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# 不同风电机组对电网暂态稳定性的影响

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摘要
为了研究由恒速异步风力发电机、双馈异步风力发电机和直驱永磁同步风力发电机组成的风电场对电网的影响，利用DIgSILENT/Powerfactory建立了风电场的动态模型，通过仿真分析比较了上述3种风电场对电网暂态稳定性的影响，以及风电场出口电压恢复情况和风电场的无功变化等，得结论：恒速异步风力发电机的稳定性较差，双馈异步风力发电机和直驱式交流永磁同步风力发电机能够提高电网发生故障后同步发电机的短期电压稳定性，减小系统所需的无功储备，有利于电网的电压稳定。

关键词 恒速异步风力发电机；双馈异步风力发电机；直驱永磁同步风力发电机；暂态稳定性

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## Comparison of Effect of Different Wind Turbines on Power Grid Transient Stability

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Abstract
To research the impact of wind farm consisting of fixed speed induction wind turbines, doubly-fed induction wind turbines and direct-drive PM synchronous wind turbines on power gird, the dynamic model of wind farm is built using DIgSILENT/PowerFactory. The impacts of wind farms with same capacity on power system transient stability as well as voltage restoration and reactive power variations of wind farm are investigated and compared. The conclusions are as follows: the stability of fix-speed induction wind turbines is lower than those of other two kinds of wind turbine; comparing with fixed speed induction wind turbines, doubly-fed induction wind turbines and direct-drive PM synchronous wind turbines can improve short-term voltage stability of power system and reduce the reactive power reserve of power system, so it is helpful to voltage stability of power system.

Key words fixed speed induction wind turbines；doubly-fed induction wind turbines；direct-drive PM synchronous wind turbines；transient stability

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