Abstract

This study presents the design, modelling and simulation of variable speed wind turbine through the LCL type DC-DC resonant converter for grid connected wind energy system using MATLAB/Simulink. Owing to enhancing the power demand and environmental issues, power generation from renewable energy is getting more consideration. The designed converter has main merits like reduced switching loss using soft switching methods, reduced transformer size, and filter size. In addition, this paper investigates the resonant converter application to obtain a constant D. C voltage at the output of the designed converter, reduced stress, EMI, and high power density. In this paper, fuzzy logic controller (FLC) is used to regulate the output voltage of resonant converter in comparison with PI controller. The simulation has been done in MATLAB/Simulink frame work. It is shown that a resonant converter enhances voltage profile of power grid containing synchronous generator based wind system.

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Index Terms
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Keywords

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MATLAB/Simulink