

Case Study:

Revolutionary Roypow PC15KT 3-Phase Portable BESS Solution

Client: Cygnet Bay Pearl Farm

Location: Remote Western Australia,
220km North of Broome.

Date Installed – 20th August 2025.



Cygnet Bay Pearl Farm sits on the Dampier Peninsula north of Broome and shares a very similar tropical wet-season climate.

Below are **typical long-term average temperatures (Nov–Feb)** for the region:

Month	Avg Max °C	Avg Min °C	Notes
November	33–35°C	25–27°C	Build-up season, increasing humidity
December	34–36°C	26–28°C	Very humid, storms developing
January	33–35°C	26–27°C	Wet season, high humidity, possible cyclones
February	32–34°C	25–27°C	Peak humidity, frequent rainfall

Additional context

- Humidity: Often 70–90% during this period
- Feels like temperature: Regularly above 40°C due to humidity
- Overnight cooling: Limited — stays warm and humid

Project Overview

Cygnet Bay Pearl Farm, a business committed to innovation, carbon reduction, and operational efficiency, transitioned from continuous diesel generation to a hybrid battery energy storage system (BESS) solution using two Roypow PC15KT 15kW / 30kWh portable 3-phase units operating in parallel.

System Configuration

- 2 x Roypow PC15KT (15kW / 30kWh each) connected in parallel (Total: 30kW / 60kWh)
- Existing 50kVA diesel generator (backup and battery charging)
- Recommissioned solar array (~2.5kW connected directly to PODs)
- Smart generator auto-starts at 20% SOC and auto-stops at 90% SOC
- Generator programmed to operate at the optimal efficiency point for reduced fuel use and maintenance



Site Load Profile

Variable and unbalanced 3-phase load supplying:

- 1 permanently occupied staff house (constant single-phase unbalanced load)
- 3 rental homes
- 6 air-conditioned glamping tents
- Communal kitchen facilities
- Laundry facilities
- Powered caravan park sites
- General site infrastructure and services

Previous System

The site previously operated solely on a 50kVA diesel generator running 24 hours per day, 7 days per week. The load was unbalanced and variable, resulting in long runtimes, high fuel consumption, frequent servicing, noise, and elevated carbon emissions.

New Hybrid BESS Outcome

- 80% reduction in generator runtime
- 40% reduction in diesel fuel consumption
- Significant reduction in servicing requirements
- Reduced noise and improved guest experience
- Lower carbon footprint
- Capacity for further fuel savings with additional solar integration

Conclusion

By integrating two Roypow PC15KT portable BESS units in parallel with intelligent generator control and solar integration, Cygnet Bay Pearl Farm has achieved substantial operational savings, reduced carbon emissions, and improved overall site efficiency. The system demonstrates the effectiveness of hybrid battery-diesel solutions in remote, variable-load environments. The savings will only increase as they add more solar energy to the mix.