

# Case Study

## PRINZ ENERGIE- UND UMWELTTECHNIK Residential Rooftop Backnang



Backnang, Germany



The Solar Frontier CIS modules installed on this roof offer more kilowatt hours per kilowatt peak than other crystalline systems in the area.

### Site Overview

<b>Location</b>	Backnang, Germany
<b>Coordinates</b>	48.95° N, 9.43° E
<b>Average global irradiance</b>	1,079 kWh/m <sup>2</sup> /yr
<b>Average temperature</b>	7.9 °C, 46.2 °F
<b>Average precipitation</b>	1,044 mm/yr, 41.1 in/yr

### Technical Overview

<b>Date onstream</b>	November 2010
<b>System capacity</b>	9.61 kWp
<b>Panel type</b>	SF85-EX-B (85 W)
<b>Number of installed panels</b>	113
<b>Tilt angle, orientation</b>	38°, 0° S
<b>Output</b>	13,637 kWh (01.01.2011 - 31.12.2011)
<b>Total CO<sub>2</sub> reduction</b>	7,678 kg, 16,927 lbs (01.01.2011 - 31.12.2011)
<b>Inverter</b>	Danfoss TLX10

### Financing Bank

Kreissparkasse Backnang

*"Our installations with Solar Frontier CIS modules show excellent output in kilowatt hours per kilowatt peak. They use ecological technology that is cadmium and lead free, and have a uniform, black design. We intend to install them in an entire residential area and are looking forward to strong cooperation with Solar Frontier."*

*Gerhard Prinz and Christian Görtz  
Managing Directors  
Prinz Energie- und Umwelttechnik GmbH*

Prinz Energie- und Umwelttechnik GmbH designs and builds rooftop and ground-mounted photovoltaic and solar thermal systems. The company also sells PV modules, inverters and mounting systems.

This residential installation is one of a growing number of grid connected Solar Frontier installations by Prinz that combined produce more than 400 kWp of power. For this particular installation, the client wished to maximize their potential profits from the German feed-in tariff which favors energy that is immediately consumed in the house. The system meets that target with more than 38% of the produced current consumed on site. Over the course of one year, the installed CIS modules will supply the family with over 70% of their electricity needs.

To ensure that such a high proportion of electricity was consumed locally, it was essential that the modules offer not only high efficiency but also strong performance under non-optimal light conditions such as during early morning, late evening and cloudy days. Solar Frontier CIS modules were the first choice for having the best efficiency of all thin-film modules, and for the "Light Soaking Effect", which enables the modules to provide more power than their rated capacity. Compared to similarly sized crystalline systems installed in the area, the CIS system produces 11.7% more kWh per installed watt of power.

### 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](http://www.solar-frontier.com)