

Master Thesis

Energy-Management-Systems: A practical implementation and analysis

The transformation of our energy system requires an adjustment of our electricity consumption to the availability of renewable energy. At the same time, it is important to use renewable electricity efficiently and to decarbonize our transport and heat sector. Intelligent charging and heating play a key role in this. In combination with battery storages, our future buildings have a significant potential for flexibilization of electrical generation and consumption.



The objective of this work is to analyse the impact of intelligent energy systems in the real world. Intelligent systems offer the possibility to reduce the electricity costs by optimizing the use of PV electricity and variable electricity tariffs. For this purpose, the flexibilities of electric vehicles, heat pumps and battery storages can be used. However, it is still not clear what impact the systems can achieve in practical use.

Your tasks

- You work in the team of the smart-energy-systems-lab at the Campus Feuchtwangen
- You install and start up different intelligent systems (such as intelligent Wallboxes or Energy Management Systems)
- You develop a PV-simulation in LabVIEW
- You analyse the energy flows and interpret the results in terms of their significance for energy technology as well as for cost savings

Necessary knowledge

- Programming skills in LabVIEW and Python
- High motivation in sustainable energy systems as well as a self-motivated approach to work
- Knowledge in the field of data-interfaces and -communication (RS485, Modbus RTU Modbus TCP, ...)
- Own ideas and creative approaches to solutions

Start: Possible from now

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