European Institute
for Energy Research
by EDF and KIT

SoLAR

Smart Grid ohne Lastgangmessung Allensbach - Radolfzell

Key Facts

Funding Agency
Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg

Duration
05/2018 – 07/2021

Coordinator
International Solar Energy Research Center Konstanz

Partners
- Kaufmannbau
- NaturEnergie
- Stadtwerke Haßfurth
- Stadtwerke Trier
- Easy Smart Grid
- Stadt Allensbach
- Messerschmid Energiesysteme
- Weider Wärmepumpen
- BSH Hausgeräte GmbH
- Miele
- E3DC

Website
https://solarlago.de/solar-allensbach/

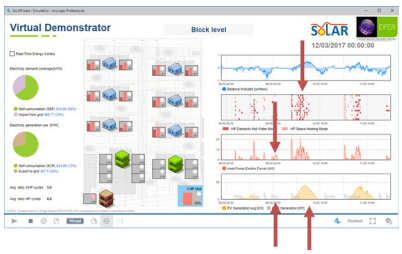
Decentralised Energy Management

SoLAR aims to demonstrate how to maximize the use of fluctuating renewable energies in a decentralized energy system in a particularly simple, generally accepted and economical way. This demonstration project will show under real conditions how renewable energy shares can be highly increased and carbon reduction reduced at a district level, by implementing a modular and scalable energy management under real-life conditions.

The pilot site in Allensbach, Germany, comprises a residential real estate energy system of 10 buildings, coupling heat and power vectors (HP, CHP, thermal storages, batteries, PV).

Virtual Demonstration

In Phase 1, EIFER has developed a virtual demonstrator of the 22-dwelling pilot site that has shown successfully the feasibility of decentralised energy management. This virtual demonstrator is a highly realistic simulation of the real pilot, making use of latest modelling techniques such as agent-based and multi-method approaches.



Virtual Demonstrator interface of the Allensbach Pilot Site: © EIFER

Improved Use of Local Energy

The current use case of the energy management system has achieved to **maximise self-consumption of the site by 13%**, making best use of local produced energy; a **peak reduction up to 36%** alleviating the distribution grid; and a **cost reduction of 2-5ct/kWh** allowing the end consumer to benefit from advantageous tariffs.

In Phase 2, the real demonstration is being carried out and verifying the concept under operational conditions (2019-2021). The virtual demonstrator is connected to allow for a continuous optimization of the system.

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