

国家重点基础研究项目

云广特高压直流输电系统中换流变压器铁心饱和和不稳定的抑制

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摘要:

换流变压器铁心饱和和不稳定对电力系统的危害十分严重, 文章研究了变压器铁心饱和和不稳定的产生机理, 设计了用于控制铁心饱和和不稳定的附加控制电路。基于南方电网2010年数据, 采用PSCAD/EMTDC为云广±800 kV特高压直流输电系统建立了详细的电磁暂态仿真模型, 通过仿真试验验证了该附加控制电路的有效性。

关键词: 特高压直流 铁心饱和和不稳定 附加控制电路

Suppression of Core Saturation Instability in Converter Transformer for UHVDC Power Transmission System From Yunnan to Guangdong

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Abstract:

The core saturation instability of converter transformer will endanger important components as well as the secure operation of power grid. The mechanism causing core saturation instability of transformer is researched, and the additional control circuit to suppress core saturation instability is designed. Based on the operational data of South China power grid in the year 2010 and by use of PSCAD/EMTDC, a detailed electromagnetic transient simulation model for ±800 kV DC power transmission system is built by which the effectiveness of the proposed additional control circuit is validated.

Keywords: ultra high voltage direct current (UHVDC) core saturation instability additional control circuits

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