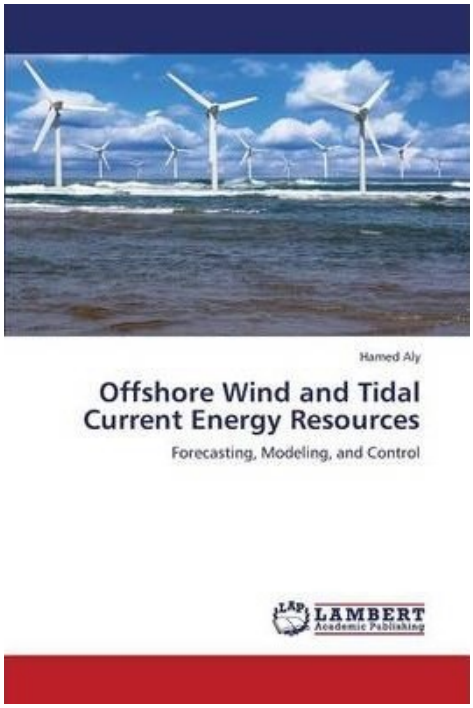

Offshore Wind and Tidal Current Energy Resources

Aly Hamed

The increasing penetration of renewable energy in the power system grid makes it one of the most important topics in electricity generation, now and into the future. Tidal current energy is one of the most rapidly growing technologies for generating electric energy. Within that frame, tidal current energy is surging to the fore. Forecasting is the first step in dealing with future generations of the tidal current power systems. The doubly-fed induction generator (DFIG) and the direct drive permanent magnet synchronous generator (DDPMSG) are the most commonly used generators associated with tidal current turbines. The aim of the present work is to propose a forecasting technique for tidal current speed and direction and to develop dedicated control strategies for the most commonly used generators, enabling the turbines to act as an active component in the power system.