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电力系统

输电网络的分层分区电压无功调节方法

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摘要：

基于无功的分层分区平衡与就地补偿原则、中枢点电压的逆调压原则，提出了输电网络电压无功调节方法。首先定义了同层区及其负载率、无功调节能力和无功不平衡度等概念，以此来确定无功平衡与逆调压的理想目标，评估电网的无功平衡水平。在此基础上提出了分层分区的电压无功调节策略，该策略包括3个阶段：1）全局电压无功调节；2）无功的分层分区平衡调节；3）终端变电站的局部电压与无功调节。分析了每个阶段的潮流特征，制定了各阶段的电压无功调节规则，尽可能实现全网的电压合格和分层分区的无功平衡。算例结果验证了该方法的有效性。

关键词：

An Algorithm for Hierarchical and Partitioned Regulation of Voltage and Reactive Power in Transmission Network

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Abstract:

According to the principles of hierarchical and partitioned balance and local compensation of reactive power as well as the principle of contrary regulation of voltage, a method for voltage and reactive power regulation in transmission network is proposed. Firstly, the concepts such as partition in the same hierarchy and its load factor, reactive power regulation ability and unbalancedness degree of reactive power are defined and used to determine ideal targets of reactive power balance and contrary regulation of voltage and to evaluate reactive power balance level. On this basis, a hierarchical and partitioned regulation strategy of voltage and reactive power is put forward, and the regulation strategy consists of three stages: global voltage and reactive power regulation, hierarchical and partitioned regulation of voltage and reactive power and local regulation of voltage and ractive power of teminal substaions. The features of power flow in every single stage are analyzed and the regulation rules of voltage and reactive power in each stage are drafted for the aims of making the voltage of whole network conforming to the guide as well as implementing hierarchical and partitioned reactive power balance as possible. The availability of the proposed algorithm is verified by the results of calculation example.

Keywords:

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