



在dq0坐标系建立的VSC-HVDC控制策略

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摘要: 对电压源换流器的暂态数学模型和控制策略进行了研究, 建立了dq0坐标系下VSC-HVDC系统的暂态数学模型, 并设计了相应的dq解耦控制器, 实现了系统有功功率和无功功率的独立调节。利用PSCAD / EMTDC仿真软件对所设计的控制器进行了稳态和动态仿真, 结果证明所设计的控制器是正确的, 该控制器在系统稳态和动态情况下均具有良好的控制性能。

关键词: 电压源换流器; 暂态数学模型; dq0坐标系; 解耦控制器

Control Strategy for VSC-HVDC Systems with the dq0 Reference Frame

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Abstract: The mathematical model and control strategy of the VSC-HVDC system are studied. The transient mathematical model for the VSC-HVDC system in dq0 reference frame is developed, and the corresponding decoupled controllers are designed to control the active and reactive powers respectively. In order to testify the proposed controllers, simulations are implemented with PSCAD/EMTDC. The results show that the control system is correct, and the proposed controllers can work well in both the steady and dynamic states.

Key words: voltage source converter; transient mathematical model; dq0 reference frame; decoupled controllers

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