

Battery Innovation System of Australia



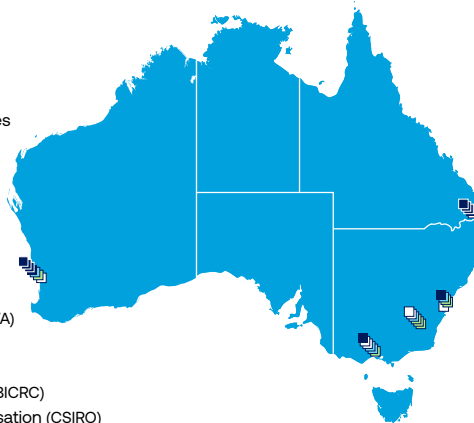
Main Players

POLITICAL ORGANISATIONS

- Australian Government
 - Department of Industry, Science, Energy and Resources
 - Critical Minerals Facilitation Office
 - Export Finance Australia
 - Australian Renewable Energy Agency (ARENA)
 - Clean Energy Finance Corporation (CEFC)
 - Clean Energy Regulator (CER)
- Battery Stewardship Council
- Government of Western Australia
 - Minerals Research Institute of Western Australia (MRIWA)

RESEARCH ORGANISATIONS

- Future Battery Industries Cooperative Research Centre (FBICRC)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Australian National University (ANU) Battery Storage and Grid Integration Program
- University of Wollongong (UOW) Battery Storage and Grid Integration Program
- Monash Energy Institute at Monash University



- University of Queensland (UQ) Energy Initiative
- Battery Research and Innovation Hub - Deakin University

INDUSTRY ASSOCIATIONS

- Australian Battery Industry Association (ABIA)
- Minerals Council of Australia (MCA)
- Association of Mining and Exploration Companies (AMEC)
- Clean Energy Council (CEC)
- Association for the Battery Recycling Industry (ABRI)

COMPANIES

- Allkem (Raw materials)
- Australian Mines Limited (Raw materials)
- Century Yuasa (Batteries)
- Li-S Energy (Batteries)
- Energys Australia (Batteries)
- Lithium Australia (Materials development)
- Envirostream (Recycling)
- IGO (Raw materials)
- Pilbara Minerals (Raw materials)
- Talison Lithium (Raw materials)

Strategic Documents



Policy Goals

- 2030**
 - Clean hydrogen:** Production under AUD\$2/kg
 - Energy storage:** Electricity from storage for firming under AUD\$100/MWh
 - Carbon capture and storage (CCS):** CO₂ compression, hub transport and storage under AUD\$ 20/t of CO₂
 - Soil carbon:** Soil organic carbon measurement under AUD\$ 3/ha/year
- 2035**
 - Ultra low-cost solar:** Solar electricity generation at AUD\$ 15/MWh
- 2040**
 - Low emissions materials** (steel and aluminium): Steel production under AUD\$ 700/t and aluminium production under AUD\$ 2.200/t
- 2050**
 - Net zero emissions**

Country Specific Information

Australia is a world leader in mining equipment, technology and services (METS) and a major global supplier of lithium, cobalt, rare earths, nickel and manganese. Its battery materials mining industry uses world-class expertise and technology in exploration, development, production, processing and environmental management. Lithium exports alone are expected to more than triple in value to AUD\$16 billion by 2022–23. Australia's transparent regulatory framework ensures the highest environmental, social and governance (ESG) standards,

including heritage and environmental protection, gender equality, workplace safety and the promotion of human rights. With growing concerns about the risks of geographic concentration of critical minerals, Australia has the potential to become a reliable and secure alternative supplier of raw materials and producer of processed materials. However, Australia needs to invest in diversifying further down the value chain, not just in the mining of raw materials. There is also a need to develop recycling and battery waste management. The new Australian government is currently reviewing climate and energy policy and sees renewable energy and batteries as a key factor of meeting CO₂ reduction targets. In this context, it is introducing schemes to support the large-scale uptake of batteries, and to promote both recycling and battery manufacturing.

Research Priorities

Expertise in mineral extraction and refining + hydrogen + lithium-ion, sodium-ion, vanadium flow batteries + super anode + future electrolyte systems + microgrid battery deployment + electrochemical testing + cathode active material + recycling and circular economy applied to batteries + lithium hydroxide

Main Funding Instruments

TIME	FUND	FOCUS	BUDGET
ongoing	CEFC	Clean energy projects; commercialisation of renewable energy and low emissions technology projects through loans and equity investments (AUD\$ 1 billion in 2023 to turbocharge green financing options for household energy upgrades)	AUD\$ 10 billion
ongoing	CER	Accelerate carbon abatement in Australia; emissions reduction projects	ca. AUD\$ 2,5 billion
Since 2012	ARENA	Global transition to net zero emissions by accelerating the pace of pre-commercial innovation; early-stage research and development projects; solar, wind and other renewable energy technologies, as well as energy storage and grid integration; key technologies, including industrial energy efficiency and regional micro grids; low emissions technologies in all sectors, including agriculture and transport	over AUD\$ 1,8 billion on early stage R&D projects AUD\$ 1,4 billion for 2031–32
2021–2022	Export Finance Australia, Northern Australia Infrastructure Facility loans and Modern Manufacturing Initiative grants	Support to Western Australian battery and critical minerals projects	over AUD\$ 1,6 billion
2023	Critical Minerals Strategy via the Northern Australia Infrastructure Fund	Resources projects that are vital to the energy transition	AUD\$ 500 million