RWTH AACHEN UNIVERSITY

E.ON Energy Research Center

ACS | Institute for Automation of Complex Power Systems

Master Thesis/Bachelor Thesis

Monitoring and lifetime diagnosis of Hybrid AC-DC grids

Context:

The Multi-terminal dc (MTDC) grids are a feasible solution for distribution grid and transmission grid, thus resulting into hybrid ac-dc grids. There are numerous advantages of hybrid ac-dc grids such as efficient integration of renewable energies, minimisation of multiple ac-dc conversion loss, reduction of embedded converters in grid and reduction of harmonic injection in ac grid. Thus, leading to research activities and projects such as building of Medium-Voltage DC distribution grid. In the MTDC grids, the converters in the hybrid ac-dc grid are responsible for multiple tasks such as maintain a constant voltage at a dc node or transferring power from either ac grid to dc grid or conversely**.**

In this Master thesis, methods for including the losses into a monitoring application would be looked into and estimation of lifetime of the converter from the monitoring application should be studied.

Your tasks:

The major tasks involved in the thesis are as tabulated below.

- Improving the existing State estimation algorithm
- Life time modelling of the converter

What will you learn?

You would have the following knowledge until the end of the thesis

- Converter modelling
- Monitoring application and State estimation
- Measurement and uncertainty analysis

Profile:
Basic understanding of Matlab
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