

Abstract

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COMPARATIVE STUDY BETWEEN THE CROWBAR and THE SERIES BRAKING RESISTANCE TOPOLOGIES IN PROTECTING THE DOUBLY FED INDUCTION GENERATOR

Fault Ride Through capability is the most important requirement for large scale wind farms. Large scale wind farms should stay connected to the grid during fault condition according to the new grid codes of different countries. The Doubly fed induction generator DFIG is the most popular generator for wind energy application due to its low converters rating. The problem with the DFIG during voltage dips fault condition is the high current which induced in the rotor circuit consequently in the converters and the DC link capacitor. There are numerous techniques to protect the DFIG converters during abnormal conditions. In this paper a comparative study between the crowbar and series braking resistance SBR topologies for DFIG protection is conducted. The two protection schemes are modeled and simulated under simulink environment using the SimPowerSystem library under the Matlab. The simulation results show that the SBR protection option offers better behavior of the DFIG than the crowbar option.