

More Modules on the Roof

- ▶ Bürglen, Switzerland
- ▶ 367 kWp
- ▶ Installation Date:
November 2014



The design flexibility of the SolarEdge DC optimized inverter solution allows more modules to be installed on the roof. In this site, SolarEdge enabled the installation of strings of uneven lengths and modules in shaded areas.



“Thanks to the design flexibility and module-level MPPT of the SolarEdge DC optimized inverter, we increased system size by 73% and the system owner improved his return on investment.”

> Marcel Okle, General Manager, Intelli Solar

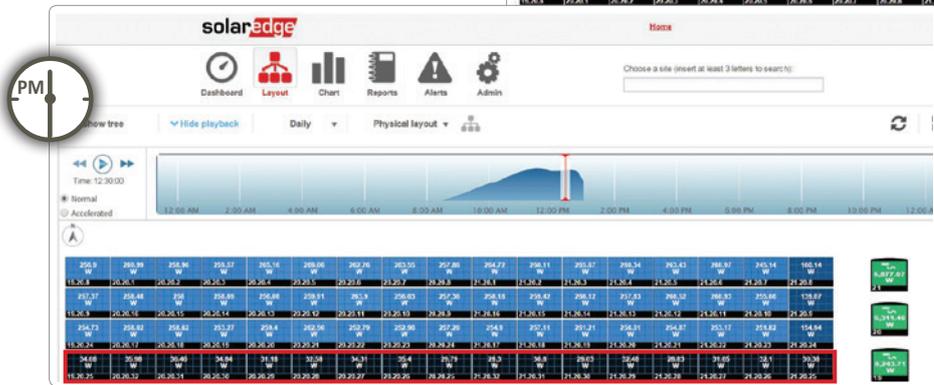
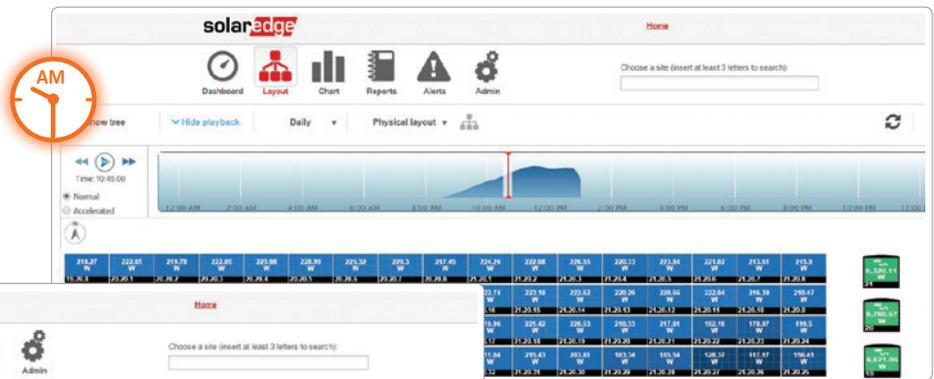
A private business owner decided to install a PV system on seven roofs of an industrial site and sell the energy to the property tenants. With low feed in tariffs and a high energy need on-site, the system owner wanted to maximize the energy production. In order to improve the lifetime profitability of the PV system, the business owner turned to Intelli Solar, an experienced PV installer. With more than 1MW of SolarEdge installations, Marcel Okle of Intelli Solar knew that the SolarEdge DC optimized inverter solution could provide the system owner increased energy.

Increased Energy Yield

The SolarEdge DC optimized inverter system increased the site's energy production thanks to its maximum power point tracking (MPPT) per module which allows each module to generate its own maximum possible energy. This eliminates power losses due to module mismatch caused by a variety of sources, including tolerance and thermal mismatch, soiling, uneven aging, module orientation, and partial shading.

This system specifically suffers from inter-row shading during the months of November through February. With a traditional inverter, the installer would have needed to design around the inter-row shading – drastically reducing the system size and energy production. According to the installer, the SolarEdge DC optimized inverter solution allowed the installer to design 288 more panels on the roof – this meant a 73% increase in system size to reach a total of 680 modules. A PV*SOL report done by the installer showed that the SolarEdge DC optimized system has a 10% increase in energy compared to a system designed with a traditional string inverter.

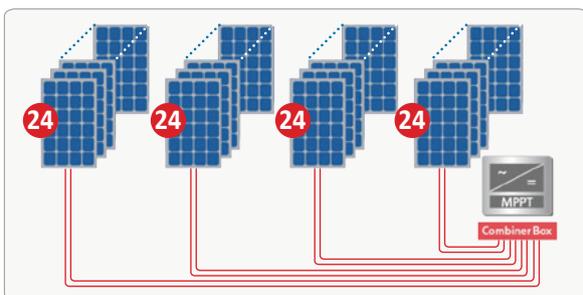
Module-level MPPT allowed a 73% increase in system size for a total of 680 modules



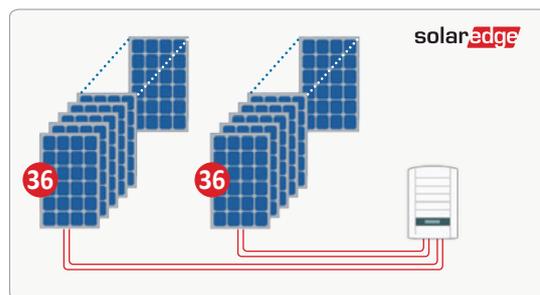
Screenshots from the cloud-based monitoring portal showing the physical layout and the module-level production at specific times. In the afternoons, the bottom row of panels, outlined in red, is darker, signifying a decrease in energy production caused by inter-row shading. The shaded modules, installed in the same string as the non-shaded modules, do not negatively impact production of other modules in the same string.

Maximum Design Flexibility

The SolarEdge DC optimized inverter system provides maximum design flexibility through significantly longer strings. The longest string in the SolarEdge system is 36 modules/9.72kWp (compared to a maximum of only ~24 modules/6.48kWp per string with a typical string inverter). This is in combination with being able to decrease the amount of strings per inverter from 4 with a standard inverter to only 2 with SolarEdge. The decrease in the amount of strings provided a significant reduction in BoS costs.



Traditional String Inverter



SolarEdge DC Optimized Inverter

Solar Asset Management

The SolarEdge DC optimized inverter system with real-time remote monitoring at the module, string, and system levels acts as a strategic solar asset management tool to help minimize operation and maintenance (O&M) expenses. To ensure maximum profitability, the SolarEdge cloud-based monitoring portal provides clear tracking of the system's performance through a variety of features:

- Comprehensive analytics tracking and reports of energy yield, system uptime, and financial performance;
- Pinpointed and automatic alerts for immediate fault detection, accurate maintenance, and rapid response;
- Remote troubleshooting for fast and efficient resolution with minimal onsite visits.



The chart view from the SolarEdge monitoring portal shows the performance of individual modules. This graph illustrates that the power of each module is optimal and independent of other modules in the same string. The dips show the effects of inter-row shading.

Enhanced Safety

As part of its solar asset management plan and wanting to protect his property, the system owner demanded that his PV system meet the most advanced safety standards.

With a built-in safety feature called SafeDC™, the SolarEdge DC optimized inverter system protects installers, maintenance personnel, firefighters, and assets. The certified DC disconnect is designed to decrease DC current, as well as voltage from all string wires, when inverter or grid power is shutdown. The voltage of each module is reduced to 1V.



The SolarEdge DC optimized inverters are certified to IEC 60947 as a disconnection means between a PV inverter and a PV generator, and to VDE 2100-712 for safety in cases of firefighting or maintenance.

This case-study contains market data from certain third-party sources. The information contained herein is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such data and industry forecasts, we believe that the data is reliable and that the industry forecasts are reasonable.