

电力系统仿真软件PSS/E中柔性直流输电系统模型及其仿真研究

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摘要

柔性直流输电系统(voltage sourced converters high voltage direct current, VSC-HVDC)因其快速灵活的可控性在电力工业中将有越来越广泛的应用, 研究其在复杂电力网络中的动态性能具有工程实际意义, 应用电力系统仿真软件PSS/E可模拟柔性直流输电的准稳态响应。介绍了PSS/E动态仿真的基本原理; 分析了柔性直流输电模型VSCDCT的有效性和适用性, 并基于实际系统对准稳态直流动态模型VSCDCT进行了仿真研究, 仿真结果表明 PSS/E直流模型能够满足大规模交/直流系统仿真的要求。

关键词 [PSS/E; 柔性直流输电模型; 准稳态直流动态模型; 直流动态特性; 电力系统](#)

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VSC-HVDC Models of PSS/E and Their Applicability in Simulations

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Abstract

Because of its fast and flexible controllability, the voltage source converter (VSC) based high voltage direct current (VSC-HVDC) will be widely applied in power systems, so it is of practical significance to study the dynamic performance of VSC-HVDC in complicated power grids. The quasi steady state response of flexible HVDC system can be simulated in power system simulation software PSS/E. In this paper the basic principle of dynamic simulation with PSS/E is presented; the effectiveness and adaptability of flexible HVDC power transmission model are analyzed, and on the basis of actual power system the quasi steady-state VSC-HVDC dynamic model VSCDCT is simulated. Simulation results show that it is available to apply PSS/E in transient stability analysis of practical large-scale AD/DC power system.

Key words [PSS/E; VSC-HVDC model; quasi steady-state HVDC dynamic model; HVDC dynamic characteristics; power system](#)

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