



Woermann Group Supermarkets

Ombili/Katutura in Windhoek, Namibia

HopSol

Solar Power Plants

Dr. Robert Hopperdietzel, Director HopSol Africa (Pty) Ltd: "HopSol has specialized in photovoltaic solutions for deserts and desert-like regions. Due to the extreme climatic conditions in these regions, the selection of the right technology is of vital importance. We are convinced that CIS/CIGS technology is the best choice, supported by the outstanding results of our systems in these regions."

67.2 kWp
System capacity

145.48 MWh
Expected output

6,724 kg
CO₂ reduction / year

481
Installed panels

tsmc solar

New Power.
New Thinking.

Woermann Group Supermarkets

Ombili/Katutura in Windhoek, Namibia

This supermarket in Ombili, a township of Katutura/Windhoek, is one of the first outlets with which the Woermann Group started its roll-out of photovoltaic solar power plants on all of the Woermann Group supermarkets in Namibia.

Namibia has one of the highest solar irradiation levels in the world. At the same time, high temperatures combined with below-zero nighttime temperatures, sand abrasion and wind storms challenge the solar modules to an extreme extent. The right technology is essential in order to withstand these conditions and still deliver excellent performance. According to HopSol's tests CIS/CIGS technology is the best choice.

"At the end of 2012 we have installed the so far largest grid-connected photovoltaic solar power plant in Namibia with HopSol and we are convinced of their CIGS technology and the results." Said Jesko Woermann, Managing Director of the Woermann Group. "Therefore we have decided to roll out the installations on all our outlets. It was an economical and ethical decision to implement an up to 100 Mio N\$ investment program for solar power plants." These solar installations will provide the Woermann Group with its own electricity and at the same time save thousands of tons of Carbon emissions.



Installation

| | |
|---------------------------|--------------------------------------|
| Location | Ombili/Katutura in Windhoek, Namibia |
| Coordinates | 21° 57' 39.46" S 16° 58' 54.80" E |
| Average global irradiance | 2362.9 kWh/m ² |
| Average temperature | 19.9°C |
| Average rainfall | 579.5mm |

Technical Specifications

| | |
|------------------------------|------------------------------|
| System capacity | 67.2 kWp |
| Panel type | TS CIGS 140W |
| Quantity of installed panels | 481 |
| Expected output | 145.48 MWh |
| Total CO ₂ | 6,724 kg per year |
| Inverters | 4xSMA SUNNY TRIPOWER 17000TL |
| Date of inauguration | 5/18/2013 |

About TSMC Solar

TSMC Solar Ltd. is a wholly-owned subsidiary of Taiwan Semiconductor Manufacturing, Inc. (NYSE: TSM), the acknowledged semiconductor dedicated foundry segment leader with market capitalization exceeding \$90 billion. TSMC's solar business was founded in May 2009 and is headquartered in Taichung, Taiwan, with regional sales offices in Hamburg, Germany; San Jose, California and Boston, Massachusetts. Visit us at www.tsmc-solar.com!

About HopSol

HopSol provides turn-key solutions for photovoltaic solar power plants. HopSol's head office is located in Wilen, Switzerland and the headquarter for the southern African region, HopSol Africa (Pty) Ltd, has been established in Windhoek, Namibia. HopSol has specialized in photovoltaic solutions for deserts and desert-like regions and acts as a wholesaler of all relevant parts for photovoltaic solar power solutions. Due to the specific climatic conditions in desert regions the selection of the right technology is decisive in order to ensure an outstanding economic performance of investments in solar power plants. Therefore HopSol trusts in superior quality CIS/CIGS-modules as one crucial success factor. For further information please visit www.hopsol.com.