Executive summary

Technological change in electricity generation is a global effort that is strongly linked to global climate change policy ambitions. While the rate of change remains uncertain and the level of commitment of each country varies over time, in broad terms, there is continued support for collective action limiting global average temperature increases. At a domestic level, the Commonwealth government, together with Australian states and territories aspire to or have legislated net zero emissions (NZE) by 2050 targets.

Globally, renewables (led by wind and solar PV) are the fastest growing energy source, and the role of electricity is expected to increase materially over the next 30 years with electricity technologies presenting some of the lowest cost abatement opportunities.

Purpose and scope

GenCost is a collaboration between CSIRO and AEMO to deliver an annual process of updating the capital costs of electricity generation, energy storage and hydrogen production technologies with a strong emphasis on stakeholder engagement. GenCost represents Australia's most comprehensive electricity generation cost projection report. It uses the best available information each cycle to provide an objective annual benchmark on cost projections and updates forecasts accordingly to guide decision making, given technology costs change each year. This is the eighth update following the inaugural report in 2018.

Technology costs are one piece of the puzzle. They are an important input to electricity sector analysis which is why we have made consultation an important part of the process of updating data and projections.

The report encompasses updated current capital cost estimates commissioned by AEMO and delivered by GHD. Based on these updated current capital costs, the report provides projections of future changes in costs consistent with updated global electricity scenarios which incorporate different levels of achievement of global climate policy ambition. Levelised costs of electricity (LCOEs) are also included and provide a summary of the relative competitiveness of generation technologies.

Responses to stakeholder feedback

The GenCost consultation draft introduced a major new feature which was the system levelised cost of electricity (SLCOE) which provides a more transparent way of capturing all of the system wide costs that are needed to support the increasing share of renewables that are being deployed in Australia's electricity system. These broader costs are unable to be captured in the standard levelised cost of electricity (LCOE) which is applied on a single technology basis. The new SLCOE method also included the publication of a new open source electricity system model and input data set.

Stakeholders generally supported the new method but were less convinced of the value of the SLCOE in measuring cost in 2030 than in 2050. In 2030, cost estimates are strongly influenced by existing capacity and there is no consistent rule or readily available data for capturing the amount

of unrecovered costs associated with that capacity. In response to this feedback, for 2030 SLCOE estimates have been replaced with electricity futures prices as an alternative indicator of generation prices in the period to 2030. These rely on market expectations rather than modelling and are publicly available.

Stakeholders also requested more detail on SLCOE modelling results. A detailed set of results for the 2050 SLCOE modelling is now included in the GenCost data file that accompanies this report. Other minor points of feedback and responses are summarised in the body of the report and submissions can be viewed at AEMO's consultation website.

Response to the 2026 Iran War

The Iran war began on 28 February 2026 constricting global oil products supply. The depth and direction of its broader impacts for energy technologies is unpredictable. It is inflationary in the sense of oil being a fundamental input to almost all global supply chains. It may also increase demand for energy technologies in general that reduce a region's reliance on imported oil. It is also deflationary because it could reduce global economic growth and demand for energy. In light of this development, for 2026, we have assumed no improvement in costs for the majority of technologies.

Data centre impacts on gas turbine costs

New electricity generation capacity required to meet demand from data centres is growing strongly and is impacting gas turbine costs. The IEA (2026) reported that:

"if data centres were a country, they would be the second-largest destination for gas turbines ordered from Q1 2025 to Q1 2026".

Gas turbine costs have already increased for the last four consecutive years. As a result of this ongoing demand from data centres, the projections assume that the cost of gas turbine technologies will continue to increase in the next two years after which manufacturers are expected to be in a better position to meet demand, allowing costs to stabilise.

2030 costs

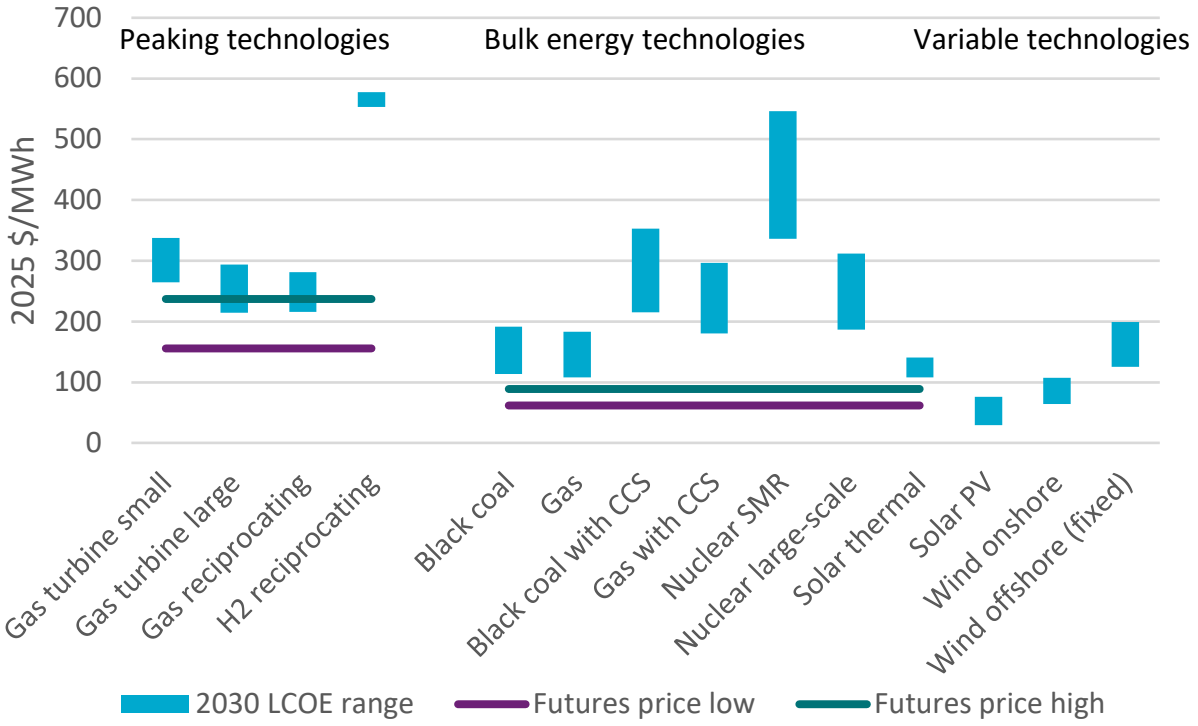
Baseload electricity futures prices are in the range of $68/MWh to $92/MWh for the next 3 years with a flat or rising trend, depending on the state. Peak evening futures prices range from $152/MWh to $220/MWh.

Peaking generation technologies are currently sitting at the high end of Peak evening futures prices. This is consistent with observations that batteries have started to compete with traditional gas generation in this category, with lower battery costs and significant new capacity added resulting in reduced peak evening prices.

Similarly, most bulk energy generation technologies are higher cost than the Baseload electricity futures price. This is an academic observation because most of these technologies could not be deployed within the next 4 years due to their required development and construction times.

Solar PV and onshore wind are almost exclusively the only generation technologies sufficiently advanced in the development pipeline to be deployed before 2030. Their deployment is being supported by existing flexible gas and coal together with new battery, pumped hydro and

transmission capacity. Given the Baseload electricity futures price is an all-day, all-year price it represents the expected total annual generation cost of this combination of technologies. Transmission costs, which are recovered outside of the electricity system increase to 2030 but from a low base (AEMC 2025).



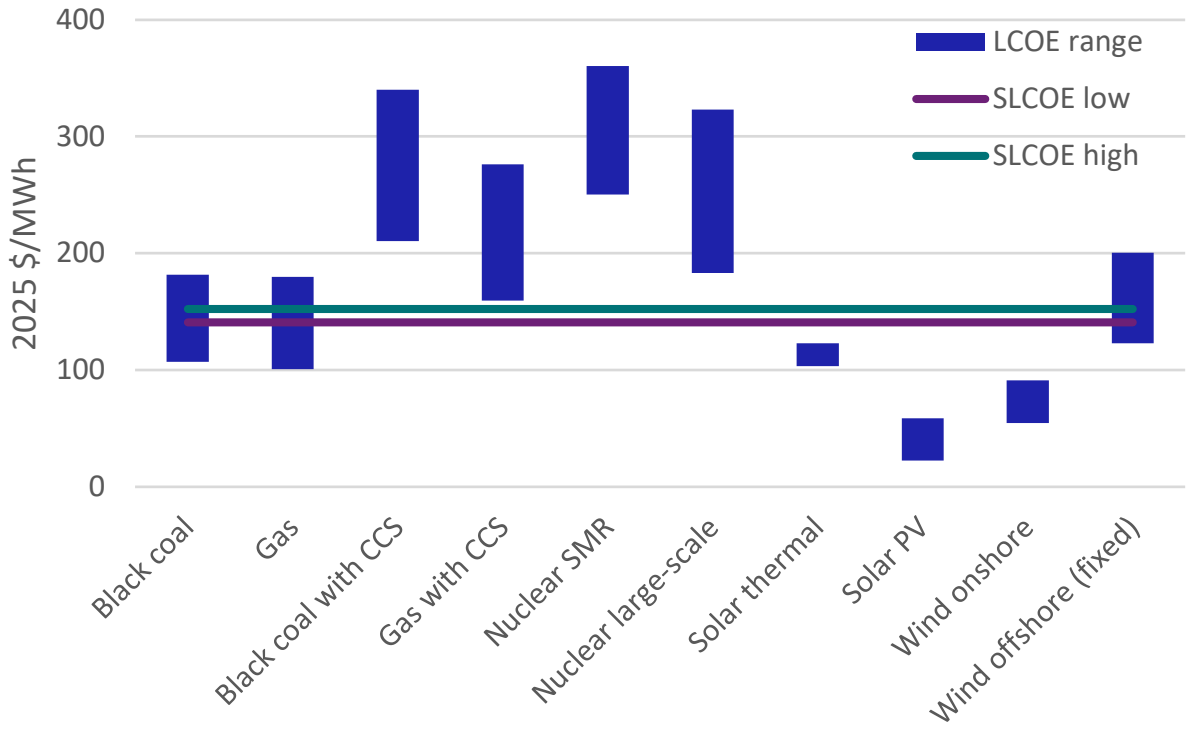
LCOE does not include renewable integration costs.
ES Figure 0-1 Levelised cost of electricity (LCOE) in 2030 by technology category and corresponding electricity futures price

2050 generation technology competitiveness

The key findings from the 2050 analysis are:

- For the electricity sector to efficiently support achieving net zero by 2050 across the economy, solar PV and onshore wind will deliver the majority of electricity supply (93%) supported by hydro, storage, transmission and either gas or hydrogen or a combination of both.
- New black coal, while competitive at this SLCOE range is not suitable for deployment if the goal is to efficiently achieve net zero (coal would increase the cost of achieving net zero across the economy). Unlike coal, the SLCOE analysis indicates gas will play a role in achieving net zero emissions contributing a 3% to 7% share of generation.
- Solar thermal is competitive relative to other technologies and inside the SLCOE range. However, given the need to access better solar resources which are further from load centres, solar thermal will be subject to additional transmission costs of up to $20/MWh.
- Some offshore wind is also in the competitive range however the modelling used the average cost of offshore wind. Lower range offshore wind costs appear to be competitive but were not explored in the modelling and so need more analysis.

- Gas with CCS is the next most competitive after solar thermal and offshore wind. Large-scale nuclear is slightly higher in cost than gas with CCS. Black coal with CCS occupies a similar cost range to large-scale nuclear. Nuclear small modular reactors (SMRs) are the highest cost.



LCOE does not include renewable integration costs. SLCOE does.
ES Figure 0-2 Levelised cost of electricity (LCOE) in 2050 by technology and system levelised cost of electricity (SLCOE) for efficiently achieving net zero by 2050

Implications for electricity prices

In 2025 calendar year the average NEM volume weighted generation price was estimated to be $104/MWh, down from the recent peak in 2022 of $189/MWh caused predominantly by high gas prices. Based on NEM electricity futures prices in the next three years (and supported by AEMC (2025) modelling), generation costs to 2030 are expected to fall further relative to 2025, down to $80-$90/MWh.

By 2050, most generation capacity that exists today will be retired. The LCOE and SLCOE analysis in this report indicates that there are no new build technology options, fossil or non-fossil with firming costs, that cost less than $100/MWh. By 2050, new build coal generation costs are in the range of $107/MWh to $182/MWh. As such, even without net zero by 2050 policies, generation prices are expected to increase above $100/MWh in the post-2030 period.

The cost of generation if the electricity sector makes an efficient contribution to achieving net zero by 2050 is $141/MWh to $152/MWh based on solar PV and wind generation inclusive of all firming costs. Excluding transmission costs which are not recovered through the generation market, the net zero consistent generation cost is $120/MWh to $130/MWh or an average of $125/MWh.

These cost estimates do not guarantee future generation prices. Changes in generation prices are also subject to:

- Supply-demand imbalance as a result of too much or too little deployment relative to demand growth and retirements.
- Fuel price and weather volatility.
- The level of competition amongst suppliers.

These additional drivers of generation price formation can lead to prices significantly lower or higher than the underlying cost of the system and can take many years to correct due to the long lead times for capacity deployment. Generation prices are currently around 33% of retail prices. Transmission is around 7%, distribution around 34% with the remainder made up of metering, retail services and government programs.