Case Study: Microgrid System
Luxury Farm Estate

System Stats

Application: Off-Grid, Multiple Building Microgrid System
Location: Robertson, NSW
Installed: Dec 2015
Key Brands: SMA, Trina Solar, BAE, FG Wilson, Clenergy

Load Analysis

Ave Demand: 210kWh/day
Phase Requirement: 3 Phase
Peak Power: 257A per phase

Objectives & Site Considerations
The system was required to provide the equivalent reliability, capacity (kW), and energy (kWh) availability of the grid, whilst maintaining an economic advantage.
The buildings on the property which required power included horse stables, heated swimming pool, bore pump, workshop, 2x guesthouses, painters studio, and of course the main residence.
No consistent view of the solar array or equipment building, hear no noise from the backup generator at the main living areas of the property, and not disturb the resident wombats.

System Design
The system design provides an average yearly solar contribution of 117%, peak delivery capacity of 300A per phase, with a 250kVA super silenced generator backup. AC coupled configuration allows the inverter/charger, solar inverters and generator to ‘layer’ and provide high peak power capacity.

• 264 x Trina 260W Modules (68kW)
• Ground mounted frames at 30° pitch
• 3 x SMA STP20000TL Solar Inverters
• 18 x SMA Si8.0 Inv/Ch (144kW)
• 144 x BAE PVV1800 VRLA Batteries
• 250kVA FG Wilson diesel generator
• SMA Multicluster 36 Box switchboard
• SMA Webbox Monitoring system

Project Outcome
Off site assembly of the containerised equipment housing allowed for cost reduction, quality control, and passive cooling techniques to be included.
Significant ground-works removed system visibility from the main residence. Generator sound attenuation achieved 65dba at 7m distance, and efforts were made to ensure a high-quality aesthetic.

“Communication was excellent, the team was professional and had a great attention-to-detail. They made sure every step of the process was delivered on time, and without compromise.”

Off-Grid Energy Australia
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