

The Stability Analysis and New Torque Control Strategy of Direct-Driven PMSG Wind Turbines

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Abstract : This paper expounds on the direct-driven PMSG wind power system control strategy, and analyses the stability conditions of the system. The direct-driven PMSG wind power system may generate the intense mechanical vibration, when wind speed changes dramatically. This paper proposes a new type of torque control strategy, which increases the system damping effectively, mitigates mechanical vibration of the system, and enhances the stability conditions of the system. The simulation results verify the reliability of the new torque control strategy.

Keywords : damping, direct-driven PMSG wind power system, mechanical vibration, torque control

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020