

Opinion: With a million home batteries, Australia could build far fewer power lines. It just needs the right incentives

September 11 2024, by Scott Hamilton



Credit: Andersen EV from Pexels

It's no secret Australia has abundant and cheap renewable energy, especially wind and solar power. But yes, there are times when the sun

doesn't shine and the wind doesn't blow. We need energy storage to get us through those still nights and dreary days.

The Australian Energy Market Operator (AEMO) [reports](#) investment in [storage capacity](#) continues to increase, filling gaps left by retiring coal-fired power stations. But it warns sufficient storage is needed to ensure [electricity supply](#) is reliable throughout the transition.

Energy storage is the special sauce that makes renewables work anytime, anywhere and everywhere. Being able to send this stored [renewable energy](#) back to the grid on demand makes the most of the existing electricity network, including [transmission lines](#).

We need both short- and long-duration storage to maintain [energy security](#). This will enable renewable energy to be collected, stored and dispatched when needed. AEMO forecasts reliability levels can be maintained over most of the next ten years if programs and initiatives already established are delivered on time and in full. But we can't afford any delays.

Storage on the grid

Old-fashioned power stations burning coal tend to run continuously, which helps make the electricity grid stable and reliable. In contrast, renewables need to be backed with storage such as batteries to provide a continuous supply of electricity.

The modern electricity network is being designed to handle the power produced when the sun is shining brightly and the wind is blowing hard, at the same time. But this [only happens about 25% of the time](#).

Similarly, transmission lines are being built to a maximum capacity. But we could get by with fewer transmission lines if we store more solar and

wind power for later. That's why many renewable generation projects include storage on site or nearby, and why it also makes sense to have batteries in our homes or communities.

Australia has some of the world's biggest batteries

The 300 megawatt [Victorian Big Battery](#), near Geelong, is the biggest in Australia and one of the biggest in the world. It can store enough energy to power more than a million homes for 30 minutes.

The federal government is [also funding](#) six large-scale batteries through the [Capacity Investment Scheme](#). This includes a 350MW [energy storage](#) system on the site of the Jeeralang Power Station, near Morwell in the Latrobe Valley. But the title of the nation's biggest battery will soon be handed to the 850MW [Waratah Super Battery](#) in New South Wales.

What's next?

Other emerging battery systems could power the future. For example, new lithium-sulfur batteries deliver more energy per gram and last longer than existing lithium-ion batteries. This has been achieved [simply by adding sugar](#).

Australia has all the critical minerals needed to make batteries (lithium, nickel, copper, cobalt). But about 90% of the batteries we currently use come from China.

The 2024 [National Battery Strategy](#) vision is for Australia is a globally competitive producer of batteries and battery materials by 2035.

Battery booster scheme needed

Australia has the policy settings and incentives about right for building grid-scale storage systems. But [almost half the effort](#) in getting to 82% renewables by 2030 will come from consumers—mainly rooftop solar systems, backed by home and business [battery](#) storage.

We have just passed the [point](#) at which the payback period for small-scale batteries falls within the product's lifetime, making the upfront cost worthwhile.

But government incentives are still needed to make it more affordable to install small-scale solar batteries. This would help families and businesses reduce their power bills, gain better control of when and how they produce energy, and build a more resilient energy system.

More than [300,000 solar power systems](#) are installed on Australian homes and businesses each year. The total reached more than 3.7 million systems at the start of this year. With the right ambition and policy settings, we could have similar rates of uptake in home batteries—going from about 250,000 at the moment to more than one million by 2030.

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