

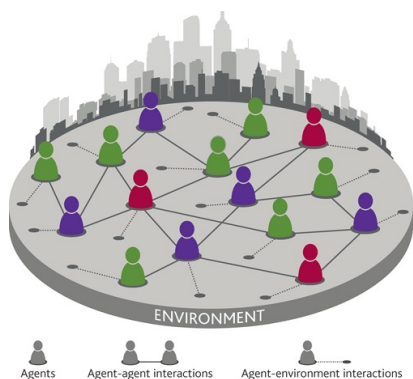
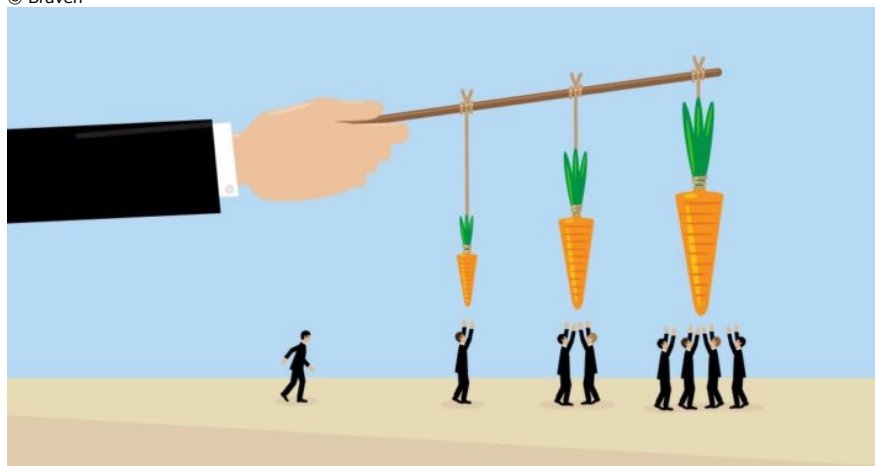
Bachelor's Thesis in Energy and Environmental Systems Engineering

# Modes of EV user interactions with the energy system

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**Abstract**

The rapid increase of renewable energies poses challenges to the existing energy grid. Band energy loses importance due to the shutdown of thermal energy plants. Spinning reserves in the grid therefore also disappear, with that fluctuations of the grid need to be handled by new methods. These are all technically relevant topics, but the general public also needs to take place in this change. Through a literature review and the analysis of statistical data, the situation regarding battery electric vehicles and their role in the energy system is analysed in the topics of aggregation forms and energy community for V2G charging. Forms of incentivising the participation in such programs are also investigated.

At the Museum of Transport, a living lab will be established to study the types of participation incentives and aggregation forms by an agent based model. This model is the basis to understand the success of business models and incentives for a future grid. Aggregators and BEV owners represent new stakeholders in the energy market and also agents in the ABM studying their behaviour and preferences is part of this work and brings together technical aspects of the a smart grid and behavioural patterns of the stakeholders involved.

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