

新能源与分布式发电

PSS/E中的风电机组通用模型概述

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摘要:

风电场的早期规划需要合适的风电机组模型来模拟电网故障对风电场和电力系统的影响。详细介绍了PSS/E 32版中WT1、WT2、WT3和WT4这4种风电机组的通用模型。其中WT1模型用来模拟直接与电网连接的传统感应电机, WT2模型用来模拟转子电阻可调的绕线式感应电机, WT3模型用来模拟双馈感应电机, WT4模型用来模拟通过换流器与电网相连的风力发电机。根据美国西部电力协调委员会(Western Electricity Coordinating Council, WECC)提供的典型测试系统, 对4种类型风电机组模型在电网故障下的响应特性进行了仿真, 验证了上述模型的有效性和使用的方便性。

关键词:

A Survey on General Models of Wind Turbine Generators in PSS/E

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Abstract:

During the early planning phase of a wind farm, suitable dynamic models of wind turbine generators are needed to simulate the effects of power network faults on wind farm and power grid. Four general models of wind turbine generators in PSS/E v.32, i.e., WT1, WT2, WT3 and WT4, are presented in detail, in which the WT1 model is used for the simulation of traditional induction motors directly connected to power grids, the WT2 model for the simulation of wound-rotor induction motor with adjustable rotor resistance, the WT3 model for the simulation of doubly fed induction generator and the WT4 model for the simulation of wind power generator that is connected with power grids via converters. Based on the typical testing system provided by WECC, the response characteristics of these four types of wind turbine generator models under network faults are simulated to validate the effectiveness of above-mentioned models and their convenience in the use.

Keywords:

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