

Masterthesis for N.N.

### **Data-based strategy improvement for asset management of low voltage grids**

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The asset management for low voltage grids is way less improved and data based than in higher voltage levels. Asset management for low-voltage networks is far less advanced and data-based than in higher voltage levels. Several factors contribute to this. Among them are the lack of operational data, the lower cost of equipment, fewer customers supplied per equipment, and the conventionally over-dimensioned components. To save resources it seems necessary to ensure a high degree of utilization, an effective maintenance strategy and optimization of the replacement timing. Those aspects are part of the asset management.

This thesis should work out a data-based asset management improvement for low voltage grids. In the future the data will be provided by a low voltage grid monitoring system as part of the transformation to a smart grid. First of all, the student should work out the basic information of an asset management, like tasks and responsibilities in the context of system operators. As a next step, the asset management processes at TSOs, DSOs in MV/HV grids and DSOs in LV grids should be compared. Probably, the processes in each company differ and there will not be many information (especially about low voltage grid asset management) available. Therefore, expert interviews could be a reasonable way to get the necessary information. For those interviews a questionnaire or catalog of questions should be created and suitable experts should be requested for interviews by the student. The student has to evaluate the interview results with focus on the following aspects: Which strategies from higher voltage levels could be transferred to the low voltage grid and that kind of data is necessary therefore? How could the information, currently provided by the low voltage monitoring system be used to improve the asset management and what additional information should be provided?

The following working structure is proposed:

- Basics
  - Tasks and responsibilities of system operator's asset management
  - Provided data of the low voltage monitoring system
- Comparison of TSO/DSO asset management
  - Design of a questionnaire / list of questions for expert interviews
  - Identification of suitable experts
  - Contacting and interviewing the experts
  - Evaluation of expert interviews
- Development of an improved data-based asset management strategy for low voltage grids
- Summarize the results and point out the improvement potential
- Documentation of results

Following this thesis, the results of the work will be reported in a presentation.

Start of work: as soon as possible

Language: English, German

The thesis is suitable for students of electrical engineering or Business Engineering.

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