

动力经济

偶对优化潮流及其在电力市场的应用

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摘要: 发电厂中长期电力市场交易量分解到日的实践, 导致日发电计划优化模型新增了等式约束。这给常规优化潮流算法带来了很大的困难与挑战。为此, 该文提出偶对优化潮流方法, 在优化过程中, 用时段偶对解耦替代时段解耦。制订了2条规则, 一条是依次根据负荷水平差距缔结时段偶对; 另一条是调整过程中增减对等。设计偶对优化潮流算法, 该算法可简捷地解算竞价电厂中长期电力市场交易量分解到日条件下的日调度计划优化问题, 不仅可满足新增的等式约束, 而且还可减少优化中的运算量。在中长期交易占有较大份额时, 偶对优化潮流可得到充分地应用。

关键词: 区域电力市场 日发电计划 优化潮流 时段偶对

Coupling Pair Optimal Power Flow and Its Application in Electricity Market

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Abstract: The newly added equality constraints in the optimizing model of the daily generating plan are introduced by the practice that the electricity market exchange quantities of power plants in middle and long term are decomposed to every day. It brings the conventional optimal power flow algorithm a great deal of difficulty and challenge. Hence an optimizing method is proposed in this paper. In the method the time interval coupling pair decoupling substitutes the time interval decoupling during the optimizing process. Two rules were established, the first rule is that the time interval coupling pairs are formed in turn according to the difference in load level. The second rule is that the increments are on an equality with decrements during regulation process. The algorithm of the coupling pair optimal power flow was designed, it can simply and quickly solves the optimizing problem of daily dispatching plan on condition that the electricity market exchange quantities of power plants in middle and long term are decomposed to every day and not only satisfies newly added equal constraint conditions, but also reduces the computing number, as well as the coupling pair optimal power flow can be applied sufficiently when middle and long term electricity market exchanges occupy more shares.

Keywords: regional electricity market daily dispatch scheduling optimal power flow time interval coupling pair

收稿日期 2006-09-26 修回日期 1900-01-01 网络版发布日期

DOI:

基金项目:

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