

电力系统

多馈入高压直流输电系统中逆变器滤波器投切引起的换相失败仿真研究

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摘要

随着云广特高压直流输电工程的引入, 南方电网各换流站进行滤波器投切时产生的谐波交互影响也更加严重。谐波的交互影响不仅可能引起谐波的畸变, 甚至可能诱发换相失败。文章对直流系统运行特性和谐波特性的联系进行了分析, 建立了2010年南方电网交直流并联输电系统详细的混合仿真模型, 对逆变器由于滤波器投切引起的换相失败进行了仿真研究。仿真实验验证了上述分析结果的正确性, 揭示了谐波不稳定与换相失败之间的内在联系。

关键词

[特高压直流](#); [多馈入直流输电系统](#); [交流滤波器投切](#); [谐波不稳定](#); [换相失败](#)

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Simulation Study on Commutation Failure Caused by Switching AC Filters of Inverter Stations in Multi-Infeed HVDC System

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Abstract

Along with the implementation of UHVDC power transmission project from Yunnan province to Guangdong province, the interaction of harmonic currents caused by switching AC filters of inverter stations in China Southern Grid (CSG), which may lead to distortion of waveform or even cause to happen commutation failure, becomes more and more serious. In this paper the correlation between operation performance and harmonic characteristic of UHVDC system is analyzed, then a detailed hybrid simulation model for UHVDC/UHVAC system of CSG in the year of 2010 is built and by use of this model the commutation failure caused by the switching of filters is researched. Simulation results validate the correctness of above-mentioned analysis result and reveal the internal relations between harmonic instability and commutation failure.

Key words

[UHVDC](#); [multi-infeed UHVDC system](#); [AC filters switching](#); [harmonic instability](#); [commutation failure](#)

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