

## CASE STUDY

# German Homeowner Enhances Self-Consumption with Tigo Solar-Plus-Storage Solution

## Background

In advance of its release to the German market, the Tigo EI Residential Solar Solution for solar-plus-storage underwent extensive local market testing, including full installations at beta test sites. The first of these installations was carried out by Elektrobau Meffert GmbH, which has operated in the Rheingau-Taunus and Rhein-Main regions for more than 50 years. The beta customer site, a single-family residence located in the community of Dornburg (Hesse, Germany), has a flat roof with an east-west orientation and includes three different sections of roofline elevations.

## Challenges

The homeowner specified a powerful solar system as well as an integrated storage solution that would deliver fast charging and could serve as reliable whole-home energy backup in case of a blackout caused by grid failure. The storage system was to be coupled with high-power bifacial PV modules, mounted on the surface of the high-albedo flat roof, to maximize energy production potential.

The roof layout is composed of three different sections of varying heights and includes shading elements such as a satellite dish, chimney, and parapets on the whole perimeter. These obstructions cast diverse shadows throughout the day, which cause regular mismatch between PV modules. Left unaddressed, these shadows would significantly impact system performance.

## Solutions

To avoid energy production losses from module mismatch caused by shading, Elektrobau Meffert deployed Tigo TS4-A-O Flex MLPE devices, which feature optimization technology that allows PV modules to perform at their best even during partial system shading and under other module mismatch conditions. The Tigo TS4-A-O devices also provide the system with rapid shutdown functionality for enhanced safety, and module-level monitoring for high-fidelity system performance data as well as management through a single digital platform.

Convinced by the quality and compact design of the Tigo EI Residential Solar Solution, as well as its seamless integration with Tigo MLPE products, the customer in Dornburg deployed Tigo EI Battery and Tigo EI Inverter products for a complete Tigo solar-plus-storage. Elektrobau Meffert, from its purview as

## INSTALLER

Elektrobau Meffert



## INSTALLATION TYPE

Residential

## LOCATION

Germany



## FEATURES

Optimization, Monitoring, Safety (rapid shutdown)



## TIGO EQUIPMENT

Tigo TS4-A-O

EI Battery

EI Inverter

EI Link

Contact us

<https://www.tigoenergy.com/contacts>

installer, was eager to deploy a system that provides simplified design, plug-and-play installation, and includes a powerful suite of software to handle operations and maintenance, as well as solar fleet management at scale. As such, the beta site was outfitted with four stackable, LiFePo-based EI Battery units, for a total of 12kWh energy storage capacity, designed to cover grid outages as outlined by the homeowner.

The Dornburg customer site, now fully operational, makes use of all components of the Tigo EI Residential Solar Solution for the European market, including:

- Tigo TS4 Flex MLPE products
- The three-phase Tigo EI Inverter
- Modular, DC-coupled Tigo EI Battery units, and
- The Tigo EI Link communications hub and connection point
- Tigo Energy Intelligence for monitoring and fleet management

The system's architecture and compact size allowed for a straight-forward and tidy installation in the homeowner's basement. Tigo communications technology ensured a fast and seamless commissioning process and connection with the Tigo Energy Intelligence platform. Once paired with Tigo TS4 MLPE products, the high-performance bifacial solar modules take full advantage of the available roof space and maximize energy yield.

## Results

Using module-level performance data from the Tigo Energy Intelligence monitoring portal, the site customer and installer discovered a total Reclaimed Energy value of 11%. Reclaimed Energy is a Tigo innovation that is a measurement of the energy that would have otherwise been lost due to mismatch caused by shading or other factors.

For Elektrobau Meffert and its customer, a closer look at the data revealed that the impact of the TS4 devices is even greater during the morning and afternoon hours, due to the east-west orientation of the solar arrays. The installed Tigo TS4-A-O devices help generate on average 30% more energy during those times, which helps charge the EI Battery.

The homeowner set the storage system to 'self-consumption mode' to prioritize the use of energy stored in the EI Batteries to minimize utility electricity cost, the homeowner has the option to set a reserve level to ensure battery availability in case of a disruption of grid-supplied power.

"I was delighted with the ease and simplicity of installing the Tigo EI Residential solution, and how seamlessly it integrates with my customer's existing infrastructure," said Klaus Besier of Elektrobau Meffert GmbH. "The user-friendliness of the installation and commissioning process make it a hassle-free experience, and I am proud to provide my customers with a reliable and efficient solar-plus-storage solution that doesn't just meet their needs, but exceeds their expectations."

## Equipment summary

- System capacity: 10kWp
- Modules: 27x Bauer Solar BS-400-108HBB GG bifacial Monocrystalline
- Inverter: Tigo EI Inverter TSI-10K3D
- Battery: 4x Tigo EI Battery TSB-3-3.1kWh
- 27x Tigo TS4-A-O (Optimization)
- 1x Tigo Cloud Connect Advanced (CCA - integrated datalogger)
- 2x Tigo Access Point (TAP)



### The Tigo EI Residential Solar Solution for Europe

The system was installed in the basement and features the Tigo EI Inverter (top), EI Link (middle) and EI Battery (bottom and right)

Contact us

<https://www.tigoenergy.com/contacts>