Electricity forecasting to benefit prosumer households from dynamic prices using machine learning

Motivation

An increasing number of households have PV systems on the roofs, heat pumps in their basement or batteries available (stationary or in their car). In addition, more and more energy utilities offer dynamic prices to their customers.

Task

The thesis aims to find out to what extent machine learning methods can be used to empower prosumer households (who can produce and store their own electricity) to use dynamic prices to their advantage. The work can use a simulation framework from our existing research and compare the ML methods with other operating strategies. Real datasets from a local distribution network operator are available for the study.

Expected results

Students are expected to hand in substantiated report. A stretch goal would be an additional short paper for a conference.

Title German

- Dynamische Preise für Privathaushalte durch Machine Learning Stromprognosen

Level (Ambition: medium to high)

- Master thesis

Methodology

- Data analysis and machine learning application with real data

Special prerequisites

- Quantitative and technical skills

Contact:
christian1.lorenz@uni-bamberg.de
konstantin.hopf@uni-bamberg.de