

Case Study

Residential Rooftop

Bad Mergentheim



Bad Mergentheim, Germany



The Solar Frontier CIS thin-film modules were the first choice for this flat roof in Bad Mergentheim. (Image: M. Halbritter)

Site Overview

Location	Bad Mergentheim, Germany
Coordinates	49.28° N, 9.50° E
Average global irradiance	1,055 kWh/m ² /yr
Average temperature	10.8 °C, 51.4 °F
Average precipitation	640 mm/yr, 25.4 in/yr

Technical Overview

Date onstream	October 2011
System capacity	8.4 kWp
Panel type	SF150-L (150 W)
Number of installed panels	56
Tilt angle, orientation	4°, -165° N
Output	7,795 kWh (01.10.2011 - 30.09.2012)
CO ₂ reduction	4,389 kg, 9,676 lbs (01.10.2011 - 30.09.2012)
Inverter	Kostal Piko 8.3

Financing Bank

Volksbank Vorbach-Tauber eG.

"Solar Frontier's CIS thin-film modules were the first choice for this installation with northern roof orientation and flat tilt angle with respect to output. Besides the high power of the modules, I was impressed by the good low-light behavior and high shadow tolerance."

*Michael Halbritter,
Homeowner*

There are roofs that seem inappropriate to generate solar power using photovoltaic. This rooftop installations in the German town of Bad Mergentheim shows how to generate good yields by choosing the right modules.

This 8.4 kWp photovoltaic system was installed independently by the PV experienced homeowner and was connected to the grid in October 2011. All modules and other PV relevant components required for the installation, like mounting components, inverter and wiring were provided by the PV distributor Rusol.

The challenges for this atypical rooftop were both orientation and tilt angle. Since the garage rooftop faces almost directly to the north and the modules could not be mounted with a tilt angle greater than four degrees almost flat to the roof, the CIS modules of Solar Frontier were the first choice for the homeowner. The unique characteristics of good low-light behavior and high shadow tolerance were crucial because they compensate for non-optimal conditions, worsened by shadows cast by nearby, higher-standing buildings. Two unique properties that lead to higher yields and convinced the homeowner completely. Initial analysis of the yield data already show that the calculated annual output of over 6,000 kWh could even be exceeded with more than 7.700 kWh during the first year of operation.

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