

Abstract

Yasser Gaber A. Dessouky

A review on recent low voltage ride-through solutions of wind farm for permanent magnet synchronous generator

Research of grid connecting wind turbines has gained great interest in the recent years. This led to new guidelines and regulations regarding the connection of large wind farms to the power system network. One of which is Low Voltage Ride-Through (LVRT). In this paper, a survey on recent LVRT solutions for Permanent Magnet Synchronous Generators (PMSG) is reviewed along with a brief explanation of grid codes. De-loading of a fully rated converter wind turbine, control of Blade Pitch Angle (BPA) and capacitor sizing are illustrated. The idea of an active crowbar rotor circuit and the DC bus energy storage circuit are reviewed. Detailed analysis on the research status and industrialization of high power FACTS devices for LVRT is carried out. New technologies aiming at enhance LVRT capability and steady-state performances are proposed. The survey provides possibilities for the development of further LVRT research at the wind farm level.