

MORE THAN JUST A CONSORTIUM

Residential area with 90 apartments produces its own electricity



PROFILE

Client:
Investors Frei Architekten AG,
Setz Immobilien AG, Zubler Immobilien AG

Industry:
Property sector

Special characteristics:
Self-consumption consortium of 90 apartments (including e-charging infrastructure)

Region, country:
Unterentfelden, Canton of Aargau,
Switzerland

THE BACKGROUND

Buildings are responsible for around a quarter of Switzerland's greenhouse gas emissions and about a fifth of its overall environmental impact. But awareness of sustainable living is increasing, with investors and project developers finding new residential approaches to meet an increasing demand. You can find one such approach in the municipality of Unterentfelden in Switzerland. An apartment complex built here in 2019 boasts the latest energy standards with infrastructure future-proofed for electromobility.



THE CHALLENGE

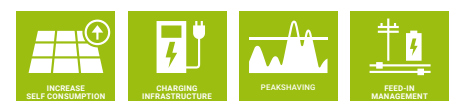
The residential area, known as "Im Erlifeld", has nine housing blocks, each with 10 apartments of which a third are freehold. By involving the energy supply company Eniwa AG early on in the project, the planners were able to configure the whole area so that the blocks could cover most of their energy requirements on site. In this "self-consumption consortium" (a concept also known in Germany as "Mieterstrom", or "landlord-to-tenant electricity"), the residents benefit directly from the solar installations on the roofs, with no grid charges, concessionary fees or electricity taxes which increase the price of electricity supplied from the grid.

Just as attractive for residents are the public charging points and high-performance charging stations for electric vehicles as well as vehicles from an e-carsharing franchise, all found on the site. Electricity production and consumption is optimised by demand response tailored to the area. This includes 27 heat pumps and the charging points for electric vehicles. Eniwa

worked with a start-up to develop a transparent blockchain-based billing solution. For its demand response, the site requires a battery storage system to temporarily store the excess energy. Ideally, this would be used to accommodate peak loads and for arbitrage transactions.

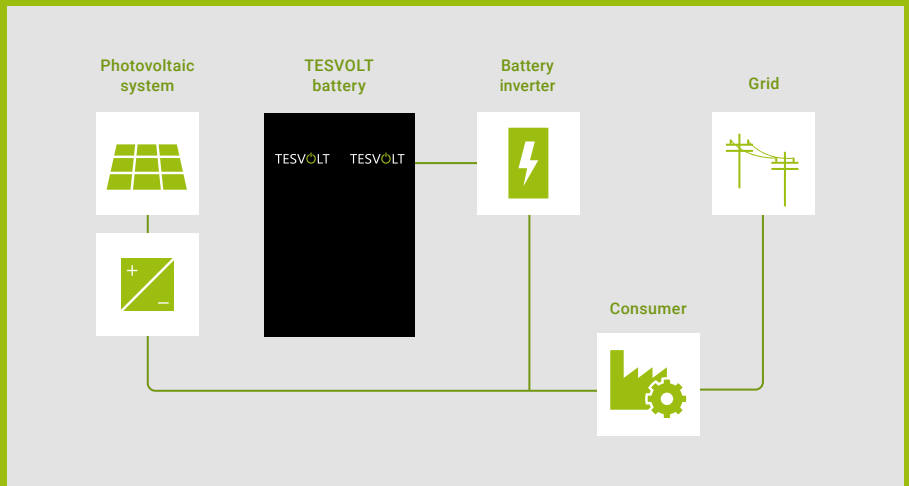
Requirements for a storage solution:

- High-performance storage system with a high depth of discharge and many guaranteed cycles for a sustainable and long-lasting investment
- Easy installation and modular option for expanding the service



THE SOLUTION

Eniwa found what it was looking for in the German town of Lutherstadt Wittenberg where TESVOLT manufactures lithium-ion storage systems for industrial applications. TESVOLT has a unique and ingenious balancing system which not only guarantees the longevity of the cells but also optimises the response times and efficiency. For this project, the ideal model was the TS HV 70, with its energy content of 134 kWh and an output of 60 kW.



“Living in a community with a future-proofed energy supply is great. Thanks to the TESVOLT storage system, I can even get solar power from my own roof at night.”

Sirri Tolga, apartment complex resident

“Our aim is to make sustainable energy as easy as possible for our customers. And with this project, we succeeded.”

Dr. Hans-Kaspar Scherrer, CEO Eniwa AG

THE ADVANTAGES

- **Self-consumption increased to 80% and self-sufficiency to 40 %**
- **Peak load shaving**
Reduces power peaks by approx. 25 % per month and thus reduces the residents' electricity bills
- **Arbitrage**
Charging the storage system at low tariffs when there is insufficient sunshine and supplying electricity at high tariffs.
- **Durable**
The system boasts an above-average lifespan of up to 30 years thanks to extremely robust Samsung battery cells and the one-of-a-kind battery manage-

ment system, which optimises cells not only within a single module, but also also between the modules in each cabinet.

- **Expandable**
TESVOLT systems can be expanded or exchanged at any time – not just after the first few months of operation but even many years later.
- **High performance, rapid response**
Thanks to the battery management system, TESVOLT's storage systems offer full availability of their energy. TESVOLT storage systems are 1C-capable, meaning they can be fully charged or discharged within an hour with the proper configuration.

PROJECT: FACTS AND FIGURES

Storage system	TS HV 70
Energy content	134.4 kWh
Discharge power	60 kW
Cell	Lithium NMC prismatic (Samsung SDI)
Efficiency (battery)	up to 98 %
Cycles	6.000–8.000 (0,5C- to 1C at 23 °C +/-5 °C with 100 % depth of discharge)
Operating temperature	-10 °C to 50 °C
Battery inverter	SMA STPS 60
Installer	Eniwa AG

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