

云广±800 kV特高压直流输电线路耐雷性能研究

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摘要

国内外运行经验表明, 雷击是造成输电线路跳闸的主要原因。基于杆塔的多波阻抗模型和基于先导发展的雷电屏蔽模型, 分析了云广±800 kV特高压直流输电线路的反击、绕击耐雷性能及其影响因素。结果表明: 随着杆塔高度的降低, 冲击接地电阻的减小, 线路反击性能增强; 随着保护角的减小, 地面倾角的减小, 海拔的降低, 线路雷电屏蔽性能增强; 引起特高压输电线路雷击故障的主要因素是雷电绕击, 建议特高压输电线路采用负保护角运行。

关键词 [特高压直流输电; 输电线路; 反击; 雷电屏蔽; 防雷保护; 高电压技术; 绝缘](#)

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Research on Lightning Withstand Performance of ±800 kV Ultra HVDC Power Transmission Line from Yunnan to Guangdong

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Abstract

The operation experiences of power transmission lines show that lightning stroke is the principal cause of transmission line trip outs. Based on both multi-wave impedance model of towers and lightning leader development based lightning shielding model, the lightning withstand performances of back striking, shielding failure for ±800kV UHVDC transmission line as well as related influencing factors are analyzed. Research results show that along with the reduction of both tower height and surge grounding resistance, the back striking withstand performance enhances; along with the decrease of protecting angle, slope angle of ground as well as the lowering of altitude, the shielding performance of transmission line enhances. The principal cause of lightning stroke failures occurred in UHV transmission lines is the shielding failure, so it is suggested to adopt the negative protecting angle for UHVDC transmission lines.

Key words [UHVDC; transmission line; back striking; lightning shielding; lightning protection; high voltage engineering; insulation](#)

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