



南方电网高压直流输电系统调度运行操作分析
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摘要：南方电网于2008年已经形成“八交四直”的主干网架，是一个典型的交直流并联电力系统。分析了南方电网在正常方式下、事故条件下和特殊情况下高压直流输电系统的运行操作。在正常方式下，直流系统功率调整必须考虑如下几个方面：交流断面限制要求；与交直流功率优化分配有关的安全和经济优化因素；接地极不平衡电流对中性点直接接地主变压器的影响；直流系统的电流限制和降压限制；直流系统的解闭锁操作。特殊情况是指纯直流方式和直流孤岛方式。在直流孤岛方式下系统调控过程中要考虑直流系统运行工况、发生次同步振荡的可能性和直流稳定控制功能的投退等因素；此外，还要应遵从一定的调控要点。

关键词：南方电网；交直流并联；高压直流输电系统；运行操作

Analysis on the Operation of HVDC Systems in China Southern Power Grid

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Abstract: China Southern Power Grid is a typical AC/DC parallel power system with eight AC lines and four DC lines in 2008. The operations of the HVDC system are analyzed in different situations such as the ordinary case, the accident case and the special case. In the ordinary case, the HVDC power regulation must be treated according to the AC power limitation; the security and economic factors in relation to the optimized power distribution between AC and DC systems, the influence on the main transformer with neutral point grounded by the unbalance current of grounded electrodes; current limitation and voltage dropping limitation; deblock and block operation. The special case here is referring to the pure DC transmission and the island operation of HVDC. In the island operation, the HVDC power regulation must be treated in consideration of the HVDC operation condition, the possibility of SSR and the switch of DC system stability control functions. In addition, some key points of adjustment should be followed up.

Key words: CSG; AC/DC parallel power grid; HVDC; operation

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