
Seminar

The Spectrum of Wind Power Fluctuations

Mahesh M. Bandi

Okinawa Institute of Science and Technology, Japan

I will explain the spectrum of wind power fluctuations and show it results from the violation of an underlying assumption of Kolmogorov theory (1941). In particular, every individual turbine feels the influence of the largest length scales of atmospheric turbulence. As a result, turbines within and between wind farms become coupled with each other over large distances. Consequently, when geographically distributed wind farms feed their power to the electrical grid, the fluctuations remain correlated and smooth out until they reach a theoretical bound that can be deduced from Kolmogorov theory. I will close my talk with a summary of engineering and policy implications of these results.

Thursday, Dec 24th 2015

11:30 AM (Tea/Coffee at 11:15 AM)

Seminar Hall, TCIS