

# Bachelor Thesis

## Open-circuit and Short-circuit Test on a 60-kVA-Transformer

### Motivation

In its laboratory, the Institute for Electrical Systems investigates the effects of inverter-based resources (photovoltaics, wind power, converter-coupled generators) on electrical energy systems. In practice, such non-synchronous generation systems are typically connected via transformers. In this context, the aim of this bachelor's thesis is to measure a low-voltage transformer in the 60 kVA power class for laboratory tests so that it can subsequently be used for research at the institute. The transformer's switching group is specified for the tests with Dyn5.

### Research Question

The aim of the bachelor's thesis is to measure the transformer with regard to the open-circuit and short-circuit test. In addition, the transmission behaviour of the transformer for the positive, negative and zero sequence system from the star to the delta side is to be measured.

### Vorgehensweise / Methodik / Aufgabenstellung

This bachelor thesis is divided into 3 parts:

- Performance of open-circuit test (open circuit losses, magnetisation current) and short-circuit test (short circuit voltage)
- Determination of the transmission behaviour of positive, negative and zero sequence voltage from the star to the delta side by measurements
- Documentation of the results in the form of a written thesis

This Bachelor's thesis deals intensively with the evaluation of time curves of currents and voltages in Matlab and in this context serves as a perfect introduction to the calculation of phasors and symmetrical components in Matlab.

### Organisation

Start: today

### Contact:

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