

Case Study: Intelligent Battery System With Tesla EV Charging

System Stats

Application: On-Grid Storage with Intelligent Load Control
Location: Adelaide Hills, SA
Installed: June 2016
Key Brands: SMA, Trina Solar, BMZ, Clenergy

Load Analysis

Ave Summer Demand: 30kWh/day
Ave Winter Demand: 30kWh/day



Objectives & Site Considerations

The client wanted to achieve a high level of solar self consumption and grid independence over the entire year. There was a requirement for intelligent control of specified loads in relation to weather forecasts, solar production, and battery storage levels. Blackout protection in the event of grid failure, along with remote system access, monitoring, and control of system was also required. It was important to produce a clean aesthetic because of the system's high visibility. Space efficiency measures were needed to allow system installation next to the electric vehicle (EV) charger.

System Design

Intelligent load management allows large appliances to be automatically switched on when batteries are full during high solar generation. This ensures the clients Tesla EV charging is only activated when it will not draw from the batteries or the grid. This function can also be activated manually via smart phone or online.

- 10kW ground mounted solar array
- SMA Sunny Tripower 10000TL
- 3-Phase SMA Sunny Island 8.0's
- 26kWh BMZ Li-ion battery storage
- SMA Home Manager monitoring
- Existing 15kW solar array

Project Outcome

The client was extremely happy with the intelligent load management, blackout protection for energy security, and the system design optimising solar production for his house loads and Tesla Model-S EV charging. The system was neatly installed in the preferred location, and the generation from the new solar array is exceeding that of the larger existing array.

"I am impressed with the symmetry and seamless control of loads not directly connected to the inverter/charger units [EV charging & hot water], and the way the battery capacity augments between all loads and 3 phases."

Off-Grid Energy Australia

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