First PV community in Upper Austria

PV is on the rise in Upper Austria and has conquered many roofs of single-family houses, public buildings and companies. However, in the past, implementing PV systems in multi-family buildings was challenging: PV electricity could only be used for the "common areas" (ex: stairwell lighting, elevator), not in the apartments themselves. Since 2018, a change in the law has given residents the opportunity to own and use PV electricity on a larger scale together and optimise their self-consumption as part of a "PV community". This was the first step towards renewable energy communities.

The project at a glance

15 kW_p collective PV system

- 6 households
- Dynamic billing model
- Investment costs: 20,600 Euro
- Subsidies:
  - 5,600 Euro national funding
  - 900 Euro from the municipality
- Payback period: 7.5 years
- Self-consumption rate: 80 %

ENERGY LEADERS
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Pioneers for the collective use of solar power

The residential community "Am Hummelhof" in the municipality of Thalheim/Wels created the first PV community in Upper Austria. Their pioneer project earned them the Upper Austrian award for sustainable energy projects "Energiestar". The 15 kW_p PV system was commissioned in 2018 and supplies 6 households with renewable electricity. While average single-family homes can only use around 30 % of their PV electricity, this community achieves a self-consumption rate of around 80 % thanks to shared use of the electricity among participating families and a smart controlling system. Any solar power yield that is not used directly is directed towards the boiler. In the future, it will be used to charge an electric car. The high self-consumption rate shortens the payback period of the PV system. In the case of the PV community "Am Hummelhof", it is as low as 7.5 years.

Allocating the PV electricity: static or dynamic

An optimal allocation of the generated PV electricity between participating parties is pivotal for the success of a PV community. The static model is simpler for billing: each party receives the same amount of electricity. When it is used up, this party can no longer obtain PV electricity. With this model, it can occur that PV electricity must be fed into the grid even though there is a demand for electricity in the building, thus reducing the self-consumption rate.

In this project, the group opted for the more flexible dynamic model. The PV electricity is shared and billed according to each party's individual demand. The electricity consumption is recorded every 15 minutes, making smart metres absolutely essential. The grid operator transmits this data to the PV community, which then manages the billing itself – as in the case of the "Am Hummelhof" group – or hires a service provider to do so.

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