

Master Thesis

Evaluation of selected control strategies for an STATCOM on an analog grid model

Motivation

At the Institute of Electrical Power Systems, a prototype of a STATCOM was developed and built up during a master's thesis, which will be further developed and integrated into an existing analog grid model. The grid model corresponds to a high-voltage system on a scale of 1:1000 with real impedances. With this STATCOM, common control strategies will be implemented and evaluated on the analog grid model.

Through such an implementation in an analog grid model and the evaluation of chosen control strategies, future investigations can be carried out intentionally.

Research Topics

- Behavior of different control strategies for STATCOM in specific grid configurations.
- Differentiation of possible applications for STATCOMs in grid stabilization.
- Grid connection behavior in grid-critical situations.

Procedure/Methodology/Task definition

Reviewing the prototype and then creating an improved version, replacing the current control card with a state-of-the-art FPGA or DSP. Programming an FPGA or DSP with established control strategies for STATCOMs through Matlab/Simulink. With the new control card, the STATCOM shall be integrated into the analog grid model and an evaluation of the control strategies shall be performed.

Organisational Issues

Begin immediately

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