

## 电力市场

### 考虑电力系统阻塞的电网充裕度评价

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#### 摘要:

传统的电网充裕度主要考虑故障对其影响, 市场环境下则需考虑阻塞的影响。通过研究市场环境下电网传输的新特点, 定义了电网传输的不同状态。提出了衡量线路阻塞程度相关的指标, 用于评价电网传输能力的不充裕性, 并应用于电力系统的扩展规划和运行计划。对IEEE 24-节点系统进行了仿真, 仿真结果表明, 所提指标能有效识别电网传输中的瓶颈, 线路阻塞风险指标可评估输电阻塞的风险, 在电网规划中可构成新的规划准则并为阻塞管理提供可靠依据。

**关键词:** 阻塞 电网充裕度 线路阻塞风险

### NETWORK ADEQUACY ASSESSMENT CONSIDERING POWER SYSTEM CONGESTION

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#### Abstract:

Previous researches on network adequacy mostly focused on the measurements of the system reliability caused by component failures, but under market environment congestion impacting on network adequacy must be considered. In this paper, different states of transmission are defined after studying the new features in a competitive power market. Congestion impacting indices are proposed to evaluate the network inadequacy and used to transmission expansion planning and grid schedule. Test results on the IEEE 24-bus example system show that these indices can effectively recognize line flow bottlenecks. The index of Line Congestion Risk Value can quantify the risk value caused by congestion and reconstruct a new rule of extending planning, also lay a foundation for congestion management.

**Keywords:** congestion power network adequacy line congestion risk value

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