Case Study

Off-Grid Lodge

South Africa

The Challenge

There are a number of lodges in national parks across Africa that are off-grid and AC power availability is such that it is either not possible or the cost of bringing this power to the lodges is prohibitive. These lodges tend to run solely on generators 24/7. This solution is not only costly in itself, there is also a lot of noise and air pollution in some of the most pristine wildlife sanctuaries on the continent.

Current Automation

Two such lodges have now been converted to solar power with battery back-up and the generators only to be used in times when the loads have been particularly heavy or in times when there has been insufficient solar radiation.

System components

Solar modules:	Yingly YGE 60kWp
Batteries:	Narada 96 x 2V 2000Ah AGM
Inverter/Chargers:	DC-coupled solar: Studer 6 x XTH 8000-48 Xtender AC-coupled solar: 20 kW grid-tie inverter
Solar charge controller:	Studer 7 x VS-120 VarioString MPPT charger controllers
Racking:	Schletter Ground-Mount
Other:	Studer 2 x X-Connect Multi Xtender system, BSP 1200, RCC-02, Xcom-LAN

The Solution

In order to ensure the uninterrupted supply of power to the large number of chalets on these lodges, the system supplies energy during the day from the 20 kW AC coupled inverter. If there is any additional power needed this can be supplied from the batteries via the Xtenders.

The power at night is also supplied from the batteries and if there is a shortage for any reason then the generator will automatically supply this shortfall or be used to charge the batteries when required. The use of the generator is only as back-up and the system has been designed to supply the needs of the lodge mainly from renewables.

Why Studer

Because of the location of the lodges in very remote parts of the very large Kruger National Park, reliability of the equipment was of utmost importance. The temperatures in the park can also get very high and the Studer devices robustness and performance in harsh climates appealed to the customer.

The setup of the system is also easy in terms of the charge cycle of the batteries because the VarioString units are synchronized with the Xtenders. The generator auto-start is also managed very easily by battery SOC, voltage and/or time of day. When the Studer Innotec manufactured devices are installed in conjunction with other equipment, in the case of failures, the Studer devices historically keep functioning and keeps the system running.

Project outcome

The saving in reduction of diesel fuel that was previously used to run the generator 24/7 contributes tremendously towards the financial return on the investment. The reduction in noise and air pollution has also impacted the standing and perception of the lodges by the many visitors to the park.

The Company

Current Automation supply a wide range of products to the renewable energy and back-up industries. They specialize in providing medium to large renewable energy solutions for domestic and commercial customers and offer turn-key solutions - system design, specification, installation, commissioning and after sales service.

For more information please contact:

Studer Innotec SA
www.studer-innotec.com / info@studer-innotec.com
Studer Contact: **Serge REMY**

Current Automation
ettienne@rectifier.co.za
www.rectifier.co.za

4K30