

Abstract

Hady Maged Raghieb EL Helw

Evaluation of the suitability of a fixed speed wind turbine for large scale wind farms considering the new UK grid code

The analysis of the reactive power management of a wind farm consisting of fixed speed wind turbines is carried out. The rating calculation of the compensator for a fixed speed wind farm is evaluated, and the effect of the network strength on the compensator rating is studied. Also the compatibility of fixed speed wind turbine with the new UK grid code requirements is evaluated by simulation using Matlab/Simulink. The simulation results show that the compensator rating is mainly determined by the need to meet the grid code specifications, rather than the steady state reactive power capability obligation. The main conclusion is that a fixed speed wind farm based on simple induction generators is unable to meet the new grid code requirements, unless the compensator rating is increased substantially.