Abstract

With increasing amount of wind power penetration, wind farms begin to influence the power systems. When a power system with many wind turbines is to be simulated, Wind farm aggregation techniques are required to reduce the model order while maintaining its accuracy. Different wind farm techniques have been proposed to simulate and analysis wind farm dynamics. In this paper a comparison between three famous techniques: 1- full aggregated model using equivalent wind speed; 2- full aggregated model using average wind speed; and 3- semi aggregated model. Simulation have been carried out for these techniques and compare them using different effects such as wind farm power, reactive power and system dynamics, besides the effect of varying variance on these techniques.

References

- M. I. Martinez, A. Susperregui, G. Tapia, and L. Xu, "Sliding-mode control of a
Comparison between Wind Farm Aggregation Techniques to Analyze Power System Dynamics


Index Terms
Computer Science
Applied Sciences

Keywords
Wind farm aggregation, dynamic wind farm model, wind speed variance and doubly fed induction generators.