

Renewables fail during heatwaves... I don't think so. How solar shifted the peak in SA during heat waves

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This dated news record has been reorganised for clear reading and connected to current guidance.

Publication date: February 4, 2014.

Status note: Present-tense statements, market figures, deadlines and program details in the archived record belong to its publication date. Check current official sources before making a decision.

What this article reported

By Giles Parkinson on 4 February 2014

New analysis by the Australian Energy Market Operator has confirmed that the large amount of rooftop solar in South Australia helped shift the peak in demand during the recent heatwaves that affected the southern states.

Climate Change, Solar

How to use this information now

For current use, confirm the applicable scheme rules, regulator notices, market date and reporting period. Keep historical prices or forecasts separate from present quotes and verified outcomes.

Separate source-reported facts from forecasts, targets and commentary. For a current project, retain the official source, version, effective date, assumptions and decision record in the evidence file.

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What does the article mean by 'renewables fail during heatwaves' and why is this claim questioned?

The article challenges a common misconception that renewable energy sources like solar fail to meet demand during extreme heat periods. The Australian Energy Market Operator's analysis shows this assumption is incorrect for South Australia. During recent heatwaves, rooftop solar actually helped shift peak demand to earlier in the day rather than failing. This distinction matters because it affects investment decisions and grid planning. Understanding how solar generation patterns interact with

demand cycles helps operators and businesses make informed decisions about renewable energy deployment and timing.

How does rooftop solar shift the demand peak in South Australia during heatwaves?

Rooftop solar generation increases during daylight hours when temperatures are rising, providing electricity when cooling demand is growing. This generation profile reduces reliance on grid imports during peak afternoon temperatures. According to AEMO's analysis, the combination of high solar penetration and distributed rooftop installations shifts the traditional evening peak earlier or reduces its magnitude. This demonstrates that solar generation patterns can align with production needs during heat events, contrary to the belief that renewables become unavailable when needed most. This shift has practical implications for grid stability and energy procurement strategy.

What is the significance of AEMO's analysis for businesses considering solar investment?

AEMO's findings provide empirical evidence that solar installations perform productively during high-demand heat periods, supporting investment cases for solar projects. For businesses evaluating renewable energy adoption, this analysis demonstrates that solar systems contribute meaningfully to peak-demand management rather than leaving gaps during critical periods. This strengthens the commercial argument for solar deployment, particularly for organisations with cooling loads that peak during daylight hours. We can help businesses incorporate this evidence into feasibility studies, investment cases and renewable energy procurement decisions by connecting AEMO's grid-level findings to site-specific demand profiles and certificate pathways.

Why does understanding peak-demand shifting matter for energy management and grid planning?

Peak demand determines grid infrastructure requirements, electricity pricing and operational constraints. If renewable generation reduces or shifts peaks rather than failing during high-demand periods, it changes how planners approach network investment and operations. For individual sites, understanding when solar generation occurs relative to their cooling and operational demands affects the value of self-consumption versus grid export. This distinction influences measurement and verification approaches, procurement strategy and the commercial case for storage or load-shifting measures. Our energy optimisation services help organisations connect their site-specific demand patterns to grid-level renewable dynamics to maximise operational and financial outcomes.

How does this solar performance during heatwaves relate to renewable energy certificates and environmental claims?

The article's evidence about solar's reliability during peak periods supports the credibility of renewable energy installations and their certificates. When renewable systems demonstrate productive performance during critical demand periods, their environmental attributes and certificate value are better justified. This matters for organisations making public claims about renewable electricity procurement or carbon reduction. Understanding that solar provides real grid services during heatwaves, not just fair-weather capacity, strengthens the foundation for renewable energy claims and certificate retirement. Our carbon advisory and renewable certificate services can help organisations document and communicate the operational significance of their solar investments alongside certificate pathways.

What operational implications does solar peak-shifting have for water utilities and industrial facilities with high cooling demands?

Water utilities, food processing and refrigeration-intensive industries experience peak electricity demand during hot periods when cooling loads are highest. The AEMO analysis suggests rooftop or facility-scale solar can provide meaningful generation during these critical hours, improving the business case for solar investment and reducing reliance on peak-priced grid electricity. This aligns with our energy optimisation approach for utilities and industrial facilities, which emphasises matching

renewable generation profiles to operational needs. For these sectors, solar feasibility assessments should explicitly model generation during heat events, not assume availability only on moderate-weather days. This evidence supports investment cases and grid participation strategies that leverage solar's actual performance characteristics.

Does this article suggest that battery storage is unnecessary if solar shifts demand peaks?

While the article demonstrates that solar helps manage peak demand during heatwaves, this does not eliminate the case for storage. Peak-shifting occurs during daylight hours when solar generation is high, but demand may extend into evening when solar output falls. Storage systems can capture excess midday solar generation and release it during evening peaks or night-time demand. The interaction between solar generation, demand curves and storage requirements is complex and site-specific. Our renewable heat and electrification feasibility assessments evaluate how generation patterns, storage and operational constraints combine to support grid and facility objectives. A comprehensive approach considers solar's demonstrated strength in daylight peak management alongside storage needs for other periods.

How should businesses use this AEMO evidence when planning energy strategy and renewable procurement?

The AEMO analysis provides credible empirical evidence that renewable solar installations contribute meaningfully to grid stability during high-demand periods. Organisations can reference this finding when evaluating solar feasibility, building investment cases and considering renewable electricity procurement through instruments like moREnewable100. Rather than assuming renewables are ineffective during peaks, businesses should model their site-specific demand against actual generation profiles and grid performance data. This evidence-based approach strengthens financial projections and reduces uncertainty in renewable energy decisions. We can assist by integrating AEMO's grid-level findings into site assessments, feasibility studies and measurement and verification plans that connect facility operations to demonstrated renewable performance.