

Case Study

PM SERVICE

Commercial Rooftop Modena



Modena, Italy



Solar Frontier CIS thin-film modules on the flat roof of an industrial building in Modena. (Image: PM Service)

Site Overview

Location Modena, Italy

Coordinates 44.67° N, 10.93° E

Average global irradiance 1,475 kWh/m²/yr

Average temperature 14.4 °C, 57.9 °F

Average precipitation 801 mm/yr, 31.5 in/yr

Technical Overview

Date onstream October 2011

System capacity 199.92 kWp

Panel type SF140-L (140 W)

Number of installed panels 1,428

Tilt angle, orientation 6°, -160° N / 20° S

Output 136,143 kWh
(01.12.2011 – 30.06.2012)

Total CO₂ reduction 76,649 kg, 168,980 lbs
(01.12.2011 – 30.06.2012)

Inverter 13 x 15 kW Inverter
1 x 10 kW Inverter

Financing Bank

PM Service a leading distributor in the Italian PV market, headquartered in Pontassieve close to Florence, with a subsidiary in Reggio Emilia and other local offices throughout Italy, has been active in the photovoltaic market since 2000. PM Service provides complete solutions for photovoltaic and meets the needs of different market segments: from private rooftop systems to large commercial installations. The installer Albatech, based in Reggio Emilia, always provides along with planning, installation and administration, technologically advanced solar solutions from one source.

This nearly 200 kWp solar power plant comprised of 1,428 Solar Frontier modules was connected to the grid in October 2011 on an industrial rooftop in the north Italian town of Modena (Reggio Emilia). The challenge of this system was mainly the relatively low tilt angle of the roof with only 6 degrees. Despite these non-optimal conditions, Solar Frontier modules generate higher output compared to competing technologies, thanks to their good low-light behavior. Solar Frontier modules are suitable for the use on flat roofs or roofs with very low tilt angle and generate well even on north-/east-facing rooftops.

Initial analyzes from December 2011 to June 2012 showed that the installation produced 136,143 kWh – 26 % more energy, than planned. This shows that the system is also very efficient and generates high revenues in seasons with low irradiation levels.

About Solar Frontier

Solar Frontier is committed to creating the world's most ecological, economical solar energy solutions. Our proprietary CIS technology (denoting key ingredients copper, indium, and selenium) has the best overall potential to set the world's most enduring standard for solar energy. For more information visit www.solar-frontier.com and www.solar-frontier.eu

"The Solar Frontier modules are high quality and are perfectly suitable even for low tilt angles, thanks to their excellent low-light behavior. This advantage enables us to expect high output even under non-optimal conditions."

*Simona Cottafava,
Application Engineer PM Service*