

# Smart Power

# 智慧电力

ISSN 2096 - 4145  
CN 61-1512/TM  
CODEN ZDHICJ

2022.07



第 50 卷

中文核心期刊 中国科技核心期刊 陕西省精品科技期刊  
入选《世界期刊影响力指数(WJCI)报告(2020 STM)》

- 基于合同功率与持续时间的电网老化和可靠性优化
- 基于正序分量相位差的电压暂降源定位方法
- 计及需求响应和储能技术发展的未来区间电力流规模分析
- 基于主从博弈的共享储能分时电价策略

主管单位：国家电网有限公司

主办单位：国网陕西省电力公司

协办单位：陕西省电机工程学会

# 目 次

ZHI HUI DIAN LI

第 50 卷 · 第 7 期 · 总第 345 期

## “双碳”目标下的智慧能源电力安全

- 001 基于合同功率与持续时间的电网老化和可靠性优化

董飞飞,刘欣,张云晓,张天龙,何天宇,  
邹红波

- 007 基于正序分量相位差的电压暂降源定位方法

徐方维,龙晨瑞,郭凯,贺东,陈家乐,  
周全,陈锴

- 016 考虑样本不平衡的电力系统鲁棒暂态稳定评估

刘书池,刘颂凯,张磊,张雅婷,晏光辉,  
周倩

- 023 基于低能量直连的真空断路器短路开断能力评估

王军龙,杨欢红,张劲松,汪雷,谢清松,  
邓枫林

- 029 基于 Res-LSTM 网络的多元化电池剩余容量实时预测

陈果,黄祺尧,张志宏

- 037 基于内置差分电容的电缆接头局放检测技术研究

徐明忠,夏荣,欧阳本红,贾晓刚,陈杰,  
刘洋,臧磊,朱祖华

## 新能源

- 045 基于时序动态回归的超短期光伏发电功率预测方法

解振学,林帆,王若谷,张耀,高欣,  
王建学

- 052 基于区块链和市场机制的新能源消纳优化调度策略

孙恒一,赵伟华,陈然,钱锋,曹武,  
杨铭

## 电力系统调度

- 058 计及需求响应和储能技术发展的未来区间电力流规模分析

唐健,李浩志,谢小荣

- 065 计及 UPFC 的主动配电网日前-实时优化策略

曹宏基,刘道兵,李世春,金梓桐,樊煜,  
鲍志阳

- 074 考虑电-气耦合综合能源需求响应的电网调度决策方法研究

袁博,王涛,朱伟东,符政鑫,马国真,  
王逸飞

## 电力经济

- 082 基于主从博弈的共享储能分时电价策略

张青苗,陈来军,马恒瑞,薛小代,梅生伟

- 089 计及期权合约和交易路径的省间优化出清模型与算法研究

朱军飞,李京,李辉,蒋东荣,张齐伟,  
叶东林

## 电动汽车

- 096 电动汽车入网负荷预测及其与电网互动研究进展综述

蔡黎,葛棚丹,代妮娜,徐青山,王坤,  
张一,贺超

- 104 基于改进向量序优化算法的 V2G 电动汽车充电站规划方法

周有为,高忠江,钟雨哲,童建林,邹红波

# CONTENTS

ISSN 2096-4145 Vol.50 No.7(Ser. 345)

## SMART ENERGY POWER SECURITY UNDER CARBON PEAK & CARBON NEUTRALITY

- 001 Power Grid Aging and Reliability Optimization Based on Contractual Power and Duration  
**DONG Feifei, LIU Xin, ZHANG Yunxiao, ZHANG Tianlong, HE Tianyu, ZOU Hongbo**
- 007 Location Method of Voltage Sag Source Based on Phase Difference of Positive Sequence Components  
**XU Fangwei, LONG Chenrui, GUO Kai, HE Dong, CHEN Jiale, ZHOU Quan, CHEN Kai**
- 016 Robust Transient Stability Assessment of Power System Considering Sample Imbalance  
**LIU Shuchi, LIU Songkai, ZHANG Lei, ZHANG Yating, YAN Guanghui, ZHOU Qian**
- 023 Short-circuit Breaking Capacity Evaluation of Vacuum Circuit Breaker Based on Low-energy DC  
**WANG Junlong, YANG Huanhong, ZHANG Jinsong, WANG Lei, XIE Qingsong, DENG Fenglin**
- 029 Real-time Prediction of Diversified Battery Remaining Capacity Based on Res-LSTM Network  
**CHEN Guo, HUANG Qiya, ZHANG Zhihong**
- 037 Cable Joint Partial Discharge Detection Based on Built-in Differential Capacitance  
**XU Mingzhong, XIA Rong, OUYANG Benhong, JIA Xiaogang, CHEN Jie, LIU Yang, ZANG Lei, ZHU Zuhua**

## NEW ENERGY

- 045 Very Short-term Photovoltaic Power Forecasting Method Based on Time Series Dynamic Regression  
**XIE Zhenxue, LIN Fan, WANG Ruogu, ZHANG Yao, GAO Xin, WANG Jianxue**
- 052 Optimal Scheduling Strategy of Renewable Energy Consumption Based on Blockchain and Market Mechanism  
**SUN Hengyi, ZHAO Weihua, CHEN Ran, QIAN Feng, CAO Wu, YANG Ming**

## POWER SYSTEM DISPATCH

- 058 Analysis of Future Interregional Electricity Flow Model Considering Development of Demand Response and Energy Storage  
**TANG Jian, LI Haozhi, XIE Xiaorong**
- 065 Day Ahead Real-time Optimization Strategy of Active Distribution Network Considering UPFC  
**CAO Hongji, LIU Daobing, LI Shichun, JIN Zitong, FAN Yu, BAO Zhiyang**
- 074 Power Grid Dispatching Decision Method Considering Power-gas Coupling Integrated Energy Demand Response  
**YUAN Bo, WANG Tao, ZHU Weidong, FU Zhengxin, MA Guozhen, WANG Yifei**

## POWER ECONOMICS

- 082 Time-of-use Price Strategy for Shared Energy Storage Based on Stackelberg Game  
**ZHANG Qingmiao, CHEN Laijun, MA Hengrui, XUE Xiaodai, MEI Shengwei**
- 089 Inter-provincial Optimization Clearing Model and Algorithm Considering Option Contract and Trading Path  
**ZHU Junfei, LI Jing, LI Hui, JIANG Dongrong, ZHANG Qiwei, YE Donglin**

## ELECTRIC VEHICLE

- 096 Review of Research Progress on Load Prediction and Grid Interaction of Electric Vehicles  
**CAI Li, GE Pengdan, DAI Nina, XU Qingshan, WANG Kun, ZHANG Yi, HE Chao**
- 104 V2G Electric Vehicle Charging Station Planning Method Based on Improved Vector Order Optimization Algorithm  
**ZHOU Youwei, GAO Zhongjiang, ZHONG Yuzhe, TONG Jianlin, ZOU Hongbo**