solaredge

More Energy on the Roof

▸ Ronco Briantino, Italy

▸ 5.75 kWp

Petalo
ECO COMFORT E RISPARMIO ENERGETICO

The SolarEdge DC optimized inverter system enabled 5 additional modules to be installed and only required one 23-module string- despite the roof having asymmetrical and opposite-facing facets it.

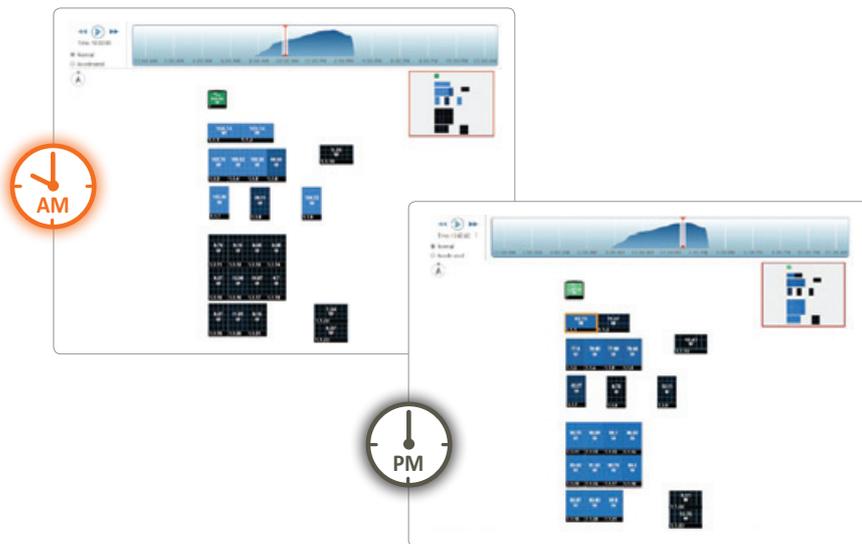|	
Installation Date:	July, 2013
Inverter:	1 x Single-phase SE5K inverter
Power Optimizers:	23 x OPJ300-LV, Module Embedded Power Optimizers
Modules:	23 x SOLON Black 220/16 250Wp
Installed by:	PETALO Srl

"The SolarEdge DC optimized inverter system significantly improved the RoI of this installation. The flexibility of design allowed us to put more modules on the roof, which provided approximately an additional 754 kWh annually since installation, and decreased the BoS costs by €200."

> Matteo Pirota, Owner of Titolare Petalo Srl.

Increased Energy with Module - Level MPPT

Interested in reducing home electricity costs and taking advantage of Net Metering and a 50% government tax rebate, the home owner decided to install a PV system. With a small, multi-faceted roof, it was crucial to leverage all-available space while maximizing energy from each module. This meant that modules needed to be installed on multiple orientations – leading to varying MPPs. Module-level MPP tracking performed by the SolarEdge DC optimized inverter solution allows generation of maximum energy from every module. Even though the modules are installed on different roof facets, each still generate energy according to its own MPP while connected in a single string.
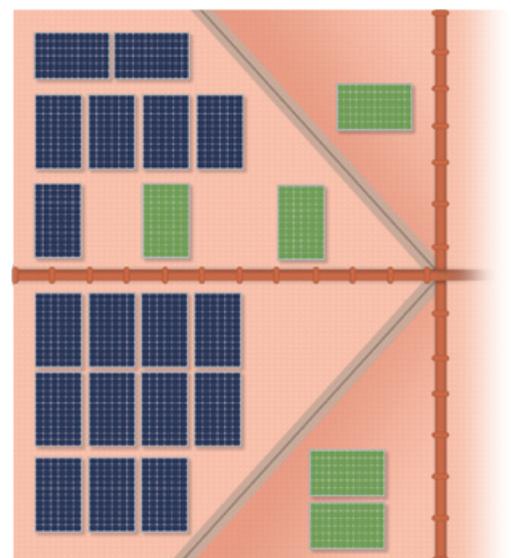

> These screenshots from the SolarEdge monitoring portal show the physical layout of the installation. These images illustrate how panels on opposing orientations perform differently throughout the day. Even though the panels are on the same string, each panel performs at its individual MPP to maximize energy harvest.

~30% More Modules on the Roof

The site was initially designed with a typical string inverter; however, this limited the amount of modules that could be placed on the roof. With the SolarEdge DC optimized inverter system, the homeowner was able to benefit from 5 additional modules on roof. As of January 2015, this meant an additional 1.194 MWh since system installation.
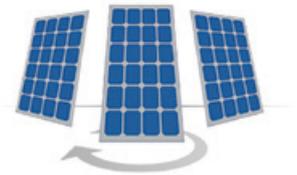
> The SolarEdge DC optimized inverter system enabled installation of five additional modules, represented in green. This addition equal 1.25 kW, or an increase in system size of 28%.
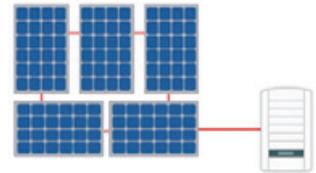
€200 Reduction in BoS Costs through Maximum Design Flexibility

The SolarEdge DC optimized inverter solution has a fixed input voltage which allows efficient use of all available space through unprecedented design flexibility - multiple orientations, tilts, and even module types and sizes in the same string. This 6kWp system has two major opposite-facing facets with East-West orientations and an additional North facing facet, but with SolarEdge only needs one three-phase inverter for a 23-module string. This reduction in strings decreased BoS costs by €200.

This flexibility of design also enabled the installation of vertical and horizontal modules in the same string. This allowed modules to be installed where it would be impossible with a typical string inverter.
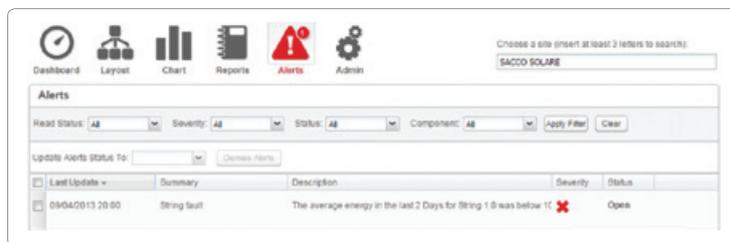

Multiple orientations in a single string

Vertical and horizontal modules in a single string

Enhanced Maintenance and Yield Assurance

The SolarEdge DC optimized inverter solution offers lifetime free monitoring via its cloud-based monitoring portal. Performance monitoring at the module, string, and, system level in addition to pinpointed troubleshooting and remote maintenance provide increased system uptime.

In 2013, the monitoring system automatically alerted the installer to a drop in system energy production. The installer was able to remotely troubleshoot the problem and quickly order a replacement part to minimize energy loss. Without module-level monitoring, this failure could have gone unnoticed for months and significantly decreased energy production.

The Chart view from the SolarEdge monitoring portal shows the performance of every individual module. This screenshot shows how modules in the same string placed on different orientations perform independently of each other.