Case study

Lithium-powered Off-grid site

Bourges, France

The challenge

Located in a rural area, next to Bourges, France, were sitting two yurts 10km away from the utility grid. Their owner asked Perma Batteries for a reliable and cost-effective solution that could power his site all year round. System flexibility was a prerequisite, thus




Perma-Batteries

finding the right storage solution was important to enable the end user to freely upgrade the batteries' capacity afterwards. Furthermore, the solar modules had to be relatively far away from the batteries and electronics in order to prevent partial shading from the surrounding trees and vegetation.

Why STUDER

Since our inception, we work with Studer equipment, as they're the only inverters that guarantee a perfect management of the storage system we use, whether it's li-ion systems or unconventional chemistries such as Nickel-Iron that requires a specific voltage range. Their unrivalled robustness enables us to provide our customers a reliable and long-lasting system. What's more, the Xcom-LAN gives us a perfect real-time monitoring and remote control of the system for after-sales support or troubleshooting if needed.

The Solution

The Pylontech US2000B lithium batteries were selected for their numerous advantages: can deliver up to 5kW of power per module, have a long cycle life at 90% DOD, are safe to operate (LFP chemistry), and can be upgraded later if extra capacity is needed. We used a high-voltage VS-70 regulator that facilitates string wiring and has a very high efficiency, which overcome the voltage drop that would have a conventional MPPT controller. The XTM-4000 48V perfectly manages the batteries' charging cycles through the use of a Xcom-CAN. Supervision and monitoring is ensured by an Xcom-LAN.

System components

The system contains the following components:
10 x Q-CELLS monocrystalline Q-Peak BFR 4.1 305W
1 x STUDER inverter/charger Xtender XTM-4000-48V
1 x STUDER MPPT Solar Charge Controller VarioString VS-70
1 x STUDER Xcom-LAN communication device
1 x STUDER Xcom-CAN multi-protocol communication module
3 x LiFePO4 PYLONTECH US2000B

Project outcome

The Studer/Pylontech combination provides year-round autonomy to the end-user and drastically reducing his dependency from a generator. The high quality of the components brings peace of mind to the customer, ensuring that his energetic needs are backed by a dependable and durable system that can be extended if required.

The Company

Perma-Batteries is a solar engineering firm specialized in providing turn-key stand-alone energetic solutions based on non-conventional, high-performance storage systems. As the first french company to bring Nickel-Iron cells on the market, they have a unique and diversified range of batteries (Pylontech, ENCELL, Sodium-Ion) to suit any application (off-grid, ESS).

For more information please contact:

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