

电力市场

跨省区输电安全费用分摊方法

李成仁¹, 韩勇², 高效¹, 段燕群¹

1. 国网能源研究院, 北京市 宣武区 100052; 2. 华北电力大学 经济与管理学院, 北京市 昌平区 102206

摘要: 我国跨省区电力资源优化配置越来越频繁, 然而跨省区联网线路的重要功能之一, 即安全功能却一直缺乏合理的费用分摊方法。首先基于输电冗余和潮流跟踪的原理, 提出一种确定跨区、跨省联网工程输电成本中联网安全费用成本的方法; 然后, 提出一种事故紧急支援电力比例方法, 来确定联网安全费用在受益各省级电网的分摊, 即将各省级电网获得的最大事故紧急支援电力的比例作为安全费用分摊比例; 最后, 通过2个实际算例验证了该方法的合理性和实用性。

关键词:

A Method to Allocate Security Costs for Cross-Regional and Trans-Provincial Power Transmission

LI Chengren¹, HAN Yong², GAO Xiao¹, DUAN Yanqun¹

1. State Grid Energy Research Institute, Xuanwu District, Beijing 100052, China; 2. College of Economic and Management, North China Electric Power University, Changping District, Beijing 102206, China

Abstract: The cross-regional and trans-provincial optimized configurations of power resources are frequently adopted in China, however it is still short of a rational method to allocate the cost of an important function, namely the security function, for cross-regional and trans-provincial interconnected transmission lines. Firstly, based on the principles of transmission redundancy and power flow tracing, a method to identify and allocate the cost for interconnection security in the transmission cost of cross-regional and trans-provincial power grid interconnection project is proposed; then a method to calculate the proportion of emergency supporting power is put forward to determine the allocation of interconnection security cost among the beneficial provincial power grids, i.e., the proportions, by which the beneficial provincial power grids obtain maximum emergency supporting power, are taken as the allocation proportions of security cost for these provincial power grids. Rationality and practicality of the proposed method are verified by the results of two actual calculation examples.

Keywords:

收稿日期 2010-08-26 修回日期 2010-05-25 网络版发布日期 2010-12-10

DOI:

基金项目:

通讯作者: 高效

作者简介:

作者Email: gaoxiao_9802@yahoo.com.cn

参考文献:

- [1] 张卫东. 对我国跨区输电工程经营模式和输电价格体系改革的建议[J]. 电网技术, 2000, 24(5): 64-67. Zhang Weidong. Several suggestions on operation mode of trans-provincial transmission line and constitution of transmission price[J]. Power System Technology, 2000, 24(5): 64-67(in Chinese).
- [2] 李国庆, 王成山, 余贻鑫. 大型互联电力系统区域间功率交换能力研究综述[J]. 电机工程学报, 2001, 21(4): 20-25. Li Guoqing, Wang Chengshan, Yu Yixin. A survey on transmission transfer capability of interconnected electric power systems[J]. Proceedings of the CSEE, 2001, 21(4): 20-25(in Chinese).
- [3] Lima J W M. Allocation of transmission fixed charges: an overview[J]. IEEE Transactions on Power System, 1996, 11(8): 1409-1418.
- [4] 谢开, 刘广一, 于尔铿, 等. 电力市场中的输电服务: 输电费用分配方法[J]. 电网技术, 1997, 21(7): 65-68,75. Xie Kai, Liu Guangyi, Yu Erkeng, et al. Transmission services in electricity market: allocation of transmission charges[J]. Power System Technology, 1997, 21(7): 65-68,75(in Chinese).
- [5] Lima J W M, Pereira M V F, Pereira J L R. An integrated framework for cost allocation in a multi-owned transmission system[J].

扩展功能

本文信息

- Supporting info
- PDF(337KB)
- [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

IEEE Transactions on Power Systems, 1995, 10(2): 971-977. [6] Bialek J. Allocation of transmission supplementary charge to real and reactive loads[J]. IEEE Transactions on Power Systems, 1998, 13(3): 749-754. [7] Rudnick H, Palma R, Fernandez J E. Marginal pricing and supplement cost allocation in transmission open access[J]. IEEE Transactions on Power Systems, 1995, 10(2): 1125-1132. [8] Rudnick H, Soto M, Palma R. Use of system approaches for transmission open access pricing[J]. Electrical Power and Energy Systems, 1999, 21(2): 125-135. [9] Shirmohammadi D, Gribik P R, Law E T K, et al. Evaluation of transmission network capacity use for wheeling transactions[J]. IEEE Transactions on Power Systems, 1989, 4(4): 1405-1413. [10] Ng W Y. Generalized generation distribution factors for power system security evaluation[J]. IEEE Transactions on Power Systems, 1981, 100(3): 1001-1005. [11] 荆朝霞, 段献忠, 文福拴, 等. 在多种交易模式共存的电力市场中确定输电系统使用费的一种实用方法[J]. 电网技术, 2004, 28(1): 42-47. Jing Zhaoxia, Duan Xianzhong, Wen Fushuan, et al. A practical method to determine transmission usage-based tariff in electricity markets with different transaction modes coexisted[J]. Power System Technology, 2004, 28(1): 42-47(in Chinese). [12] Bialek J. Tracing the flow of electricity[J]. IEE Proceedings: Generation, Transmission and Distribution, 1996, 143(4): 313-320. [13] 李卫东, 孙辉, 武亚光. 潮流追踪迭代算法[J]. 中国电机工程学报, 2001, 21(11): 38-42. Li Weidong, Sun Hui, Wu Yaguang. An interative load flow tracing method[J]. Proceedings of the CSEE, 2001, 21(11): 38-42 (in Chinese). [14] 魏萍, 倪以信, 吴复立, 等. 基于图论的输电线路功率组成和发电机基于负荷间功率输送关系的快速分析[J]. 中国电机工程学报, 2000, 20(6): 21-29. Wei Ping, Ni Yixing, Wu Fuli, et al. Power transfer allocation for open access using graphtheory[J]. Proceedings of the CSEE, 2000, 20(6): 21-29(in Chinese). [15] 李卫东, 赵彩虹, 金球星, 等. 基于潮流追踪的双边交易输电设备利用份额计算方案[J]. 电网技术, 2005, 29(19): 70-74. Li Weidong, Zhao Caihong, Jin Qiuxing, et al. Research on power flow tracing based bilateral contract transmission facility usage determination scheme[J]. Power System Technology, 2005, 29(19): 70-74(in Chinese). [16] 熊秀文, 郑斌. 华中电网输电线路利用份额计算[J]. 电网技术, 2004, 28(4): 19-21. Xiong Xiuwen, Jia Bin. Percentage usage calculation of transmission lines in central China power grid[J]. Power System Technology, 2004, 28(4): 19-21 (in Chinese). [17] Jing Z X, Duan X Z, Wen F S, et al. Review of transmission fixed costs allocation methods[J]. IEEE Transactions on Power Systems, 2003, 9(1): 2585-2592. [18] NGC. The statement of the use of system charging methodology [EB/OL]. 2009-04. <http://www.nationalgridus.com/>.

本刊中的类似文章