

2025 9th International Conference on Power Energy Systems and Applications (ICoPESA 2025)

**Nanjing, China
20-22 June 2025**



**IEEE Catalog Number: CFP25BM7-POD
ISBN: 979-8-3315-4484-3**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP25BM7-POD
ISBN (Print-On-Demand):	979-8-3315-4484-3
ISBN (Online):	979-8-3315-4483-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2025 9th International Conference on Power Energy Systems and Applications (ICoPESA)

Table of Contents

Preface..... xiii

Committeesxiv

Smart Power System Stable Operation, Multi-modal Fault Diagnosis and Self-Healing Control

High-Voltage Circuit Breaker Fault Diagnosis Method Based on Action Sequence-Optimized Support Vector Machine 1

Shaoyu Chen, Yong Jiang, Wei Ran, Yang Feng, Yajun Wu, Yangfei Zhou, Zhenli Liang

Fault Detection Method for Distribution Overhead Lines Based on Non-contact Sensors 7

QingHui Kong, YuanHao Yang, LaiZeng Shi, JiaKui Yang

Research on Weak Fault Signature Extraction and Detection Methodology for Aviation Cable Systems..... 12

Yaoxuan Ma, Li Wang, Hao Xu, Shanshui Yang, Hongzhen Chen

Analysis and Solutions for Maloperation of Zero-Sequence Protection Caused by Intermittent Faults in Distribution Networks..... 19

Tiejun Guo, Hongsheng Wang, Yahe Huang, Sirui Zhang, Kuo Zhang, Jing Xu, Botong Li, Xianyang Ke

Research on SSA-SVM Circuit Breaker Fault Diagnosis Method Based on the Fusion of VMD Closing and Opening Energy Entropy and Temporal Characteristics 24

Shaoyu Chen, Yong Jiang, Zhenli Liang, Yang Feng, Yajun Wu, Yangfei Zhou, Mengke Huang, Wei Ran

A Data-Driven Intelligent Faults Identification Method for Power Grid Considering the Fault Characteristics of Inverter-Interfaced Renewable Energy Sources 31

Li Zhang, Shengnan Li, Shoudong Xu, Xin Zhou, Shuyong Li, Qinlei Chen, Jiaze Yang

Analysis of Physical Process and Discharge Characteristics of Single-Phase High-Impedance Faults in Medium-Voltage Power Grids 36

Zhan Wang, Mingqing Zhang, Siyan Tan, Junteng Chen, Yuqi Xiao, Hao Yin

Research on Optimal Control Strategy of ANPC Carrier Overlapping Based on Modulating Wave Offset 41

Yiming Wang, Po Xu, Haohui Yuan, Daming Huang, Kun Xia, Jingxia Wang

Study on Partial Discharge Characteristics of Epoxy Resin for Dry-type Transformer 47

Jin Li, Xiao Chen, Jiarui Dong, Yi Peng, Zihan Chen

Electrical Equipment Stable Operation and Voltage Control Strategy

Study on Voltage Spike Suppression and Commutation Path Optimization for Inverters Based on ANPC-5L Topology	52
<i>Yiming Wang, Po Xu, Ke Yang, Daming Huang, Jingxia Wang, Haohui Yuan</i>	
Research on Wide Input-output Voltage Range Bidirectional DC-DC Converter Based on T-network.....	57
<i>Chengtao Gong, Song Xiong, Jian Zhou, Haojie Zhang, Huanghao Zhu, Xin Ni</i>	
Multi-stage Voltage Regulation Method for Distribution Networks Containing Distributed Photovoltaics	63
<i>Yaxi Yang, Hexiang Peng, Guangshun Lin</i>	
Voltage Supporting and Fast Power Balance Control in a VSC-HVDC System	69
<i>Sichao Wang, Hanbin Zhang, Xiao Zhou, Yuexi Yang, Yu Bai, Guiliang Gao</i>	
Research on Gap Design and Breakdown Voltage Characteristics of Flexible DC Converter Valve Sub-module.....	77
<i>Xianming Bai, Fuyue Wen, Jianbo Zhou, Pan Guo, Kefeng Wang, Ting Zhan, Peng Jiang</i>	
Neural Network-Based Distance Protection Method with Multiple Information	86
<i>Li Zhang, Shengnan Li, Shoudong Xu, Xin Zhou, Shuyong Li, Qinlei Chen, Xuehua Lin, Mengjun Liao, Nan Meng</i>	
Analysis of the Applicability of Positive-Sequence Voltage Polarized Distance Protection for Offshore Wind Power HVDC Grid-Connected Lines	92
<i>Xiao Ma, Jie Li, Wanli Shi, Yibo Sheng, Fei Kong, Jiang Yu</i>	
Quantitative Analysis on Voltage Support Capability of Offshore Wind Power Integration into Receiving Grids Based on Hybrid Simulation Modeling.....	98
<i>Ruanming Huang, Yaoliang Zhu, Chenhao Mo, Haoen Li, Wei Xie, Ruibin Jin, Guanglong Zhu, Xiaoyan Bian</i>	
Operating Strategy of Multi-Voltage Level Hybrid Distribution Network Considering Wind-Solar Uncertainty and SOP Access Conditions	104
<i>Hengrong Zhang, Zhi Zhou, Youzhuo Zheng, Di Weng, Guanglu He, Lulu Yuan, Yanhong Jiang</i>	
Analysis and Mitigation of Voltage Fluctuations in DC Ice-Melting Devices	110
<i>Yao Zhong, Chuang Fu, Qi Yang, Huarong Zeng, Xiaodong Ren, Lusong Zhang, Zhuxin Shi</i>	
Identification of Transient Voltage Instability in the Scenario with Renewable Generation	116
<i>Xin Zou, Junyu Liu, Shiqi Fu, Ruizhe Yao, Yongkang Li, Haifeng Wang</i>	
Study of Rail Potential Suppression Based on DC Bus Voltage Droop Control.....	122
<i>Guilu Zhang, Qiaoyue Li, Tongtong Zhou, Fengchuan Xu</i>	

Wind Turbine Design and Control

Intelligent Fault Diagnosis for Offshore Wind Turbine Gearbox: A Hybrid Framework Integrating Enhanced VMD and GRU	129
<i>Yaping Ma, Chaohai Zhang, Xu Zhang</i>	
DRSN-BiLSTM-Based Fault Diagnosis Method for Wind Turbine Gearboxes.....	135
<i>Junhao Li, Yonghao Han, Lin Ye</i>	

Energy Function-Based Identification for Cascading Generator Out-of-Step Caused by HVDC Blocking	141
<i>Junyu Liu, Huijuan Quan, Jitai Li, Shiqi Fu, Ruizhe Yao, Haifeng Wang</i>	
Measurement of Blade-Tower Clearance of Wind Turbine Based on Deformation Estimation	146
<i>Hang Chen, Fugang Li, Yao Qin, Weizhi Wu</i>	
Stability Analysis of Droop Control of DFIG Considering Wind Speed Variations	152
<i>Ming Chen, Weiyu Bao</i>	
 Digital Twin Modeling and Adaptive Collaborative Control Strategy in Intelligent Power System	
Compensation Control Method for Mitigating Current Zero-Crossing Distortion of Unidirectional Hybrid Five-Level Rectifier	158
<i>Wenyuan Zhang, Ren Ren, Wenfan Li, Fuwang Yang</i>	
Dynamic Current Limiting Scheme of Grid-forming Inverter Based on Fast Power Angle Optimization Strategy	163
<i>Qian Dai, Xia Li, Junling Wu, Yaming Li, Zhijian Fang</i>	
Design of an Economical Non-Isolated Bidirectional DC/DC Power Converter	173
<i>Jinxiang Wang, Huan Cheng, Zhengxiong Chen, Jiixin Chen</i>	
Spatio-Temporal Frequency Distribution Metrics in Converter-Dominated Power Systems	179
<i>Yu Shan, Xiaofei Wang, Zhen Wang</i>	
Study on Switched Capacitor Control Strategy of ANPC-5L Inverter Considering Capacitor Self-Balancing Property	185
<i>Po Xu, Yiming Wang, Haohui Yuan, Daming Huang, Ke Yang, Jingxia Wang</i>	
Development of a 30W SEPIC LED Driver for High and Low Beam Lighting Applications	192
<i>Mehmet Yildirim, Onur Akiner, Omer Cihan Kivanc</i>	
A Comprehensive Circuit Breaker Condition Monitoring Technique Based on D-S Theory	197
<i>Xi Lu, Mengli Chen, Hongming Shen, Congying Wu, Zhihong Xiao, Peili Yan, Bolin Zhang, Guodong Wu, Saisai Ni</i>	
Aggregated Modeling of Two-Paralleled Grid-Forming Converters	202
<i>Wenjia Si, Qun Yu, Jingyang Fang</i>	
Simulation study of a SiC planar MOSFET Structure with Integrated Super Schottky Barrier Rectifier	207
<i>Jinglong Yan, Xintian Zhou, Yun Tang, Dongqing Hu, Yu Wu, Yunpeng Jia</i>	
Research on Intelligent Development Systems for Servo Drives and Their Intelligent Parameter Optimization Methods	212
<i>Zhengxiong Chen, Huan Cheng, Pengju Zhou, Jiixin Chen</i>	
Optimized Design of Robust Power Control Parameters for Voltage-Controlled Virtual Machines	218
<i>Wenju Sang, Shi Changli, Wei Tongzhen, Huo Qunhai, Guo Wenyong, Hu Yufei</i>	

Advanced Control Models, Equipment Reliability and Stable Operation in Smart Grid and Power Systems

Frequency-adaptive PI+VPI Current Control under Weak Power Grid Conditions	226
<i>Zhou Lili, Han Wei, Chen Yufang, Li Dandan</i>	
Research on the Pilot Protection Method for T-Connected Line in Distribution Networks Based on Cosine Similarity	233
<i>Guangfu Xu, Xueneng Su, Haiqiang Zhang, Jiayu Xiong, Lijie Ding</i>	
Split-Phase Power Regulation of the Three-phase Voltage Source Converter via Negative-Sequence Current Injection	239
<i>Shaoyan Jiang, Qian Li, Huiming Li, Lifeng Du, Zhimin Liu</i>	
Four-Degree-of-Freedom Optimization for Minimum Current Trajectory Control in NPC-DBSRC	245
<i>Jian Sun, Yufan Li, Jilong Liu, Rui Zhou, Fei Xiao</i>	
An Embedded Device for Non-power Outage Retrofit of Bay Control Units in Substations	251
<i>Hang Chen, Min Zhang, Xi Hong, Yao Yin, Xu Yao</i>	
Research on Protection and Control for Distributed Power Source Access to Distribution Network	256
<i>Zhenghong Chen, Haohao Hong, Haobin Zhu, Chen Wang, Jian Wang, Qing Wu, Zhifeng Du</i>	
Switching Loss Optimization and Soft Switching Range Extension of a Current-fed Triple Active Bridge Converter	262
<i>Dongrui Du, Yu Chen, Xiaoyong Ren, Zhiliang Zhang, Qianhong Chen</i>	
A Collector Bus-Based Synchronization Method for Multi-Inverter System.....	268
<i>Yue Geng, Shaoze Zhou, Wei Wang, Zheng Wei</i>	
Research on ZVS real-time control algorithm for FSBB.....	272
<i>Jian Zhou, Song Xiong, Xin Ni, Chengtao Gong, Shiping Huang</i>	
Impedance Gray-Box Identification Method for DFIG Based on Vector Fitting Technique	278
<i>Jiawei Yu, Zhiyuan Sun, Chao Luo, Kun Zheng</i>	
Research on Operation Optimization of Distribution Network Based on SOP-DR Coordinated Control.....	286
<i>Youzhuo Zheng, Jiangfeng Yan, Long Hua, Fuxiang Pan, Dao Guo, Yanhong Jiang, Lulu Yuan</i>	

Insulation Testing, Modeling and Simulation of Power Equipment

Direct Recovery and Replacement Technology for SF ₆ /N ₂ Mixed Gas with Predefined Ratios	292
<i>Ronghui Li, Jun Jiang, Chaohai Zhang, Hao Li</i>	
A SiC JFET Structure with An Integrated SBD.....	297
<i>Lihao Lou, Xintian Zhou, Yun Tang, Dongqing Hu, Yu Wu, Yunpeng Jia</i>	
Feature Selection of Insulating Paper Near-Infrared Spectroscopy by SHAP for Enhancing the Interpretability.....	302
<i>Jia Cheng, Xiyuan Chen, Haifan Li, Yanqun Zhao, Han Li, Weizhe Sun, Yuan Li</i>	

The Effects of Moisture on the Characteristics of Oil Immersed Power Equipment Insulation at Low Temperature....	307
<i>Raheel Ahmed, Mingze Zhang, Ji Liu, Zhou Wen</i>	
Development and Application of Intelligent Insulating oil Operation Device	311
<i>Xie Fangyi, Lu Zhongqiang, Kong Weili, Ma Xiaofeng, Sun Zhongyi, Li Huijuan</i>	
Simulation Study on The Influence of Different Environments and Parameters on The Current Ampacity of Parallel Cable.....	315
<i>Jue Zhang, Jiayin Bian, Meng Wang, Defeng Zang, Zebin He, Wanlin Quan, Yan Xu, Jinhao Zhang</i>	
Experimental Study on the Distribution of Ground Total Electric Field Beneath a Unipolar Line at High Altitude ...	322
<i>Xiang Xiao, Zhixiong Huang, Xiaoxing Wei, Zhongyu Zeng, Xingming Bian</i>	

Advanced Modeling, Optimization and Control Technologies for Power Systems with High Renewable Energy Penetration

Quantization and Enhancement of System Frequency Nadir under Power Step Control.....	326
<i>Zhou Xing, Zhaowei Li, Lin Cheng, Hui Huang, Gang Zhang, Xu Zhang, Zhenxing Shao, Yujun Li</i>	
Optimal Operation Scheduling of Multi-energy System DC Transmission Considering Source-grid Coordination ...	333
<i>Zhanxing Xu, Qiang Liu, Xudong Song, Haowei Wu, Na Zhong, Yang Li</i>	
Research on Frequency Stability of High Proportion Renewable Energy Power System Based on Virtual Inertia Control.....	338
<i>Xiaolong Huang, Boyuan Cao, Shuang Wang</i>	
Oscillation Risk Assessment for Multi-Station Renewable Energy Connected to Multi-Terminal MMC-HVDC.....	344
<i>Fangqun Liao, Jiyei Xu, Xilin Yan, Dan Zhang, Yunfeng Huang, Xiaorong Xie</i>	
Common-Mode Resonance Quantification of 3L-NPC Converter in 3-Phase-4-Wire System and the Additional Active Circuit Based Solution.....	349
<i>Ran Chen, Zhenhong Lai, Wei Bao, Qian Feng, Zebin Yang, Hao Yi</i>	
Feasibility Study on the Application of LIBS-Based Corrosion Measurement Technology in Offshore Wind Farms	355
<i>Le Yang, Peng Huo, Shaoyi Ren, Peng Hu</i>	
Short-Term Forecasting of Offshore Wind Power Generation Based on Long-Short Term Memory and Kolmogorov-Arnold Networks.....	361
<i>Zhen Pan, Lijuan Huang, Xin Lin, Kaiwen Huang, Lidan Chen</i>	
Multiple Time Scales Operation Scheduling Optimization of Electric-hydrogen Coupling System under Uncertainty	365
<i>Yu Fu, Xueyue Pang, Weixiong Liu, Zhikeng Li</i>	

Power Equipment Digital Twin Health Assessment System Based on Data Fusion

PICAD: Network Traffic Anomaly Detection for Power Information Collection System Based on VAE-GRU	374
<i>Maherdan Aimer, Jian Zhaomin, Sun Yusen, Fang Lixiong, Nurmameti Ruzhe, Zhu Xiawei, Yuan Peisen</i>	

A Transmission Section Limit Partitioning Method Based on Conditional Mapping of Key Generator Outputs	379
<i>Hanshi Yu, Junbo Pi, Yuchen Dai, Shixiong Qi, Haifeng Zhou, Xi Wu, Zhaowei Li</i>	
Research on the Evolution of UHF and Acoustic Signals During Transformer Tip Discharge Based on Built-in Sensors	385
<i>Chenlei Han, Wenzhi Chang, Tingyu Gao, Jiangang Bi, Shuai Yuan, Keli Gao</i>	
GAT-BiLSTM: Graph Attention based BiLSTM for Non-Intrusive Load Monitoring	389
<i>Fang Lixiong, Sun Yusen, Jian Zhaomin, Ran Yi, Maherdan Aimer, Xu Ruixiang</i>	
A Physics-Informed and Pre-Training Graph Neural Network for Power System Security Verification	394
<i>Yongtao Chen, Xinyu Liu, Tao Chen, Yanan Yu, Tangyao Feng, Maosheng Gao, Juan Yu</i>	
Parameter and Formula Revision for Insulator Configuration and Selection in Heavy Pollution Environments.....	399
<i>Xingting Liu, Nan Wang, Jing Ma, Xinwei Wang, Xinhan Qiao, Zishang Zhu</i>	
Sequence Impedance Modeling and Stability Analysis of Grid-Forming and Grid-Following SVGs	404
<i>Yi Liu, Yonghui Liu, Tingrui Fang, Xiangyi Liu, Hong Wu, Fengmo Li, Jiaqi Niu, Yue Wang</i>	

Data-Driven Power System Design and Signal Analysis

Research on the Calibration Method of Intelligent Energy Meter Measurement Data Based on Improved GM (1,1) Model.....	410
<i>Yao Wenbo, Tan Yunhao, Liu Xingzhi, Wang Rui, Wu Hua, Cheng Yingying</i>	
Current Status and Future Prospects of Coal Mine Big Data Research and Application.....	415
<i>Yunqi Chen</i>	
Analysis of Influencing Factors on Online Monitoring Data of Dissolved Gas in Transformer Oil Based on Data Mining	420
<i>Mengqi Li, Xiaosheng Peng, Tao Xie, Meng Zhou, Ke Hu, Yingcan Si</i>	
Data-physics Fusion Regression Modelling of Speed Optimisation Module for Doubly-fed Variable Speed Pumped Storage Units	428
<i>Rao Liu, Yiwen Sun, Zifeng Li, Chi Tian, Junqing Yang, Haixia Wang, Yu Ba</i>	
Configuration Optimization and Low-carbon Operation Strategies of Renewable Energy Data Center.....	433
<i>Xiang YUAN, Chutian YU, Lijun ZHANG, Chenlin GU, Meijin GAO, Jiarui YANG, Junjie SUN, Hao ZHANG</i>	
Maximum Efficiency Tracking of LCC-S Wireless Charging System Based on SAR.....	441
<i>Zihao Huang, Deyan Lin, Jian Zhou, Haojie Zhang, Ziwei Zhao</i>	
Application of Multi-dimensional Security Strategies in Power System.....	446
<i>Subi Deng, Yuwen Wang, Jinning Guo</i>	
A Decision-Making Method for Unit Commitment with Frequency Security Constraints Supported by Multi-Type Resources.....	452
<i>Chen Luo, Shaolei Wu, Kai Wu, Yu Feng, Shuhong Wang, Yifei Wang</i>	
A High-power Wireless Power Transfer System with Dual-mode Output for Wireless Charging	458
<i>Haojie Zhang, Deyan Lin, Chengtao Gong, Jian Zhou, Zihao Huang, Xiaomin Chen</i>	

Power Quality Disturbance Identification Based on Markov Transfer Field and Improved RepVGG	463
<i>Bo Shao, Jiandong Duan, Zejian Shu</i>	
Integrated Energy System Dispatching, Optimal Configuration and Power Trading Strategy Based on Multi-energy Power Generation	
Supply-Demand Collaborative Response of Integrated Energy Systems Based on Carbon Emission Flow Theory ...	469
<i>Peng Chen, Li Lan, Yanyuan Qian, Mingxing Guo, Xuxu Zhou, Lili Miao, Longlong Guo, Hongbo Ren</i>	
Day-Ahead Optimal Scheduling of Integrated Energy Systems under a Load Factor-Based Transmission and Distribution Pricing Mechanism.....	475
<i>Min Yang, Xiaoyu Shao, Bao Wang, Qixing Sun</i>	
Capacity Optimization for New Energy Bases Considering Ultra-high Voltage Direct Current Transmission.....	482
<i>Xudong Song, Shiyi Ma, Yang Li, Feng Wu, Linjun Shi</i>	
Optimal Scheduling of Integrated Energy System Considering Demand Response and Carbon Trading.....	488
<i>Peng Chen, Li Lan, Yanyuan Qian, Mingxing Guo, Xuxu Zhou, Longlong Guo, Lili Miao, Hongbo Ren</i>	
Optimal Dispatch of Regional Integrated Energy System Incorporating Green Certificate Trading, Stepwise Carbon Trading, and Demand Response	494
<i>Zhao Yueting, Wang Qi, Li Gang</i>	
Quantitative Evaluation of Frequency Regulation Capability in Wind Farm Considering Wake Effect.....	500
<i>Chunyi Han, Gang Zhang, Lin Cheng, Haijun Chang, Zhenxing Shao, Yujun Li</i>	
Operation Optimization of Integrated Energy Systems Considering Molten Salt Heat Storage	506
<i>Zhongguang Yang, Weipeng Liang, Yang Du, Lingyu Guo, Simin Wu, Shuze Du, Haojun Jin, Hongbo Ren</i>	
A Study on the Effects of Intermittent Water Supply on the Performance of PEMEC Electrolytic Hydrogen Production	512
<i>Chih-Chun Wu, Shinn-Dar Wu, T. Y. Kam</i>	
Research on Solar Greenhouse-Assisted Ground Source Heat Pump Heating System	517
<i>Dehua Zang, Changyuan Wang, Yanzhe Lv, Yanbin Liu, Haoran Zhang, Xin Zhang, Lidi Wang</i>	
Research on Economic Optimal Scheduling of Distribution Network with Distributed Renewable Energy Considering Demand Side Response and Energy Storage	523
<i>Hongqiang Tian, Ludeng Liu, Jindian Lu, Bo Wang, Qianjin Gui, Xiaoyang Li</i>	
Enhancing Thermal Performance of FPMHP via Fin Structure Optimization for Low-Carbon Energy Systems.....	529
<i>Jie Ji, Minghou Liu, Canlong Lai, Chang Liu, Qixuan Dong</i>	
Partitioning and Substation Siting Method for Super Large Scale Offshore Wind Clusters.....	537
<i>Mengyao Zhang, Ling Xu, Le Zhao, Xuanze Zuo, Yue Yang, Jingwen Ling, Guanglong Zhu, Xiaoyan Bian</i>	
SVSCIR: Intelligent Scheduling Method for Virtual Station Area Collection Task Scheduling Based on Improved Deep Reinforcement Learning.....	543
<i>Huang Fuxing, Liu Xuan, Xiang Zhijun, Song Shanshan</i>	

A Dominant Broadband Oscillation Reduction Method Suitable for Grid-FORMING direct Drive Wind Farms..... 548
Huifan Xie, Hongtao Liu, Yujia Tang, Qian Ma, Chao Luo

Distributed Photovoltaic Power Generation and Grid-Connected Photovoltaic System

Frequency Regulation of PV Considering the Operating Conditions Under Various Penetration of PV Power 555
Guo Yan, Chen YiPing, Hu YaPing, Liu Jie, Zhang HongXuan

An Optimization Method to Improve the Dynamic Reactive Power Support Performance of Distributed Photovoltaic Systems in Distribution Networks 560
Chen Lei, Liu Yang, Li He, Zhang TongFei, Chen Feng

Research on Distributed Photovoltaic Location and Capacity Determination in Distribution Networks Based on Improved FPA Algorithm..... 566
Haoran Zhang, Changyuan Wang, Hongtao Gao, Yanbin Liu, Dehua Zang, Lidi Wang

Day-ahead Peak Shaving Dispatch of Photovoltaic-Hybrid Pumped Storage Hydropower Systems 572
Zhanzhi Liu, Zhanxing Xu, Menglu Li, Haowei Wu, Qiang Liu, Yang Li

Research on Equivalent Modeling of Large Scale Photovoltaic Power Station Based on Multidimensional Difference Analysis 577
Dong Yuezhou, Liu Yuyan, Chen Yue, Li Ning, Chen Yi, Luo Chao, Qi Jinling

Power System Load Forecasting and Calculation

Research on the Improvement Method of Microgrid Optimization Operation Strategy Based on Electric Vehicle Load 584
Xu Wang, Linzhi Han, Xin Qian

Short-Term Power Load Forecasting Method Based on Feature Selection 590
Ziyue Wang, Yi Wang, Jing Zhang, Jiachuan You

A New Feature Selection Method for Electricity Load Forecasting Based on Dual Evaluation Fitness Function..... 596
Haijing Zhang, Yufan Shi, Yuan Jiang, Xuemei Zhang, Meng Li, Yaqing Yue

Benefit Evaluation Study of New Adjustable Loads Participating in Flexible Grid Interaction 606
Min Zhang, Yantao Chen, Wenwen Zhu, Xiazhe Tu

Construction and Layout of Electric Vehicle Charging Stations

Real-time Optimal Control Method of Electric Vehicle Virtual Power Plant Based on Deviation Feedback-predictive Correction 611
Yehang Deng, Yingjian Hu, Dexin Ding, Wen Ouyang

Blockchain and Multi-Agent Reinforcement Learning Framework for V2G benefit optimization..... 617
Yuting Zheng, Bozhi Liu, Ke Fan, Min Guo, Zhuo Hu

Adaptive Levenberg-Marquardt Algorithm-Based Rapid Insulation Resistance Monitoring for EV Charging Stations 623
Yue Xia, Lipeng Zhong, Dexiong Hu, Feng Wang

Deviation Generation Mechanism and Control Strategy for VES in EV Clusters Participating in Grid Scheduling ...	628
<i>Yi Lin, Peng Zheng, Jingwei Xue, Taifeng Kang, Tian Lan</i>	
Research Progress on Scheduling Algorithms for Mobile Charging Station	634
<i>Yanyu Zhang, Yun Yang, Xibeng Zhang, Feixiang Jiao</i>	
Distributed Renewable Energy Power Market and Power Trading Mechanism	
Bid Optimization Method for Thermal Generators in Spot Markets Based on Hybrid PSO–GWO Algorithm	641
<i>Meng Qin, Jun Shu, Zhigang Bai, Ce Zhou, Xujia Yin</i>	
Construction of Prediction System of Power Grid Engineering Cost Index Based on Contribution Calculation and Correlation Analysis	646
<i>Cong Zeng, Minquan Ye, Huiying Wu, Xuemei Zhu, Zhiyuan Zhang</i>	
A Stochastic Optimization Model for the Contract Transfer of Multiple Renewable Energy Power Plants Considering Multiple Uncertainties in the Market Environment	651
<i>Wenbin Zhu, Lingyang Li, Sihan Wu, Kexin Chen, Jiguang Zhang, Ying Le, Mi Liu, Shisheng Chen</i>	
Economic Evaluation of Large-Scale Renewable Energy Base in Power Spot Market	656
<i>Caihuan Wu, Jun Shu, Haiqiong Yi, Lang Zhao, Yizheng Li, Qiliang Wu, Haifeng Yu, Jiayu Bian</i>	
Multi-simulation of China’s Electric Power Industry Carbon Emission Reduction Effect	662
<i>Jing Zhang, Yanfang Li, Chun Fu</i>	
A Hybrid Transformer-SVR-PSO Approach for Short-Term Electricity Price Forecasting	671
<i>Xin Zhang, Jiguang Wu, Dezheng Zhao</i>	
Optimal Planning, Operation and Control of Microgrid System	
Synchronization Stability Analysis of AHO Inverter and Grid-Following Inverter in Islanded Microgrid.....	677
<i>Li Li, Huihui Song, Haoyu Li, Xing Tian, Zhenqing Liu, Xin Zhang</i>	
Coordinated Sizing of Multiple Energy Storages in Stand-alone Microgrid: A Time-Frequency Framework.....	683
<i>Shutong Chen, Luan Chen, Zhongjie Guo, Weihao Hu</i>	
Improved Firefly Algorithm Optimization Scheduling Technology for Grid-Connected AC-DC Hybrid Microgrids	689
<i>Yufei Yao, Fang Zheng, Zimeng Wang, Yue Yu, Xinyang Zhao, Gaofei Ma</i>	
Robust IGDT Planning for Stand-alone Microgrid with Hydrogen Energy Storage	696
<i>Jianbo Zou, Chenyang Sun, Yanjuan Qi</i>	
New Battery Design and Energy Storage Technology	
Temperature Control of an Alkaline Electrolysis System Considering Electrolyte Circulation	703
<i>Yurun Ye, Hao Li, Ang Lu, Wenxin Liu, Zhiyao Zhong, Jiakun Fang</i>	
Comparative Analysis of Energy Management Strategies for Semi-Active Hybrid Energy Storage System Considering Aging Characteristics	709
<i>Jian Zhang, Xucheng Huang, Tao Zhang</i>	

Multi-attribute Clustering Battery Sorting Method for Battery Energy Storage System.....	714
<i>Zhenyu Huang, Minda Shi, Yanglin Zhou, Baoping Ren, Chen Xu</i>	
An Efficient Battery SOC Estimation Method Based on Steady-state Kalman Filter	719
<i>Qinglu Ren, Ya Liu, Rui Zhu</i>	
Considering a Hybrid Energy Storage Bi-level Fuzzy Control Strategy for SOC Dynamic Balancing and Parameter Optimization	724
<i>Xiao Ma, Zijian Cao, Wenfeng Zhang</i>	
Energy, Exergy, Economic and Environmental Analysis of a Solar-Assisted Multi-Generation System Based on SOFC-GT Waste Heat Recovery with LNG as the Cold Source	729
<i>Wei Feng, Junyi Zhang, Tao Song, Liang Tian, Xu Yan, Jiangfeng Wang, Xinru Guo</i>	
Reconfigurable Battery Networks for 5G Base Station Backup Power: Enhancing Grid Regulation and Economic Benefits.....	738
<i>Baoping Ren, Minda Shi, Yanglin Zhou, Chen Xu</i>	

Author Index