

Energy storage economics australia

"While renewables remain a small part of our consumption, this may not matter much, but if we want renewables as a primary source, we must address the mismatch between when energy is produced and when it's consumed."

In his new white paper, *The storage imperative: Powering Australia's clean energy transition*, launched in conjunction with Monash Energy Institute, A/Prof Roger identifies a critical missing link in our transition to renewables: large-scale energy storage.

"The NEM was built over 20 years ago, during a time when electricity was produced by coal-fired plants operating at a constant, predictable rate, alongside a few gas plants," he said.

However, the NEM still operates under principles that favour the predictable output of fossil fuels, rather than the flexibility required for a renewable-focused system.

A/Prof Roger warns this disconnect threatens to derail Australia's clean energy goals of reducing emissions by 43 per cent by 2030, generating 82 per cent of energy from renewables by 2030, and achieving net-zero emissions by 2050.

The report proposes two low-cost reforms – already used in California - that could support large-scale storage. The first is Locational Marginal Pricing (LMP).

"This reflects the reality that electricity at different points on the grid has different values, so prices should vary by location rather than being fixed to one reference point," he said.

"This is particularly beneficial because storage thrives on price differences; greater variation in prices encourages storage solutions to emerge where they're most needed."

A/Prof Roger said this could resolve three key challenges for storage: minimising risk, limiting anti-competitive behaviour, and reducing opportunities for price manipulation.

A/Prof Roger describes these as "no-regret" reforms: they can be implemented quickly, require minimal taxpayer investment, and offer long-term benefits.

Combined with greater research investment to better understand storage economics and operations, this would help drive down costs over time, ultimately creating a more resilient grid that is less reliant on fossil fuels.

"Today, thermal generators are typically the price setters; the whole supply curve reflects their costs, but this



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has no equivalent for renewable generators or storage."

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