

Master's Thesis Electrical Engineering at Energy Lab

Development of a Battery Energy Storage Model

Thesis Description:

Integrating renewable energy sources into modern power systems has brought new challenges in efficiently balancing power and energy demands. This leads to an increasing need for storage solutions. We are investigating a hybrid energy storage system (HESS) that combines batteries and supercapacitors. To optimize this HESS efficiently, having a detailed model of each component of the system is important. The core objective of this thesis is to develop a comprehensive model of a Battery Energy Storage System (BESS) within a HESS, focusing on the electrical behavior, losses, and real-time capability.

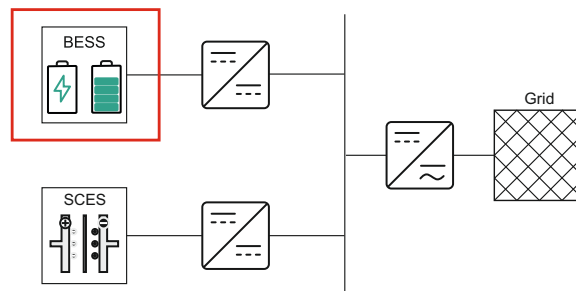


Diagram of Hybrid Energy Storage System (HESS)

Milestones:

- Literature research of battery modeling.
- Design and parametrization of the model
- Consideration of SoC and Power limits

Your Profile:

- Basic experience with Matlab/Simulink
- Students with knowledge of Battery Systems preferred
- Language: English/German

You will learn:

- Simulating scenarios and analyzing data
- Advanced battery modeling techniques
- Fundamentals in State Space Modeling
- Deeper understanding of batteries and power electronics

Contact:



Seyede Masoome Maroufi
Campus Nord

ITEP: Geb.410 R.102
Tel.: 0721 608-28059
Mail: seyede.maroufi@kit.edu

Academic supervisor: Prof. Giovanni De Carne
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