

SolarSets Case Study

LEAN SOLAR GMBH

Residential Rooftop Radevormwald



A 4.6kWp SolarSet of 28 modules was installed on this rooftop in Radevormwald. The carport has a 2.3 kWp SolarSet of 14 modules. (Image: lean solar GmbH)

Site Overview

Location	Radevormwald, Germany
Coordinates	51.12° N, 7.22° E
Average global irradiance	976 kWh/m ²
Average temperature	8.6 °C, 47.2 °F
Average precipitation	835 mm/yr, 32.9 in/yr

Technical Overview

Date onstream	August 2013
SolarSet	1x SolarSet 4.6 / 1x SolarSet 2.3
System capacity	6,9 kWp
Panel type	SF165-S (165 W)
Number of installed panels	42
Tilt angle, orientation	40° / 20°, -45° SE / 45° SW
Expected output	6,700 kWh/yr
CO ₂ reduction	6,759 kg/yr, 14,900 lbs/yr
Inverter	3x SF-WR-3000

Financing Bank

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"We really like the PV-plant because of the aesthetic CIS-modules. We are hoping for good energy yields from the plant, because we'd like to use most of the power ourselves. We can preheat our sauna while the sun is still shining – in this way we can use the sun's energy optimally."

Lutz Lippert, homeowner

lean solar GmbH is a system provider in solar and renewable energy concepts. They offer custom-made energy consulting and individual solutions for environmental energy generation and cost reduction. As a "one-stop" provider they can pass significant benefits and costs transparently to their customers. From planning to commissioning, lean solar GmbH remains the sole contact for customers.

In Radevormwald in Northrhine-Westphalia two SolarSets with a combined power of 6.9 kWp were installed on a house roof and carport. The two installations were connected to the grid in August 2013. The south-east-facing roof of the private house has a 4.6 kWp SolarSet with a total of 28 Solar Frontier CIS thin-film modules. The carport's 2.3 kWp SolarSet 2.3 has 14 modules. The combined SolarSets are expected to produce about 6,700 kWh of electricity annually, which will be used directly by the family.

SolarSets' advantages are the result of Solar Frontier's optimization of components and configuration to both maximize output and save installation time and expense. The on-roof layout options of Solar Frontier SolarSets are more flexible because of the modules' high shadow tolerance. In spite of the challenges of shadowing on this home's car port and a fairly high roof inclination angle of 40°, Solar Frontier's CIS modules deliver high efficiency in part because of excellent shadow tolerance and good low-light behavior.

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