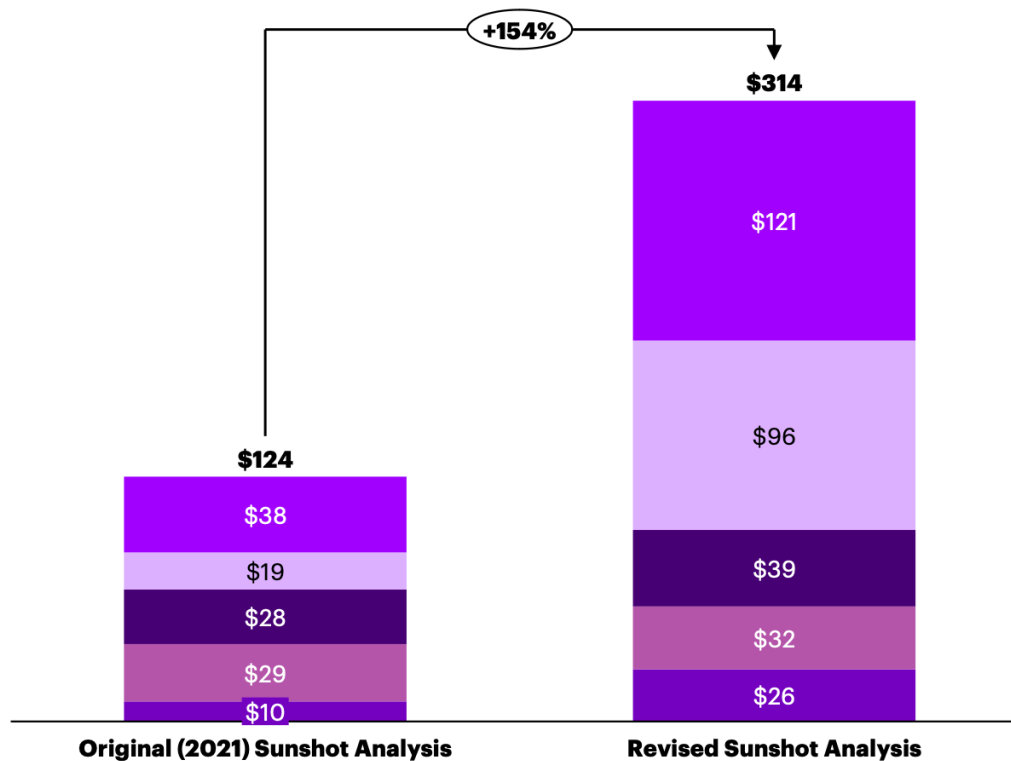
3. Future Made in Australia Strategy

The Export Opportunity for Australia is Huge

The opportunity has increased to \$314b by 2040 in a high ambition scenario

Billions AUD per annum, 2040

- Critical minerals
- Green iron & steel
- Batteries
- Green hydrogen & ammonia
- Green alumina & aluminum

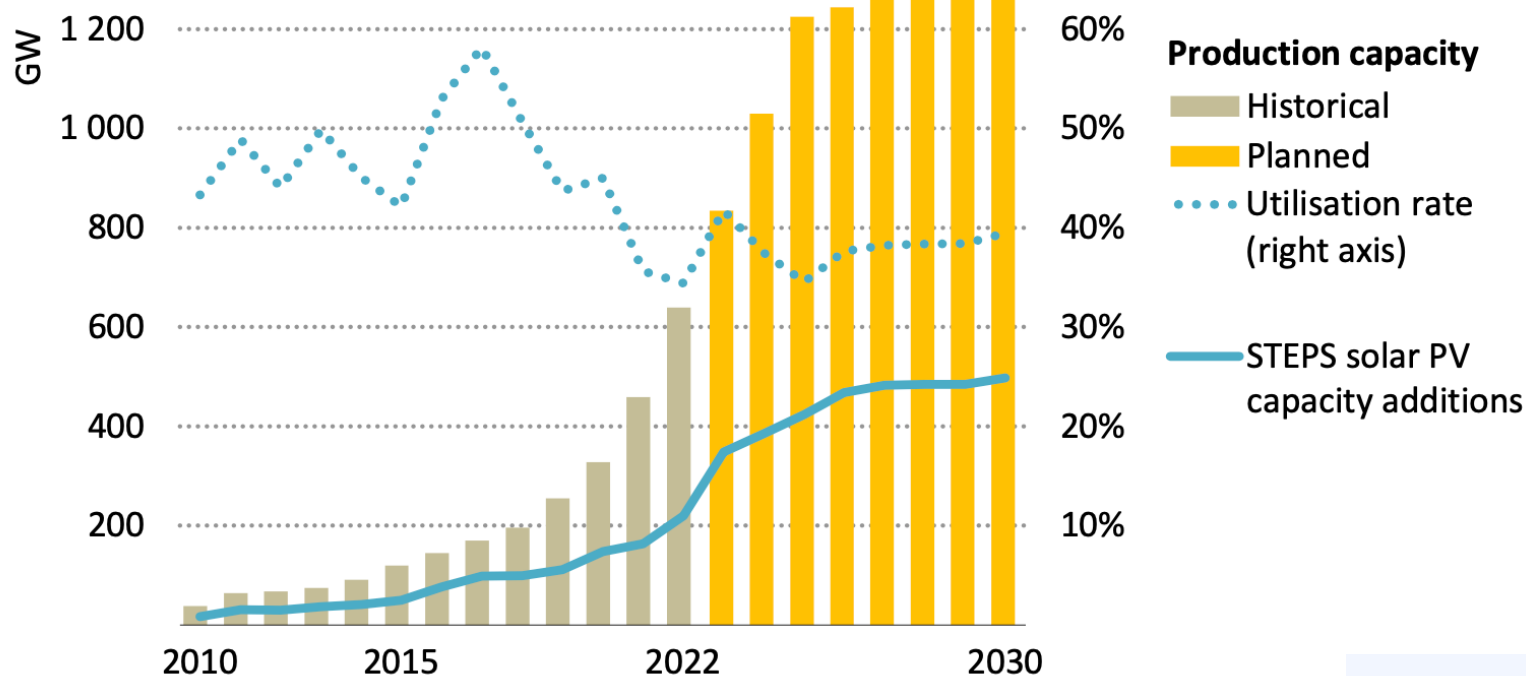


4. China Dominates Solar

Solar Growth is Accelerating, Globally. BNEF estimates 44GW_{DC} (392GW_{AC}) in 2023, +76% yoy, with another 30% yoy growth in 2024.

Solar module export prices are ~US\$0.12c/w in 2024, -50% yoy.

Figure 1.10 ▶ Global solar module manufacturing and solar PV capacity additions in the STEPS, 2010-2030

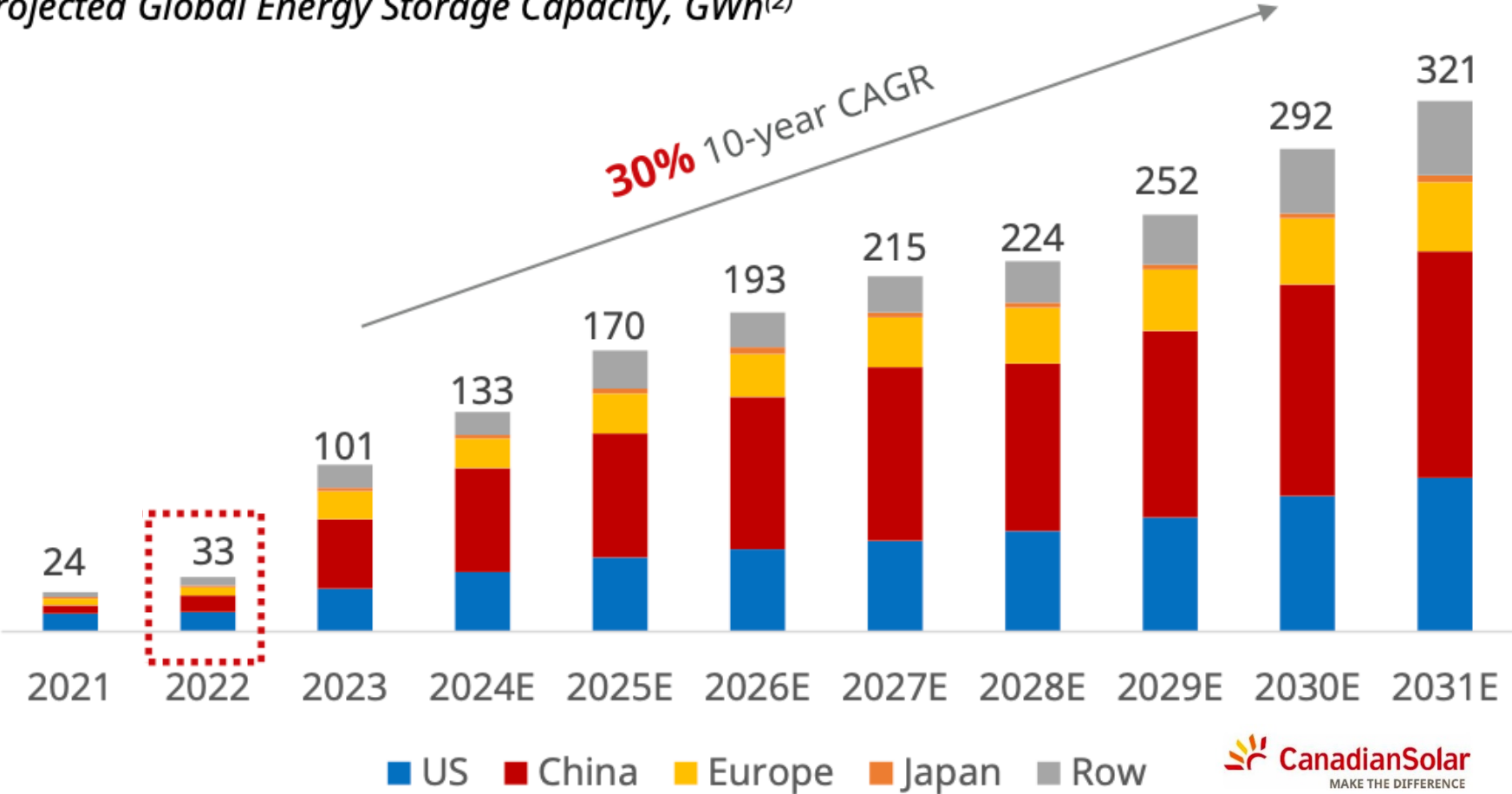


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Planned expansion of solar manufacturing outpaces solar PV capacity additions to 2030; its low utilisation rate presents a huge opportunity to accelerate clean energy transitions

4. Global BESS installations are set to boom

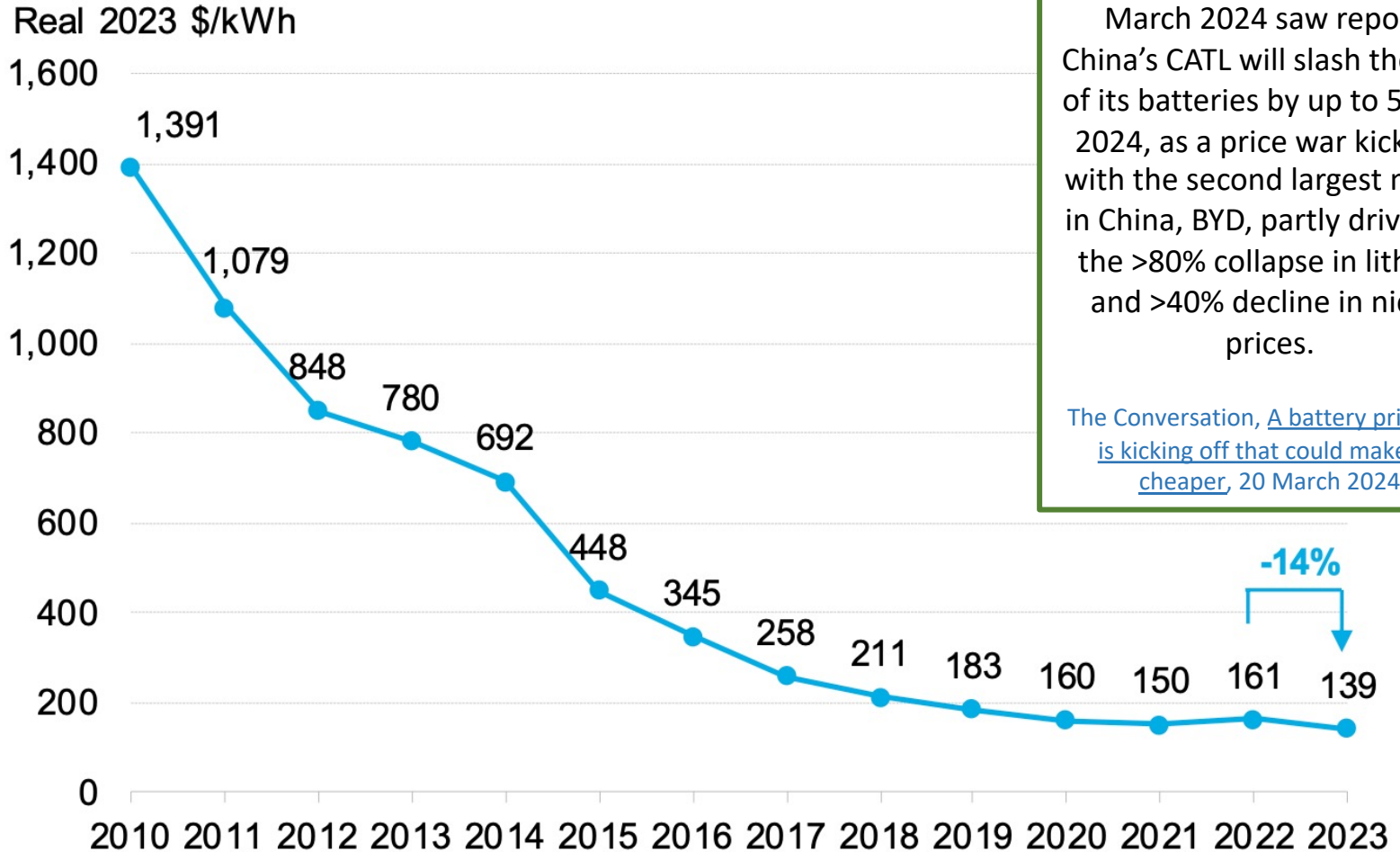
Projected Global Energy Storage Capacity, GWh⁽²⁾



Source: Canadian Solar Investor Presentation March 2024, Woodmac
<https://investors.canadiansolar.com/static-files/9d391145-cd5f-42c9-a6ab-67cd02c2f065>

4. Battery Deflation

Volume-weighted average lithium-ion battery pack price



March 2024 saw reports China's CATL will slash the cost of its batteries by up to 50% in 2024, as a price war kicks off with the second largest maker in China, BYD, partly driven by the >80% collapse in lithium and >40% decline in nickel prices.

[The Conversation, A battery price war is kicking off that could make EV cheaper, 20 March 2024](#)

Source: BloombergNEF. Note: Historical figures have been adjusted to real 2023 dollars.