CASE STUDY

solar**edge**

Design Flexibility for Maximum Power

Capacity: 10.29 kWp

Location: Vedano al Lambro, Italy

Installation Date: February, 2013

Inverter: 1 x Three-phase SE9K inverter

Power Optimizers: 42 x OPJ300-LV,
Module Embedded Power Optimizers

Modules: 42 x SOLON SOLraise
Black 245w

Installed by: Petalo Srl

Despite the roof having two asymmetrical and opposite-facing facets, this system only has one 42-module string and is still able to maximize power from each individual module thanks to the SolarEdge module-level optimizers.

Increased Energy with Module - Level MPPT

Fitted with a thermal insulation system, an underfloor heating system powered by a condensing boiler, and solar-thermal collectors for heating and hot water, the house was already considered a high-efficiency home. As part of the efforts to implement additional energy efficiency, the home owner decided to install a PV system. With elevated energy needs and limited roof area, it was crucial to leverage all-available space while maximizing energy from every module. This meant that modules would need to be installed at multiple orientations and would have varying MPPs. Module-level MPP tracking performed by SolarEdge power optimizers allows generation of maximum energy from every module. Even though the modules installed on different roof facets have varying MPPs, they still generate the maximum energy possible while connected in a single string.

> *"Having opposite-facing facets, this site would have been particularly problematic and costly to design without SolarEdge technology. The SolarEdge module-level power optimizers not only offered a flexible design, but also improved the system's energy yield-to-cost ratio."*
>
> MATTEO Pirota – Titolare Petalo Srl

CASE STUDY

Maximum Design Flexibility

When working with SolarEdge Inverters, SolarEdge power optimizers offer module-level optimization and fixed input voltage. This 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 10kW system has an East-West orientation with two opposite-facing roof facets, but thanks to module-level optimization it only needs one three-phase inverter for a 42-module string. Reducing strings decreases BoS costs. In addition, the SolarEdge solution allowed 5 additional modules (1.5Wp) to be placed on the roof in zones that typically don't support solar installation.

Enhanced Maintenance and Yield Assurance

SolarEdge power optimizers also enable performance monitoring at the module level and accurate troubleshooting pinpointed on a virtual site map, for enhanced maintenance, improved transparency into system performance, and increased system uptime. Defining himself as a tech fan, the home owner identified the single-module monitoring system as a particularly important benefit by stating, "For me, only the best!"
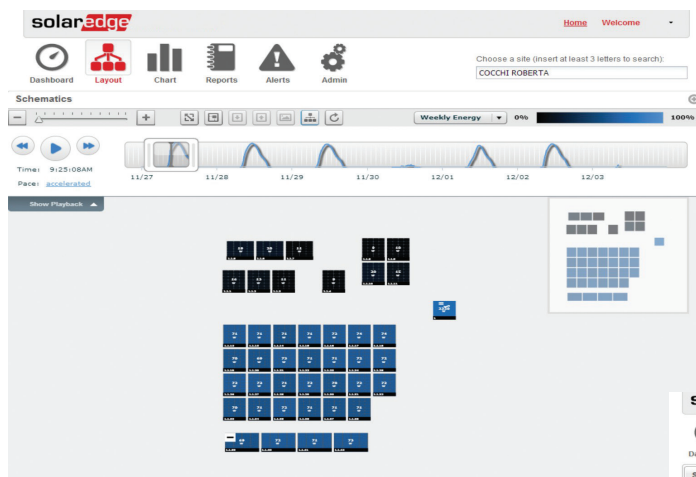
The Layout view from the SolarEdge monitoring portal shows the system's physical layout. The blue color code indicates the performance level of each module and proves that each module works in an individual capacity. In this case, darker modules are on the roof facet receiving less sunlight.

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