

电力市场

兼顾购电费用和煤耗的双目标加权模糊发电调度模型

周明, 娄雅融

华北电力大学 电气与电子工程学院, 北京市 昌平区 102206

摘要:

提出了过渡期小火机组的经济补偿措施, 以电网连续可靠供电为约束, 以购电成本和发电煤耗最小为目标, 建立了双目标节能发电调度模型。为缓解各目标间冲突, 增加了各目标权重因子, 将模型转化为双目标加权模糊节能发电调度优化模型。算例结果验证了该模型的有效性。

关键词:

A Bi-Objective Weighted Fuzzy Generation Dispatching Model Considering Both Power Purchase Cost and Coal Consumption

ZHOU Ming, LOU Yarong

School of Electrical and Electronic Engineering, North China Electric Power University, Changping District, Beijing 102206, China

Abstract:

In this paper the economic compensation measures for low-capacity thermal units during transition period is proposed; then taking continuous power supply reliability of power grid for constraint and minimized power purchase cost and coal consumption rate as objective, a bi-objective optimal dispatching model for energy-saving power generation is built. To alleviate the contradiction between the objectives, weight factor for each objective is appended to change the proposed model into optimal bi-objective weighted fuzzy energy-saving generation dispatching model. Results of calculation example verify the effectiveness of the built model.

Keywords:

收稿日期 2009-10-27 修回日期 2010-05-04 网络版发布日期 2010-11-13

DOI:

基金项目:

通讯作者: 周明¹

作者简介:

作者Email: zhouming@ncepu.edu.cn1

参考文献:

- [1] 郭强, 丁晓琴. 能源资源节约战略研究[M]. 北京: 中国时代经济出版社, 2008: 60-82.
- [2] 国务院办公厅. 国务院办公厅关于转发发展改革委等部门《节能发电调度办法(试行)》的通知(国办发[2007]53号文)[S]. 北京: 国务院, 2007.
- [3] 曾鸣, 史连军, 董军, 等. 与市场机制相协调的节能发电调度相关问题研究[J]. 电力技术经济, 2007, 19(5): 1-5. Zeng Ming, Shi Lianjun, Dong Jun, et al. Study on issues related to energy-saving dispatching of generation that conforms to the market mechanism[J]. Electric Power Technologic Economics, 2007, 19(5): 1-5(in Chinese).
- [4] 胥传普, 杨立兵, 刘福斌. 关于节能降耗与电力市场联合实施方案的探讨[J]. 电力系统自动化, 2007, 31(23): 99-103. Xu Chuanpu, Yang Libing, Liu Fubin. Discuss on the union implementation scheme of energy conservation measures and electricity marketability methods[J]. Automation of Electric Power Systems, 2007, 31(23): 99-103(in Chinese).
- [5] 傅书邈, 王海宁. 关于节能减排与电力市场的结合[J]. 电力系统自动化, 2008, 32(6): 31-35. Fu Shuti, Wang Haining. On coordination of energy saving and reduction of pollution policy with electricity market reform in China[J]. Automation of Electric Power Systems, 2008, 32(6): 31-35(in Chinese).
- [6] 尚金成, 张立庆. 电力节能减排与资源优化配置技术的研究与应用[J]. 电网技术, 2007, 31(22): 58-63. Shang Jincheng, Zhang Liqing. Research and application of technologies in energy-saving, emission-reducing and optimal resource allocation of electric power system[J]. Power System

扩展功能

本文信息

▶ Supporting info

▶ PDF(373KB)

▶ [HTML全文]

▶ 参考文献[PDF]

▶ 参考文献

服务与反馈

▶ 把本文推荐给朋友

▶ 加入我的书架

▶ 加入引用管理器

▶ 引用本文

▶ Email Alert

▶ 文章反馈

▶ 浏览反馈信息

本文关键词相关文章

本文作者相关文章

PubMed

Technology, 2007, 31(21): 58-63(in Chinese). [7] 徐玖平, 李军. 多目标决策的理论和方法[M]. 北京: 清华大学出版社, 2005: 211-322. [8] 尚金成. 兼顾市场机制与政府宏观调控的节能发电调度模式及运作机制[J]. 电网技术, 2007, 31(24): 55-62. Shang Jingcheng. Research on energy-saving generation dispatching mode and operational mechanism considering market mechanism and government macro-control[J]. Power System Technology, 2007, 31(24): 55-62(in Chinese). [9] 武寒. 关于节能发电调度的思考与实践[J]. 华东电力, 2008, 36(3): 10-12. Wu Han. Consideration and practice on energy-saving generation dispatch[J]. East China Power, 2008, 36(3): 10-12 (in Chinese). [10] 中华人民共和国发展和改革委员会. 关于加快关停小火电机组的若干意见[S]. 北京: 中华人民共和国发展和改革委员会, 2007. [11] 尚金成. 兼顾市场机制的主要节能发电调度模式比较研究[J]. 电网技术, 2008, 32(4): 78-85. Shang Jingcheng. Comparative research on main energy-saving generation dispatching model considering market mechanism [J]. Power System Technology, 2007, 32(4): 78-85(in Chinese). [12] 王平洋, 胡兆光. 模糊数学在电力系统中的应用[M]. 北京: 中国电力出版社, 1999: 50-125. [13] Wood A J, Wollenberg B F. Power generation, operation and control[M]. 2版. 北京: 清华大学出版社, 2003: 66-85. [14] Wang L F, Singh C. Environmental/economic power dispatch using a fuzzified multi-objective particle swarm optimization algorithm[J]. Electric Power Systems Research, 2007, 77(12): 1654-1664. [15] Yalcinoz T, Koksoy O. A multiobjective optimization method to environmental economic dispatch[J]. Electrical Power Energy Systems, 2007, 29(1): 42-50. [16] 马瑞. 电力市场中兼顾环境保护和经济效益的双目标模糊优化短期交易计划新模型[J]. 中国电机工程学报, 2002, 22(4): 105-109. Ma Rui. A novel bi-objective fuzzy optimal model of short-term trade planning considering environmental protection and economic profit in deregulated power system[J]. Proceedings of the CSEE, 2002, 22(4): 105-109(in Chinese). [17] 张国立, 李庚银, 谢宏, 等. 多目标加权模糊经济调度模型[J]. 华北电力大学学报. 2004, 31(2): 48-53. Zhang Guoli, Li Gengyin, Xie Hong, et al. Multi-objective weighted fuzzy programming model[J]. Journal of North China Electric Power University, 2004, 31(2): 48-53(in Chinese). [18] 马瑞, 穆大庆, 李欣然, 等. 电力市场中日有功负荷多目标分配模糊决策的研究[J]. 电网技术, 2001, 25(2): 25-29. Ma Rui, Mu Daqing, Li Xinran, et al. Study on fuzzy decision of multi-objective dispatch strategy for daily active power in electricity market[J]. Power System Technology, 2001, 25(2): 25-29(in Chinese).

本刊中的类似文章