

MOUNTAIN

RESERVES

Off-grid use of battery storage systems



PROFILE

Client:
German Alpine Club (DAV)/Coburger Hütte
(1,920 meters above sea level)

Industry:
tourism

Special characteristics:
guaranteed off-grid power supply thanks to photovoltaics, battery storage and combined heat and power unit

Region, country:
Mieming, Tyrol, Austria

THE BACKGROUND

In the North Tyrolean Alps, not far from the Zugspitze mountain, the German Alpine Club runs the Coburger Hütte alpine hut. Each year from May through October it is managed by the Schranz family. Due to its isolated location, the hut needs to generate its own power. Since 2009, it has generated electricity from a photovoltaic installation and a combined heat and power (CHP) unit fuelled by vegetable oil.



THE CHALLENGE

Many people enjoy spending time in the mountains and this is also reflected in the increasing number of visitors to Coburger Hütte. The hut's daily power consumption now lies around 200 kWh in the peak season. Alongside hot water, the kitchen consumes the most energy, with its large industrial dishwashers and freezers. Consumption peaks around lunchtime as the kitchen staff prepare meals and wash dishes.

Even though the photovoltaic installation provides the most energy in the early afternoon, it can't provide the total energy needed to cover daily consumption, making it necessary for the combined heat and power unit to generate additional energy.

Energy storage units help to distribute the excess solar energy from the early afternoon throughout the rest of the afternoon and evening, and to optimize the CHP unit's warm-up times. Coburger Hütte previously relied on lead-acid batteries, but, despite

high maintenance costs, they wore out after not even ten years of use.

On account of the old lead-acid batteries' deterioration and a desire to optimize self-consumption, the DAV put out a call for tenders to upgrade the system in the early summer of 2018.

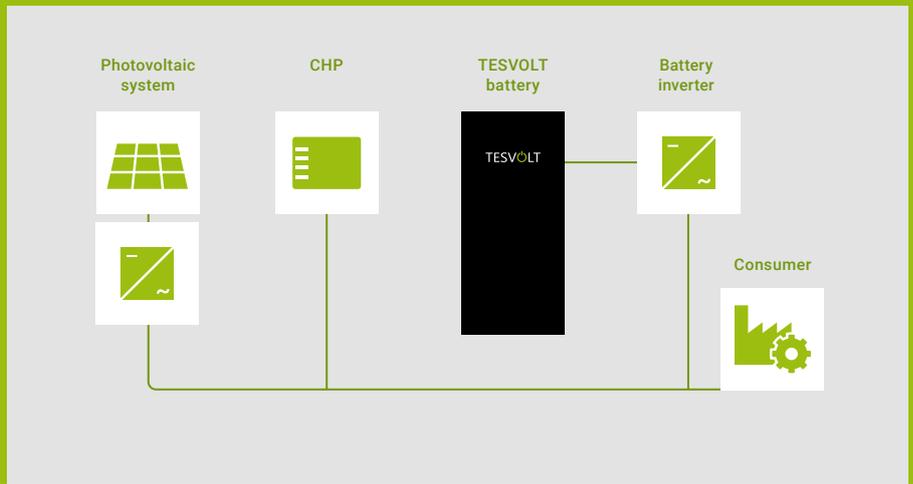
Their requirements for the new system:

- an increase in photovoltaic capacity from 4.4 to 16 kWp, meaning the installation of a new battery with higher charging and discharging power
- less frequent maintenance, overall greater reliability and durability
- greater efficiency



THE SOLUTION

Expert installer StromvomDach Erl was able to win the DAV over with the high quality of TESVOLT's batteries and installed the company's TS 48 V lithium-ion battery storage system with a capacity of 77 kWh and a power output of 36 kW. Operations continued without a single interruption to the power supply while the additional solar modules were installed and the battery was changed out – all within just 5 days.



"It's true we're fans of TESVOLT because of their products' outstanding performance and easy assembly, but also because the company treats its customers as equals and is prepared to discuss issues openly."

Michael Anker, Specialist Installation Company StromvomDach Erl

"If we've learned anything from our guests, it's that no summit can be reached if you don't have enough reserves. We are thrilled to say that we are now prepared for any and all peaks in consumption thanks to the TESVOLT battery storage system."

Jürgen Schranz, Hut Manager

THE ADVANTAGES

- The storage system's higher performance guarantees full-load operation, even during the lunch rush.
- On quieter days, all the power generated by the photovoltaic installation can easily be fed into the storage system with minimal loss.
- Employees can devote their full attention to guests while the system, designed to have a decades-long service life, runs in the background:
 - built for decades – up to 8,000 full cycles with a nominal discharge capacity of 36 kW, for a short time even 66 kW. Made possible by robust battery cells and one of the most advanced battery management systems on the market
- Certified installers can monitor storage health down to the cellular level.
- limited self-discharge
- **Reduced costs**
 - fewer generator running hours (12–14/day > 6–8/day)
 - low-maintenance: no need for water refill; no electricity necessary for battery charge retention
 - battery offers longer life and greater energy efficiency

PROJECT: FACTS AND FIGURES

Storage system	TS 48 V
Energy content	77 kWh
Discharge power	36 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	StromvomDach Erl

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