

University of Stuttgart
Germany

Institute of Combustion and Power Plant Technology
Prof. Dr. techn. G. Scheffknecht

Announcement

Bachelor Thesis

Data-based parameterization of dynamic grid models based on a system split

Background

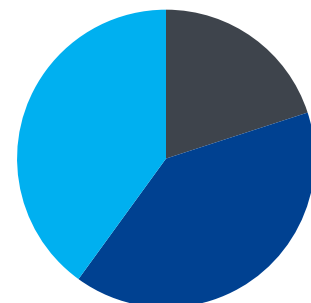
On 8 January 2021, the Continental Europe Synchronous Area separated into two areas (North-West and South-East area). Due to power exchanges between the areas before the separation, there were active power imbalances in the separated areas and therefore dynamic processes took place (e.g., frequency changes). These dynamic processes enable the parameterization of dynamic grid models (e.g., frequency dependency of the load, FCR activation dynamic). Since the ENTSO-E published a lot of data on the incident, the dynamic processes in the grid can be reproduced. The considerations should be carried out in a simplified grid model.

Objective

Within this work the student will have the opportunity to reproduce a grid state by real data of a big grid incident (system split). The student will contact a literature review about dynamic grid processes with active power imbalances (simplified grid model) and published data on the grid incident. Subsequently, the published data is preprocessed in order to identify the relevant data. Based on this data, the two grid areas will be parameterized using suitable algorithms. Finally, further investigations are carried out with the created grid models.

Approach and tasks

1. Literature review on dynamic grid processes and published data
2. Preprocessing of the published data
3. Parameterization of grid models using suitable algorithms
4. Further investigations with the created grid models
5. Assessment and compilation of the results



■ Literature ■ Modeling
■ Simulation

Requirements

- Working independently
- Proper documentation
- Interested in dynamic simulations
- Knowledge of Matlab/Simulink is an advantage

Start date: immediately!

Interested students please contact

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