



兴安直流双极闭锁反事故措施实时仿真研究
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摘要: 对“5·5”兴安直流双极闭锁故障的分析显示, 由于兴安直流采用接地极线路与直流输电线路同塔架设, 存在着双极闭锁潜在风险。因此, 搭建了由实时数字仿真器(RTDS)与兴安直流实际的控制保护装置组成的闭环实验系统, 针对直流控制保护故障重启功能进行大量实时仿真实验, 内容包括实现接地极线路电流不平衡保护重启及定值调整, 调整直流线路现有故障重启逻辑和模式, 以及重启功能调整后对控制保护的关联影响等。从直流控制保护的角度提出了有效地防止类似“5·5”兴安直流双极闭锁的措施。

关键词: 兴安直流; 直流闭锁; 实时仿真; 反事故措施; 故障重启; 接地极电流平衡保护

Real-time Simulation Study on Anti-accident Measures of
Bipolar Block in Xing-An HVDC Project

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Abstract: Detail analysis on “5·5” Xing-An HVDC bipolar block suggests that there is potential risk of bipolar block to the HVDC system due to the configuration of the same tower for both DC transmission line and the earthing electrode line. A closed-loop experimental system with the real-time digital simulator (RTDS) and Xing-An DC actual control & protection devices are therefore built up, and a lot of real-time simulation experiments of HVDC control & protection fault recovery functions have been done. The experiments include electrode current balance protection recovery function and values adjustment, the DC line existing fault recovery logic and mode adjustment, and association impact of recovery function adjustment on control and protection. From the view of DC control & protection, measures are proposed to effectively prevent “5·5” like HVDC bipolar block.

Key words: Xing-An HVDC; HVDC block; real-time simulation; anti-accident measure; fault recovery; electrode current balance protection

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