



Energy innovations as solar and batteries approach socket parity

Retail energy competition review 2019 final report

The average cost of a household solar PV and battery storage system is expected to reach 'socket parity' next year, costing consumers the same amount per kWh to produce their own power as to access energy from the grid.

The Australian Energy Market Commission's (AEMC) annual review of retail competition in energy markets has found consumer take-up is being driven by new battery service providers either working alone or with entrepreneurial retailers to offer products and services.

AEMC Chairman John Pierce said penetration of household energy batteries is growing because of the falling costs of battery technology, favourable consumer sentiment and the introduction of government subsidy schemes.

"Next year, in most Australian states residential solar PV with storage systems are forecast by Bloomberg New Energy Finance to achieve 'socket parity' – when the average cost of grid-connected residential solar PV with a storage system is equal to that of the price a consumer can purchase energy from the grid," Mr Pierce said.

"By 2050, it's expected 51% of houses could have solar PV systems and 33% of residential building are forecast to have a storage system installed."

The potential of battery storage is also creating a new type of energy entrepreneur who works with global battery providers like Tesla and Sonnen to combine their batteries with others in order to form a virtual power plant (VPP).

The AEMC is moving to make it easier and safer for consumers to invest in this new technology with a range of regulatory reforms to ensure that consumers have greater access to new innovation that is rapidly emerging in the energy market.

These include:

- implementation of new rules now underway to fundamentally change the design of the electricity wholesale market and deliver better signals for investment in fast response technologies like batteries, new generation gas peaker plants and of course, demand response.
- new rules for cost-reflective distribution network prices being embedded by distribution businesses and the Australian Energy Regulator to structure prices to put consumers at the centre of future decision-making about energy – helping them see the dollar value of their electricity consumption choices.
- consideration of ways to remove barriers to participation of batteries in the wholesale market.

These reforms all combine to allow the efficient realisation of the value that batteries can provide. Further reforms are likely in the wake of AEMO's current trials of virtual power plants (VPPs) which aim to identify any further barriers to the use of distributed energy resources like batteries.

The ability of consumers to get the full value out of their investment in solar PV and battery storage is being made possible by the efficient response of Australia's maturing electricity market. The AEMC review finds the market is reacting to batteries much earlier than it did with solar PV.

The sheer magnitude of consumer take-up of solar PV in the early 2000s was largely fuelled by taxpayer subsidies and largely took the market by surprise. A decade later the market is creating opportunities for Australian energy entrepreneurs to partner with global battery providers in order to form virtual power plants.

“While it is still early in the development phase for battery technology our analysis indicates that contestable retail markets are allowing innovation and hold out a promise of varied electricity offers targeted to the wants and needs of individual consumers,” Mr Pierce said.

“The stand-out feature of this market in transition is the growth of tier 2 retailers who are facilitating innovation and taking a crucial role in product innovation.

“Next year’s retail energy competition review in 2020 will include an assessment of innovation in relation to electric vehicles,” Mr Pierce said.

Context

- The cost of residential battery systems is likely to fall by 41% between 2017 and 2050 to \$698 per kWh of storage capacity.¹
- With battery costs falling, the average payback period of residential solar PV with battery storage is expected to decline to under 10 years by 2022.
- The high capital costs of battery technologies will also be significantly reduced by a number of government subsidy schemes in SA, Victoria, NSW, the ACT and Queensland.
- Australia is forecast to make up approximately 30 per cent of the global demand for residential battery technology in 2019.

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¹ Bloomberg New Energy Finance, Annabel Wilton, *2018 Australia Behind-the-meter PV and Storage Forecast*, 31 May 2018, Sydney.