BUSINESS · AGRICULTURE · OFF-GRID | WANNAMAL WA

OFF-GRID SOLAR & BATTERY · SITE ACCOMMODATION

Balco Hay: off-grid solar and battery power for the Wannamal site

An AC-coupled solar and battery expansion for the accommodation camp at Balco's Wannamal production facility, built on the existing infrastructure without affecting site reliability, and ready for more dongas.



LOCATION
Wannamal, north of Perth, WA

CUSTOMER
Balco, a large hay producer and exporter with multiple sites around Australia. Wannamal is one of its off-grid production facilities.

SYSTEM
AC-coupled solar and battery expansion for the accommodation camp: 48.45 kW of rooftop solar, 125 kW of inverter capacity and 100 kWh of battery storage

EQUIPMENT
SAJ CHS2 50 kW all-in-one battery and inverter cabinet, SAJ C6 75 kW PCS (125 kW total), SAJ 100.3 kWh high-voltage battery, SAJ E-Manager energy controller, 102 × Risen 475 W panels (RSM96-11-475BNDG)

COMPLETED
Installed May 2026

THE CHALLENGE

Growing demand on an off-grid production site

Balco's Wannamal production facility has no mains connection. It runs on a 1.1 MW generator, supported by an existing 500 kW solar system set up to peak-shave for the generator, and carries a lot of specialised equipment, including presses and direct-on-line motor loads. The accommodation camp ran off this main system but had its own supporting system, isolated so it could revert to the main system if needed, plus its own backup generator.

Demand had grown. The camp system still had usable life, but compatible equipment to expand it was significantly more expensive and lacked the benefits of current technology. Balco wanted to build on what it had without changing how the site operates, so we targeted the uncovered load and modelled likely future loads.

WHAT WE DID

A microgrid that works with what was there

Our team inspected the site several times and modelled the remaining and expected future loads. Rather than replace equipment that still had life in it, we used the existing infrastructure and AC-coupled the expansion. We prepared the scope of works, the single line diagram, the delivery plan and the system operation plan before anything was ordered.

- **Solar on the dongas:** We spread rooftop solar across four dongas, so no extra land was needed.
- **Working with what was already there:** We AC-coupled the new system to the existing camp system and connected the existing AC supply to the inverter's generator port, so the new system works safely alongside the existing system and the main site supply. A manual changeover switch lets the microgrid be isolated or run straight off the main supply or generator if needed.
- **Battery and inverters:** We installed an SAJ CHS2 50 kW cabinet with a 100.3 kWh high-voltage battery, an SAJ C6 75 kW PCS and an SAJ E-Manager to run the system as one microgrid.
- **Room to grow:** We built a new switchboard to distribute power, with connections ready for three more dongas.

The expansion adds an extra layer of power without affecting site reliability, while the existing system is still used to its full benefit. The accommodation and units now have a single, centralised main power supply that runs on solar and battery first, with the main site's larger supply available on demand to supplement any needs. Our crew installed the system in a single week in late May 2026.

THE RESULTS

What the site is getting

~75 MWh	~60%	~16,000 L	~9 hrs	Ready to grow
Estimated solar generation per year	Estimated share of load from solar	Estimated generator diesel avoided per year (camp load)	Estimated overnight battery supply	ready for three more dongas

Figures marked 'Estimated' are modelled estimates, not measured results. They are based on the installed solar size, typical solar yields for the Wannamal area and an assumed accommodation load, as no metered load data was available. Actual results depend on weather, site usage and how the system is operated.

Thinking of going off-grid? Read the independent consumer guides from the New Energy Tech Consumer Code first: newenergytech.org.au/consumer-guides

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Project package

EQUIPMENT PACKAGE

CATEGORY	EQUIPMENT	QTY	TOTAL
Solar panels	Risen 475 W (RSM96-11-475BNDG)	102	48.45 kW
Battery inverter	SAJ CHS2-50K-T6 all-in-one cabinet	1	50 kW
Additional inverter	SAJ C6 75 kW PCS	1	75 kW
Battery	SAJ high-voltage battery (in CHS2 cabinet)	1	100.3 kWh
Controller / EMS	SAJ E-Manager	1	Microgrid control
Backup	Existing site generator (retained, not supplied)	–	Generator port connection
Mounting	S-5! mounting on Trimdek, four donga roofs	–	–
Monitoring	**[TBC: monitoring platform]**	–	–

ELECTRICAL SCOPE

- Several site inspections and modelling of remaining and future loads
- Scope of works, single line diagram, delivery plan and system operation plan prepared before ordering
- New distribution switchboard with connections ready for three more dongas
- Existing AC supply connected to the inverter's generator port, with energy management set up so no dry-contact signal is needed (resolved a back-feed issue with the existing system)
- Manual changeover switch to isolate the microgrid or run straight off the generator
- DC and AC cabling between the donga arrays, cabinet and switchboard **[TBC: cable runs/trenching]**
- Earthing, protection and isolation **[TBC: details from SLD]**
- Commissioning and testing, installed in a single week in late May 2026 **[TBC: commissioning test records]**

Equipment as installed or specified for this project. No pricing shown.

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Project photos



Finished rooftop solar array on a transportable building, with another solar-roofed building and open paddock behind.



Long finished solar array along a green Trimdek roof, with more panelled buildings and farmland beyond.



Two solar arrays either side of a roof ridge, with bushland, a water tank and a neighbouring building behind.

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Project photos (continued)



Elevated view of a green transportable building with solar panels on its roof, and a solar array on the roof in the foreground.



Early install: mounting rails fixed along a green Trimdek roof, with bushland behind.

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