

# CASE STUDY

## Multi-facet Residential Installation Veneto, ITALY

### OVERVIEW

**Installer:** Cellini Enrico

**Installation Date:** 20.10.10

**Location:** Veneto, Italy

**Installed Capacity:** 3kWp

**Modules:**

Hyundai HIS M230W SG

**Optimizers:** PB250-A0B

**Inverter:** 1 x SE3300 inverter

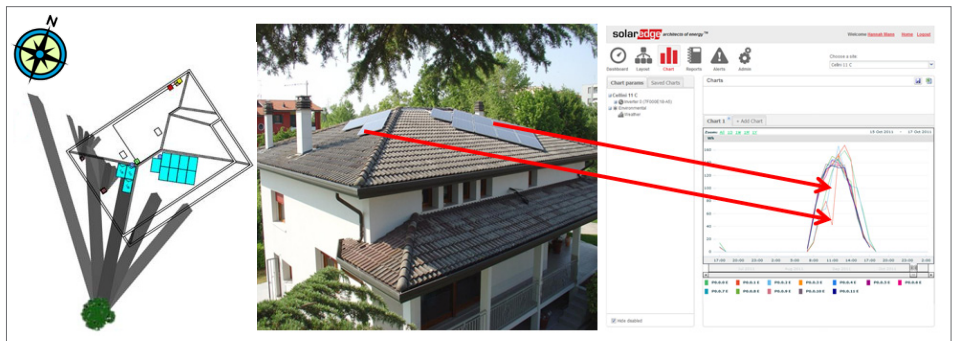
**String Layout:**

1 string with 12 modules

SolarEdge gives installers the ability to install photovoltaic systems on rooftops which by traditional standards are considered unsuitable for PV. Traditionally, rooftops are considered problematic if objects, either on the roof or in its surroundings, cast even a small shadow on the modules. Additionally, problems would arise if the installer was required to place modules on more than one roof facet in order to maintain the desired site capacity.

A family in Veneto, Italy, experienced this situation first hand. The family had decided to install a 3kW PV system as a source of clean energy on its pyramid shaped roof. After a short consultation with a local installer, the family learned that the two chimneys on the west side of the roof and a big pine tree to the south of the house would significantly reduce the space available for the PV system. It was only when the family went to hear a second opinion that they understood why.

Installer Cellini Enrico explained that traditional inverters limit installers in their degree of design freedom. Traditional inverters include a tracking system which applies a 'one-size-fits-all' approach to harvest the energy of multiple modules at once. In order for that to work, modules need to be exposed to identical light conditions.



Left image - shows how the shadow cast by the tree reaches most of the front part of the roof of the Cellini house and explains why the installer preferred not to install modules in the southern front corner. Middle & right images - a screenshot from the SolarEdge monitoring portal shows how the shaded modules don't lower the output of unshaded modules in the same string.

If modules get exposed to light at different intensities or at different times of the day, the efficiency of an installation declines significantly. "Hence, installing modules in areas which are exposed to partial shading or installing modules across different roof facets, where they are exposed to different light intensities at different times of the day is traditionally not justifiable", Mr. Cellini said.

Mr. Cellini was well acquainted with SolarEdge power optimizers and suggested to use a SolarEdge power harvesting system, in order to solve the problem. SolarEdge harvests the energy of each module individually, which removes the interdependencies between them. Thanks to the SolarEdge technology, Mr. Cellini was able to add three

extra modules and the family received a 3kW installation consisting of 12 modules connected in one string. Nine modules face east and three additional face west.

**"I am happy to have the SolarEdge solution in my portfolio. With SolarEdge I can match the PV system to the roof and not the roof to the PV system. And I'm happy the family received the kind of installation they wanted in the first place."**

Mr. Enrico Cellini  
Installer