

智能电网

电力电子技术在智能电网中的应用

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摘要:

坚强智能电网不仅对电网的安全、稳定和经济运行水平提出很高的要求, 而且需要电网具有超越现有水平的灵活性和可控性。以灵活输电技术、用户电力技术和电力储能技术为代表的电力电子技术是实现坚强智能电网的重要技术支撑。在文章中, 提出了一种基于电力电子技术的应用方案。在未来智能电网的建设过程中, 该方案可以优化输电网络的运行条件, 扩展电网的运行控制技术, 保障电网安全、稳定、经济运行。目前, 该方案中的关键技术已经应用在一些工程项目中, 表明该方案是可行且有效的。

关键词: 电力电子技术; 智能电网; 灵活输电技术; 用户电力技术; 电力储能技术

Applications of Power Electronic Technologies in Smart Grid

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Abstract:

The strong smart grid not only places a high demand on security, stability and economy of power system, but also requires flexibility and controllability beyond their current levels. Power electronic technologies, represented by flexible transmission technology, custom power technology and energy storage technology, are the important supporting technologies for strong smart grid. This paper presents a solution approach based on power electronic technologies. During the future construction of smart grid, this solution can optimize operating conditions of transmission networks, expand operation control technologies of power grid, and guarantee security, stability and economy of power system. Up to now, key technologies of this solution have already been applied in some projects, which verifies its feasibility and effectiveness.

Keywords: power electronic technology; smart grid; flexible transmission technology; custom power technology; energy storage technology

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