

عنوان مقاله:

Low Voltage Ride Through Enhancement Based on Improved Direct Power Control of DFIG under Unbalanced and Harmonically Distorted Grid Voltage

محل انتشار:

مجله بهره برداری و اتوماسیون در مهندسی برق، دوره 4، شماره 1 (سال: 1395)

تعداد صفحات اصل مقاله: 13

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خلاصه مقاله:

In the conventional structure of the wind turbines along with the doubly-fed induction generator (DFIG), the stator is directly connected to the power grid. Therefore, voltage changes in the grid result in severe transient conditions in the stator and rotor. In cases where the changes are severe, the generator will be disconnected from the grid and consequently the grid stability will be attenuated. In this paper, a completely review of conventional methodes for DFIG control under fault conditions is done and then a series grid side converter (SGSC) with sliding mode control method is proposed to enhance the fault ride through capability and direct power control of machine. By applying this controlling strategy, the over current in the rotor and stator windings will totally be attenuated without using additional equipments like as crowbar resistance; Moreover, the DC link voltage oscillations will be attenuated to a great extent and the generator will continue operating without being disconnected from the grid. In addition, the proposed method is able to improve the direct power control of DFIG in harmonically grid voltage condition. To validate the performance of this method, the simulation results are presented under the symmetrical and asymmetrical faults and harmonically .grid voltage conditions and compared with the other conventional methods

کلمات کلیدی:

DFIG, Sliding Mode Control, unbalanced grid voltage, Low Voltage Ride Through

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