

电力市场

基于环境承载力理论的电网规划信号研究

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摘要:

本文基于环境承载力理论来研究电力市场中的电网规划信号。首先通过分析电网的自然发展和环境学的承载力分析, 提出了电力市场中电网规划信号集中体现在四维环境的承压度: 生态环境-阻塞、人文环境-市场力、技术环境-可靠性、金融环境-输电电价; 然后, 借鉴环境学的承载力分析方法对电网规划的信号--四维电网环境进行了系统建模; 最后, 分析了电网规划信号的承载力分析在规划工作中的位置, 指出规划信号的分析是科学合理的电网规划体系不可缺少的一部分。

关键词:

Study on Environmental Bearing Capacity Based Signal of Power Transmission Network Planning in Electricity Market

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Abstract:

The signal of transmission network planning in the electricity is researched based on the theory of environmental carrying capacity. Firstly, it is proposed that the signal of planning is focused on the carrying-pressure index of four-dimensional environment after analyzing the development of grid and the carrying capacity of ecology, which include the environment-congestion, human environment-market power, technic environment-reliability and financial environment-transmission price. Secondly, the signal of planning is set up a model using the methods of ecology. Lastly, it is analyzed that the situation of carrying capacity of network planning signal in planning work and pointed out that the anlysis of signal of planning is a part of the system of scientific network planning.

Keywords:

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参考文献:

[1] Papalexopoulos A. Power system expansion planning and pricing in a deregulated environment [C]. IEEE Power Engineering Society Summer Meeting, USA, 2002. [2] 麻常辉, 薛禹胜, 鲁庭瑞, 等. 输电规划方法的评述[J]. 电力系统自动化, 2006, 30(12): 97-101. Ma Changhui, Xue Yusheng, Lu Tingrui, et al. A review of transmission planning methods[J]. Automation of Electric Power Systems, 2006, 30(12): 97-101(in Chinese). [3] 符杨, 徐自力, 曹家麟. 混合粒子群优化算法在电网规划中的应用[J]. 电网技术, 2008, 32(15): 31-35. Fu Yang, Xu Zili, Cao Jialin. Application of heuristic particle swarm optimization method in power network planning[J]. Power System Technology, 2008, 32(15): 31-35(in Chinese). [4] 王春娟, 张伏生, 王帅, 等. 基于混合优化算法的电网规划方法[J]. 电网技术, 2005, 29(23): 30-33,39. Wang Chunjuan, Zhang Fusheng, Wang Shuai, et al. Power network planning method based on hybrid optimal algorithm[J]. Power System Technology, 2005, 29(23): 30-33,39(in Chinese). [5] 吴杰, 刘健, 卢志刚, 等. 适用于输电网网架规划的人工鱼群算法[J]. 电网技术, 2007, 31(18): 63-67. Wu Jie, Liu Jian, Lu Zhigang, et al. Artificial fish swarm algorithm suitable to

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