

LANDLORD-TO-TENANT

ELECTRICITY

PV connected to storage systems opens new energy horizons for tenants



PROFILE

Client:

Wohnsinn Bau- und Wohngenossenschaft eG

Business:

Residential construction

Special characteristics:

KfW 40+ federal funding, green roof PV system

Region, country:

Darmstadt, Germany

THE BACKGROUND

Darmstadt is an attractive and expanding city, but it has very limited space. Understandably, there is a great need for innovative space utilisation and living concepts. On its southern outskirts, the site of a former US barracks, the 25-hectare "Lincoln-Siedlung" is being built as a model community for the city. In addition to featuring modern mobility concepts, it also incorporates residential projects. One of them was implemented by the Wohnsinn building and housing cooperative.



THE CHALLENGE

The philosophy of the Wohnsinn project seeks to combine socially mixed, intergenerational living with self-management and the achievement of environmental goals. One of them was to build a passive house in the Lincoln-Siedlung and to produce and use electricity from a photovoltaic installation.

However, this produces a dilemma in Germany. If the cooperative does not want to feed the electricity into the grid and instead distribute it to its tenants, then it is assuming the role of an energy supplier under the law. As a result, it must carry out the corresponding tasks and duties of an energy supplier, such as documentation, reporting and assumption of liability. Thus, it is saddled with an administrative burden that is difficult to carry out.

Conveniently, there are now electricity providers for tenants, like prosumer, that take on this role. The tenants can then obtain their green electricity directly from prosumer at a price that is well below the regional standard.

Electricity usage is distributed very widely throughout the day in the multigenerational development of 43 units and common spaces, so it makes sense to store the PV electricity in a storage system to cover usage during the night or on cloudy days. Modern lithium battery storage systems are now available in many configurations and, thanks to their sophisticated energy management systems, they can be usefully deployed for many applications.

Requirements for a storage solution:

- High storage capacity with many guaranteed cycles for sustainable power delivery
- Uncomplicated installation and compatibility with electric charging stations and photovoltaic installation



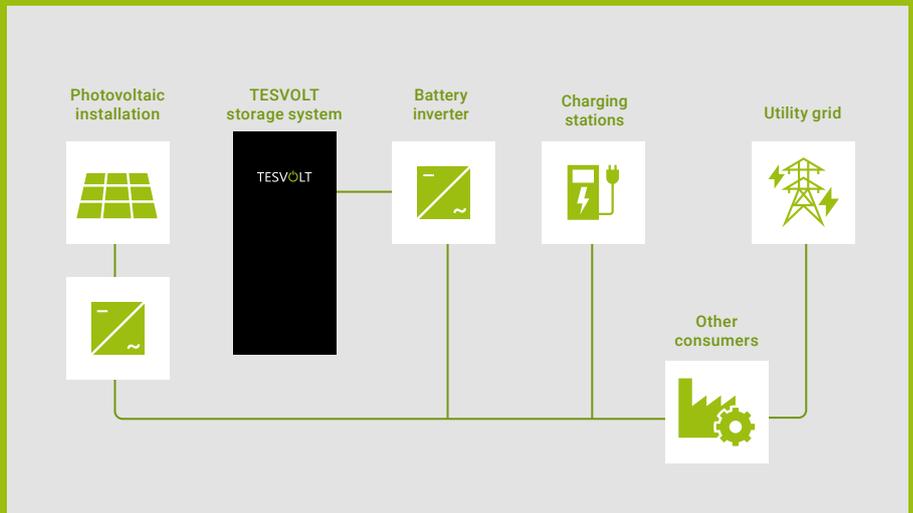
SELF-CONSUMPTION
OPTIMISATION



CHARGING STATION
INFRASTRUCTURE

THE SOLUTION

The Frankfurt-based system solution provider ENVIRIA together with prosumer-gy designed an innovative energy concept for the Wohnsinn development and made it a reality using its partner network. The 80 kWp photovoltaic installation was installed on a green roof with a robust substructure. A TS 48 V from TESVOLT was used as the energy storage system. It has a capacity of 76.8 kWh and a maximum output of 18 kW. Therefore, it has enough power to operate power-intensive consumers, such as the Mennekes wall boxes.



“It is a tremendous advantage for us to have TESVOLT as a partner in our ecosystem. Together, we are always able to find a solution for any customer need, just like we did for this project.”

Melchior Schulze Brock, CEO and Founder, ENVIRIA Energy Holding GmbH

“We made a conscious decision in favour of TESVOLT, because they were only slightly more expensive than an Asian competitor but we were more impressed with them in a number of other areas apart from price. These included regional presence, durability and the modularity of their offerings.”

Bernd Müller, Executive Director of Wohnsinn Bau- und Wohngensossenschaft eG

THE BENEFITS

- **A 22% increase in the self-consumption rate**
- **Future-proof investment** that proves particularly important when the feed-in tariff expires
- Thanks to compliance with the KfW 40-plus standard, **federal funding is available**
- **Durable**
The system has an above-average lifespan of up to 30 years. This is made possible by robust battery cells from Samsung and one of the most advanced battery management systems on the market, which not only optimises cells within a module, but also between the modules within a cabinet.
- **Expandable**
TESVOLT systems of the same type can be expanded or replaced at any time – not just after the first few months of operation, but even many years later.
- **Powerful and responsive**
Thanks to the battery management system, TESVOLT storage systems make the energy they accumulate fully available. TESVOLT storage systems are 1C-capable, meaning they can be fully charged or discharged in one hour with the proper configuration. As a result, even demanding consumers such as electric charging stations can be kept running when the sun isn't providing enough power.

FACTS AND FIGURES

Storage system	TS 48 V
Energy	76.8 kWh
Output	18 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 Sunny Island
Installer	ENVIRIA Energy Holding GmbH

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