



39 kW_p

216 kWh

SOLAR STORAGE FOR RADIO TOWER

Muswellbrook, NSW, Australia
Type: Off-grid solar storage



KEY INFO		TECHNICAL SPECIFICATIONS	
Solar capacity:	39 kW_p	CO ₂ savings:	up to 50.5 t annually
Storage capacity:	216 kWh	Production:	up to 59,500 kWh annually
Services provided:	EPC, O&M, monitoring	Module type:	Q-Cells Q.Pro G3 255 Wp
Customer:	Private investor	Inverters:	SMA Sunny Island 8.OH
Location:	Muswellbrook radio tower, Australia	Batteries:	BAE 10 PVV1500 solar batteries, 1500 Ah, 2V, 216 kWh / C10
Connected:	November 2014	Other technology:	Photon Energy monitoring system

Going off-grid with solar energy storage

In 2014 Photon Energy designed, built and connected a revolutionary solar-storage project which allowed two radio broadcast antennas in the Australian countryside to be taken off the grid completely. The broadcast station is powered by a 39 kW_p solar power installation using 216 kWh of batteries and has a 8 kVA diesel back-up system for emergencies.

The technology – 156 solar panels, 72 batteries, 3 inverters and a monitoring system – is mostly Made in Germany. This project is part of the worldwide dena Renewable Energy Solutions Programme coordinated by Deutsche Energie-Agentur GmbH (dena) – the German Energy Agency – and co-financed by the German Federal Ministry for Economic Affairs and Energy (BMWi) within the initiative „renewables – Made in Germany“.

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Communication towers are vital not only for entertainment, but also in emergency situations. It is absolutely paramount that the tower is operational 24/7. The project designers made sure that the quality of the components and operations are at the highest possible level and can ensure an uptime of 100 per cent, with the backup generator and several safety elements playing a key role.

The positioning and mounting of the PV panels too was specifically designed and adapted to these special circumstances. To ensure that the tower is absolutely operational all year long, the panels are installed at a slightly higher slope than usual to maximise solar irradiation in the winter months.

The climate too presented a challenge for the project engineers. A significant range of temperature over the year puts a strain on the hybrid power system. The technology container, which houses the battery rack, is equipped with a smart combination of a freecooling unit and an active AC to guarantee an effective temperature control to extend the lifespan of the batteries. The monitoring and controlling system, using Domat technology and Photon Energy know-how, is continuously monitoring a large number of parameters.

Key benefits:

- ▶ Ideal for remote off-grid locations
- ▶ Energy independence thanks to solar energy 24/7/365
- ▶ Reduce and secure energy costs