Case study
Office building with energy storage
Burgoberbach - GERMANY

STUDER

The challenge

When Autarctech started to build their new office with production and laboratory, they wanted to get as energy independent as possible, living up to their company slogan: enjoy independence.

Autarctech

Among the prerequisites were to have a system with enough energy to be able to work at least 8 hours per day, even if there is a power outage, as well as being able of handling additional energy requirements, i.e. charging an e-car or an increased production of their active balanced storage systems. It should also be possible to upgrade the system easily and they wanted to test different energy management systems with the setup.

Why STUDER

STUDER has always been very supportive of technical questions or issues. In addition, STUDER inverters have a high performance and are very reliable. The possibility of easily realizing an emergency power supply with uninterruptable power supply capability was a strong argument.

System components

The system contains the following components:
26 kWp PV panels
1x LiRack 22,4 kWh active balanced LiFeMnPO4 storage
3x STUDER Xtender inverter/charger XTH 8000-48
1x STUDER mounting system X-connect
1x STUDER multi-protocol communication module Xcom-CAN
1x STUDER communication set Xcom-LAN
1x STUDER remote control RCC-02
1x Fronius 20.0-3-M PV-inverter

The Solution

The photovoltaic energy easily covers the complete electrical energy consumption during a sunny day and charges the batteries very fast. The building is efficiently heated with an air heat pump. Low temperature underfloor heating is installed in each room and there is a controlled ventilation system with heat recovery. All warm water is generated electrically through a central heating boiler.

As all energy necessary to run the building, the offices and our meeting room as well as the production and laboratory is electrical, we have chosen to install a 3-phase power grid with one STUDER XTH 8000-48 on each phase. The STUDER inverter/chargers are controlling the Fronius inverter to enable charge and disable discharge through programming.

During daylight the Fronius inverter first delivers energy for the power grid and on top charges the battery up to 95% SOC. When the battery is at 95% the Fronius is put on hold level and just feeds enough energy into the system to run the building. The battery is used to cover peaks that the PV-inverter can't deliver.

As soon as there is not enough energy coming from the photovoltaic, the battery is discharged and delivers the necessary power. When the battery has reached a level below 85% SOC, the photovoltaic inverter is activated again to charge the battery if energy is available. During nighttime the battery is still discharged. During summertime, there is no need receiving additional energy from the outside. This winter they will see what independence they can achieve with the system.

Project outcome

The system is running very stable without any connection to an external grid for several months. The company has been able to test their battery storage as well as the complete set up of their facility.

The system also work as a demonstration installation showing customers what possibilities there are in regards of using renewable energy for a smaller company.

The Company

In 2013, **Autarctech** developed a battery management system with a very efficient active balancing. Based on this battery management they started to produce battery systems for different applications; from energy independent outdoor caravans to money saving peak-shaving for business facilities and private households looking for a reliable system and a secure energy storage. They deliver their BMS and the support necessary to install it to partners in India, Chile or Australia.

4K30

For more information please contact:

Studer Innotec SA
www.studer-innotec.com/michael.wollny@studer-innotec.com
Studer Contact: **Michael WOLLNY**

Autarctech
matthias.baeuerle@autarctech.de
www.autarctech.de

AutarcTech
enjoy independence