Australian Government

Department of Climate Change, Energy, the Environment and Water

Renewable electricity in Australia

Presentation for the Joint Meeting of Four Expert Groups of the APEC Energy Working Group

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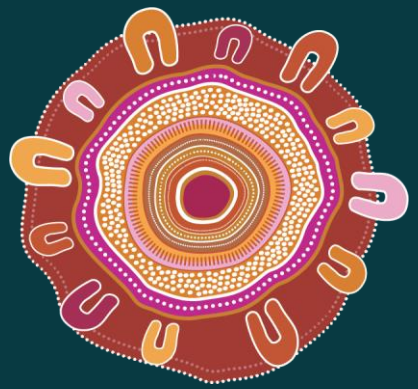
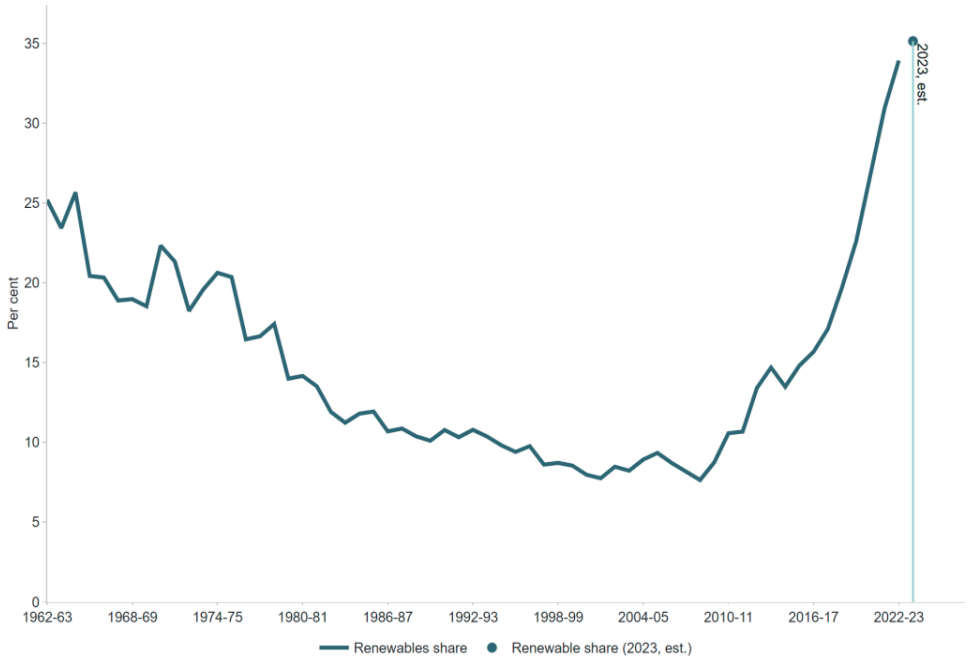


We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present.

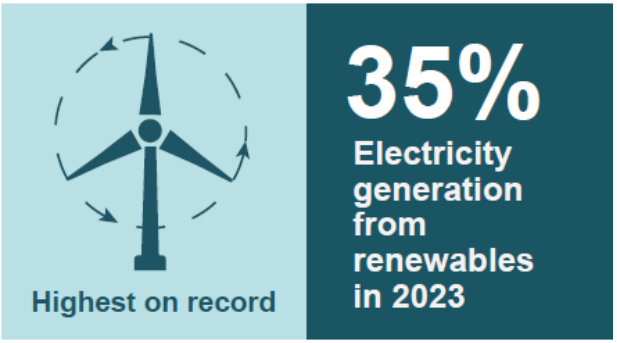
More than one third of Australia's electricity generation is renewable

Renewable share of total electricity generation



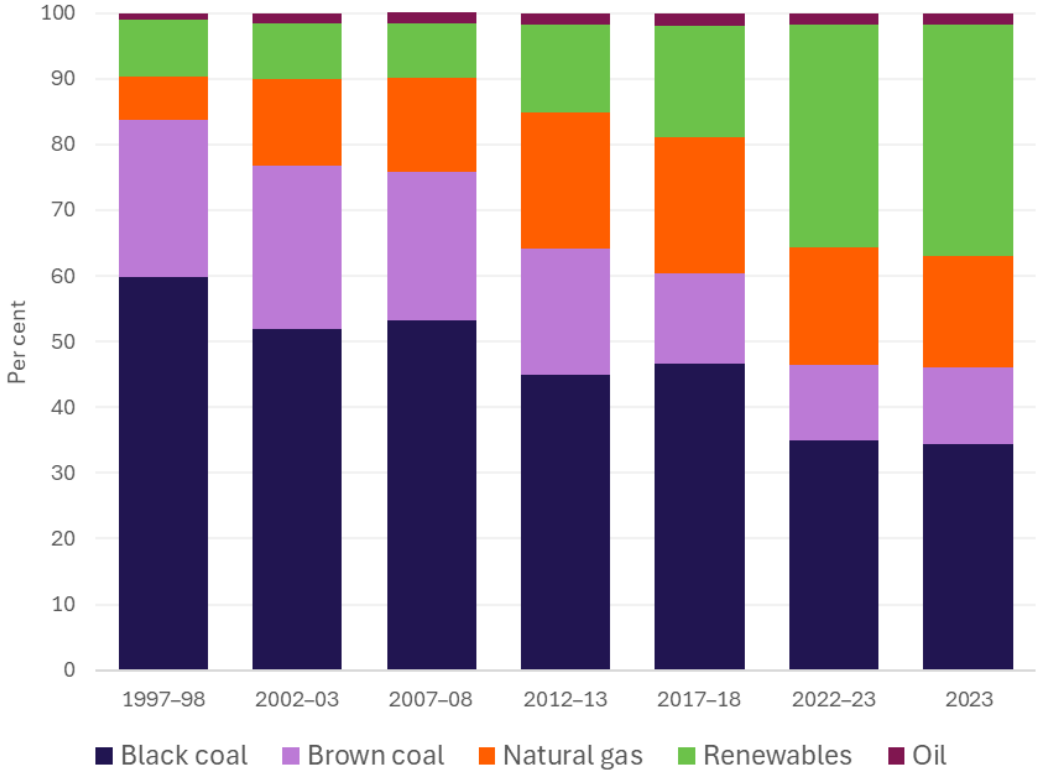
Sources: DCCEEW (2024), *Australian Energy Statistics,* Table O and International Energy Agency (2022), *World Energy Balances*

- Australia's renewable generation share continues to increase, towards the 82% by 2030 target, driven by strong growth in solar and wind generation.
- Australia's largest grid, the National Electricity Market had a 39% renewable share in 2024.



Australia is reducing reliance on fossil fuels

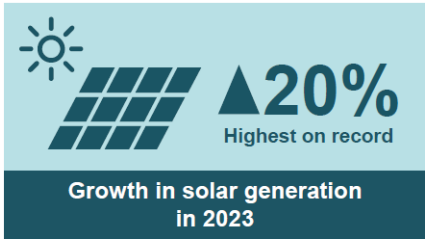
Australian electricity generation fuel mix over time

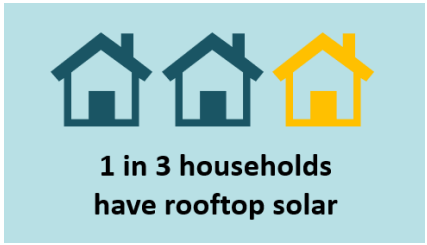


- Coal generation now accounts for less than half of Australia's electricity mix.
- Gas generation has remained relatively steady over the past decade, comprising around one-fifth of total generation.
- Wind generation has doubled over five years.
- Solar generation, both large- and small-scale, has grown rapidly over five years.
- Hydropower has remained stable at around 6% of total generation.

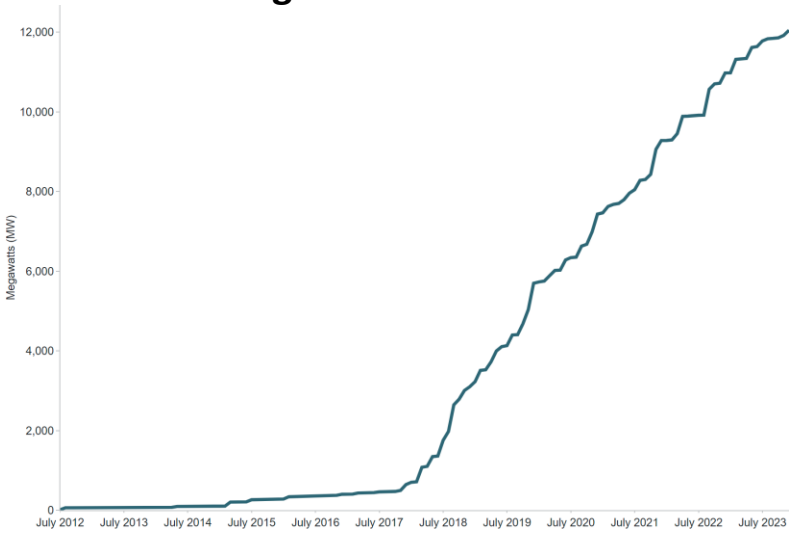
Source: DCCEEW (2024), Australian Energy Statistics, Table O

Australia is a world leader in small-scale solar





Growth in large-scale solar

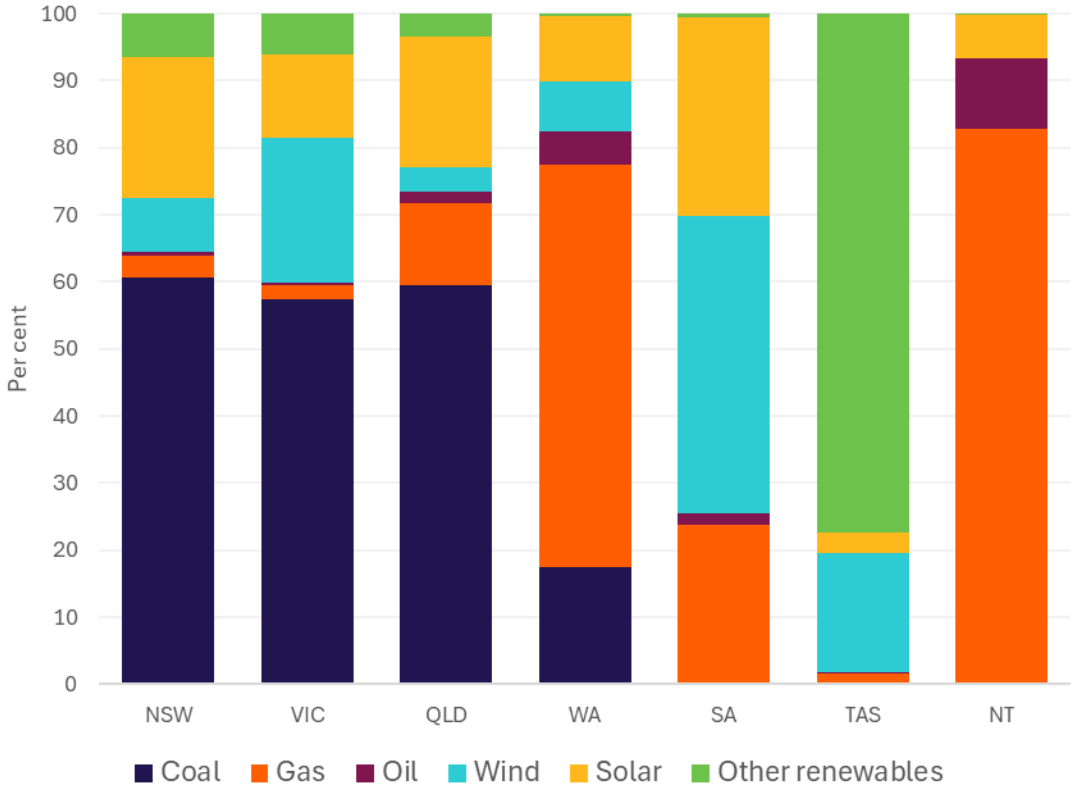


Source: DCCEEW (2024), Australian Energy Statistics, Table O

- Australia has installed over 4 million small-scale renewable energy systems.
- In 2024, an estimated 3.2GW of solar PV capacity was installed. A similar amount is expected to be installed this year.
- The average capacity of systems installed in 2024 was 10.0kW, up from 9.4kW in 2023.
- Small-scale solar generation accounted for 10% of total generation in 2023. This has grown from 4% 5 years prior.
- Large-scale solar is also growing at a rapid pace.

The challenge is varied across States and Territories

States electricity generation fuel mix, 2023

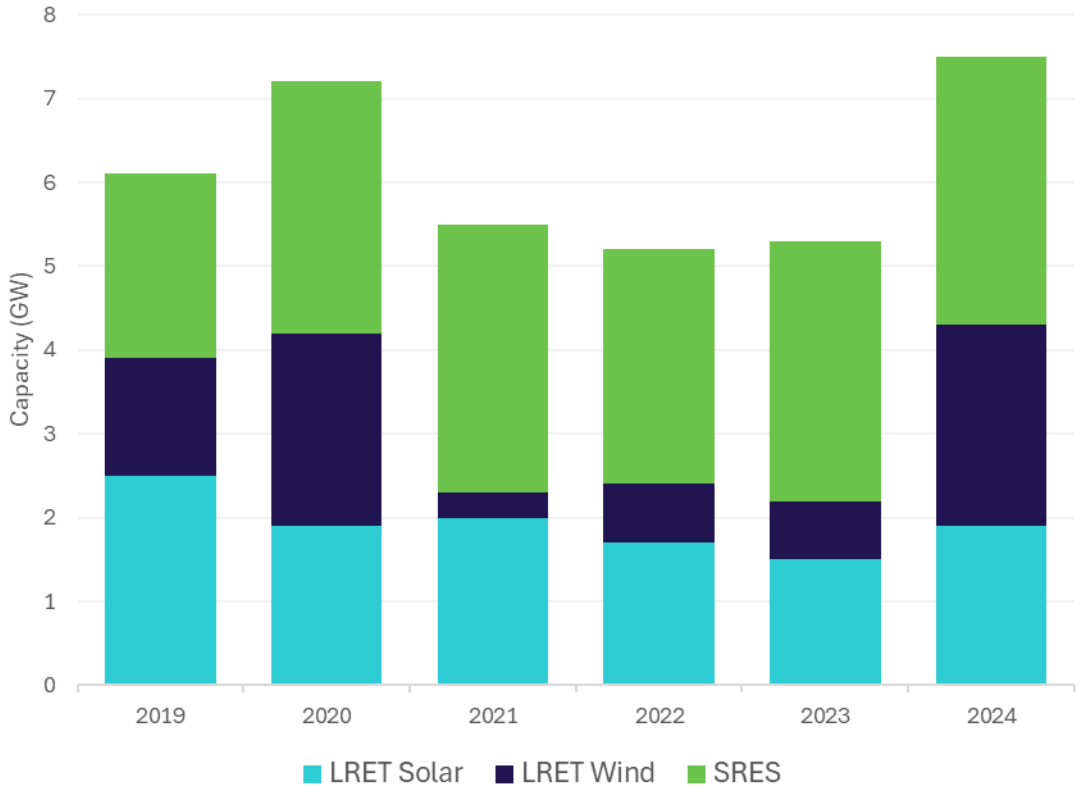


Source: DCCEEW (2024), Australian Energy Statistics, Table O

- Renewables penetration and primary generation fuel differ across Australia.
- Coal dominates the generation mix in the Eastern states.
- Western Australia and Northern Territory rely primarily on gas generation, particularly in remote and off-grid areas.
- South Australia has the highest share of variable renewable energy (solar and wind), 74% in 2023.
- 98% of Tasmania's electricity is renewable, primarily hydroelectricity.

Renewable capacity additions and investment remain strong

Installed and approved renewable capacity by technology type



Source: Clean Energy Regulator (2024), Quarterly Carbon Market Report, Q4 2024

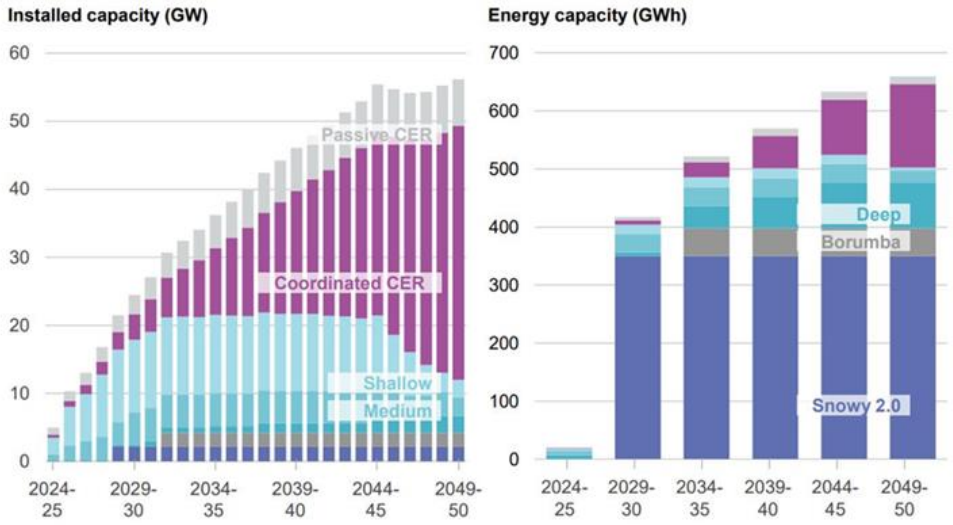
- A record-high 7.5GW of renewable generation capacity was added in 2024.
  - 4.3GW of large-scale capacity.
  - 3.2GW of small-scale rooftop solar.
- Households and businesses also installed more than 100,000 air source heat pumps.
- 4.3GW of large-scale wind and solar also reached final investment decision in 2024.

Government policies will support the transition

- Revenue underwriting to increase investment in renewable generational and storage.
- Investing in upgrades and expansions to the transmission network to support more renewable electricity in the grid.
- Negotiating bilaterial agreements between the Federal Government and states and territories, to support common goals in the energy transition.
- Implementing a voluntary Renewable Electricity Guarantee of Origin scheme.
- Reviewing wholesale market settings in Australia's largest grid, the National Electricity Market, to promote investment in renewable generation and storage capacity beyond 2027.

The importance of storage

Storage installed capacity and energy storage capacity, NEM



Source: Australian Energy Market Operator (2024), Integrated System Plan

- The Australian Energy Market Operator forecasts that NEM will need 522GWh of storage capacity in 2034-35, increasing to 660GWh by 2050.
- At least 10% of solar panel installations are accompanied by batteries.
- An expansion of the Snowy Mountains Hydroelectric Scheme (Snowy 2.0) will add 350GWh of large-scale storage.
- The Australian Renewable Energy Agency has funded 21 projects to deploy 370 community batteries totalling 281MWh of energy storage capacity.

Contact us

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