

Case Study

Off-grid wastewater system Wattamolla Beach

Royal National Park, Sydney, Australia



The Challenge

Wattamolla beach, lagoon, and picnic area, is part of the Royal National Park, established in 1879 and the second oldest National Park in the world. The popular site can attract up to 8000 people per day in peak periods putting a strain on the national park's wastewater system requiring up to 90kWh per day. It is difficult to supply such high power demands in a site where trees are protected and solar exposure is limited.



Solar Power Australia

One of the main challenges for this off-grid system was the location of its solar array. The area with maximal solar radiation was located 60 meters from the buildings with the power-electronics.

Why Studer

For this important site it was essential to use products with proven track records of reliability. The Studer products also present a highly customisable architecture allowing precise automatic operation, the ability to wire the large array in high-voltage strings, and for the comprehensive data logging capability inbuilt into the RCC-02 display/control.

System components

- Solar modules:** 60 x Suntellite 320W Solar Modules
- Batteries:** 48 x Sonnenschein 2600Ah 2V A600 OPZV Gel Batteries
- Inverters:** 3 x Studer XTM 4000-48 Xtender Inverter/Charger
- Solar charge controllers:** 3 x Studer VarioString VS-120 7kW MPPT
- Racking:** MicroSolar Tilt Adjusted Frame
- Remote communication:** No reception on site

The Solution

The NSW National Parks and Wildlife Service decided to purchase a system with 19.2kW solar array and 250kWh battery bank to service the many visitors to the Wattamolla beach, lagoon, and picnic area.

The Company

Solar Power Australia has been supplying a diverse range of well-engineered solar systems all around Australia for 18 years. Their focus is on technical proficiency and systems that are guaranteed to work.

They have a strong client base through the industrial and commercial sector where reliability is paramount. Accordingly, Studer products are key to our system design due to their reliability and capacity for complex control.

The system also has 12kW of 3-phase Xtender capacity and 21kW of VarioString MPPT capacity. The treated wastewater is pumped 6km away to the irrigation area.

During off-peak season it has sufficient energy to support the wastewater system by itself. During the summer season when the number of visitors increases substantially, the Studer Xtender inverter/chargers bring in the diesel genset when required to ensure maximum battery health and fail-proof operation.

Project outcome

The wastewater system requires power 24 hours a day and previously the only alternative to obtain a constant supply at this remote site was by generator. Aside from the very high cost of fuel and delivery, the associated noise and pollution went very much against the beliefs of the organisation.

By maximising coverage of the loads by solar, fuel use, servicing requirements, and delivery inconvenience has been reduced, and the ecological focus of the organisations has been proven and sustained.

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