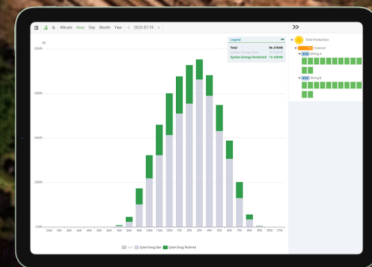


CASE STUDY

Neighbors in Spain average 21% Reclaimed Energy across their Tigo-optimized homes



Background

This 9.5kW residential system is located at Galapagar, on the outskirts of Madrid and it has been installed on a terraced building which serves both as home and office with small data center. The house is also equipped with a home automation system based on IoT.

Challenges

Initially, this array was sized 4.6kW and did not include a storage system. Then, due to the increasing power demand and to the frequent power outages occurring in the region, the homeowner started to seriously consider an upgrade of his solar installation. He looked for a storage system to increase his level of self-consumption as well as for a solution to maximize energy production with the available roof-space.

To identify shaded areas in detail, he installed two cameras on his roof, so that he could track the sun from sunrise to sunset. Timelapse analysis highlighted a number of diffused shadings throughout the day, primarily caused by two big chimneys and by neighboring rooflines, which heavily impacted on daily production. The results of this preliminary test paved the way to Tigo Flex MLPE solution, with module-level optimization, enhanced safety and remote monitoring via Energy Intelligence software.

As the system owner wanted to maximize the usable space of his house, he opted for adding to the existing layout as many solar modules as possible, covering the whole roof surface and using some of the modules as canopy to shade one of the building terraces. Due to the rapid evolution of power-classes, the choice fell on modules which were different in peak power and technology from the one he originally installed. However, this gap was successfully bridged by Tigo optimizers, since TS4 platform easily supports power mismatches between different solar panels.

Results

On top of the original 15 modules (375 Wp each), 2x 400Wp and 7x bifacial 410Wp solar panels have been added on the roof. The existing inverter has been replaced with a hybrid one, connected to a 80kWh LiFePo storage system. Upgrade has been completed by full deployment of 24x TS4-A-O with CCA Kit.

DESIGNER & INSTALLER

The IPv6 Company and Friman Instalaciones S.A

INSTALLATION TYPE

Residential

LOCATION

Spain



FEATURES

Optimization, Monitoring, Safety (rapid shutdown)



TIGO EQUIPMENT

Tigo TS4-A-O

Cloud Connect Advanced (CCA)

Tigo Access Point (TAP)

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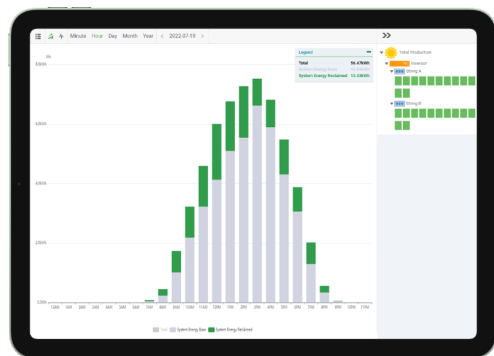
Tigo®



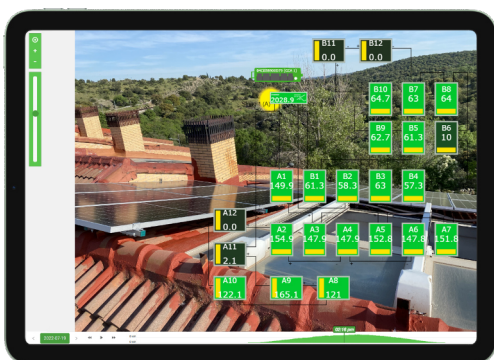
The front of the house includes solar modules on any available roof-space and a solar awning



The southern pitch of the roof features 20 modules surrounding a wide skylight and two big chimneys



EI monitoring portal gives a granular and detailed overview of the amount of reclaimed energy that is enabled by Tigo optimizers. This specific system records a remarkable 26% reclaimed energy.



System view enables the physical layout of the array represented on EI app. A vast range of module-level data can be easily accessed from browser and/or smartphone to analyze system performance.

Energy Intelligence monitoring software immediately enhanced the benefits of optimization: historical data testify a constant double-digit percentage of reclaimed energy, touching its peak late in the morning and giving its contribution also at dusk as well as with the last rays at dawn. This customer reclaimed an average of 26% more energy in the last 12 months, thanks to the work of Tigo optimizers during daylight hours.

Such outstanding performance did not go unnoticed. His neighborhood, sharing the same roof orientation and mismatch conditions, looked at the results of this solar installation and embraced Tigo optimizers for their own sites, driven by Energy Intelligence outstanding data.

“The interesting result is that with an accurate planning and the Reclaimed Energy data from the first installation,” said the homeowner and designer of this PV system. “already six other families selected and installed the Tigo solution. On top of that, there are six additional systems in the pipeline, including a specific installation for energy production of the garden, swimming pool and other common areas of our 24 houses condominium”

A first analysis of production data across all of the homes showed an average of 21% Reclaimed Energy, enabled by Tigo optimizers, across the seven monitored installations. This means that this little Solar Lane already reclaimed megawatt-hours and it's proudly targeting its first gigawatt-hour of clean and sustainable energy.

Summary

- Residential Installation
- System capacity: 9.5kW
- Modules: 15x 375Wp, 2x 400Wp, 7x bifacial 410Wp
- Inverter: Solax Power X1-Hybrid G4 7.5kW
- 24x Tigo TS4-A-O (Optimization) Flex MLPE
- 1x Tigo Cloud Connect Advanced (CCA)
- 1x Tigo Access Point (TAP)

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