

CASE STUDY

German car dealer embraces Tigo optimizers for E-Car fleet charging

Background

Wackenhut GmbH, a Mercedes-Benz car dealer established in 1948 with 12 outlets in South-western Germany, faced a unique challenge at its Nagold store (Baden-Württemberg). To support the 40 charging stations in the parking lot, the company implemented two large solar carports, equipped with a 120kW solar installation on the flat roof.

Challenges

More than 300 PV modules now adorn the flat roof of the carports, featuring a notable presence of forestays affixed to the supporting columns. This architectural configuration casts diffused shadows across the PV generator throughout the day. Furthermore, the system contends with significant shading in the afternoon hours, originating from the surrounding trees.

Solutions

The deployment of Tigo TS4-A-O optimizers, equipped with smart functionalities (optimization, monitoring and rapid shutdown) proved to be the ideal solution. Tigo MLPE units seamlessly integrated with the installed inverter, leveraging its double MPPT for optimal design flexibility.

Results

Tigo TS4-A-O optimizers ensure top-notch efficiency under varying solar conditions, mitigating the impact of shading and mismatch. The system consistently delivered MWh's of PV-generated energy, even in months with sub-optimal solar irradiance.

Two years post-commissioning, the system exhibited an average Reclaimed Energy percentage of 15%, with notable peaks during Autumn and February (20% and 30%, respectively), addressing intensified afternoon shadings.

INSTALLERS

Elektro Helber GmbH

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Martin Walz Elektro+Solartechnik GmbH & Co. KG



INSTALLATION TYPE

Commercial

LOCATION

Germany



FEATURES

Optimization, Monitoring, Safety (rapid shutdown)



TIGO EQUIPMENT

Tigo TS4-A-O

Cloud Connect Advanced (CCA)

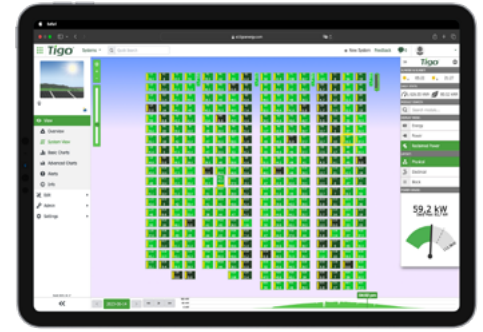
Tigo Access Point (TAP)



Tigo Energy Intelligence provides output data on a minute, hourly, daily and monthly basis (See picture). The chart view differentiates between base solar production (dark green bars) and reclaimed energy – the additional production enabled by Tigo TS4 optimizers (light green bars).



Even though Google Earth displays an image taken before the installation, it is possible to clearly see the shadows casted by surrounding trees and by carports' supporting columns. In this state, Tigo optimizers maximize energy generation preventing production losses.



System areas prone to mismatch and Reclaimed Energy are also visible on a module-level basis through the Sistem View option, available in Tigo Energy Intelligence monitoring software.

This provided the customer with ample energy for both his charging stations and his Nagold facilities. Reclaimed Energy is the additional energy production enabled by Tigo optimizers.

“As a family-run, medium-sized company, we provide impetus for innovative services related to mobility.” Said Kim Sautter, Head of Marketing at Wackenhut GmbH. “Together we face the responsible task of shaping the future as a mobility service provider in a sustainable way. That is why we invest in various sustainability concepts, such as the installation of a PV system at our Nagold site. With the help of the PV system, equipped with Tigo optimizers and module-level monitoring platform, we can produce electricity in an environmentally friendly way and thus make a contribution to climate protection.”

Equipment summary

- Commercial installation
- System capacity: 120kWp
- PV Modules: 324x Sharp NU-JC370
- Inverter: 4x SMA STP25000TL-30
- 324x Tigo TS4-A-O (Optimization)
- 1x Tigo Cloud Connect Advanced (CCA)
- 2x Tigo Access Point (TAP)



The picture shows a closer view of the PV modules affected by structural shades