عنوان مقاله:

An Improved Low-Voltage Ride-Through Performance for Doubly-Fed Induction Generators using Z-Source Inverter DVR Based On Fuzzy Controller

محل انتشار:

اولین همایش ملی مهندسی قدرت و نیروگاه های هسته ای (سال: 1395)

تعداد صفحات اصل مقاله: 13

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خلاصه مقاله:

The Doubly-Fed Induction Generator (DFIG) is the most widely used technology in wind turbines worldwide. The reaction to grid voltage disturbances is sensible in case of DFIG systems. low-voltage ride-through (LVRT) is animportant feature for wind turbine systems to fulfil grid code requirements. This is one of the biggest challenges resulting in a massive deployment of wind farms. During a fault condition, the voltage at the Point of CommonCoupling (PCC) drops immediately and the grid voltage reduces (voltage sag) imposed at the connection point of the DFIG to the grid induce large voltages in the rotor windings, resulting in high short circuit current, which can damage the rotor-side converter and disconnect from grid. In this paper the behavior of DFIG is investigated, when a Z-SourceInverter (ZSI) based DVR (Dynamic Voltage Restorer) connected to the Grid. The ZSI uses an LC impedance grid to couple power source to inverter circuit and prepares the possibility of voltage buck and boost by short circuiting the inverter legs. ZSI based DVR is controlled by fuzzy controller is used to provide low voltage ride through capability. Simulation results in MATLAB/Simulink shows the proposed DVR performance of improvement low .voltage ride through capability

کلمات کلیدی:

Doubly-Fed Induction Generator (DFIG), Dynamic Voltage Restorer (DVR), Fuzzy controller, Low-Voltage Ride-(Through (LVRT) , Voltage Sag, Z-Source Inverter (ZSI