

特高压输电技术

±1 000 kV特高压直流输电技术研发思路

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摘要: ±1 000 kV特高压直流输电技术能够实现大范围内能源优化配置, 适合巨型能源基地实现电力超大容量、超远距离外送。提出了±1 000 kV特高压直流输电技术研发思路, 共包括5个部分: 第1部分分析指出了±1 000 kV特高压直流输电工程建设的必要性和开展±1 000 kV特高压直流输电技术研究的必要性; 第2部分研究了±1 000 kV特高压直流输电在各种情况下的系统适应性和研究重点; 第3部分研究了±1 000 kV特高压直流输电的换流站设备和线路的技术可行性, 提出了需要进一步研究的技术难点和研发思路; 第4部分提出了从换流站造价、线路造价和能源价格方面分析±1 000 kV特高压直流输电技术经济优势的思路; 第5部分介绍了国家电网公司±1 000 kV特高压直流输电技术研究的计划。

关键词: ±1 000 kV 特高压直流 研发 设备 线路

R & D Ideas of ±1 000 kV UHVDC Transmission Technology

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Abstract: ±1 000 kV ultra high voltage direct current (UHVDC) transmission technology can realize the optimal allocation of energy resources over a large area, and is suitable for the extra long-distance and super-capacity electrical power transmission. In this paper, the research and development (R&D) thought and plan of ±1 000 kV UHVDC transmission technology are presented. They are organized into five parts. In the first part, the necessity to carry out ±1 000 kV UHVDC projects and the necessity to conduct the corresponding R&D are analyzed. In part two, the system adaptability of ±1 000 kV UHVDC transmission is discussed, and the key points of researches are presented. Part three analyzes the technical feasibility of the transmission line and apparatus in converter stations. The key technical difficulties and R&D roadmap are discussed. In part four, a new thought to analyze economic advantages of ±1 000 kV UHVDC transmission technology from the perspective of converter station cost, transmission line cost and energy price is put forward. Part five introduces the R&D plan of ±1 000 kV UHVDC transmission technology of the State Grid.

Keywords: ±1 000 kV UHVDC research and development apparatus transmission line

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