

电力系统

四川多回±800 kV直流外送系统直流有功功率协调控制

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摘要:

金沙江1期工程和特高压交流输电系统建成后,四川将形成特高压交直流混联系统。电网结构更加复杂,电网安全稳定运行的压力进一步增大。针对四川交直流混联电网的特点,选择直流功率协调控制作为提升四川电网安全稳定水平的技术措施。提出了交直流协调控制中直流附加控制器输入信号的选取原则,评估了多回特高压直流有功协调控制对2012年四川电网丰大极限方式下系统稳定性的影响。结果表明:当交流线路出现故障时,通过直流有功功率的快速调节,承担原有交流线路输送的部分或全部功率,可以提高系统抵御严重故障的能力。

关键词: 特高压直流 协调控制 交直流混联电网 系统稳定性 频率偏差

Coordination Control of DC Active Power for Multi-Circuit ±800 kV DC Power Delivery System in Sichuan UHVAC/UHVDC Hybrid Power Grid

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Abstract:

After the building up of the first stage of Jinshajiang project and 1 000 kV AC transmission system, a UHVAC/UHVDC hybrid power grid in Sichuan province, which consists of 1 000 kV AC transmission system and ±800 kV transmission system, will be formed, it makes the structure of power network more complex and the pressure on secure and stable operation of Sichuan power grid will be further increased. In allusion to the features of Sichuan UHVAC/UHVDC hybrid power grid the DC active power coordination control is chosen as the technological measure to raise the security and stability level of Sichuan UHVAC/ UHVDC hybrid power grid. The selection principle of input signals for DC auxiliary controller in AC/DC coordination control is put forward, and the influences of coordination control of multi-circuit UHVDC power transmission on system stability of Sichuan power grid under summer flood operation mode in 2012 is assessed. Assessment results show that when faults occur in UHVAC transmission line, by means of fast regulation the UHVDC transmission can take on the task to deliver partial or whole power originally transmitted by UHVAC transmission system.

Keywords: ultra HVDC coordinated control AC/DC hybrid transmission system power system stability frequency deviation

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