Case Study

SolarEdge Optimised Floating PV System is a first for South Africa

The Marlenique Estate is a picturesque fruit farm and wedding venue in Western Cape. Over the past few years, the farm has been affected by rising energy prices. Powering irrigation pumps, the packhouse, cold storage, and the wedding venue has resulted in direct production costs to escalate above sales revenue.

Adding to the energy burden was the impact of load shedding, and the ever-present threat of drought. In order to ensure future profitability, it was essential to focus on a sustainable and long-term solution to reduce the estate's reliabilty on the grid, and keep the running costs as low as possible. A microgrid system was determined to provide the best solution, and New South Energy advised installation of a SolarEdge optimised PV system consisting of a 534kW ground-mount array, and a 60kW floating installation on the estate's water dam. The PV system was installed by the company's own engineers, and by using SolarEdge they were able to double the string length to 40 modules per string (12.40 kWp) and create oversizing of 135%.

The floating solar system is the first such commercially operational system installed in Sub-Saharan Africa.

- Installation Date: March 2019, Marlinique Estate, Western Cape, South Africa
- Peak Power: 534KW Ground Mount, 60kW Floating
- Modules: 1,800 x Canadian Solar 330W
- Power Optimisers: 900 x P700
- Inverters: 20 x SE27.6K

"As the oldest family business in South Africa, sustainability is key to keeping the business running for the next 10 generations. An important factor is to farm greener, and to secure a stable power supply for future farming. With solar and power costs fixed for a minimum of 25 years, a solar installation was a better investment than planting a new orchard."

Carl Van der Merwe, Marlenique Estate.

The floating solar system is the first commercially operable system installed in Africa, and has multiple benefits; producing renewable energy, minimising land usage, and reducing water evaporation on the dam.

Looking to the future with SolarEdge

SolarEdge was chosen for its long-term, future-proof solution. The SolarEdge solution optimises energy from each module independently, eliminating power losses. The free for system lifetime monitoring tracks module performance in real-time, providing clear string and module visibility for reporting, remote troubleshooting, and O&M purposes. With respect to the floating system, SolarEdge power optimisers and inverters are designed to respectively meet IP65 and IP68 ratings for water and humidity resistance, and have market-leading product warranty periods. All SolarEdge systems come with built-in SafeDC™, and comply with VDE-AR-E-2100-712 safety standards ensuring DC voltage is automatically reduced to a touch-safe level within 30 seconds if the inverter is turned off, so that maintenance workers will not be exposed to the risk of direct contact with high-voltage DC cables.

"A SolarEdge solar system was the obvious choice. SolarEdge system design allows greater flexibility, increasing string length by approximately 30%, and reducing the number of strings from five to three. The module-level monitoring enables remote troubleshooting, reducing the number of site visits for improved O&M".

David Masureik, CEO, New South Energy.

The company is already planning for the future with provision made for infrastructure to allow for a battery system to be included during phase two of the project. The aim is to take the site completely off-grid in the near future, and there are plans to install solar in all the other properties in the company's portfolio.

"Marlenique farm is the highest energy user in our portfolio. We are aiming to be 100% green through solar energy solutions across our entire portfolio in the near future. Anyone is welcome to try to take us to any solar plant better built than the one on Marlenique. I don't think it is possible because this one is world class standard."

Carl Van der Merwe, Property Owner