

A Probabilistic Method for Determining Grid-Accommodable Wind Power Capacity Based on Multiscenario System Operation Simulation - DTU Orbit (08/11/2017)

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When conducting the wind power (WP) planning, it is very important for electric power companies to evaluate the penetration limit of the grid-accommodable WP. This paper proposes a probabilistic method for determining grid-accommodable WP capacity based on the multiscenario analysis. Typical power system operation scenarios are generated from the combination of different WP scenarios and demand scenarios. A power system operation simulation model is proposed and implemented to the generated scenarios. The operation results are further used as the basis of the proposed probabilistic method. The validity and effectiveness of the new method are demonstrated in two cases, i.e., the IEEE 39-bus test system and a real large power system in China, respectively.

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