
• QUARTERLY INSIGHTS

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O&M for Solar & BESS

A fully integrated operations and maintenance solution, backed by the team that built the asset.

Tranex Power now delivers full-scope Operations & Maintenance services for utility-scale solar and BESS assets across Australia. Because our in-house teams design and construct the majority of the projects we go on to operate, construction-depth knowledge, as-built documentation and OEM commissioning records carry straight into operations - meaning monitoring starts from energisation, not from handover.

Our standard scope keeps an asset monitored, maintained and compliant year-round through one annual fee and one accountable team, covering everything from preventative and corrective maintenance to HV/MV works, vegetation management, and rapid emergency response.

At the core of our O&M offering is SmartOps™, our real-time SCADA and performance analytics platform, delivering 24/7/365 remote monitoring so that every fault is logged, tracked, and resolved by our in-house field crews.

With deep expertise across leading tracker, inverter and BESS technologies - including NEXTracker, Array Technologies, SMA, Sungrow, Tesla and CATL - our teams are equipped to maintain, diagnose, and rectify issues across even the most complex sites.

Whether it's routine servicing, warranty claims, or large-scale rectification works, Tranex Power brings the same standard of care to operations as we do to construction.

SmartOps™

Real-time SCADA &
Performance Platform

24/7/265

Remote Site Monitoring

Zero

Downtime Target on Every
Site



Battery Energy Storage Systems

Frequently Asked Questions

What is a Battery Energy Storage System?

A Battery Energy Storage System (BESS) is a technology that stores electrical energy for later use, allowing excess power - such as solar generated during the day - to be discharged when it's needed most, including during peak demand periods or after the sun goes down.

How does a BESS work?

A BESS uses batteries, most commonly lithium-ion, to store electricity as chemical energy. Power electronics then convert this stored energy back into usable electricity when required, managed by a Battery Management System (BMS) that monitors performance, temperature and safety in real time.

What is the difference between AC & DC Coupled BESS?

AC-coupled systems connect to a solar array on the alternating-current side, offering flexibility for retrofits and staged expansion. DC-coupled systems integrate on the direct-current side, reducing conversion losses and offering a capex advantage for new-build projects.

[See our full comparison on page 7.](#)

What is storage duration, and why does it matter?

Storage duration refers to how long a battery can discharge at its rated power output - for example, a 100 MW battery with 4 hours of duration can deliver 400 MWh of energy. Developers are increasingly specifying longer durations of three to four hours, up from one to three hours only two years ago, as batteries are used to shift more solar generation into the evening peak.

Can a BESS be added to an existing solar farm?

Yes - this is one of the key advantages of an AC-coupled configuration, which allows a battery to be installed alongside existing solar infrastructure with minimal disruption to ongoing generation.

How long does a BESS last?

Most utility-scale BESS assets are designed for an operational life of 15 to 20 years, though actual lifespan depends on usage patterns, depth of discharge, thermal management and the quality of ongoing operations and maintenance.

Why are BESS projects becoming more common in Australia?

Record-high solar curtailment and depressed daytime wholesale prices are pushing developers toward hybrid solar-and-storage projects that can capture and redeploy energy when it holds greater value on the grid - rather than exporting it during periods of oversupply.

What maintenance does a BESS require?

Like solar assets, a BESS requires scheduled preventative maintenance, including inspection of battery modules and DC-DC converters, thermal and electrical testing, and ongoing performance monitoring.

[See page 3 for more on Tranex Power's O&M capability.](#)

What is round-trip efficiency?

Round-trip efficiency measures how much of the energy put into a battery can later be discharged, accounting for losses during charging and discharging. DC-coupled systems generally offer higher round-trip efficiency than AC-coupled systems, due to fewer energy conversions.

Can a BESS operate independently of solar?

Yes - standalone BESS projects, without an attached generation source, are increasingly common and can provide grid stability services, arbitrage between low and high price periods, and backup power independent of any co-located renewable asset.

What safety measures are used in a BESS?

Utility-scale BESS projects incorporate fire detection and suppression systems, thermal management, and strict compliance with Australian standards and manufacturer specifications, with regular inspection and testing forming a core part of ongoing operations.

What is 'clipped' energy, and how does a BESS help capture it?

Clipping occurs when a solar array generates more power than its inverter can export to the grid, meaning that excess energy is otherwise lost. In a DC-coupled configuration, a battery can capture this clipped energy directly, before conversion, improving the overall value captured from the solar asset.

De-Risking Solar Projects

Early Works & Value Engineering

Value is created early - not recovered during construction. Before mobilisation, Tranex Power pressure-tests ground conditions, site constraints and design assumptions through pile testing, geotechnical review and constructability input, resolving risk while it's still cheap to fix. It's this early diligence that keeps projects **safe, predictable, and on budget** from day one.

Simon Stanford

Head of Safety & People



Simon brings more than seven years of specialist HSEQ leadership to Tranex Power, with a career built across some of Australia's most demanding construction and infrastructure environments - from Defence sites and Sydney Metro's Crows Nest Station, to major coal and gas operations, and large-scale renewable energy projects.

His path into renewables began with the New England Solar Farm, Australia's largest solar farm at 720 MW, where he established safety systems for the site's substation works. He went on to lead HSE and risk across further utility-scale projects, including a 280 MWac renewable infrastructure build in Mudgee and the 200 MWdc Wellington and Wangaratta Solar Farms as Principal Contractor, before joining Tranex full-time.

Simon joined Tranex Power as Head of People and Safety in November 2024, and has played a key role in the company's growth ever since - digitalising safety systems, strengthening ISO audit programs and compliance capability, and designing enterprise risk frameworks that align day-to-day operations with the business's broader risk appetite.

As Tranex Power continues to scale, Simon's focus has turned to building out the team in the company's new Melbourne office - a natural next step in a career defined by strategic growth, disciplined execution, and a genuine commitment to getting people home safely.

FAVOURITE QUOTE

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Fortune Favours the Bold



AC vs DC-Coupled BESS

Smarter Integration, Stronger Outcomes

Determining whether to AC or DC couple a battery energy storage system (BESS) is a key consideration in the early design of any solar-plus-storage project. While both configurations can deliver strong performance outcomes, the appropriate choice depends primarily on whether the project involves retrofitting existing solar infrastructure or represents a new build.

DC Coupled Systems	AC Coupled Systems
DC-coupled systems integrate on the direct-current side, allowing energy to flow from the solar array into the battery before conversion - making it a strong choice for new solar-plus-storage builds focused on efficiency. Higher Efficiency, lower cost A single shared inverter means fewer energy conversions between the solar array and the battery, reducing losses and lowering the overall system cost compared to running separate inverters for each. Simplified design Requires close integration between the battery and inverter from the earliest design stages, allowing the two systems to be engineered and sized together as one coordinated unit. Reduced system losses Direct DC-to-DC energy transfer avoids unnecessary conversion steps, helping the system capture more of the energy generated and improving overall project yield over its lifetime. Single point of failure Because solar and storage share a single inverter, a fault in that inverter can take both generation and storage offline at the same time, which is an important consideration for system redundancy.	AC-coupled systems connect on the alternating-current side, offering flexibility where it matters most - particularly for existing solar assets undergoing staged expansion. Flexible Installation Components can be installed and commissioned independently of one another, and additional capacity can be added to existing systems later without needing to redesign the original setup. Seamless retrofits Well suited to sites with solar already installed, since the battery can be added alongside existing infrastructure with minimal disruption to ongoing generation or operations. Higher upfront cost Running separate inverters for solar and storage, along with the additional equipment this requires, increases the overall capital cost of the system compared to a shared DC-coupled setup. Resilient and scalable Because solar and storage operate through independent inverters, the system can continue running even if one inverter fails, and additional capacity can be scaled in over time as needs grow.

2026 Set to Be Utility Solar's Largest Year in Australia

In June, Lightsource bp announced the start of construction on its 380-megawatt direct current (MWdc) Lower Wonga solar and battery hybrid project in Queensland. The announcement reinforced two significant trends in Australia's renewable build-out.

The first is the return of utility solar. **2026 is the first calendar year in which more than 3 gigawatts direct current (GWdc) of utility photovoltaic (PV) capacity will have started construction in Australia** - despite being only halfway through the year.

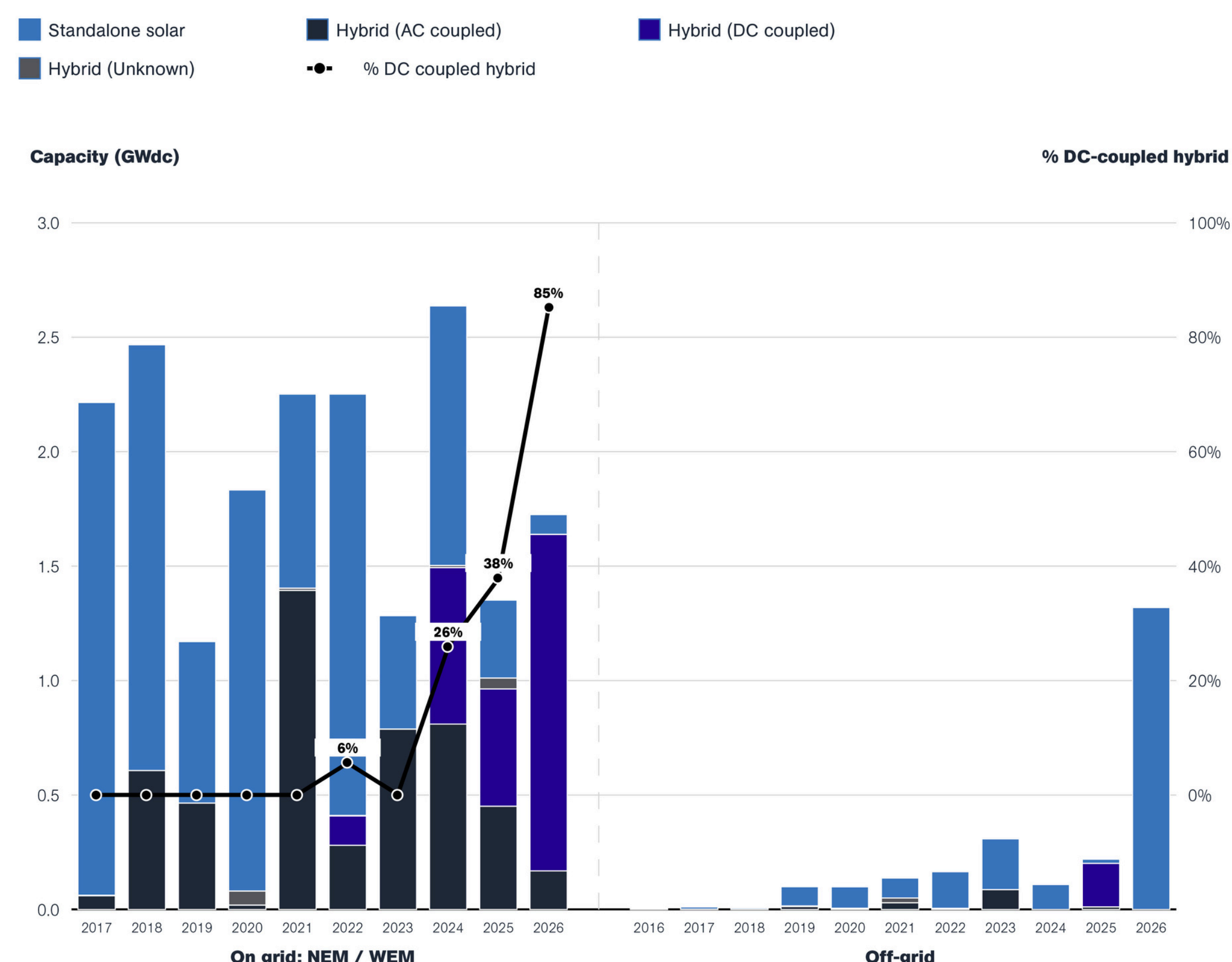
The second key trend is that 2026 is the breakthrough year for DC-coupled utility PV and battery hybrid projects in Australia's National Electricity Market (NEM). Year to date, **85% of new utility PV capacity starting construction in 2026 has opted for a DC-coupled solar and battery configuration**. This transition is driven by severe market pressures, as record-high solar curtailment and depressed daytime spot prices for utility solar - often below A\$50 per MWh - necessitate shifting generation to evening peak periods.

DC-coupled designs offer a distinct competitive edge over AC-coupled designs for new-build solar projects. Rystad Energy estimates that DC-coupled systems provide an approximate 11% capex advantage over an equivalent AC-coupled system, due to cost savings from shared inverter and grid connection infrastructure, as well as the added benefits of higher round-trip efficiency and the ability to capture "clipped" energy - power generated when solar panels produce more than an inverter can export.

Another key trend has been the declining cost of batteries. As a result, developers are increasingly favouring longer storage durations of 3- 4 hours, up from 1-3 hours just 24 months ago.

AUSTRALIA'S UTILITY SOLAR SHIFTS TO DC-COUPLED HYBRIDS

Capacity by construction start year & plant design type



Source: Rystad Energy research and analysis. On-grid = NEM / WEM connected; capacity by construction start year.



Insights by David Dixon
Rystad Energy | July 2026



Australia's Most Trusted Power System Provider,
delivering large-scale power infrastructure and
advanced energy systems with precision, safety
and performance at scale.

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