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电力系统

宁东—山东±660 kV直流输电示范工程二次系统实时仿真试验及关键问题对策

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摘要:

宁东—山东±660kV直流输电示范工程是我国第一条660kV电压等级的直流输电工程。该工程的成套设计由我国自主独立完成, 是直流工程国产化的典范。为了对其直流控制保护设备的整体功能及性能进行检验, 并进一步校核成套设计成果的正确性, 专门开展了二次系统实时仿真试验工作。本文对试验的整体情况进行了介绍, 重点对试验中发现的关键技术问题及其解决策略、验证结果进行了阐述。二次系统实时仿真试验为宁东工程的现场调试工作和顺利投产奠定了坚实的基础。

关键词:

Real-Time Simulation Test for Secondary System of ± 660 kV HVDC Power Transmission Demonstration Project From Ningdong to Shandong and Countermeasures to Key Problems

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Abstract:

Ningdong-Shandong±660kV HVDC demonstration project is the first project of 660kV voltage level in our country, and is the first project whose system design is accomplished individually by our own. This project is also model of HVDC project localization. To test the integrated function and performance of control and protection system equipment, and to verify system design, a real-time simulation test was carried out. This paper gives an overall introduction of the test, and then describes key technical problems found in the test. Strategies to these problems were provided and effects of the strategies were proved. Secondary system real-time simulation test provides a basis for site commissioning and smooth operation of the project.

Keywords:

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参考文献:

- [1] Michael L. Dynamic performance study, Three Gorges-Shanghai ?500 kV DC transmission project [R]. Sweden: ABB Power Systems, 2005.
- [2] 马为民, 石岩, 殷威扬, 等. 宁东—山东±660kV直流输电示范工程功能规范书[R]. 北京: 网联直流工程技术有限公司, 2009.
- [3] IEC 919-3—1999, performance of high-voltage DC(HVDC) system part1: steady-state conditions [S].
- [4] IEC 919-3—1999, performance of high-voltage DC(HVDC) system part2: fault and switching[S].

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- [5] IEC 919-3—1999, performance of high-voltage DC(HVDC) system part3: dynamic conditions[S].
- [6] 钱珞江, 邓红英, 陶瑜. 灵宝背靠背直流输电工程中的RTDS试验模型[J]. 高电压技术, 2005, 31(12): 23-26.
- Qian Luojiang, Deng Hongying, Tao Yu. RTDS testing model of Lingbao BTB HVDC engineering[J]. High Voltage Engineering, 2005, 31(12): 23-26(in Chinese).
- [7] 马玉龙, 陶瑜, 周静, 等. 基于实时数字仿真器的特高压直流换流单元投退特性分析[J]. 电网技术, 2007, 31(21): 35-40.
- Ma Yulong, Tao Yu, Zhou Jing, et al. Analysis on deblocking and blocking characteristics of UHVDC commutation units based on real-time digital simulator[J]. Power System Technology, 2007, 31(21): 35-40(in Chinese).
- [8] 李亚男. 宁东—山东7660 kV直流输电示范工程成套设计技术报告: 用于电磁暂态的等值研究[R]. 北京: 网联直流工程技术有限公司, 2009.
- [9] 欧开健, 洪潮. 南方电网多馈入直流输电系统动态性能研究[J]. 南方电网技术研究, 2005, 1(1): 19-22.
- Ou Kajian, Hong Chao. Study on the dynamic performance of multi-infeed direct current system in China Southern Power Grid [J]. China Southern Power Grid Technology Research, 2005, 1(1): 19-22 (in Chinese).
- [10] 杨秀, 陈陈. 基于采样数据模型的高压直流输电动态特性分析[J]. 中国电机工程学报, 2005, 25(10): 7-11.
- Yang Xiu, Chen Chen. HVDC dynamic characteristic analysis based on sampled-data model[J]. Proceedings of the CSEE, 2005, 25(10): 7-11(in Chinese).
- [11] 杨汾艳, 徐政. 直流输电系统典型暂态响应特性分析[J]. 电工技术学报, 2005, 20(3): 45-52.
- Yang Fenyang, Xu Zheng. Typical transient responses in HVDC transmission system[J]. Transactions of China Electrotechnical Society, 2005, 20(3): 45-52(in Chinese).
- [12] 李爱民, 蔡泽祥, 李晓华, 等. 高压直流输电线路行波保护影响因素分析及改进[J]. 电力系统自动化, 2010, 34(10): 76-80.
- Li Aimin, Cai Zexiang, Li Xiaohua, et al. Analysis of influence factors and improvement of traveling wave protections for HVDC line[J]. Automation of Electric Power Systems, 2010, 34(10): 76-80(in Chinese).
- [13] 胡宇洋, 黄道春. 葛南直流输电线路故障及保护动作分析[J]. 电力系统自动化, 2008, 32(8): 102-106.
- Hu Yuyang, Huang Daochun. Faults and protection analysis of Gezhouba—Nanqiao DC transmission line[J]. Automation of Electric Power Systems, 2008, 32(8): 102-106(in Chinese).
- [14] 曹继丰, 王钢, 张海风. 高压直流线路保护配置及其优化研究[J]. 南方电网技术, 2008, 2(4): 101-103.
- Cao Jifeng, Wang Gang, Zhang Haifeng. Study on line protection on configuration and optimization of HVDC line[J]. Southern Power System Technology, 2008, 2(4): 101-103(in Chinese).
- [15] 卢世才, 禹晋云. 贵广I、II回直流工程控制保护系统的对比分析[J]. 高电压技术, 2006, 32(9): 133-136.
- Lu Shicai, Yu Jinyun. Difference of C&P systems between Gui—Guang II and Gui—Guang I HVDC project[J]. High Voltage Engineering, 2006, 32(9): 133-136(in Chinese).

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