

# 电网与清洁能源

Power System and Clean Energy

中国科技核心期刊 China's Core Sci-Tech Journals

美国《乌利希期刊指南》收录期刊 Indexed by Ulrich's Periodicals Directory, United States  
波兰《哥白尼索引》(IC) 来源期刊 Source Periodicals for Index of Copernicus (IC), Poland

DIANWANG YU QINGJIENGUANYUAN

本期关注  
FOCUS



## □ 微电网环境下飞轮储能系统信息建模与分布式运行机制

Information Modeling and Distributed Execution Mechanism for Flywheel Energy Storage System in Micro Grid

ISSN 1674-3814

08>



9 771674 381085

主管单位  
主办单位

西北电网有限公司  
西北电网有限公司  
西安理工大学水电土木工程建筑研究设计院  
Northwest China Grid Company Limited  
Northwest China Grid Company Limited  
Design Academy of Water Conservancy Hydroelectric Civil Engin&ARCH of Xi'an University of Technology

Authorities in Charge  
Sponsor

2012  
08

# 目次

《电网与清洁能源》 2012年第8期·第28卷·总第157期·8月

## 智能电网

- 01 基于PROFIBUS的微型电网监控系统 / 张明锐,任军,徐瑞新  
06 微电网中利用机组调节的潮流控制模型研究 / 张阁,杭乃善,李璨,黄聪  
11 基于改进的邻接矩阵分层搜索前推回代法在潮流计算中的应用 / 莫铭瑞,张志刚,刘德泉  
16 美国经济发展与电力需求关系对中国电力发展的启示 / 嵇建斌  
20 750 kV电力变压器内部故障分析诊断与对策 / 李鹏程,窦小晶,任伟,逯俊林  
24 基于体感温度的电力系统负荷分类及负荷预测 / 谢家安  
29 10 kV配电网馈线自动化系统控制技术分析及应用 / 葛树国,沈家新  
35 新型变压器绕组及油面温度计Terman应用 / 董艳  
39 零序导纳角正弦值在不接地系统单相故障选线分析 / 何引生,王彦东,严司玮,段建东  
43 模块化多电平换流器型高压直流输电综述 / 滕松,宋新立,李广凯,叶小晖,刘涛,仲悟之  
51 发电机转子绕组一点接地故障的快速检查及处理 / 张国稳,钱仕英,祁光胜

## 清洁能源

- 54 微电网环境下飞轮储能系统信息建模与分布式运行机制 / 黄雪梅  
59 联网光伏电站可调度运行特性分析 / 鲍雪娜,张建成  
64 静止无功发生器在风电场电网故障时作用的研究 / 王兴贵,宋磊,郑伟,拜润卿  
68 光伏系统多峰值MPPT控制方法研究 / 项丽,王冰,李笑宇,袁越  
73 数值模式在太阳能出力分析中的应用研究 / 孙川永,彭友兵,高媛媛,于广亮,姜宁,魏磊  
77 双馈感应风力发电机三相短路电流分析与仿真研究 / 李菁,段秦刚,张璇,冯露  
82 三河口水利枢纽表孔泄洪消能方式研究 / 马进武,张晓莉,刘少斌

本刊送阅:

国务院、国家能源局、各省(区)政府电力、能源主管领导  
国家电网、能源企业主要负责人  
中国科学院、中国工程院院士  
电力、能源相关学会、协会  
中国国家图书馆、中国版本图书馆、各省(区)图书馆

# Contents

Power System and Clean Energy  
2012 Vol.28 No.8 (Aug.157) Monthly

## Smart Grid

- 01 Supervisory Control and Data Acquisition System of Micro-Grid Based on PROFIBUS /  
*ZHANG Ming-rui, REN Jun, XU Rui-xin*
- 06 Research on Power Flow Control Model of Micro-Grid by Generator Regulation /*ZHANG Ge, HANG Nai-shan, LI Can, HUANG Cong*
- 11 Application of the Search Forward and Backward Substitution Method Based on the Adjacency Matrix in the Flow Calculation /*MO Ming-rui, ZHANG Zhi-gang, LIU De-quan*
- 16 Enlightenment of Correlation between US Economic Development and Power Demand on China's Power Development /*JI Jian-bin*
- 20 Fault Diagnosis and Countermeasures of Internal Discharge in the 750 kV Transformer /  
*LI Peng-cheng, DOU Xiao-jing, REN Wei, LU Jun-lin*
- 24 Load Classification and Load Forecasting of Power System Based on Apparent Temperature /  
*XIE Jia-an*
- 29 Analysis and Applications of the 10 kV Electric Distribution Network Feeder Automation System Control Technology /*GE Shu-guo, SHEN jia-xin*
- 35 Application of Terman, an Innovative Transformer Winding Temperature Indicator /*DONG Yan*
- 39 Analysis of Fault Line Detection in Neutral Point Ungrounded Power System Based on Sine Value of Zero Sequence Admittance Angle /*HE Yin-sheng, WANG Yan-dong, YAN Si-wei, DUAN Jian-dong*
- 43 A Survey on HVDC Transmission with Modular Multilevel Converters /*TENG Song, SONG Xin-li, LI Guang-kai, YE Xiao-hui, LIU Tao, ZHONG Wu-zhi*
- 51 Quick Check and Treatment of One-Point Grounding Fault in Generator Rotor Windings /  
*ZHANG Guo-wen, QIAN Shi-ying, QI Guang-sheng*

## Clean Energy

- 54 Information Modeling and Distributed Execution Mechanism for Flywheel Energy Storage System in Micro Grid /*HUANG Xue-mei*
- 59 Scheduling Operation Characteristics of Networking Photovoltaic Power Plants /*BAO Xue-na, ZHANG Jian-cheng*
- 64 Effects of STATCOM on Wind Farm Grid in Fault Conditions /*WANG Xing-gui, SONG Lei, ZHENG Wei, BAI Run-qing*
- 68 Multi-Peak Maximum Power Point Track Control Method of Photovoltaic System /*XIANG Li, WANG Bing, LI Xiao-yu, YUAN Yue*
- 73 Application of Numerical Model in Solar Energy /*SUN Chuan-yong, PENG You-bing, GAO Yuan-yuan, YU Guang-liang, Jiang Ning, WEI Lei*
- 77 Analysis and Simulation of Three-Phase Short-Circuit Current of Doubly Fed Induction Wind Generator /*LI Jing, DUAN Qin-gang, ZHANG Xuan, FENG Lu*
- 82 Research on Energy Dissipation Pattern for the Surface Outlets of Sanhekou Hydropower Project /  
*MA Jin-wu, ZHANG Xiao-li, LIU Shao-bin*