Frequency Regulation with Wind Power Plants

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Abstract
A new frequency regulation scheme is developed for the wind turbine/generator/converter trio that will provide the capability to participate in restoring frequency in a way similar to the droop response of conventional generators. Output active power adjustment can be realized by both converter and pitch angle control in addition to inertial response of the wind turbine. This helps in maintaining instantaneous power balance as well as in longer term frequency regulation.

Biography
Hong Tao Ma received his BS and MS degrees in Electrical Engineering in 1999 and 2003 respectively from the Huazhong University of Science & Technology, Wuhan, China. His research interests are in power system modeling, distributed energy resources, and FACTS. He is currently a PhD candidate in the Electrical & Computer Engineering department of Missouri University of Science & Technology, Rolla, MO.