

David Banasiak (david.banasiak@unileoben.ac.at):**Reversible high temperature fuel cells (rSOC) in the Austrian energy System**

Based on the electrical residual loads and the heat demands of heating networks for the discretized Austrian energy system locations with high potential for the application of rSOCs shall be determined. The spatial distribution of these potentials shall be visualized (Excel or QGIS)

Christopher Gradwohl (Christopher.gradwohl@unileoben.ac.at):**Modelling of domestic energy load profiles (python)**

The aim of this work is to determine different types of electrical and thermal energy load profiles of domestic prosumers based on various housing types, in order to investigate the ability of grid release measures. Therefore, following models shall be created:

- Calculation of electrical load profiles by means of a load profile generator
- Generation profiles of photovoltaic production
- Electrical storage modelling
- Modelling of a heat pump and thermal storage behaviour
- Thermal load profiles shall be simulated by means of a SigLinDe function

The task can be split into two projects with 2-3 persons per group



Julia Vopava-Wrienz (Julia.vopava-wrienz@unileoben.ac.at):

Conversion of a MATLAB model of a combined approach for modelling PV power plants and failure detection into Python

In order to ensure the interoperability of the model developed at the chair for modeling PV power plants (based on historical data), the model will be transformed from Matlab into Python. In addition to the transfer into Python, the mathematical models used should be checked for their accuracy with regard to the suitability for forecast models (day ahead). Depending on the size of the group, the model can be developed further in the direction of a PV forecast model.



Development of a database for the automatic collection of weather forecasts (open source platform)



To create a PV production forecast based on the weather forecast, the first step is to collect weather forecasts. Based on this data, it is necessary to train the PV production forecast model in order to achieve a forecast with the highest possible accuracy. For this purpose, a database is to be built within the framework of this project, which will collect, structure and process the open source weather forecast data automatically. It is important to ensure that the data or the database corresponds to the formats and requirements of the database created at the Chair of Energy Network Technology. This should ensure that in the future the weather forecast database can be transferred to the chair's database.