



PROJECT PROFILE

Solar standalone system with storage battery to supply power to an off-grid hospital in the Philippines

The Southeast Asian state Philippines, which consists of more than 7,600 islands, faces major challenges to its national electricity supply due to its piecemeal island structure. It has not yet been possible to connect all regions to one all-encompassing electricity grid. In many places, electricity must be produced using diesel generators. These have a poor environmental footprint, are up to six times more expensive to operate than a grid connection and occasionally break down. In addition, the country is frequently affected by natural disasters such as typhoons, earthquakes and tropical storms, which pose an additional challenge for the stability of the electricity system. Especially in times of storms, rural hospitals play a key role in providing medical care to the Filipino population and serve as emergency shelters during natural disasters. It is therefore even more important that a reliable power supply is guaranteed for these facilities.

The German company BOS Balance of Storage Systems AG (BOS AG for short) has recognised this challenge. As part of the Renewable Energy Solutions (RES) programme, the company has developed a sustainable energy concept for Luuk Hospital on



The battery and inverter system in the installation



Opening ceremony (from left: Rafael Toda, CEO of GoGridless; Sean LePoidevin, Regional Sales Manager at BOS; Dr David Klebs, Economic Officer at the German Embassy; Dr Jodl Isahac, doctor at Luuk Hospital)

the island of Sulu. The system, which was implemented as a reference project as part of the RES programme, consists of a photovoltaic system with an output of 55.08 kWp and 36 lithium iron phosphate batteries with a total storage capacity of 86.4 kWh, which store surplus solar power for times when solar radiation is low. Due to the poor power supply before the system was installed, it was not always possible to refrigerate medicines, use medical equipment, or to light or air-condition rooms, which meant that operations often had to be postponed and opening hours restricted. Thanks to the self-sufficient energy supply, the hospital has now been able to significantly improve the quality of its medical care services and also save on monthly energy costs.

The entire system, including inverter, charge controller, batteries and fuses, was pre-wired and tested in Germany by BOS to ensure functionality and easy installation on site. For transport from Germany, the system was dismantled into ele-

‘The cheap and reliable energy provided by the new solar panel system has significantly improved the services our hospital provides. As a result, our bed occupancy rate has increased from 70 per cent to 85 per cent and continues to rise. We have also become more attractive to our employees.’

Dr Jodl Isahac, doctor at Luuk Hospital

ments suitable for shipping and provided with clear installation instructions. The partner was trained on site to ensure that assembly and commissioning went ahead smoothly. The installation of the entire system technology was completed in just a few weeks, so that restrictions to the running of the hospital were kept to a minimum.

BOS has already equipped around 110 hospital wards worldwide with sustainable energy systems. In the Philippines, eight projects have now been successfully implemented in rural regions in the

south. In general, there is great potential for PV systems with battery storage in the Philippines, as many locations are not connected to the electricity grid. In future, BOS would also like to retrofit Filipino schools and evacuation centres with sustainable power supply solutions.

As part of the RES programme, BOS was supported by the German Energy Agency (dena) in raising awareness of the benefits of its climate-friendly storage technology in the Philippines through marketing measures, training and networking activities.

Company Description



BOS Balance of Storage Systems AG is an innovative technology company based in Neu-Ulm, Germany, and was founded in 2014. With a dedicated team of around 45 employees, the company has established itself as a pioneer in the world of modern energy supply and specialises in intelligent hybrid storage technologies. Following the success of its pioneering lithium-lead technology, BOS is now focussing on the development of lithium battery solutions that are simple and straightforward to install. These plug-and-play solutions serve market segments that require a self-sufficient energy supply. These include the caravan and boat sectors as well as markets in rural and semi-urban regions with limited or no access to modern energy supplies. The combination of innovative technology and the goal of a more sustainable future makes BOS an important player in the field of energy supply and storage.

System Information	
Installed nominal power	55.08 kWp
Module type	Canadian Solar CS6W-540MS (540 Wp each)
Inverter type	Victron Smart Solar MPPT 250/100
Battery inverter type	Victron Quattro 48/10000/140–100/100 (10 kVA each)
Batteries	36 Pylontech US2000C batteries, 2.4 kWh each, with a total storage capacity of 86.4 kWh
Annual output	75 MWh
CO ₂ savings	23 t/a

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