

Bachelor-/Masterthesis

Measurement of a Redox-Flow Home Energy Storage System

Topic

Energy Storage Systems

Focus

- Theory
- Literature
- Simulation
- Programming
- Constructions
- Hardware
- Experiments

Courses of Study

- Electrical Engineering
- Mechanical Engineering
- Mathematics
- Process Engineering

Starting Date

As soon as possible

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Motivation

Electric energy storage systems in combination with renewable energies can make a decisive contribution to the provision of electricity and to achieving the goals of the energy transition. However, they will only be used to a large extent when the electricity they provide is also economical for the respective user. Due to the price development in the home energy storage market and the further development of stationary energy storage systems, there are already systems whose use in connection with photovoltaic (PV) systems in Germany can be more economical than pure mains power supply. Not only the purchase costs but also the quality and performance of the storage during operation have a considerable influence on the storage costs. In 2017, the Efficiency Guide for PV Storage Systems was published for the measurement of PV home storage systems. Among other things, it describes the measurement of the power electronic components efficiency in a system, the battery, the standby consumption and the control efficiency of storage systems. The focus of the guide is on the measurement of Li-Ion based storage systems. Currently there are also individual redox flow home storage systems.



Tasks

A redox-flow home storage system is to be measured according to the efficiency guidelines. The aim is to shed more light on the extent to which the current surveying regulations need to be adapted and, if necessary, to develop and implement proposals to this end. In addition, the test results of the redox-flow system are to be compared with the already existing test results of the Li-ion batteries.