

PEAK SERVICE

Peak shaving deluxe at a four-star superior hotel
with an annual consumption of >1 GWh



PROFILE

Client:
Oberjoch Familux resort

Business:
Tourism, hospitality

Special characteristics:
Atypical grid usage, peak shaving and energy trading

Region, country:
Allgäu Alps, Bavaria, Germany

THE BACKGROUND

The Oberjoch Familux resort is a four-star superior hotel in the health resort of Oberjoch. The hotel is situated at an altitude of 1200 metres amid the impressive mountain peaks of Bavaria's Allgäu region, hailed by the German Ski Association as the best skiing area for families in the Alps. And families are the hotel's main clientèle; everything here is tailored to the needs of families of all ages, down to the very last detail.



THE CHALLENGE

The Oberjoch Familux resort offers families an impressive range of activities and recreational facilities, including its own cinema, theatre, go-kart track, gym, bowling alley, panoramic indoor swimming pool, sauna facilities, tyre water slide and expansive fitness centre. Spread out across 5,000 m², the hotel's outdoor area offers a climbing course, toboggan run, children's zoo and a ski school for the youngest guests. The hotel also provides 25 electric charging stations for its guests and employees.

An infrastructure of that size obviously consumes a lot of energy; the hotel's annual consumption amounts to more than 1 GWh. A 540-kWp photovoltaic system installed on the roof of the hotel has already considerably reduced the amount of electricity drawn from the grid. But the base load was not the only problem. The extremely high electricity peaks caused by pumps and heating systems in the spa area were another cause for concern. Every year, the local energy supplier

charged amounts in the mid-five-figure range for this usage. While the spikes are brief, electricity suppliers need to keep the output available just in case. Covering this increased electricity demand with the aid of a battery storage system – which stores electricity from the grid or from renewable sources and makes it available when the customer needs it – would save the hotel money.

Requirements for a storage solution:

- High storage capacity with many guaranteed cycles for sustainable power delivery
- System with multi-use capabilities that can run several storage applications in parallel (peak shaving, self-consumption optimisation, balancing energy)



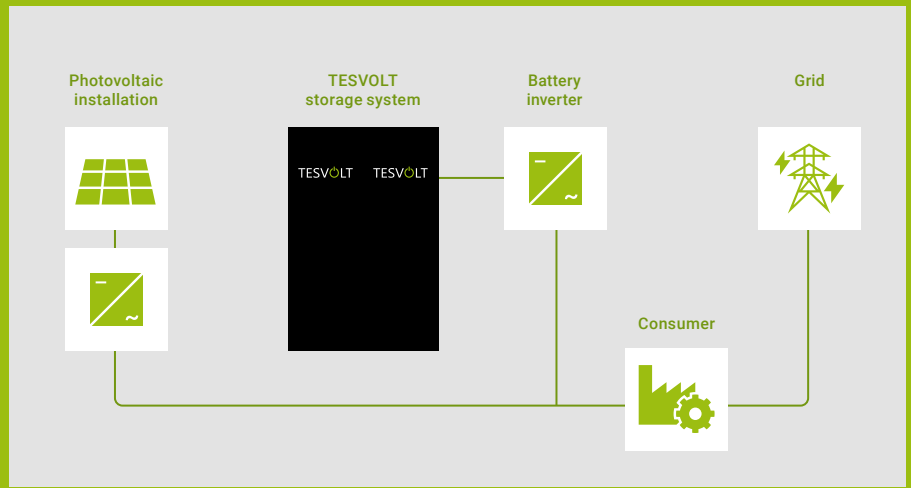
PEAK SHAVING



INCREASED SELF-CONSUMPTION

THE SOLUTION

In search of a solution for their peak loads, the hotel concluded an agreement on atypical grid usage with its energy supplier. Under this agreement, the supplier defines a peak time window; in this phase, the electricity consumer reduces its maximum daily consumption by at least 20%. In return, the supplier does not measure the consumer's grid usage for the rest of the day, so any further peak loads are not charged. Adler Solar decided the appropriate storage system for this scenario was the TESVOLT TS HV 70 with a discharge capacity of 300 kW.



“Commercial storage systems are quite expensive, so you want to be on the safe side – the wrong decision can be very difficult to reverse in practice. With TESVOLT, you can't go wrong – they offer first-class products and expert service.”

Jörn Menke, Energy Management Consultant and Product Developer, Adler Solar

“With the TESVOLT storage system, our electricity peaks are well below what they used to be, which generates huge savings.”

Volker Küchler, Director of the Oberjoch Familux resort

THE BENEFITS

- Cost savings for peak loads in the mid-five-figure range
- Converting the system to make excess energy available for energy trading today will generate sums in the mid-five-figure range per year
- **Powerful**
Thanks to the battery management system, TESVOLT's 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 high-performance consumers can be kept running when the sun isn't providing enough power.
- Procurement costs written off within 4-5 years
- 100% self-sufficient on sunny summer days
- A self-consumption rate of 99%; electricity for the hotel guest rooms is generated from 100% renewable sources
- **Safe and long-lasting**
The system boasts an above-average lifespan of up to 30 years thanks to extremely robust Samsung SDI battery cells and a one-of-a-kind battery management system that not only optimises cells within a single module but between modules within a cabinet as well.

FACTS AND FIGURES

Storage system	TS HV 70
Energy	307.2 kWh
Power	240/300 kW (charge/discharge)
Cell	Lithium NMC prismatic (Samsung SDI)
Efficiency (battery)	up to 98%
Cycles	6,000 to 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 Tripower Storage 60
Installer	Adler Solar Services GmbH

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