

Diplomarbeit/Studienarbeit

Topic/Thema: Comparative study of doubly fed induction generator (DFIG) and permanent magnet synchronous generator (PMSG) in wind energy conversion system (Vergleichsstudie des doppelt gespeisten Asynchrongenerators und des Permanentmagnet-Synchrongenerators in einem Windenergieumwandlungssystem)

Wind energy is one of the best technologies available today to provide a sustainable supply to world development, due to unlimited potential, increasingly competitive cost, and environmental advantage. With the large-scale integration of wind sources, the development of various wind turbine concepts has been very dynamic in the last decade.

Currently, the most widely used technology is DFIG- and PMSG-based wind turbine concepts due to the better power controllability, less mechanical stress, and also stronger grid support ability.

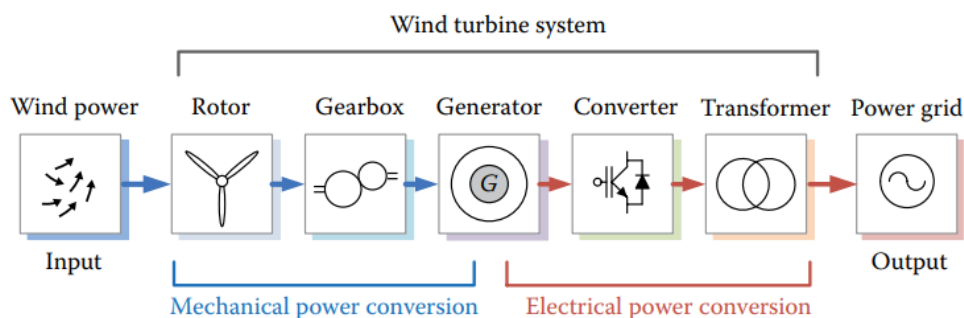


Fig.1. Wind energy conversion system

The objective of this work is to compare various types of generator used in wind energy conversion system.

Work tasks/Arbeitsaufgaben:

- Literature review on the variable speed wind turbines for WECS;
- A comparison of DFIG- and PMSG-based wind turbines;
- Modeling and simulation of wind turbine generators in Matlab/Simulink;
- Analysis and performance comparison of wind turbine generators.