

Diagnosis and Detection of Eccentricity Faults in a Doubly-Fed Induction Generator

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Abstract: Doubly-fed induction generators are being used extensively in wind energy conversion systems. Efforts are being made to effectively adopt existing condition monitoring and fault diagnostic techniques for these systems. We consider in this paper to take account of the specificities and characteristics of the doubly-fed induction generator, for develop an analytical model that describes as precisely as possible the machine performance in healthy and machine with different eccentricity faults types. In this paper, we propose a method for the eccentricity diagnosis fault based on the stator current analysis during the start-up using this wavelet method enables faults eccentricity detection and isolation of this fault in rotor by analysing the frequency spectrum. This study showed that the application of this technique offered reliable and acceptable results for diagnosis detection and faults.

Keywords : diagnosis, Detection, faults, doubly-fed indduction generator, eccentricity, modeling, simulation