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电力系统

# 地区电网感性无功补偿优化配置方法

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**摘要：**

提出地区电网进行感性无功补偿优化规划的思路和方法，建立了兼顾电压质量、投资成本和运行费用全网优化的地区电网感性无功补偿模型，以解决由于小水电等分布式电源大量接入时在小运行方式下地区电网无功过剩电压偏高的问题。结合某地实际电网，进行了感性无功优化计算，比较了所提方法与工程估算法、平均功率因数法等方法的结果。仿真结果表明，按照优化方案进行感性无功补偿配置后，该地区的无功电压水平显著改善，取得了较好的经济效益和社会效益。

**关键词：** 感性无功补偿 小运行方式 电压质量 无功功率优化

## Optimal Configuration of Inductive Reactive Power Compensators in Regional Power Network

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Abstract:

The thinking and method to implment optimal configuration of inductive reactive power compensation for regional power network are proposed, and an inductive reactive power compensation model for regional power network, in which the voltage quality, cost of investment and operating cost optimization of whole netword are considered, is built to solve the problem, namely in regional power network the voltage is near the upper limit that is caused by the surplus of capacitive reactive power due to grid-connection of large amount of distributed generations (DGs), for instance the small hydropower stations, during low load operation mode. The calculation of inductive reactive power optimization is performem for a certain regional power network, and the obtained results are compared with those results calculated by project estimation method and average power factor method. Simulation results show that after the optimal configuration of inductive reactive power compensation according to the proposed optimization scheme, the reactive power level and voltage level in the simulated region are evidently improved.

Keywords: inductive reactive power compensation low load operation mode voltage quality optimization of reactive power

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