# Wind Power Forecast Error Simulation Model

**Authors :** Josip Vasilj, Petar Sarajcev, Damir Jakus

**Abstract :** One of the major difficulties introduced with wind power penetration is the inherent uncertainty in production originating from uncertain wind conditions. This uncertainty impacts many different aspects of power system operation, especially the balancing power requirements. For this reason, in power system development planing, it is necessary to evaluate the potential uncertainty in future wind power generation. For this purpose, simulation models are required, reproducing the performance of wind power forecasts. This paper presents a wind power forecast error simulation models which are based on the stochastic process simulation. Proposed models capture the most important statistical parameters recognized in wind power forecast error time series. Furthermore, two distinct models are presented based on data availability. First model uses wind speed measurements on potential or existing wind power plant locations, while the seconds model uses statistical distribution of wind speeds.

**Keywords :** wind power, uncertainty, stochastic process, Monte Carlo simulation

**Conference Title :** ICEEN 2015 : International Conference on Electrical Energy and Networks

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** February 12-13, 2015