

## Wind Turbine Control Performance Evaluation Based on Minimum-Variance Principles

**Authors :** Zheming Cao

**Abstract :** Control loops are the most important components in the wind turbine system. Product quality, operation safety, and the economic performance are directly or indirectly connected to the performance of control systems. This paper proposed a performance evaluation method based on minimum-variance for wind turbine control system. This method can be applied on PID controller for pitch control system in the wind turbine. The good performance result demonstrated in the paper was achieved by retuning and optimizing the controller settings based on the evaluation result. The concepts presented in this paper are illustrated with the actual data of the industrial wind farm.

**Keywords :** control performance, evaluation, minimum-variance, wind turbine

**Conference Title :** ICRET 2017 : International Conference on Renewable Energy Technology

**Conference Location :** Zurich, Switzerland

**Conference Dates :** July 27-28, 2017