

电力市场

甘肃酒泉大规模风电参与电力市场模式及其消纳方案

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摘要:

发展风电等清洁能源是我国应对能源挑战的战略选择。甘肃酒泉是全国首个10 GW级风电能源基地。风电的快速发展, 使得未来甘肃电源结构、电网结构以及平衡特性都将发生重大变化。该难题在世界上没有先例, 也没有成功经验可借鉴。为有效解决大规模风电消纳问题, 以甘肃酒泉风电为例, 在分析国外风电参与市场运作经验的基础上, 剖析了甘肃酒泉风电消纳面临的主要问题, 提出了低碳能源消纳机制的新构想, 以及该机制下甘肃酒泉风电消纳方案与打捆外送模式, 探讨了不同时期风电参与市场竞争的可行模式与辅助服务市场设计方案。以期为全国大规模风电的消纳方案提供借鉴和参考。

关键词: 电力系统 风力发电 电力市场 市场模式 低碳能源

Participation Mode of Large-Scale Jiuquan Wind Power Farm in Gansu Province to Electricity Market and Its Utilization Scheme

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Abstract:

The development of clean energy, such as wind power, solar energy and so on, is the strategic choice of China to cope with energy challenges. Jiuquan region located in Gansu province is the first wind energy base with wind power capacity higher than 10 GW in China. Rapid development of wind power makes significant changes in energy mix, network topology and power balance of Gansu province in future, and there is not any precedent and successful experience in the world for reference. To solve the problem of utilizing huge wind power effectively, taking Jiuquan wind power base for instance and on the basis of analyzing the experiences of participating wind farms in the market operation abroad, the principal problems to be faced with during the utilization of Jiuquan wind power are analyzed in detail, and a new idea of low-carbon energy utilization mechanism, the wind power utilization scheme of Gansu province and its bundled outward transmission mode are proposed; and then based on analysis of foreign operational experience in the participation of wind farm in electricity market, the feasible modes of wind farm participating in market competition in different stages as well as the design of ancillary service market are discussed.

Keywords: power system wind power electricity market market model low-carbon energy

收稿日期 2010-04-15 修回日期 2010-04-04 网络版发布日期 2010-06-11

DOI:

基金项目:

NSFC-RS中英合作项目; 教育部留学回国人员科研启动基金(教外司留[2009]1001号)。

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