



Case Study

Panel: 360 W, 72 Cells, Monocrystalline

The  
High-  
Performer

## Sustainable Golfing in Cologne, Germany

The St. Urbanus golf course, already awarded for sustainability, now generates solar power – with a self-consumption rate of 95%.

Project: Cologne, Germany

Installation by FLiXenergy, Cologne



[www.sharp.eu](http://www.sharp.eu)

**SHARP**  
Be Original.

## Summary:

- 216 modules of the NU-SC360 series were installed, adding up to 77.76 kWp.
- The specific yield of 800 kWh/kWp amounts to roughly 62,000 kWh of generated energy annually, which covers about 43% of the power demand of the golf course.
- 95% of the generated energy is used for self-consumption.
- The golf course was awarded the “Golfing & Nature” gold award by the DGV (German Golfing Association) for their sustainable business model.

## PV Panels

Product:	NU-SC360
Number of modules:	216
Rated power:	360 Wp
Cells:	72
Size:	1956 x 992 x 40 mm
Efficiency:	18.5%

## Solar Power Plant

Plant size:	77.76 kWp
Roof orientation:	East and South-East
Roof pitch:	15°

## Other Components

- 4 Fronius inverters
- 96 kWh NES storage solution
- Lorenz mounting system (solution for bitumen roofs)

## Yield

Approx. 62,000 kWh annually.

Reaching the break-even point after only 10 years.





## **The St. Urbanus golf course supplies 43% of its energy demand with its SHARP solar power plant**

216 modules of SHARP series NU-SC360 were installed on top of the utility rooms at the St. Urbanus golf course in Cologne, Germany. St. Urbanus golf course has a history of sustainability: they have invested in environmentally friendly technology and have protected areas for toads and birds to brood. This commitment has been recognized by the DGV with a gold award for „Golf & Nature“.

Part of the sustainable strategy is the newly installed PV plant: the 216 SHARP modules generate enough energy to supply 43% of the course's energy demand. The specific yield is estimated to be 800 kWh/kWp annually, allowing the modules to generate 62,000 kWh of energy. This way, St. Urbanus is able to drastically reduce its environmental footprint. The panels were installed using long side clamping and facing South and South-East on the curved roof.

The generated electricity is used to power the country house, the driving range, the golf school, the restaurant, the TESLA electric charging station and the golf carts.

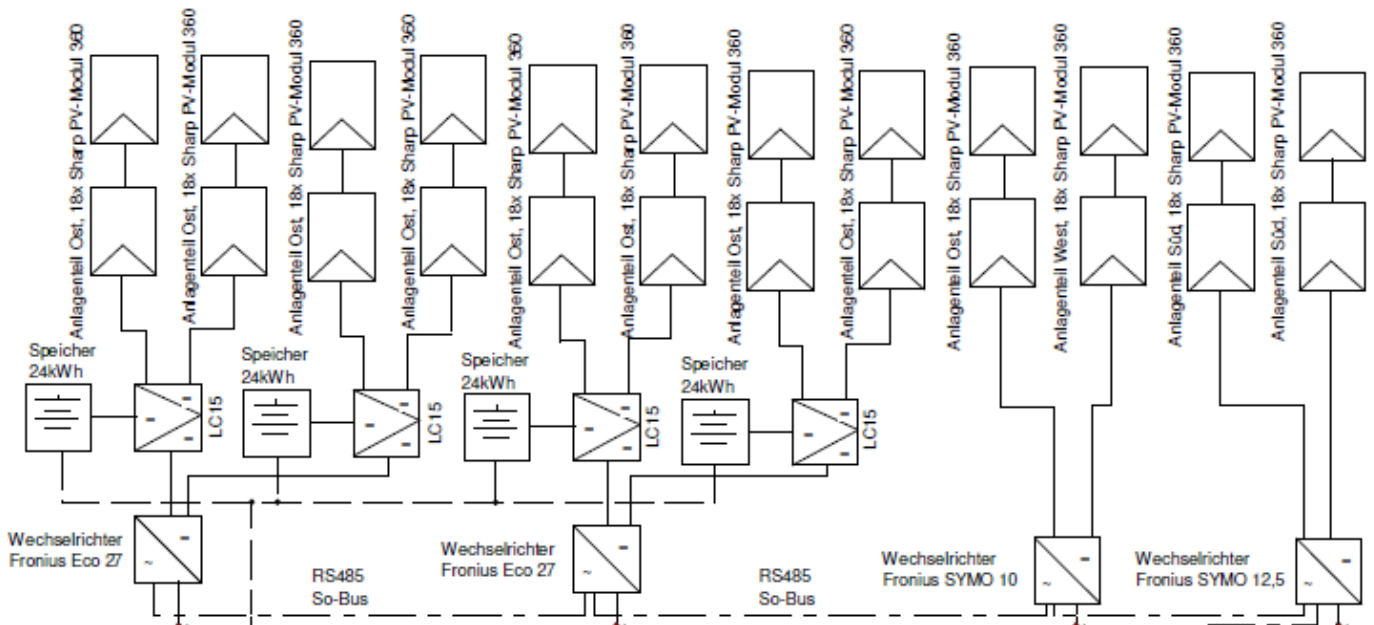
## **The SHARP PV installation combines ecological and economical benefits**

While the SHARP solar power plant has a significant positive environmental impact, it also provides savings after the investment has been paid off. The break even point of the investment is estimated to be reached after only 10.2 years. The size of the installation was planned to maximize self-consumption of the energy and minimize excess energy which is fed into the grid.

## **SHARP quality and guarantee ensures the long-term success of the project**

The SHARP NU-SC360 panels are the perfect project solution and have been installed in several projects worldwide. Moreover, SHARP provides a 10-year product guarantee and 25 years of linear power output guarantee on all PV panels.

## DC-DC system setup:



## 4 Fronius PV inverters, 96 kWh NES storage system:



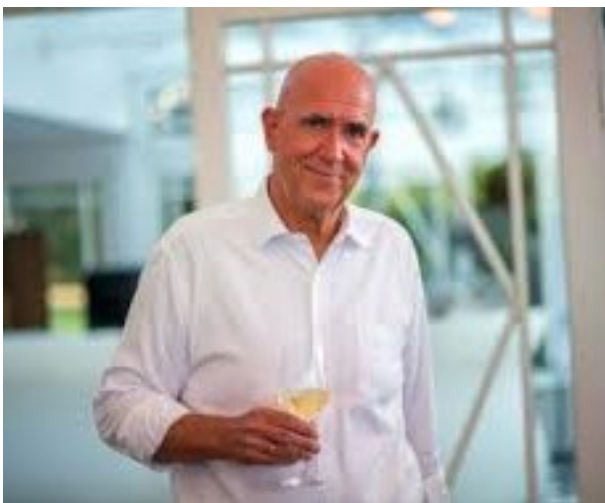


*'SHARP and FLiXenergy have a strong partnership for years. Together with SHARP, we implement unusual power generation systems that are designed to ensure that our customers achieve maximum self-sufficiency from the grid. As components, we use SHARP PV modules, flexible and cascadable NES storage systems and in the future also small wind turbines.'*

**Wolfgang John, FLiXenergy**  
**Installer of the PV solution**

*'We as St. Urbanus golf course are very pleased with the installation. The PV plant works very well and we are happy to further improve our environmental footprint using the SHARP panels.'*

**Dr. Michael Velte, St. Urbanus golf course**  
**Owner**



### **Renewable energy in Germany**

The share of renewable energies in electricity consumption rose from 6% in 2000 to 38% in 2018. Thus, the target of 35% planned for 2020 was exceeded prematurely.

In 2018, 33% of the electricity generated in Germany came from renewable sources. The share of renewable electricity generated from photovoltaics and geothermal energy was 6.1%.

With an installed capacity of over 45 GW at the end of 2018, solar systems make up the second largest share of renewable electricity generation after onshore wind energy.

<https://www.bmwi.de/Redaktion/DE/Dossier/erneuerbare-energien.html>



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Photos by FLiXenergy

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