

2024 IEEE 8th Conference on Energy Internet and Energy System Integration (EI² 2024)

**Shenyang, China
29 November – 2 December 2024**

Pages 1-671



**IEEE Catalog Number: CFP24K59-POD
ISBN: 979-8-3315-2353-4**

**Copyright © 2024 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:	CFP24K59-POD
ISBN (Print-On-Demand):	979-8-3315-2353-4
ISBN (Online):	979-8-3315-2352-7

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

2024 IEEE the 8th Conference on Energy Internet and Energy System Integration (EI² 2024)

Table of Contents

Preface.....	lxv
Committees	lxvii
General Session 01: Artificial Intelligence Technologies for the Internet of Energy	
A Renewable Energy Generation Power Forecasting Method Based on Double Attention Mechanism-Long Short-Term Memory	1
<i>Zhenjia Qiao, Min Li, Boyu Zhou, Fangyuan Han, Cheng Cheng</i>	
Research on Voiceprint Recognition Method of Hydropower Unit Online-State Based on Mel-Spectrum and CNN.....	7
<i>PanZhe Mao, YuYan Zhang, Wei Li, ZeYi Shi</i>	
Key Technologies Research and Application of Digital Twin Converter Station.....	12
<i>Qiang Li, Jian Hu, Shihong Zhang, ZiQiang Liu</i>	
Research on a Short-Term Electricity Price Forecasting Model Based on SSA-ESN-BiLSTM	18
<i>Ao Lin, Zuhan Zhang, Hang Fan, Ying Lu, Wenxian Guo, Tianyu Xie, Wencai Run, Yuying Yang</i>	
Dynamic and Adaptive Synchronization Analysis of a new Five-dimension Hyperchaotic System for Power Systems	24
<i>Kunyang Wang, Fangyuan Li, Yan Zhou</i>	
Energy Management of DC building based on Reinforcement Learning.....	29
<i>Wei Zeng, Shanglin Zhao, Jin Jian, Junjie Xiong</i>	
Research on Key Technologies of Intelligent Inspection Equipment and System Pilot Platform	34
<i>Zhu Jiayun, Jia Pengfei, Gao Fei, Yang Ning, Li Lihua, Yang Yang</i>	
Rresearch on Optimal Scheduling Strategy of CHP Microgrid Based on Combined Prediction Model	39
<i>Kun Xiang, Wenxiao Hu, Liping Fan, Qiang Li, Rui Mao, Hui Ma</i>	
Optimisation of Energy Management System for Stadiums based on Internet of Things and Artificial Intelligence	45
<i>Xinyu Li, Benxu Zou</i>	
On the Routing Problem of Power Supply Vehicles	51
<i>Lizhe You, Shengjun Huang, Haowei Zhang, Rui Wang, Tao Zhang</i>	

A Prediction Method for the Microclimate and Ampacity of Overhead Transmission Lines Based on EMD-LSTM and Adjacent Meteorological Stations.....	57
<i>Xiankai Zeng, Zhijian Liu, Chenxing Ding, Tao Zhang, Qian Ran, Yanfei Li, Ren Liu</i>	
Equipment Failure Risk Prediction Method Based on Health Index	63
<i>Li Junyi, Liu Haoyu, Zhang Di, Guo Wei, Jia Pengfei, Zhu Jiayun</i>	
A Lightweight MBConv-Based Model for Real-Time Load Identification.....	69
<i>Shuwen Zhang, Pengfei Lu, Zhipeng Lin, Chang Dai, Jing Jin, Chenkai Zhong, Guolong Liu, Zibin Pan</i>	
Personalized Short-Term Load Forecasting for Building Clusters Based on Federated Learning and Transformer Model	75
<i>Qi Chang, Jie Kang, Lingfeng Tang</i>	
Probabilistic Assessment of Power System Flexibility Based on Bayesian Neural Networks	80
<i>Song Gao, Yuqi Wang, Siying Chen</i>	
A Method of Abnormal Detection for Power Grid Control System Metrics Based on AI Platform.....	86
<i>Shen Jialing, Ji Xuechun, Gao Shang, Kong Yanru, Li Hao, Lao Yingying</i>	
Data Engineering and ML for Real-Time Fraud Detection in Financial Transactions	91
<i>Maria Anurag Reddy Basani</i>	
Thermal Unit Output Condition Recognition Based on Coal Blending Strategy: A Pre-trained Model Enhanced Method	97
<i>Xiang Wang, Siyu Wu, Teng Wang, Jiangrui Ding</i>	
Leveraging Explainable AI and Reinforcement Learning for Enhanced Transparency in Adaptive Fraud Detection	103
<i>Apoorva Kasoju, Tejavardhana chary Vishwakarma</i>	
Novel Diagnostic Method for GIS Mechanical Defects Based on Energy Entropy and Improved Probabilistic Neural Network	109
<i>Jian Hao, Xu Li, Yi Lin, Cong Liu, Yao Zhong, Ruilei Gong</i>	
Distributed PV Power Anomaly Detection Based on LSTM-Informer	113
<i>Hao Xie</i>	
Design of Chemical Water pH Control System in Thermal Power Plant Based on Fuzzy PID.....	119
<i>Ruyu Li, Na Zhang, Bodi Li, Panzhe Mao</i>	
Photovoltaic Pseudo-Measurement Generation Based on Power Forecasting in Active Distribution Systems	124
<i>Ping Zhang, Zun Li, Ruihua Si, Yuanzhao Hao, Biqing Wang</i>	
Data-driven Bad Data Detection and Identification in Power System State Estimation Considering Partitioning	128
<i>Yingying Yuan, Ye Guo, Yifei Xu, Qiong Liu, Qiuwei Wu, Hongbin Sun</i>	
Research on Electricity Price Volatility Risk Modeling and Early Warning Considering Market Supply-Demand Equilibrium Forecasting	134
<i>Jiale Tian, Pengyang Yan, Zihao Fu</i>	

Wind Speed Forecasting Based on Denoising Diffusion Model and Multivariate-Aware Spatiotemporal Transformer	145
<i>Junqi Liu, Hao Liu, Tianyu Hu, Huimin Ma</i>	
Using the Multi-head Self-attention Mechanism to Analyze and Extract Key Features from Power Grids with Complex Structures.....	151
<i>Kewei Cao, Rui Ge, Shixiong Qi, Wenda Zhan, Yidan Wang, Yaping Li, Jun Xie</i>	
Application of COA-HKELM in Photovoltaic Array Fault Diagnosis.....	156
<i>Haifeng Sun, Yanduo Xia, Shuangwu Quan, Yuan Teng, Senxin Shi, Xinyu Zhang, Chao Ma, Chunlu Lin</i>	
Study on the Operation Mode of Electric Vehicle-Based Virtual Power Plants Using TGCN-MPC	162
<i>Guihong Wu, Tianyu Cai, Zhenkai He, Zeyuan Niu</i>	
Research on Tree Line Grounding Fault Identification Technology Based on Improved YOLOv8 Model	168
<i>Liu Jinsheng, Wang Hongjiang, Dai Qin, Gao Yingcai</i>	
Multi-energy Load Short-term Forecasting for Integrated Energy System based on Time Convolutional Networks and Multi-task Learning	174
<i>Xinlu Wang, Zhijun Gao, Xifeng Guo, Bowen Duan, Zihao Cui</i>	
Pixelization of Steady-state Variables Based Power System Transient Stability Assessment	180
<i>Weiwei Ma, Tong Yang, Shixiong Fan, Zening Zhao, Dongqi Li, Yijun Zeng</i>	
Deep Learning Based SOC Estimation Method for Battery in Energy Storage Field Station.....	186
<i>Lixin Yin, Jing Zhou, Xiongchun Du, Dongliang Deng</i>	
Exploring Federated Learning for Energy Consumption Forecasting in Smart Homes	192
<i>Chi Fai David Lam, Han Wu, Zoya Pourmirza, Aad van Moorsel</i>	
Overview of Research Status and Development of New Power Energy Systems	198
<i>Shijie Gao, Xin He, Zehao Yu, Jiangbo Yin, Lufeng Yuan, Yi Shen, Haiqiang Zhang, Quehe Feng</i>	
Research on Technical Route of AI Large Models for Electric Power Knowledge Services	203
<i>Shuangjian Peng, Jian Xiao, Wenjing Zhang, Yuanjun Zuo, Shuai Liu, Yanbo Long, Zhihong Huang, Sheng Wu</i>	
Semi-Supervised Graph-Based Non-Intrusive Load Monitoring Method Combining Transformer and Graph Laplacian Smoothing.....	209
<i>Jun Dong, Jinming Zheng, Lina Stankovic, Vladimir Stankovic</i>	
Method for Anomaly Detection in Distributed Photovoltaic Power Generation Based on Kernel Principal Component-OPTICS Clustering.....	214
<i>Lei Fu, Meifang Wei, Zhuo Peng, Sheng Su</i>	
Application of Ultrasonic Flow Measurement in Accuracy Verification of Submarine Cable Flowmeters	219
<i>Yilin Hu, Xiaowei Huang, Chi Cai, Hangwei Chen, Kaiyu Zeng, Tailong Lv</i>	
Ultra-short-term Load Forecasting Method Based on Improved iTransformer of Decomposition-Reconstruction.....	225
<i>Dongqi Li, Shixiong Fan, Weiwei Ma, Suning Li, Zening Zhao, Zhengnan Gao</i>	
A Fault Detection Method for Wind Turbine Using the Dynamic K-Nearest Neighbor and Autoencoder.....	231
<i>Jinxiang Sun, Chao Huang, Long Wang, Peipei Yu, Huan Long, Dongdong Zhang</i>	

Design and Realization of Intelligent Monitoring and Protection System for Cable Status Based on IoT	237
<i>Chen Lipeng, Zhang Nan, Liu Jinsheng, Gao Yingcai</i>	
Research on Electric Vehicle Charging Load Forecasting Method Based on Variable Mode Decomposition and one Dimensional Convolutional Neural Network	243
<i>Chengyu Wang, Weiwei Kang, Fenglin Deng</i>	
Power System Simulation Intelligent Assistant: A Chatbot Integrating Large Language Models and Domain Models	249
<i>Liangyuchen Lu, Yanzhen Zhou, Zhengcheng Wang, Jinbo Liu, Hongyang Jin, Qinglai Guo</i>	
Short-term photovoltaic power prediction based on KAN model	254
<i>Zhen Hou, Baoyong Liu, Guoqing Fan, Jie Shi, Yuming Wang</i>	
Short-Term Load Forecasting for Virtual Power Plants Based on Improved Laguerre Orthogonal Neural Network Algorithm	261
<i>Yang Zhang, Dong Zhang, Jiayin Li, Tong Liu, Donglai Wang</i>	
Intelligent Reactive Voltage Optimization Method for Distribution Networks Based on Value Function Decomposition and Graph Attention.....	266
<i>Zeichen Tong, Peng Li, Jiahao Wang, Youpeng Pan, Zhiqian Bo</i>	
Application of MSA-UNet Based on Multi-scale Features and Attention Mechanism Optimization in Drone Photovoltaic Panel Recognition.....	272
<i>Haitao Yu, Yongdi Bao, Yifan Sun, Kai Wang, Jian Sun, Huan Wang</i>	
Optimization Design of Energy Management System for Based on Microservice Architecture and Reinforcement Learning.....	277
<i>Ye Wang, Changqing Xia, Chuanzhi Zang, Xi Jin, Chi Xu</i>	
Deep Reinforcement Learning-based Data Driven Method for Fast Solution of Stability Constrained Optimal Power Flow in Isolated Microgrids.....	282
<i>Jun Wang, Yunhe Hou</i>	
Application of Large Language Models to Electricity Markets.....	288
<i>Zhongtao Chen, Xinyi Li, Yanli Yao, Wei Dong, Liuqing Yang, Hang Fan, Yuetong Chen, Dunnan Liu</i>	
Multi-Scale Adaptive-Indexed Scanning Vision Mamba Guided Lighten YOLO-v5 for Coal Gangue Separation.....	294
<i>Tianqi Wang, Chenyuan Wang, Xiaoying You, Xilin Liu</i>	
Application Prospect of New Power System Based on Generative Artificial Intelligence.....	300
<i>Tao Zhou, Xueting Zhao, Liuqing Yang, Hang Fan, Wei Dong, Zuhan Zhang, Yunjie Duan, Chen Zhang, Dunnan Liu, Xiaowei Tan, Shuaikang Wang, Honghu Cheng, Hanhan Qian, Hui Qi, Wei Zhang</i>	
A two-stage learning approach for wind power prediction using dynamic graph convolution network hybrid model	307
<i>Hailong Li, Yongsheng Wang, Shijie Guan, Xuehui Wang, Daorina Bao, Xiaojun Liu, Haotian Chen</i>	
Load Forecast and Regulation Capacity Assessment for Charging Stations Based on Probability Statistics and LightGBM	313
<i>Zhijun Jiang, Wuxiao Chen, Qiang Ye, Han Lin, Yuqing Cai, Xuan Deng, Encheng Feng</i>	

A Lane Detection Method for Advancing Sustainable Energy Internet.....	318
<i>Xiting Peng, Yang Yang, Xiaoyu Zhang, Xiaoling Zhang</i>	
The small signal stability margin prediction model for grid-connected hybrid renewable power station based on the GCN-BiLSTM.....	324
<i>Jun Li, Tao Lin, Chang Ye, Chen Li, Zhengyang Lin, Xialing Xu</i>	
Photovoltaic Scene Generation via Self-Attention Augmented Wasserstein Generative Adversarial Networks.....	330
<i>Zihao Wang, Haodong Chen, Qiwei Qian, Aojie Liu</i>	
Source-load scenario generation method based on conditional Wasserstein generative adversarial network with gradient penalty	336
<i>Zhibo Sun, Gang Du, Jianguo Qian, Liudong Zhang, Tingxiang Lu, Jun Liu</i>	
Two-Stage Short-term Power Prediction of Small Hydropower Station Based on Dimension-Reduction Clustering and Hybrid Neural Network	343
<i>Hanbing Zhang, Jichao Ye, Junyang Guo, Hao Wu, Yonghai Xu, Hui Huang</i>	
Research on photovoltaic power generation prediction method based on improved Bagging model integration method	349
<i>Liu Jiajing, Jia Dongli, Zhan Huiyu, Zhuang Shuyi, Luo Fei, Ye Zhigang</i>	
Research on Transformer Fault Diagnosis Using Boundary Equilibrium Generative Adversarial Network for Data Augmentation	354
<i>Bing Luo, Weihong Yang, Tingting Wang, Lei Su, Tong Li, Xin Shi</i>	
A Health Prediction Method for Electrochemical Energy Storage Systems Based on the BP-Adaboost Model	360
<i>Dan Li, Hui Ruan, Guangze Pan</i>	
Deep Skipping Fusion for Insulator Fault Detection	363
<i>Zhihong Huang, Yunlong Sun, Yuanjun Zuo, Shuangjian Peng, Xianyong Xu</i>	
Electric Power Load Forecasting Based on Fractional PID Model	368
<i>Minghao Guo, Shujun Mao, Pizhen Zhang</i>	
A New Energy-efficient Distribution Transformer Evaluation System Based on CensNet Graph Neural Network	372
<i>Lyu Ting, Zhao Ningbo, Huo Haowei, Kong Ying, Li Yiwei, Zhang Yu, Dang Yu, Ma Yiren</i>	
A Method for Photovoltaic Power Prediction Utilizing LSTM Neural Networks.....	378
<i>Yingcai Gao, Jiaqi Liu, Zhilin Xie, Jin Zhang, Xianneng Wang, Qin Dai</i>	
General Session 02: Zero- and Low-Carbon Energy Interconnection Systems	
Energy Community Resilience: A Multi-Objective Approach with Shared Battery Storage Systems	384
<i>Bahman Ahmadi, Gerwin Hoogsteen, Marco E. T. Gerards, Johann L. Hurink</i>	
Connotation and Functional Analysis of Integrated Energy Generation and Consumption Unit IECU.....	390
<i>Rui Bi, Jun Wang, Yijun Chen, Hao Nie, Ao Wang, Yuting Liu</i>	
Collaborative planning method for independent microgrids under the integrated energy consumption mode of electricity, heat, and oxygen.....	395
<i>Rong Pan, Baodi Ding, Yuanyuan Zhang, Xiaohui Qin, Yuqi Fan, Zhaoyuan Chai</i>	

Optimal Short-term Scheduling of Multiple Small-scale Hydropower Generators based on Water Inflow Prediction	402
<i>Zi Zhou, Xuhui Yue, Qiang Yang</i>	
Temporal and Spatial Characteristics of Energy Saving and Emission Reduction of Electric Energy Replacing Civil Coal.....	408
<i>Fanpeng Bu, Jing Zhang, Peng Li, Weiqing Zhou, Xiaoxuan Bai</i>	
Study on Simulation Model of Synergistic Reduction of Pollution and Carbon Emissions in Cities	414
<i>Chenglong Zhang, Tianchun Xiang, Yang Wang, Qing Liu, Yi Gao, Shuai Luo</i>	
Globally Acknowledged Carbon Certification System: Construction Technique and Application	421
<i>Zeqi Zhang, Zhiwei Huang, Zhe Chen, Yingjie Li</i>	
Optimization of Multi-objective Electric Vehicle Charging and Discharging Scheduling Based on Multi-agent Reinforcement Learning	430
<i>Yamin Yan, Xiangsong Mao, Jie Yan, Jiaoyang Lu, Shan Liu, Yongqian Liu</i>	
Collaborative Planning Method of Multi-Regional Integrated Electrical and Natural Gas Systems for Low-Carbon Economic Development.....	436
<i>Yuanhong Che, Lei Chen, Yang Wei, Bo Pan, Xiangya Bu, Jiaxun Li, Qiuwei Wu</i>	
Research on the charging and discharging scheduling of electric vehicles driven by the carbon flow of the power system	443
<i>Xiangsong Mao, Yamin Yan, Jie Yan, Yongqian Liu</i>	
Low-Carbon Economic Dispatch for Distributed Energy System Using Quasi-Potential Game	448
<i>Jianbo Nie, Bei Jiang, Zhou Lan, Guofeng Wang, Youbing Zhang</i>	
Framework for Zero-Carbon Park Pathway Development: Integrating Subsystem Synergies through Energy and Carbon Flow Analysis	454
<i>Xingyan Liu, Weize Song</i>	
The Impact of the Drainage Cabinet on DC Current Flowing into the Neutral Point of the Power Transformer.....	459
<i>Zeyang Tang, Gang Li, Chaofan Ye, Lei Wang, Zhuang Ruan, Xiaoshuang Li, Tian Qin, Ling Ruan</i>	
Low Carbon Optimization Operation of Power System Considering Ecological Carbon Sink and Renewable Energy	464
<i>Yanlin Li, Zhigang Lu, Yao Cai, Xiangxing Kong, Jiangyong Zhang, Jianyi Hu</i>	
Dispatch Method of Township Industrial Park Integrated Energy System Considering Power to Ammonia and Biomass Waste Energy Conversion.....	468
<i>Bin Chen, Yaohua Tang, Dan Song</i>	
Research and Development of Wireless Charging Power System for Intelligent Patrol Robot Based on 500kV Submarine Cable Unattended Terminal Station	474
<i>Jiabin Wang, Deng Jie, Wang Ning, Huishan Wen, Qiyang Wang, Shuhao Xing, Yongli Huang, Xingjie Zhou</i>	
Design and Development of Intelligent Lighting Control System for Urban Tunnel.....	479
<i>Bao Ding</i>	

Review of DC Distribution Structures and Converters for Plant Factories with Renewables and Fuel Cells.....	485
<i>Chunpeng Zhang, Cheng Chen, Yichen Feng, Xiaorong Xie, Peijun Zheng, Xin Mo, Penghuan Wei</i>	
Low-carbon Dispatch of Distribution Network Considering Dynamic Carbon Emission Factor and Electrolytic Aluminum Load.....	490
<i>Mingxia Zhu, Zhe Wang, Chen Li, Hongda Zhao</i>	
Research on Load Control Based on Users' Primitive Energy Needs in 100% Green Electricity Supplied Energy Systems	495
<i>Jieyu Xie, Xingying Chen, Kun Yu, Lei Gan, Haochen Hua, Bo Wang</i>	
Day-ahead Optimization of Energy Internet System for Low-Carbon Parks Accounting for V2G and Dynamic Electricity Tariffs.....	506
<i>Hao Zhou, Zao Tang, Pingliang Zeng, Nengjie Fang, Yibo Zhu</i>	
Low-carbon Collaborative Optimization of Agricultural Park Based on Carbon Emission Flow.....	512
<i>Jiahao Gou, Hailong Cui, Chongqi Huang, Xia Zhao</i>	
Chance-Constrained Dispatch of Suburban Railway Smart Grids Considering EVs Charging Behaviors	518
<i>Yinyu Chen, Yin Chen, Minwu Chen, Jianyu Zhou, Ning Yang, Shihao Zhao</i>	
A Two-stage Robust Optimal Day-ahead Dispatching Method for H ₂ -IES Considering Uncertainty.....	524
<i>Ying Zhang, Zhenlan Dou, Jian Sun, Chunyan Zhang, Shichao Xia, Pengju Yang, Yi Liu</i>	
Long-Term Power and Energy Balance Optimization for Interconnected Multi-Region Systems with Pumped Hydro Storage Clusters.....	531
<i>Gang Du, Xi Xu, Lei Li, Yuzheng Liu, Biyuan Zhang, Tao Ding</i>	
Optimal Scheduling Strategy of Wind-Solar-Hydrogen-Storage Integrated Energy System Based on P2G.....	537
<i>Zhaoxin Liu, Han Wang, Zhanpeng Xu</i>	
Optimized Operation of the Integrated Energy System Based on the Node Carbon Potential	544
<i>Haixin Wang, Xiaomin Tang, Jian Dong, Xinyi Lu, Xinru Ma, Zhizhen Guo, Yiming Ma, Junyou Yang</i>	
China's Net-Zero Emissions Future: Energy Structure Forecast Based on Elasticity Coefficient Regression Analysis	549
<i>Yanzhe Ren, Lin Cheng, Shiyu Liu, Tao Long, Gengfeng Li, Zhaohong Bie</i>	
Correlation Analysis of Direct Current of the Transformer Neutral Point and Rail Transit	555
<i>Zeyang Tang, Chaofan Ye, Lei Wang, Gang Li, Zhuang Ruan, Xiaoshuang Li, Tian Qin, Ling Ruan</i>	
Carbon-aware Coordination of Active Distribution Network and Large-scale Electric Vehicles under Source-load Uncertainties.....	560
<i>Zhe Cheng, Jie Liu, Biwu Fang, Tian Mao, Baorong Zhou, Wenmeng Zhao, Kaizhe Zhang, Yinliang Xu</i>	
Carbon Emission Accounting for Integrated Energy Systems Considering Network Interconnection.....	567
<i>Chun Wang, Yuxiong Huang, Binrong Zhang, Xuanman Rong, Libo E, Dalei Ning, Gengfeng Li</i>	
A Generation and Transmission Expansion Planning Method Considering Carbon Quotas and Tax.....	573
<i>Yue Yu, Xinwei Shen</i>	

Coordinated Energy Management for Multi-Island Microgrids and Hybrid Electric Ships Considering Carbon Emission	579
<i>Shangding Tang, Xinwei Shen</i>	
SF ₆ Gas Leak Detector Based on Photoacoustic Sensing	585
<i>Tianhe Yang, Jiahui He, Jikuan Zhao, Tong Wu, Jingyi Zou, Ke Chen</i>	
Research on Building Energy System Management System Based on New Power System under Carbon Peaking and Carbon Neutrality Goals	589
<i>Lanjuan Xu, Liyu Xia, Shiqing Wang, Jian Zheng, Suxiu Li, Qian Zhang</i>	
Low-carbon and Economic Operation of Integrated Electricity-HCNG Distribution System Considering Flexible Utilization of P2G Facilities	594
<i>Menghao Peng, Yuxuan Zhao, Zhaoxia Jing</i>	
Modelling and Optimization of Park Integrated Energy System with Biogas Considering Dynamic Adjustment of Thermoelectric Ratio	599
<i>Mingze Zhang, Minghang Cao, Jiahui Yuan, Mingming Liang, Yanxing Du, Siyu Mu, Haixin Wang, Junyou Yang</i>	
Low-Carbon Optimal Configuration for Renewable Energy to Hydrogen to Ammonia System Considering Multiple Operating Modes	604
<i>Hongcheng Liang, Zongxiang Lu, Ying Qiao, Qianwei Liu</i>	
General Session 03: New Quality Productivity Construction for Energy Sector	
Prediction and Analysis of Shared Bicycle Rental Demand Based on Feature Engineering and Regression Algorithm	610
<i>Lingbo Li, Tongjun Wu, Yan Xia, Pizhen Zhang</i>	
Challenges and Recommendations of Green Ammonia Co-firing in Low-carbon Transformation of Coal-fired Power Generation	614
<i>Yanfei Pan, Qiong Li</i>	
Lightweight Model-based Intelligent Object Detection for Digital Twin in Infrastructure Construction Progress	618
<i>Haisheng Liang, Yini Wang, Kaituo Liu, Yihuan Li, Fang Fang</i>	
Industry Economic Monitoring and Forecasting Model Based on Electrical Energy Use Data	624
<i>Xinyu Xie, Li Yang, Jiayi Chen, Jiting Gu, Peng Wang</i>	
Coordinated Optimization of Distributed Energy Resources in Virtual Power Plants Considering Electric Vehicle Penetration	629
<i>Xiaoping Li, Hongbo Wang, Bidan Zhang</i>	
The Influence and Prediction of Carbon Emission Trading Policy on the Asset Efficiency of Enterprises in Power-related industries——Based on the RBF Neural Network Prediction Model	637
<i>Huazhong Niu, Peng Wang, Hongtao Xie, Ying Shi, Wanlei Xue</i>	
Aggregating the data value of multiple application scenarios: a case from electricity market	642
<i>Wen Xie, Jiayi Han, Ning Yang, Junkang Chen, Shijie Ji</i>	

Condition Assessment of Secondary Equipment in Converter Stations Based on Comprehensive Parameter Modeling	648
<i>Peiyuan Zou, Sai Wang, Wei Chen, Guohua Fang, Naiqi Liu, Shuquan Luo</i>	
Online Monitoring Method for Transformer Winding Deformation Based on Leakage Magnetic Induction Coefficient Identification.....	654
<i>Mengfei Wu, Guoxin Lu, Shiming Liu, Yongqi Kang</i>	
Deep Learning-Enabled Green Energy Recycling System: An Example of Fine Disassembly and Regeneration of Automotive Lithium Batteries	660
<i>Xiangpu Meng, Shuo Li, Feidao Cao, Wenhong Wang, Dunxin Huang, Mingzhe Yuan, Zhijia Zhang</i>	
Analysis on the Driving Force and Mechanism of the New Type Power System Industry Transformation: based on Socio-technological Transformation Theory	666
<i>Suxiu Li, Lin Liu, Jing Lu, Xue Wang, Fang Tang, Lanjun Xu</i>	
Study on the Assessment of the Co-Regulation Capability of Industrial Loads with Multi-Granularity	672
<i>Yuze Zhao, Zhuo Chen, Xiandong Xu, Yuhao Liu, Guohao Li, Hongjie Jia</i>	
Research on the Development Path of New Energy Industry in Qinghai Province from the Perspective of Macro-Electricity-Industry	677
<i>Wenbao Hu, Guihong Zhang, Xue Ma, Zuoxia Bai, Meng Wang, Jiayu Li</i>	
Disturbance Factor Measurement and Whole Process Control Technology for Grid Infrastructure Project Investment Balance	685
<i>Wan Tao Hu, Fu Xin Wang, Hai Yang Wan, Tong Li, Heng Zhang, Xiao Hui Wang, Chang Cheng Song, Xiao Hai Gao, Wen Xia Liu, Zhi Qiang Wang</i>	
A Coordinated Dispatch Method for Transmission and Distribution Networks with Multiple Virtual Power Plants ..	691
<i>Wenyuan Zheng, Xinwei Shen, Wei Chen</i>	
Design and Application of Power Data Asset Pricing Model Based on Reinforcement Learning	697
<i>Jing Zhang, Wencui Li, Junyi Wang, Ying Zhu, Yongjie Ning</i>	
Visual Simulation Platform for Optimization Configuration and Coordinated Control of Thermal-Storage Joint Frequency Regulation.....	703
<i>Cuiping Li, Ziyun Zong, Zheng Fang, Zhijun Li, Ping Zhang, Qinglin Sui, Xingxu Zhu, Junhui Li</i>	
Zero- and Low-Carbon Energy Transition Policy System for Industrial Parks under Dual Carbon Goals	709
<i>Yuyao Yang, Feng Pan, Lei Feng, Yilin Ji, Weize Song</i>	
A Review on Two-stage Robust Optimal Scheduling of Virtual Power Plants Containing Wind Power Integration...	715
<i>Zitong Huang, Yangjue Huang, Zhipeng Huang</i>	
Research on Virtual Inertia Frequency Regulation Control Strategy for New Energy Grid Based on Adaptive SOC	724
<i>Hanlin Li, Yunpeng Sun, Jieyu Liu, Hongyang Jin, Yan Zhao, Donglai Wang</i>	
Exploration of the Joint Operation Model of Distributed Power Sources and thermal Storage Electric Heating in Rural Areas Transitioning from Coal to Electricity.....	729
<i>JianFeng Gong, Hongkun Wang, Guozhi Sun, Yiming Han, Shihao Zhang</i>	

General Session 04: Energy Big Data Processing

A Two-Tier Analysis Method for Adjustable Potential of Building Electricity Use Based on Electricity Consumption Data.....	733
<i>Shiming Tian, Tao Ma, Yuwei Wang, Hanqing Wu, Yuting Xu</i>	
Short-Term Prediction Method of Offshore Wind Power Based on Adaptive Error Correction.....	738
<i>Nan Li, Xinyu Xu, Haiyan Song, Tianneng Qian</i>	
Study on Short-Term Photovoltaic Power Prediction Based on SCSSA-CNN-BiLSTM.....	743
<i>Jinzhe Yu, Chunmeng Zhu, Zhengyan Deng, Yihuan Liu, Teng Wang</i>	
Interval Power Forecasting for Photovoltaic Charging Station in Renewable Power System.....	749
<i>Yujiao Wang, Jiaqi Shi, Yiming Zhao, Xiaorong Wang, Dijing Zhou</i>	
Optimized Operation of a Photovoltaic Storage Charging Station Considering Photovoltaic Uncertainty.....	755
<i>Zhengyan Deng, Jinzhe Yu, Chunmeng Zhu, Lanhong Zhang</i>	
Research on the Responsiveness of Residential Electricity Users to the Electricity Accumulation Points Strategy Based on Data Mining and Profiling Analysis	761
<i>Yan Chu, Xinhua Han, Jun Zhuang</i>	
Non-intrusive Load Identification Method based on FHMM in a New Energy System	768
<i>Lanruo Wang, Qizhe Zhang, Yuqing Lei, Wei Yang</i>	
Research on the Verification Method of Power Communication Data Based on Multi-domain Data Unification.....	774
<i>Shengchao Yan, Lei Zhi, Yang Li, Wei Zhao, Li Li, Qilong Wu</i>	
An Enhanced Electric Power Load Forecasting Model Considering Data Feature Extraction.....	779
<i>Xiangrui Meng, Hao Shen, Zian Liu, Bangzhun Li, Dewei Ji, Fen Yang, Guolong Liu, Junhua Zhao</i>	
Ultra-Short-Term Power Prediction for Distributed Photovoltaic Systems Based on Meteorological Resource Interpolation.....	785
<i>Guangjun Xu, Miao Yu, Feng Liu, Huapeng Lin, Zhixuan Chen</i>	
Remaining Useful Life Prediction of Lithium-Ion Batteries Using Physics-Informed Gaussian Process Regression Under Multi-Phase Degradation	791
<i>Zhendu Fang, Zhongbao Wei, Xiangfeng Meng</i>	
A Multi-index Comprehensive Analysis Method for Waveform Consistency of Single-phase Ground Fault of Power Source Output.....	797
<i>Xinyu Guo, Xinwei Wei, Wenping Qin, Wanyu Tao</i>	
Thermal comfort based load aggregation model for fixed and inverter air-conditioning and schedulable potential assessment	803
<i>Chunmeng Zhu, Zhengyan Deng, Jinzhe Yu, Xin Zhao</i>	
Short-term Charging Load Forecasting for Electric Vehicles with a Multilayer LSTM Model Considering Sliding Windows and Online Learning	810
<i>Ye Yang, Wen Wang, Peijun Li, Jian Qin, Xinqiao Yang, Yanan Li</i>	
Random Matrix Theory-Based Data-Driven Framework for Demand Response.....	817
<i>Shuyan Ma, Mei Huang, Juan Zhan, Xiaojia Sun, Zuowei Chen, Zhihan Zhang</i>	

Accelerated Online Computation of Instantaneous Axis Orbit Features of Rotating Machinery Based on FPGA Parallel Computing Advantage	822
<i>Xiaolong Cui, Kaiyi Zeng, Heping Jin, Hong Wang, Hua Geng, Haoran Wang, Xiaotong Li</i>	
Reliability assessment approach for relay protection devices based on the triple Weibull model.....	827
<i>Wang Wenhuan, Qiu Yutao, Zhang Yifan, Fang Yudong, Li Yanjun, Tian Baojiang, Zhou Yinpeng</i>	
A novel micro individual behavior characterization method based on trajectory big data	833
<i>Shan Liu, Yamin Yan, Jie Yan, Shuang Han, Yongqian Liu</i>	
Uncovering Temperature-Load Sensitivity via Structure Modeling and IVGMM.....	839
<i>Lili Jiang, Zhiren Tian, Zhirui Tian</i>	
Blockchain-enabled electricity data sharing mechanism using attribute-based encryption.....	845
<i>Zairan Liu, Guangwei Jiang, Yang Sun, Jianglin Wang, Qinghuan Dong</i>	
Season-Independent PV Disaggregation Using Multi-Scale Net Load Temporal Feature Extraction and Weather Factor Fusion	850
<i>Xiaolu Chen, Chenghao Huang, Yanru Zhang, Hao Wang</i>	
Enhanced Photovoltaic Power Forecasting: An iTransformer and LSTM-Based Model Integrating Temporal and Covariate Interactions	856
<i>Guang Wu, Yun Wang, Qian Zhou, Ziyang Zhang</i>	
Coordinating Grid-forming Control of MT-HVDC System to Interconnect Renewable Power Bases and Weak Grids	862
<i>Jialu Xu, Chuanwei Lin, Li Liu, Renxin Yang, Xu Cai</i>	
Research on Biomass Energy High-Resolution Prediction Methods Driven by Multi-Source Data.....	868
<i>Han Zhang, Maomao Yan, Zhengwei Chang, Yang Wei, Li Jiang, Yibin Zhang, Lingyu Chen, Rui Zhu</i>	
General Session 05: New Energy Technologies and Systems Integration	
An Active Wake Control Strategy for Tandem Wind Turbines Based on Multi-Attractor Particle Swarm Optimization Algorithm	874
<i>Zhenyu Yu, Yibao Jiang, Haoran Zhao</i>	
Offshore Wind Power Transmission Capacity and Uncertainty Assessment Based on VSC-LCC Hybrid HVDC	881
<i>Jun Yan, Hao Duan, Qingzhou Zhang, Huile Liu, Yuhang Bao, Guiping Wu</i>	
Cooperative Yaw and Induction Control for Wind Farm and Its Effectiveness in Providing Secondary Frequency Regulation.....	889
<i>Guojian Li, Zishuo Huang, Zhenfeng Wang, Jin Xu, Jihui Dong, Jiang Li</i>	
Real-Time Simulation Method for Security and Stability Control System Based on Actual Device Code Encapsulation	895
<i>Guosong Wang, Qingxin Pu, Dongxu Chang, Chengxiang Li</i>	
Study on a coupled regulation method of distribution network voltage regulation and electric hydrogen generation voltage regulation considering hydrogen demand	902
<i>Xintong Ma, Xiaotong Zhang, Bing Xie, Yang Xu, Yi Yang, Bowen Zhou</i>	

Voltage Estimation-Based Mobile Energy Storage Scheduling Method for Distribution System.....	908
<i>Zhipeng He, Heng Zhuang, Ting Wu, Qisheng Huang</i>	
Optimization and Economic Analysis of Multi-Park Microgrids Based on Wind-Solar-Storage Complementarity....	914
<i>Fanhua Meng, Likui Yi, Dongge Liu, Rui Feng</i>	
Analysis on Interaction of Wind Farms with UHVDC under Commutation Failure.....	920
<i>Ye Zhang, Pupu Chao, Shilu Wang, Wei Liu, Wangqianyun Tang, Ziqian Yang</i>	
Investigation of Near-Fundamental-Frequency Oscillation in a Renewable Power Integrated System with MMC-HVDC Transmissions	926
<i>Xiaoyu Tian, Wenkai Dong, Wenhui Zhai, Guixing Yang, Pengpeng Kang, Xiaorong Xie</i>	
Study on the Topological Transformation of Electromagnetic Transient Models in PSCAD and ADPSS.....	931
<i>Aobing Li, Chongru Liu, Chenbo Su, Yubo Wang, Yizheng Xu, Lingran Kong</i>	
Cooperative Control Strategy of DFIG Wind Farm for Transient Reactive Power	936
<i>Yiyun Gou, Jinghong Zheng, Yusheng Ding, Renjie Wang, Songzhe Li</i>	
Transient stability control method of virtual synchronous inverter based on minimum stable boundary estimation...	942
<i>Ke Zhou, Ruian Li, Xiaobing Chen, Qingren Jin</i>	
Rapid Estimation of CCT for GFM and GFL Inverters Integrated Systems Using the Direct Method.....	948
<i>Yisheng Cai, Zhichao Gong, Wenqi Huang, Yongzhi Zhou</i>	
Optimal Dispatch of Clean Energy-Integrated Power System Considering Time-Varying Reserve Requirement Based on Time-Series Production Simulation Techniques	954
<i>Yinya Zhang, Weilong Luo, Xu Ling, Xuedong Zhu, Yang Yu, Shichang Cui</i>	
Optimal Scheduling Strategy for an Independent Island Integrated Energy System with a Renewable Power-to-Ammonia System	962
<i>Jie Lin, Zhenshan Zhu, Guanhui Luo, Yinghui Huang</i>	
Fault response strategy for high proportion distributed energy resources distribution area based on whale optimization algorithm.....	968
<i>Hengyu Liu, Liyang Liu, Xiaoning Ma, Dawei Hu, Jingwei Han, Tianwei Cao, Jiazheng Sun, Zhi Zhang</i>	
Research on the Operation of Complementary Microgrid System for Wind-Solar-Hydro-Storage Based on DEPSO	974
<i>Dongge Liu, Likui Yi, Fanhua Meng, Rui Feng</i>	
Storage Planning for High Penetration of Renewable Energy Sources Considering Battery Characteristics	979
<i>Ming Yu, Xin Lin, Hua Guo, Shuyi Xia</i>	
Mixer-Pvformer: A Hybrid Model Combining Graph Convolution and Transformer for Long-Sequence Photovoltaic Power Forecasting	983
<i>Ying Wang, Ran Liu, Shu Qiu, Wei Zhuang</i>	
Offshore Wind Farms-Photovoltaic-Energy Storage Systems Planning Based on Kernel Copula.....	989
<i>Peng Zhang, Boyang Zhao, Runcheng Gan, Jing Li, Xiuli Wang, Enchao Xu</i>	

Distributionally Robust Collaborative Scheduling Strategy for Provincial-Regional Grid under High Penetration of Renewable Energy	995
<i>Sheng Chen, Ying Yang, Xin Chen, Yongquan Nie, Yangfan Luo, Ziang Liu</i>	
An AI Weather Downscaling Method for Wind Power Forecasting Considering Terrain Features.....	1001
<i>Xue Han, Han Wang, Jie Yan, Kaibo Wang, Cong Pang, Shuang Han, Yongqian Liu</i>	
Dynamics of the DC Voltage of Fuel-Cell-Powered System Considering the Response Time of Energy Storage Devices	1006
<i>Cheng Chen, Chunpeng Zhang, Yichen Feng, Xiaorong Xie, Qirong Jiang, Xin Mo, Penghuan Wei</i>	
Flower Pollination Algorithm Based on Adaptive Dual Differential Evolution and its application in Smart Grid	1011
<i>Yaxing Wei, Zhencheng Zhang, Lai Man, Jiamao Han, Lei Han, Liwei Wang, Wenbo Sun, Xiao Wang</i>	
Wind Farm Coordinated Control Method Based on Wind Turbine Frequency Regulation Capability	1016
<i>Jiajue Li, Guangyu Sun, Zhihui Liu, Pupu Chao, Ruihao Zhang, Yonglin Jin</i>	
Modeling and Simulation Method of Multi-element Electric Hydrogen Fusion System	1022
<i>Huaiguang Gu, Jiawei Zhou, Jin Li, Dong Liu, Danxi Liang, Ji Li</i>	
Multi-time scale scheduling optimization of port integrated energy system	1030
<i>Daogui Tang, Pingxu Ge, Hualong Feng, Chengqing Yuan, Yuxin Li, Josep M. Guerrero</i>	
The Model and Outlook of Renewable Energy Systems	1036
<i>Tianshu Zhang, Fan Yang, Zhijiang Liu, Yao Zhang, Tengfei Song, Hui Liu, Lin Zhu, Zhenkun Qin</i>	
Traffic Modeling of Typical Key Power Grid Information Systems	1042
<i>Wei Tang, Congfeng Jiang, Yonghe Guo, Meng Yang, Junming Liu, Weijing Xu, Lingjia Lao, Shijie Chen, Haoyang Zheng</i>	
Design of New Energy Generation Full-Time Domain Evaluation and Application Software	1048
<i>Yan Zhang, Huaying Su, Jiali Deng, Rongrong Wang, Ning Wang, Yang Liu, Min Xie</i>	
Comparative Analysis of Grid Impedance Estimation Methods for Online Stability Control of Renewable Energy	1053
<i>Lulu Huang, Haoxiang Zong, Po Xu, Yiming Wang, Chen Zhang</i>	
The Control Approach of Energy Storage Batteries Joining in Primary Frequency tuning Grounded in Adaptable Control	1059
<i>Rui Feng, Likui Yi, Dongge Liu, Fanhua Meng</i>	
Research on Three-Dimensional Safety Technology of Power Monitoring System for New Energy Station.....	1065
<i>Xudong Liang, Jing Liu, Shaopeng Li, Qian Zhao, Hongxiang Pan, Jian Shen</i>	
Modeling and Characteristic Analysis of Building PV Array Under the Influence of Multiple Factors	1071
<i>Zhiyong Liu, Wanyu Ji, Xiaoxi Chen, Rongrong Ju</i>	
Bi-level Optimization of Mobile Energy Storage System Allocation and Scheduling for Grid Stability and Peak Load Reduction.....	1077
<i>Paco B.C. Verhoef, Bahman Ahmadi, Elham Shirazi</i>	

Sensitivity Analysis on Optimal Preventive Maintenance Policies for the Electrical Control System of Offshore Wind Turbine.....	1083
<i>Xinzhe Ji, Xinwei Shen, Renshen Tan</i>	
Review of Technical Analysis and Application Status of Hydrogen Energy Storage System	1089
<i>Wenzhou Liu, Yilong Yang, Lixin Pei, Pengyu Wang, Jinghuan Yang, Jiacheng Cui, Yuliang Wang, Yun Guo, Zhihong Jiang</i>	
Optimal Configuration and Operation of DC Distribution Network Integrated with Hybrid Energy Storage System	1097
<i>Jian Zhang, Xucheng Huang, Tao Zhang</i>	
A Further Performance Improvement of Distributed Photovoltaic Location Planning and Hosting Capacity	1103
<i>Yuerou Li, Hongxia Yu, Wenjie Wang, Rui Guo</i>	
A Control and Switching Method for Photovoltaic Inverter in Grid-Connected and Off-Grid Modes without Energy Storage	1109
<i>Ruiqi Ma, Yingjie Peng, Zhenxiong Wang, Yuxin Li, Chen Chen, Hao Yi, Fang Zhuo</i>	
Deep learning model analysis for hybrid PV-TEG maximum power extraction and GMP estimation: A step toward cleaner energy generation	1115
<i>AL-Wesabi Ibrahim, Jiazhu Xu, Shaoqing Qu, Yuqing Yang, Hassan M. Hussein Farh, Abdullrahman A. Al-Shamma'a, Muhammad Hamza Zafar, Khaled Ameur</i>	
Ultra-short-term Multi-step Prediction of Wind Power based on iHHT and TSLANet	1121
<i>Xiangyu Li, Mao Yang, Li Sun, Yunpeng Jia, Guozhong Fang</i>	
Optimal Designation of Surplus Power AC Chopper in New Energy Transmitted by VSC-HVDC System	1127
<i>Tan Li, Bin Yuan, Yingxin Wang, Yunrui Wu</i>	
A Combined Physics and Data Driven Method for Broadband Impedance Online Estimation of Renewable Power Plants	1133
<i>Chunyan Li, Shaolin Li, Pengpeng Kang, Fenglin Miao, Xiaoyi Tian, Wenhui Zhai</i>	
Multi-Scenario and Multi-Entity Interaction of Village-Level Microgrids Considering Solar-Storage-Charging-Network-Load Coupling	1139
<i>Wenfei Yi, Qiangsheng Bu, Yunpeng Jiang</i>	
Optimization of Port Integrated Energy Systems Considering the Dissatisfaction of Port Operators with Hydrogen Safety	1146
<i>Kai Ma, Yingye Zhang, Kun Yang, Shiliang Guo, Yong Yang, Jie Yang</i>	
An Annual Maintenance Scheduling Model for Multiple-type Units Based on Cluster Unit Combinations	1152
<i>Junji Zhou, Xiong Wu, Guodong Guo, Dong Liu, Bo Yuan</i>	
Refined power modeling method of ultra-short-term wind power cluster based on power reverse deduction	1158
<i>Yupeng Sun, Mao Yang, Chenglian Ma, Yunpeng Jia, Guozhong Fang</i>	
Research and Practice on Primary and Secondary Fusion Identification Technology for Tree-Line Grounding Faults in Smart Distribution Networks	1164
<i>Xu Han, Na Ren, Jialiang Jiang, Xinyu Yi, Dingrong Guo</i>	

Access Point Selection for Offshore Wind Farm Transmitted by Fractional Frequency Transmission System	1168
<i>Enchao Xu, Runcheng Gan, Boyang Zhao, Peng Zhang, Jing Li, Xiuli Wang</i>	
Modeling and Analysis Strategy of Lithium-ion Battery Capacity Degradation	1174
<i>Zhijian Liu, Wenguo Yan, Yirui Han, Delong Zhang, Wei Li, Zhisong Xu, Pengcheng Li</i>	
Modeling and Low Frequency Oscillation Analysis of PMSG-based Wind Turbine Controlled by Virtual Synchronous Generator	1179
<i>Junqi Cao, Zhiqian Yang, Haijun Huang, Yanning Wang, Xiaonan Zhang, Gengyin Li</i>	
Approach of Black Start Scenario for Photovoltaic-Storage-Charging-Discharging Station Based on Source-Network-Load-Storage System.....	1185
<i>Liang Zhu, Jian Xu, Qingguang Yu, Xin Yao, Min Guo, Leidong Yuan, Ding Liu, Xiaoyu Li</i>	
A Data-Driven Model for Predicting the Energy Interception in Solar Central Receiver System.....	1188
<i>Arslan A. Rizvi, Akif Nadeem, Hadeed Ahmed Sher, Cao Feng, Wang Yanling</i>	
Online Monitoring Method for Reactive Power Support Performance of Reactive Power Compensation Devices Based on Active Injection.....	1192
<i>Zhiming Shi, Wei Dong, Xiaolin Zhang, Guangxiu Yao</i>	
Stability Control of Photovoltaic Power Generation System Through Virtual Resistance Fitting Under Variable Irradiation Conditions.....	1197
<i>Chengmao Du, Xiong Du, Ziming Qiu, Ze Wei, Hongjun Yang</i>	
Research on Microwave Wireless Power Transfer Applications for Moving Targets.....	1202
<i>Man Ruan, Xudong Wang, Wanli Xu, Peiqiang Chen, Mengyi Wang, Jinmao Chen</i>	
The Joint Frequency Regulation Strategy of Wind Power Plants and Energy Storage.....	1208
<i>Zhu Guangming, Sheng Jie, Wang Ding, Ge Leijiao, Chen Zhenghong, Wu Jinbo, Sheng Kai, Mo Wenhui</i>	
Coordinated Design of Joint Operating and Trading Mechanism of Diverse Community Energy Systems and Shared Energy Storage.....	1214
<i>Jifeng Li, Wei Niu, Tong Zhang, Xiangning Liu, Qinghua Yan, Kuizheng Song</i>	
An Enhanced Power Quality Improvement Control Strategy for Grid-Connected Inverters	1220
<i>Zekun Yang, Yajie Tang, Diyang Gong, Xiaojie Shi, Lei Lin</i>	
Analysis on Difference of Dynamic Characteristics and Stability Between Synchronous Generator and Virtual Synchronous Generator	1226
<i>Luyang Li, Wei Pei, Wei Deng, Xiaoling Su</i>	
By Regulating the Flow of Hydrogen-electricity in the Microgrid Internet to Coordinate the Operation of the Distribution Network and Transportation Network	1231
<i>Bei Li, Jiangchen Li</i>	
Wind-Storage Cooperative Frequency Control Strategy Based on Wind Turbine Frequency Regulation Capability	1237
<i>Shubo Hu, Arafat Bekry, Xiaotong Zhang, Pupu Chao, Yonglin Jin, Junkun Hao, Xintong Ma, Hailong Wu</i>	
Network Partition-Based Multi-Timescale Coordinated Voltage Regulation of Distribution Networks with High-Penetration Distributed PVs	1243
<i>Kanglong Zhu, Hongpei Qin, Jingtao Zhao, Can Wan, Shu Zheng, Xiaoyan Zhang</i>	

A Mixed Four-Port Renewable Energy Converter based on Power Component Sharing.....	1250
<i>Cheng Zhong, Xuefan Yu, Ting Qian</i>	
A Comprehensive Strategy involving Load Restoration and Pavement De-icing for Intelligent Connected Highways after Snow-Ice Disasters	1255
<i>Quan Liu, Ziwen Xu, Ziyu Liu, Chen Chen</i>	
The Design and Simulation of the Water Turbine Adjustment System Based on the Matlab.....	1261
<i>Rui Guo, Hongtao Yu, Yuerou Li, Junyue Wang</i>	
A Study on an Optimal Control Strategy of Electric Hydrogen Production Load Considering New Energy Consumption and Hydrogen Demand	1266
<i>Xiaotong Zhang, Xintong Ma, Junjie Sun, Yang Xu, Yi Yang, Bowen Zhou</i>	
Short-term prediction of PV power by coupling QPSO-LSTM and improved mechanism modeling	1272
<i>Zhenghui Li, Shihao Shen, Pengjun Li, Chengzhou Li</i>	
The Group Acceleration Technology of Power Grid Mode Calculation Adapted to Power Generation Production Simulation.....	1278
<i>Kailin Zhao, Kaixin Liu, Jiahui Tian, Xuetao Yang, Luo Wang, Junkuo Li</i>	
Risk Assessment of Successive Commutation Failure in Multi-infeed LCC-HVDC Transmission Systems	1284
<i>Yusheng Wang, Xiaogang Wang, Zheng Sun, Ziyu Guo, Jianpo Zhang, Zhihan Li</i>	
Improved Kepler Algorithm Based Maximum Power Point Tracking for Distributed Photovoltaic under Partial Shading Conditions.....	1290
<i>Dayang Li, Gang Chen, Huiyu Song, Chao Deng, Lin Chen, Guoqing Yang</i>	
Modeling the equivalent of doubly fed wind turbine clusters using the K-means algorithm	1296
<i>Gu Tingyun, Gao Haoqian, Fan Qiang, Zeng Shuran</i>	
Undirected Graph Description and Dimensionality Reduction Deconstruction of Complex Microgrid Networks....	1302
<i>Jingwei Zhao, Xingyuan Chen, Yang Hu, Zhentao Shi, Han Yang, Yini Wang</i>	
Impact of the PLL's Phase Delay Effect on the Stability of the Weak-Grid-Tied Grid-following VSCs	1308
<i>Guanglu Wu, Jianyun Liu, Shanshan Wang, Rui Yin, Lin Yu, Quan Ma</i>	
A Novel High-Capacity Cascaded Wind Turbine Converter with High Frequency Link for Fractional Frequency Offshore Wind Power Application.....	1313
<i>Weijie Wu, Peiyang He, Xianwei Wang, Xinhe Liu, Tianyi Wang, Chong Niu, Yongqing Meng</i>	
Comparison and Testing of Equivalent Modeling Methods for Wind Farm Composed of Doubly-Fed Induction Generators.....	1319
<i>Binjiang Hu, Yihua Zhu, Liang Tu, Zun Ma, Xian Meng, Chao Xing</i>	
Real-time Optimal Dispatch of Source-Grid-Load-Storage based on Graph Database.....	1328
<i>Zhenyi Wang, Xuegang Lu, Majing Yang, Pei Zhang, Cong Zhang, Hongyu Zhang</i>	
Integrated Planning and Operation Optimization of Distributed Integrated Energy Systems Synergizing the Multiple Distributed Power Sources and Energy Storage	1334
<i>Bingtao Guo, Zhenlan Dou, Jiahao Zhou, Tengyu Ma, Junhong Hao, Xilin Jin, Chunyan Zhang</i>	

SOH Estimation of Energy Storage Batteries Based on ICA and Data-driven Fusion Model.....	1344
<i>Qinghua Li, Zhongbao Wei, Sheng Kang, Meihui Zhang</i>	
Testing Method for Frequency Support Performance of Renewable Energy Power Stations Based on Mechanism Model and Predictive Data-Driven	1350
<i>Zhiming Shi, Zhiyong Liu, Xiaoxi Chen, Wanyu Ji</i>	
Optimal scheduling of independent microgrid based on multi-objective improved gray wolf algorithmaper	1356
<i>Yuhua Mi, Caixue Chen, Xinyi Yang, Bobin Wu, Yingguang Xiao, Laibin Zhang</i>	
A Nash Bargaining Approach for TSO-DSO Flexibility Coordination	1362
<i>Yongrong Shi, Qisheng Huang, Yunshu Liu, Junping Ji, Dawei Li, Daojing He</i>	
A Reliability Evaluation Method for Integrated Energy System with Hydrogen Considering Gas Inertia and Delay of Flow	1368
<i>Mingxuan Jiang, Binlu Wang, Gengfeng Li</i>	
Transient Stability Analysis between Grid-connected Inverter and Energy Storage Converter Within Offshore Wind Power Collection Station	1375
<i>Yangqing Dan, Chenxuan Wang, Keheng Lou, Ying Huang</i>	
Frequency Response Characteristic Analysis of Wind-Solar-Thermal-Nuclear-Storage Systems Based on Refined Nuclear Power Modeling.....	1380
<i>Quan Qi, Yongchao Zhang, Cijian Xie, Pupu Chao, Yonglin Jin, Bing Xie, Yao Fu</i>	
Optimal Sizing of Remote Wind-Storage Power Plants Using Wasserstein-Based Distributionally Robust Optimization	1386
<i>Miao Cheng, Yunhe Hou</i>	
Temperature-power Stabilization Control Method for Hydrogen Fuel Cell Grid-connected Inverter with Temperature Adaptive Capability.....	1392
<i>Xin-He Zhang, Gui-Xiong He, Bo Qu, Jian-Dong Kang</i>	
Research on the design method of 61850 client for monitoring system of large-capacity wind and solar storage power station	1396
<i>Shaopeng Li, Ping Yan, Yuan Ma, Qiong Liu, Hongxiang Pan, Jian Shen</i>	
Modeling and Response Characterization of Wind Turbines under Frequency-Voltage Coupled Disturbance Conditions	1402
<i>Yonglin Jin, Pupu Chao, Junkun Hao, Pengquan Zeng, Haohan Cui, Kai Zhang</i>	
Scenario Generation of Annual PV and Load Correlated Time Series Considering Meteorological Influences.....	1409
<i>Ruojia Lv, Manying Zhang, Chengjin Ye</i>	
DRU-based LFAC Transmission for Offshore Wind Farm Integration Using Grid-Forming Wind Turbines.....	1417
<i>Xingjian Tian, Chuanwei Lin, Renxin Yang, Xu Cai</i>	
Rectifier Transient Voltage Stability Improvement Strategy Based on Mode Switching	1423
<i>Ke Zhou, Xiaobing Chen, Ruien Li, Qingren Jin</i>	
Short-term Power Prediction of Wind Power Cluster Based on KOA-PLE	1427
<i>Nan Wu, Mao Yang, Chenglian Ma, Yunpeng Jia, Guozhong Fang</i>	

Scenario Generation of Renewable Energy power Considering Identification of Meteorological Risk Factors.....	1433
<i>Yifan Zhang, Xiong Wu, Guodong Guo, Dong Liu, Bo Yuan, Shengjin Huang</i>	
Field Tests of Impedance Measurement Using a Megawatt-scale Full-power Grid Simulator	1438
<i>Chen Qi, Linwang Dai, Chen Chen, Shiyao Qin, Ruiming Wang, Hai Xu</i>	
Hierarchical Simulation and Fault Analyses of Photovoltaic Modules from Electronic Level	1444
<i>Qichao Zhang, Zenghua Chen, Heng Wang, Yu-Long Shen</i>	
Research on Coordinated Frequency Modulation Control Strategy of Wind-Storage System Based on Virtual Synchronous Generator Technology.....	1451
<i>Qiumin Xu, Xiaoyi Qian, Yi Zhao, Xingyu Jiang, Yang Song, Mengyu Wang</i>	
Ultra-short-term Power Prediction of Photovoltaic based on CNN-AM-BiLSTM	1457
<i>Junhui Li, Mingxuan Du, Haozheng Yu, Jie Ma, Youwen Zhang, Jiatao Gan, Xingxu Zhu, Cuiping Li</i>	
General Session 06: Control and Optimization of the Energy Internet	
Research on the Optimization Scheduling Strategy of Virtual Power Plants Based on Conditional Value at Risk and Random Scenario Screening.....	1463
<i>Chunlong Li, Heng Ji, Jian Jiang, Shiwei Song, Bin Yuan, Shuang Qiu, Shuo Gao, Minghao Du</i>	
Distributionally Robust Joint Chance-Constrained Scheduling for Integrated Energy System Considering Symmetric-Unimodality Information of Uncertainty	1469
<i>Zhiyuan Zhang, Minghui Song, Xiqin Li, Bin Wang, Yuxi Yang, Xudong Liu, Yanlin Song, Lirong Deng</i>	
Research on Energy Supply Chain and Demand Response Strategy of Stadiums under Smart Grid Environment...	1475
<i>Wanfang Xue, Benxu Zou, Lijuan Wang</i>	
Voltage Control Strategy of Distribution Network with Distributed Photovoltaic Based on Optimization Search Strategy	1479
<i>Qiangren Zheng, Geng Niu, Lijuan Hu, Ming Wu, Jingyan Xuan, Qiang Yao, Miao Guo, Yu Ji</i>	
Study on the MMC-HVDC System Stability Impacted by Feedforward Voltage	1485
<i>Dongming Han, Wankai Yang, Guoliang Zhao, Yunfei Xu</i>	
A Fast Power Distribution Strategy for Overspeed Deloading Control of Wind Farm.....	1492
<i>Qizhen Yang, Xiaohai Wang, Hongguang Zhang, Lei Chen, Qiang Li, Xiwei Jiang, Zhaorui Liu</i>	
Comprehensive Evaluation Method and Application of Active Distribution System Operation.....	1498
<i>Liang Yan, Zhuoyan Yu</i>	
Resilient Distributed Control for DC Microgrids Under Unbounded FDI Attacks and Stochastic Noise Disturbances	1503
<i>Hengyi Fu, Dandan Yue</i>	
A PV Hosting Capacity Evaluation Method Considering Source-Load Correlation	1509
<i>Xiang Ma, Zhouming Kang, Leiyan Lv, Xuan Fang, Zhen Wang</i>	
Collaborative Control of Gravity-Electrochemical Hybrid Energy Storage and Evaluation of Its Operating Characteristics	1514
<i>Wang Qingshan, Li Yan, Zhang Qun, Wang Decheng</i>	

Statistically Feasible Mixed-Integer Programming for Integrated Energy System Scheduling	1520
<i>Huilan Xu, E. Liu, Pengcheng You</i>	
Research on the Optimization of Multi-Energy Flow System Based on Energy Circuit Theory and PINN	1526
<i>Rixiao Zhao, Ji Qiao, Fujia Han, Hanning Mi, Jiye Wang</i>	
Distributed Hybrid Flow Shop Scheduling with Considering Preventive Maintenance.....	1532
<i>Jia Guo, Yuanyuan Tan, Jun Zhang</i>	
Day-ahead Optimal Dispatch for Wind-Photovoltaic-Storage System Based on Minimum Inertia Evaluation of GFMS	1538
<i>Chong Shao, Yukun Chai, Liangzhong Yao, Wenchao Zhai, Huijuan Huo, Yan Zheng</i>	
Accelerated Testing and Data Analysis Method for Thyristor Irradiation Effect	1544
<i>Jingyu Lu, Ziqiang Yin, Zhong Chen, Lin Zhu, Zhiliang Hu, Mingmin Zhao</i>	
Bus Voltage Control in DC Microgrids Based on Hybrid Energy Storage Systems.....	1549
<i>Yao Wang, Dan Pang, Hua Zheng, Weibin Xu, Yundi Ling, Li Xie</i>	
Optimization Method of Active Frequency Support Control Parameters for Large-scale Renewable Energy Bases	1554
<i>Hao Wang, Cheng Wang, Na Jia, Xiaoyi Zhu</i>	
Comprehensive Indicator Evaluation Method for Integrated Energy System	1560
<i>Qiongna Zheng, Haoran Zhao, Yibao Jiang, Yuxin Du, Mengxue Wang, Yu Zhou, Yinqiao Liu, Boqiang Li</i>	
Study on Photovoltaic Uncertainty and Optimal Allocation of Energy Storage in Traction Power Supply System Considering Geographical Differences.....	1566
<i>Qian Ma, Yufan Lu, Longyu Xie, Yulong Zhao, Longde Li, Chaowei Zhen</i>	
Network-Constrained Energy Trading for Integrated Energy Microgrid Clusters with Data Centers.....	1572
<i>Zhiyuan Zhang, Jiadong Guo, Xinyu Yang, Guangwu Zhang, Lin Nan, Yi Sun</i>	
Research on the DC Power Supply Mode Under Safe Voltage for Civil Buildings	1578
<i>Zhaoying Ren, Dongli Jia, Keyan Liu, Jun Zhou, Shuai Wang, Xueshun Ye</i>	
An ADP-Based Optimal Control Strategy for Virtual Synchronous Generators towards “Dual Carbon” Goals	1585
<i>Yan Jiang, Kuo Wang, Shengying Sang, Zhongyang Ming, Keqin Li</i>	
An Aggregated Model for Wind Power Frequency Regulation Considering Variability in Wind Speed	1591
<i>Jianjian Jiang, Bo Li, Xiao Cai, Zhengfu Liu, Muyang Chen, Ning Zhang</i>	
Simulation-based Online Operating Policy for Wind-storage Plants.....	1597
<i>Ziqi Shen, Songjie Feng, Wei Wei</i>	
Optimization Scheduling of Wind-Photovoltaic-Pumped Hydro Storage Considering the Revenue from Pumped Hydro Storage under Different Electricity Market Mechanisms	1603
<i>Yuwei Yue, Su Guo, Xiaozhuang Guo</i>	
Study on Operation Strategy of Islanded Microgrid Cluster Voltage Recovery Based on Distributed Hierarchical Control	1609
<i>Lingyu Guo, Yin Yi, Shuze Du, Yang Du, Yun Zhou, Donghan Feng</i>	

Recovery Trajectory Tracking Control to Mitigate Consecutive Commutation Failures in LCC-HVDC	1615
<i>Luming Yu, Yongzhi Zhou, Wenqi Huang</i>	
Multi-population Cooperative Evolutionary Algorithm for Electric Vehicles and Renewable Energy Systems	1621
<i>Tianyu Luo, Weixiong Huang, Sheng Qi, Kaiwen Li</i>	
Optimal Source-Load-Storage Day-Ahead Scheduling Considering Source and Load Uncertainties	1627
<i>Zhi Li, Haifeng Ye, Yujun Li, Jinzhong Li, Hang Zhou, Yue Yang</i>	
Active Distribution Network Planning Considering Flexibility of Distributed Energy Resources	1633
<i>Jiongwei Lin, Yinliang Xu</i>	
A Two-layer Optimal Scheduling Model for Wind-Photovoltaic-Thermal-Storage System Considering Synergistic Application Value of Energy Storage	1639
<i>Xiaowei Du, Yuewen Li, Weifeng Zhang, Siyan Chen</i>	
Empirical Analysis of the Benefits of Intelligent Mobile Recharging Solution for Port Horizontal Transportation Vehicles.....	1646
<i>Jie Qiu, Wei Han, Hanlei Tian, Jinliang Huang</i>	
Multi-agent Scheduling with Multi-stage Training for Mutual Assistance between Distributed Sustainable Energy and Flexible Loads	1652
<i>Wenbo Mao, Yaping Li, Xing Luo, Lu Shen, Jiahao Yan, Guanzhong Gao</i>	
Analysis and Optimization of DC Control Parameter Coupling Characteristics in Interconnected Emerging Power Systems.....	1657
<i>Qiuquan Deng, Yuan Zeng, Cuiyun Luo, Yuzhuo Hu, Chao Qin, Yin Wu, Xiejin Ling, Zhencheng Liang</i>	
A Multi-indicator Multi-objective and Multi-scenario Evaluation Scheme of Energy Storage Applicability Based on Analytic Hierarchy Method	1663
<i>Pengfei Xiang, Jinghua Xue, Deshun Wang, Jun Zhuang, Yuelong Li, Chen Zhou</i>	
Day-ahead Dispatch of Community Integrated Energy System via the Liquid Organic Hydrogen Carrier Technology	1669
<i>Wentao Yang, Jiahang Li, Wenhao Xia, Bo Li, Min Cheng</i>	
Multi-time Scale Low-Carbon Optimal Scheduling of Virtual Power Plants Considering Stepped Carbon Trading	1675
<i>Yu Ji, Ying Zhang, Wenbo Wang, Shengkui Ma, Juan Zuo, Chongxin Xu, Jianli Zhao, Jiani Xiang</i>	
Graph Neural Network Reinforcement Learning Based Coordinated Charging Optimization of Multiple Electric Vehicle Charging Stations.....	1684
<i>Guanlin Ouyang, Mao Tan, Zhuocen Dai, Zibin Li, Zheng Han</i>	
An Integrated Optimization Approach for Operational and Maintenance Planning of Highway Transportation Self-Sustained Multi-Energy Systems.....	1690
<i>Hang Deng, Fangjian Chen, Yiming Xian, Meng Chong, Qifang Chen, Mingchao Xia</i>	
Multi-Time Scale Optimization of Agricultural Energy Internet Considering Coupling of Electricity, Heat, and Ammonia	1696
<i>Jinye Cao, Ruisheng Diao, Jing Zhang, Wen Hua, Wei Dong</i>	

Study on Flexible Loads Control Method for rural Community Heating in Severe Cold Region.....	1702
<i>Xueyan Zhang, Qingzhong Gao, Wenbo Liu</i>	
Multi-layer hierarchical control strategy for station energy mutualization based on consistency algorithm	1710
<i>Jiayang Liu, Gang Li, Peng Li, Tuanlong Zhang, Muhua Lin, Xiaojia Zhang</i>	
Multi-Objective Optimization Method of Virtual Power Plant Using Aquila Optimizer Algorithm.....	1716
<i>Tong Liu, Xiaoyu Sun, Xuan Xuan, Dongchen Li, Xiaoxi Liu, Kaixiang Yu, Chengze Li, Qihang Zhao</i>	
Study on Self-Discipline Constraints for Industrial Load in Peak Shaving and Frequency Regulation Strategies for Power Grids	1722
<i>Liaoyi Ning, Fan Zhang, Wei Zheng, Hengyu Liu, Dawei Hu, Jiazheng Sun, Bowen Zhou</i>	
Research on site selection and expansion planning of urban charging stations based on density clustering and user guidance.....	1728
<i>Zunkang Zhang, Xianhua Long, Xupeng Si</i>	
Modeling Method for Dynamic Dispatchable Region of Flexible Regulation Resources and Its Application	1734
<i>Yi Han, Xiaojun Wang, Zhao Liu, Jiaming Dou, Kai Sun, Ji Qiao, Fan Yang</i>	
Characterization of Flexible Region of Multisource District Heating System for the Electrical Power System.....	1740
<i>Hairun Li, Yunfei Mu, Hongjie Jia, Jiarui Zhang, Zhibin Liu</i>	
A Multi-Time Scale Optimization Dispatch Model for Virtual Power Plants Based on Master-Slave Game Theory	1745
<i>Pin Wang, Yuqing Duan, Yingdong Song, Weihong Sun, Shikang Zhang, Shuyou Wang</i>	
Research on Flexible Load Aggregation Modeling and Coordinated Control Method in Distribution Substation Area	1750
<i>Yaoyao Zhang, Mohan Li, Muhua Lin, Yuchen Pan, Tuanlong Zhang, Xiaojia Zhang</i>	
Optimal Operation of Renewable Energy-Based Hydrogen Production Systems Considering Equipment Lifespan Degradation	1756
<i>Jin Wang, Jianbao Wang, Qiang Cheng, Xie Deng, Zhengsong Wang, Chunyang Liu</i>	
GPU-Accelerated Power Flow Analysis.....	1761
<i>Sipeng Luo, Tianyang Zhao</i>	
Adaptive Heuristic Method Based on Reduced Costs and Physical Characteristics of Power Grid.....	1767
<i>Shengnan Xu, Qiang Ding, Yanguang Chen, Linghao Li</i>	
An Integrated Grid Planning Approach Considering System Adequacy: A Case Study of Shanxi Province	1772
<i>Yan Liang, Hongli Liu, Conghao Zhao, Ming Zhou, Guangzeng Sun, Zhaoyuan Wu</i>	
A Machine Learning-Assisted Decomposition Method for Efficient Unit Commitment Solving in ESS System	1778
<i>Qiang Ding, Linghao Li, Yanguang Chen, Shengnan Xu</i>	
Research on Robust Generation Scheduling with Large-Scale Wind Power Integration considering Forecast Scenario	1784
<i>Wenji Qin, Jun Fang, Bo Jia, Jie Wu, Lili Li, Li Chang</i>	

Research on Modeling Method of P2H for Power Grid Dispatch	1790
<i>Jian-hu Lv, Xiao-rui Guo, Qiu Xia, Jian Geng, Yu-hong Zhao, Jing Zhou</i>	
Scenario Extraction and Complementarity Analysis of Cascade Hydropower-Photovoltaic Hybrid System using UMAP and DPC.....	1795
<i>Zizhao Wang, Feng Wu, Yang Li, Linjun Shi, Renshan Ding, Shengming He</i>	
Analysis of Cascading Failures in Power Cyber-Physical Systems Under Typhoon Conditions	1800
<i>Chunyan Zhao, Baichuan He, Jiahe Li, Longyue Su, Weiran Hou, Huibin Jia, Siqi Wan</i>	
Construction Method of Power Grid Dispatching Operation Index System Considering Distributed New Energy ..	1806
<i>Weilun Ni, Jian Zhang, Naishuang Li, Jiabin Zhang, Wang Tu, Jiacheng Liu</i>	
Dynamic Route Optimization for Energy Storage and Exchange Vessels in Oceanic Island Groups Based on an Improved Particle Swarm Optimization.....	1814
<i>Zhijie Zhan, Zihe Yang, Bingxu Wu</i>	
Optimization of Local Energy Internet Based on a Multi-objective Linear Weighted Sum Salp Swarm Algorithm .	1821
<i>Nanhui Gu, Zairan Liu, Xiaotong Ren, Yuting Tao, Yang Li</i>	
Enhanced Day-ahead Dispatch of the Integrated Energy System in Wastewater Treatment Plants: Refining Treatment Process Modeling	1826
<i>Hailong Cui, Shiyi Shi, Shibo Liu, Xia Zhao</i>	
A Bi-level Economic Dispatch considering Battery Degradation Prediction Model for Microgrids with Hybrid Energy Storage Systems.....	1833
<i>Xiaoxin Zhao, Yuxian Zhang, Weimao Xu, Chunzhen Li, Donglin Li</i>	
A Comparative Study on Pumped Storage Efficiency under Different Stakeholder Objectives for Balancing Renewable Energy Fluctuations and Curtailment	1839
<i>Jiayong Luo, Kangdi Huang, Guanxian Ding, Ran Wang, Huan Zhang, Lu Zhang, Lei Zhuo, Wei Zhang, Weijia Yang</i>	
Optimal Design of an Integrated Energy System by Genetic Algorithm.....	1844
<i>Xiao Wang, Wei Liu, Ze Liu, Zheng Han</i>	
Coordinated Optimal Control of Distributed Photovoltaic Cluster Based on Enhanced Pinning.....	1850
<i>Chouwei Ni, Kaijian Du, Yajie Tang, Weiju Gao, Xiangjin Wang, Zhe Chen</i>	
Artificial neural network-based distributed optimal control for building HVAC systems.....	1857
<i>Zihang Dong, Cheng Hu, Xi Zhang, Yifan Shen, Xiaojun Shen</i>	
Study on surface modification of circuit breaker contact by high entropy alloy for arc ablation.....	1863
<i>Shoushui Han, Zhida Huang, Zheng Liu, Guan Wang, Liang Zou, Zhiyun Han</i>	
Optimization of Hybrid PV-Battery Energy Systems for Grid-Connected Greenhouses	1868
<i>Dong Lin, Zilong Zhao, Ming Zhao, Yun Dong</i>	
Research on Optimization and Scheduling Strategy of Electric-hydrogen Coupled Island Microgrid Based on Reversible Solid Oxide Cell	1874
<i>Yinghui Huang, Yaolin Lin, Hao Chen, Zhenshan Zhu, Buying Wen</i>	

Forward Scheduling Optimization Decision-making Method for Power Grid Transmission Channels based on Graph Reinforcement Learning	1880
<i>Jun Liu, Zhen Lei, Liudong Zhang, Zhigang Ye, Zhiqiang Pen, Yong Wang, Lingling Pan, Min Xia</i>	
Research on Application Value and Business Model of Distributed Photovoltaic and Energy Storage	1884
<i>Kaibin Wu, Wei Guo, Shengbo Sun, Kai Nan, Peng Tao, Xinlei Bai, Jianyong Ding</i>	
A Study of Demand-Side Multi-Microgrid Trading Based on Non-Cooperative Games	1889
<i>Yuefeng Li, Di Bai</i>	
Research on Optimization Techniques for Identification of Dual AD Inconsistencies Based on Analysis of Differences in Sampling Values	1896
<i>Zhijie Wang, Kai Xu, Zhi Zhang, Yanjun Li</i>	
Three-Subject Game Based Economic Optimization of Integrated Energy System for Carbon-Green Certificate Trading	1902
<i>Xinru Ma, Jian Dong, Xinyi Lu, Xiaomin Tang, Zhizhen Guo, Haixin Wang, Junyou Yang, Shiyan Hu</i>	
Energy Cooperation Optimization Strategy Of Multi-park Integrated Energy System Considering Electrical and Heating Power Interaction.....	1907
<i>Dongliang Li, Kai Nan, Jianyong Ding, Songcen Wang, Kaicheng Liu, Changhai Miao, Shufeng Dong</i>	
Research on Dual optimization control method of DAB converter considering current stress and return power	1913
<i>Chen Liang, Xiping Ma, Xiaoyang Dong, Yaxin Li</i>	
Research on Cost Optimization Dispatching of Microgrids Based on Improved Particle Swarm Algorithm	1919
<i>Jian Tang, Wenhao Zhang, Tao Zhang, Xiang Zhang, Yangyang Li, Kan Liao</i>	
Non-Communication Based Coordinated Control Approach to Improve Commutation Failure Recovery of Hybrid Multi-Infeed HVDC System.....	1925
<i>Lingfeng Zheng, Yongzhi Zhou, Xiaobin Zhao</i>	
A Flexible Load Precision Control Device's Autonomous Method for Station Areas Based on Edge-Computing....	1930
<i>Jichao Ye, Hanbing Zhang, Aoying Ji, Yonghai Xu, Hui Huang, Minglin Wei</i>	
Optimal Allocation of Energy Storage Considering Information-energy Cost with High Renewable Penetrations ..	1936
<i>Ziming Liu, Jing'ao Wang, Jiaqi Tian, Pengbo Du, Bonan Huang</i>	
Intelligent Approval and Safety Verification in Distribution Network Maintenance.....	1941
<i>Xianhao Shi, Renlei Qi, Zhen Zhang, Huan Niu</i>	
Research on Source-Load-Storage Collaborative Control Strategy for Novel Distribution Networks under Non-Ideal Communication Environments	1947
<i>Yuwei Chen, Dongliang Li, Haiqi Zhao, Yiming Zheng, Xinyi Zheng, Shufeng Dong</i>	
Decentralized Low-carbon Economic Dispatching Model for Distribution Networks Considering Source-grid-load-storage Coordination.....	1953
<i>Ye Li, Xiao Han, Rui Ge, Shixiong Qi, Tao Zhang, Yingze Zhang</i>	
Co-Optimization of Active Support Capability for DER in Active Distribution Network	1959
<i>Yukang Shen, Wenchuan Wu, Chenhui Lin, Yajun Jia, Yang Li</i>	

Accelerating Mixed-Integer Optimization in Energy Storage Systems: A Novel Approach Using Heuristics, Interior Point Methods, and Clustering	1965
<i>Qiang Ding, Zhi Cai, Yanguang Chen, Shengnan Xu</i>	
Day-ahead Optimal Price Strategy of Virtual Power Plant to Coordinate Multi Integrated Energy Systems Dispatched by EFIS	1971
<i>Changwei Ma, Wei Dong, Chao Deng</i>	
Research on Regulation Capacity Mining and Regulation Technology of Park Considering Multi-Form Resources	1977
<i>Leiyan Lv, Yiwen Xie, Shufeng Dong, Xiang Ma, Xiao Qian, Kaiyuan Ling</i>	
Research on large-scale electric vehicle regulation method based on sensitivity analysis	1987
<i>Jian Xu, Liang Zhu, Qingguang Yu, Min Guo, Leidong Yuan, Xin Yao, Ding Liu, Xiaoyu Li</i>	
Location, Sizing, and Scheduling Optimization Model for Distributed Energy Storage under Demand Uncertainty	1992
<i>Deshun Wang, Jinhua Xue, Zhiwei Pei, Pengfei Xiang</i>	
Dissipating Energy Flow Analysis of a Constant Power-controlled MMC for Sub-synchronous Oscillation.....	1998
<i>Xingxi Yang, Xujie Fu, Ji Xiang</i>	
Control Strategy of Energy Storage System Participating in Primary Frequency Regulation Based on Model Predictive Control	2004
<i>Kailiang Weng, Chengtao Ye, Haitao Ouyang, Shiyu Wu, Zhenshan Zhu</i>	
Multidimensional Prediction Regions of Wind Power for Robust Economic Dispatch	2010
<i>Kaiming Zhang, Chenxin Yue, Can Wan, Yuqi Xu, Hongpei Qin, Zhiqiang He</i>	
Attack-Resilient Communication-Efficient Economic Dispatch Algorithm Design for Virtual Power Plants and Parameter Analysis	2016
<i>Feng Sun, Shuai Ren, Ruichao Xu, Zhibin Yang, Siluo Sun, Yuanshuo Zhang</i>	
Charging pricing strategy for community electric vehicles based on evolutionary game	2022
<i>Jianglin Liu, Hengjie Li, Yun Zhou, Donghan Feng, Yuanhao Feng, Ziang Zhu</i>	
Research on a Comprehensive Optimization Modeling Method for Power Transfer of Substation Microgrid.....	2028
<i>Yaoyao Zhang, Mohan Li, Xiaojia Zhang, Wei Wu, Muhua Lin, Tuanlong Zhang</i>	
A photovoltaic power generation prediction method based on SAO-CNN-BiLSTM-Attention	2034
<i>Boyu Zang, He Jiang, Yan Zhao, Mofan Wei</i>	
Typical Key Technologies and Application Analysis in the Field of Integrated Energy Services	2039
<i>Shengbo Sun, Kaibin Wu, Wei Guo, Aojie Chen, Xinlei Bai, Kai Nan</i>	
Optimal Control Method for ESS in Transformer Distribution Supply Zone Based on Adaptive Operation.....	2046
<i>Renjie Ding, Xudong Cui, Wei Wang, Kejie Zhang</i>	
Transient Performance Analysis of Aggregated VSG Models in Photovoltaic Power Plants.....	2051
<i>Bingkun Yang, Houlei Gao, Haoran Song, Jianyu Zhou</i>	

General Session 07: Energy Markets and Energy Trading

Analysis of the Market Model for Adapting to High Proportion Hydropower During the Wet and Dry Seasons.....	2057
<i>Xiaojing Hu, Zhi Cai, Min Li, Linghao Li, Hongtu Zhang, Yi Sun, Li Lu, Lun Tang</i>	
A Nash-Stackelberg Game-Based Peer-to-Peer Joint Energy and Carbon Market Among Local Prosumers	2062
<i>Jiaxun Li, Qiuwei Wu, Yezhen Wang, Shiwei Xie, Xuan Zhang, Wai Kin (Victor) Chan</i>	
Improved Optimization Method for Dispatch of Shared Energy Storage Power Station	2068
<i>Jue Wang, Ling Wang, Dengfeng Zhang, Dongqun Xiao, Zhiwei Cheng</i>	
Collaborative Demand Response of Distribution Networks and Microgrids Based on Edge Agents	2074
<i>Hanbing Zhang, Jichao Ye, Aoying Ji, Hui Huang, Yonghai Xu, Guocheng Zhang</i>	
A Two-stage Optimal Bidding and Dispatch Strategy for Integrated Energy Producers Considering Uncertainties in Electricity Spot Market.....	2080
<i>Wenbin Zhu, Shisheng Chen, Sihan Wu, Jiguang Zhang, Ying Le, Lingyang Li</i>	
Pumped Storage Power Station Participation in Electricity Market Bidding Optimization Strategy Analysis	2085
<i>Wensheng Yang, Wenyan Liang, Xiaochao Huan, Yuxin Tai, Na Ta</i>	
Profit analysis of electricity selling company under the deviation electricity assessment mechanism	2095
<i>Yifeng Liu, Jingpin Chen, Meng Chen, Zhongshi He, Ye Guo, Chenghan Li</i>	
Cost Calculation for Energy Storage's Providing Ancillary Services for Frequency and Voltage	2100
<i>Yayu Zhang, Qiuquan Deng, Li Xiong, Ling Li, Ce Shang</i>	
Smart Contract for Decentralized Management of Shared Energy Storage Systems	2106
<i>Wanxin Tang, Shuo Liang, Hongfa Li, Wenshu Ni, Tong Lin</i>	
Identifying Market Power for Potential Collusions in Electricity Supply	2112
<i>Yuwei Wang, Yu Shi, He Wang, Xuefeng Gao, Yong Wang, Benxin Li, He Gao, Tao Jia</i>	
Optimization Model for Combined Capacity, Electricity Energy and Ancillary Service Markets Considering Renewable Energy.....	2117
<i>Zhiyang Kang, Xue Xu, Lei Tang, Jianhui Liao, Shijun Tian</i>	
Analysis of the Bidding Strategy of Gas Units Considering the Involvement of Primary Energy Suppliers.....	2123
<i>Meng Tang, Qiang Dong, Wenxiao Li</i>	
Analysis of Production Strategies for Aluminum Electrolysis Plants Considering Green Certificate-Carbon Emission Joint Trading	2128
<i>Chang Xu, Wanxin Tang, Zejun Liu, Wentao Xu, Jianfeng Gong</i>	
Optimization and Scheduling of Virtual Power Plant Based on Cloud-edge Collaboration.....	2134
<i>Rixin Zhang, Xinhui Du, Kun Chang, Jia Su, Haipeng Jiang, Wenxuan Zhang</i>	
Ultra-short-term forecasting method of demand-side resource response transaction scale based on GAT-Transformer	2141
<i>Haohui Zeng, Ziteng Liu, Jianli Zhao, Zhenlan Dou, Cheng Li, Ruping Shao</i>	
A Distributed Adjustable Resource Credit Risk Evaluation Model Based on Behavior-Credit-Risk Transmission Mechanism.....	2146
<i>Jian Zhang, Xiaoyang He, Jian Li, Xuan Hui, Ye Han, Benhua Qian</i>	

Research on Optimal Bidding Strategies for Load Aggregators Considering Multiple Risks.....	2151
<i>Zhijian Huang, Yijiang Wang, Haihua Ge, Haiye Huang, Yufang Dong, Kaicheng Wang, Anqi Dai, Lingling Wang</i>	
An Integrated “Electricity-GEC-Carbon” Market Clearing Model on Urban-level Power Grid.....	2157
<i>Tunan Chen, Yun Li, Jianzhao Liu, Zhaohua Hu, Yujun He, Wenxuan Li</i>	
AI-Enhanced Decision Support for Optimized Carbon Quota Allocation Across Industrial Sectors	2163
<i>Baichuan Liu, Wenxuan Liu, Junhua Zhao</i>	
Research on the Spillover Risk of Two-Tier Inter- and Intra-Provincial Electricity Spot Markets	2169
<i>Cheng Xingting, Li Zhe, Li Yuxuan, Zhang Lizi, Huang Xianchao, Shi Xin</i>	
A Method of Calculating the Cost of Energy Storage Providing Primary Frequency Regulation for Power Systems with Renewable Integration	2175
<i>Ming Yu, Qideng Luo, Zhen Zhang, Minyu Zhang, Yayu Zhang</i>	
Numeric Study of the Interaction of Energy and Capacity Markets for Renewable Investment with Energy Storage Integration.....	2179
<i>Yong Qi Teh, Qiuquan Deng, Li Xiong, Ling Li, Ce Shang</i>	
Study on the Impact of Carbon Emission Right Trading on Energy and Electricity Trading Based on CGE Modelling	2184
<i>Ye Zhang, Qingchun Li, Kai Zhang, Shiyi Zhao, Nannan Xia, Zhanwen Feng, Xuan Hui</i>	
Resource Allocation Method for Grid-Side Hybrid Energy Storage Considering Bidding and Operation Strategies	2189
<i>Jinming Yu, Fei Du, Feilong Fan, Xipeng Zhang, Xinyi Chen, Yanla Qin</i>	
The Review of Research on Demand-side Resource Market Mechanisms in Typical Regions of China.....	2195
<i>Yuzhen Zhang, Fan Qi, Hexiao Liang, Liang Guo, Haiyue Yu, Yixin Wan</i>	
A Numeric Study of the Impact of Renewable’s Penetration in the Energy and Capacity Markets with the Participation of Energy Storage	2202
<i>Rui Lin, Ming Yu, Minyu Zhang, Yong Qi Teh</i>	
A Two-Level Trading Strategy for Load Aggregators Considering Grid Flexibility Requirements.....	2206
<i>Jian Zhang, Miao Liu, Xiaohe Liang, Kai Zhang, Zhanwen Feng, Bo Dong</i>	
Iterative Clearing Model and Method for Electricity Spot Market with Embedded Direct Current Power Flow Security Check.....	2212
<i>Lili Li, Yonggang Li, Li Chang, Rongzhang Cao, Jinyu Guan, Yulu Wang</i>	
Research on the Method for Identifying Abnormal Behavior in the Power Market Using a Subjective and Objective Weighted Fuzzy Petri Net Model.....	2217
<i>Lin Tian, Jiansheng Sheng, Zhijian Zeng, Mingjun Tang, Zuhan Zhang, Ze Hao, Dunnan Liu</i>	
Rolling Optimization for VPP in Spot or Ancillary Service Markets Based on Deep Learning Forecasts.....	2222
<i>Bin Liu, Dong Liu, Jiaming Weng, Zhiyuan Liu, Jinyu Chai, Haijing Luo, Jun Wu, Xudong Song, Jinhua Huang, Haiming Xiong</i>	
Research on the Decision-making of Power-type Virtual Power Plant Participating in Medium and Long-term Market Transactions Considering the Uncertainty of Wind and Solar Output.....	2231
<i>Jiangping Liu, Song Deng, Jiaxin Zheng, Xuyue Zou, Xue Cui, Xue Liu</i>	

Review of Virtual Power Plants with Multi-source Distributed Resources: Concepts, Applications and Outlook	2237
<i>Guoxin Chen, Hongyu Ji, Shengyong Hu, Haitao Song</i>	
A Numeric Study of the Impacts of Energy Storage Cost on the Energy and Capacity Markets' Revenue	2243
<i>Changling Li, Qian Cao, Xiaobin Wang, Peng Chang, Yong Qi Teh</i>	
A Study of Regional Electricity Market System Dynamics Under Policy Factor Considerations.....	2247
<i>Zhixuan Pan, Minli Huang, Shaoyun You, Jie He, Hengyi Ru, Yang Hu</i>	
Model Design of Distributed Energy Aggregation Participating in Green Electricity Trading	2257
<i>Yu Shaoyuan, Zhang Nan, Li Feng, Zhou Peng, Chen Ailin, Wei Tao</i>	
Calculation Method for Assessing Flexible Ramp-Up Demand in Power Systems with High Proportion of Renewable Energy.....	2262
<i>Yan Zhang, Jiali Deng, Huaying Su, Rongrong Wang, Ning Wang, Dong Wei, Min Xie</i>	
Incentive Compatible Trading Mechanism for Double Auction Electricity Market.....	2268
<i>Yupeng Jiang, Li Zhang, Zhenxin Zhang</i>	
Study on Optimal Scheduling of Industrial Parks Considering Fire Extinguishing Reserve.....	2274
<i>Rijiang Wang, Zijie Ren, Sen Liu</i>	
A Bi-level Optimization Model for Capacity and Energy Markets Considering the Design of the Capacity Demand Curve	2281
<i>Wenjia Chu, Xu Xie, Yanbin Li, Zhuochan Guo</i>	
Cost Allocation Method Of Auxiliary Service Considering Environmental Value Of Green Energy Transactions ...	2287
<i>Jiakun Wu, Huangru Zhu, Yuyang Wang, Ming Zhou, Chunyi Chen, Zhaoyuan Wu</i>	
An End-to-end Prediction Method for Energy Storage System Arbitrage with Battery Degradation Costs	2293
<i>Jiahao Ouyang, Gang Li, Xiaoyuan Xu, Wei Tang, Zheng Yan, Duanchao Li</i>	
Research on optimization of pricing strategies for inter and intra provincial electricity spot markets based on deep reinforcement learning.....	2299
<i>Yifeng Chai, Xianchao Huang, Zhe Li, Yuxuan Li, Xin Shi</i>	
Low-carbon Optimization Scheduling of an Urban Integrated Energy System Considering Energy Complementarity	2305
<i>Ming Li, Geriletu Yu, Yuqing Luo, Xinrui Liu</i>	
Imitation Learning-Based Strategic Bidding in Electricity Market Considering Price-Quantity Pairs	2311
<i>Fei Hu, Xiao Yang, Wei Wang, Yong Zhao</i>	
An Optimization Model for Joint Participation of Wind, Photovoltaic and Storage in the Day-ahead Electricity Spot Market Considering Output Uncertainty	2316
<i>Shimin Li, Hua Fan, Yunlong Shang, Lijuan Qin, Wenli Deng, Yuankang Wei, Xiaoting Xie, Jiawang Zhang</i>	
TSO-DSO-Consumers Coordination for Flexibility Procurement: A Tri-level Optimization Approach.....	2323
<i>Zeyuan Suo, Qisheng Huang, Ting Wu, Gaoqi Liang, Jiangliang Jin, Costas Courcoubetis</i>	
Optimal Portfolio of Standardized Multi-level Reserve Products: Analysis and Modeling Based on Key Time Factors	2329
<i>Keyi Yin, Hanping Li, Tianyao Ji, Zhaoxia Jing</i>	

Low-Carbon Optimization for Microgrids with Electricity-CCER Trading.....	2335
<i>Yuhang Wang, Pingliang Zeng, Mohan Lin, Yue Zhang, Le Chen</i>	
Optimal Scheduling of Energy Internet with VPP and Energy Distributor under Master-Slave Game.....	2340
<i>Kaixiang Yu, Yan Zhao, Jieyu Liu, Xiaoxi Liu, Chengze Li, Tong Liu, Qihang Zhao, Bin Yuan</i>	
Day-Ahead Electricity Prices Prediction Method Based on Spatial-temporal Transformer with Variable-Specific Modeling.....	2346
<i>Pengfei Zhang, Zhanshuo Hu, Zuoxia Xing, Bo Hu</i>	
Congestion Management in Distribution Systems Based on Decentralized and Finite Flexibility Offers	2351
<i>Bahman Ahmadi, Juan S. Giraldo, Nataly Bañol Arias, Gerwin Hoogsteen, Johann L. Hurink</i>	
The Bidding Strategy of Virtual Power Plant Considering the Uncertainty of the Flexible Loads	2357
<i>Chenge Gao, Ye Guo, Jieming Huang, Fan Zhang, Wuhua Hu, Qiang Liu, Chaoqing Lv, Kaicheng Zhou</i>	
Study on market pricing for participation of electrochemical energy storage in peaking auxiliary service market...	2363
<i>Xuanyuan Wang, Zesen Wang, Qi Li, Tianxiao Huang, Huan Xie, Zhen Liu</i>	
Coordinated Optimization Scheduling for Power Transmission and Distribution Considering Wind Power Integration	2368
<i>Tao Jiang, Fan Sun, Changjiang Wang, Jindong Cui, Qinyong Zhou, Yilang Jiang, Mingkui Wei, Yuxuan Tao</i>	
Credit Factors Based Joint Clearing of Spot and Peaking Market Under Different Load Scenarios.....	2374
<i>Hongbi Geng, Jian Zhang, Defeng Chen, Miao Liu, Nan Liu, Yuchen Jiang</i>	
Research on the Multi Modal Adaptability of Adjustable Load Resources in Spot and Peak Shaving Markets	2379
<i>Jing Zhou, Jian Geng, YingWang, Fulei Ji, Qiu Xia, Jianhu Lv</i>	
Interval Forecast based on Markov Chain Monte Carlo with Autoregressive Recurrent Networks for Natural Gas Consumption.....	2385
<i>Zongyu Wu, Zhichao Shi, Yajie Liu, Tao Zhang</i>	
Analysis of electricity spot market equilibrium with forward contract based on Stackelberg game and reinforcement learning	2391
<i>Xiaogang Li, Qiyuan Liu, Zhongyang Chen, Min Wu, Yun Zhou, Donghan Feng</i>	
Coupling Electricity Market with Emission Allowance Market: Problems and Solutions	2397
<i>Songtai Yu, Hanxing Zhang, Zhuochan Guo, Haotian Yang, Zeyuan Liu, Weiran Li</i>	
General Session 08: Energy Security and Risk	
Distributed Detection and Isolation of False Data Injection Attacks in Islanded AC Microgrids	2403
<i>Kaihao Zou, Qunjie Zhou, Wen Gao, Huayu Huang, Yanming Chen, Kaishun Xiahou</i>	
Coordinated Cyber Attack on Coupled Power and Transportation Networks	2409
<i>Huanzhou Fang, Zhipeng He, Qisheng Huang, Ting Wu</i>	
Pollution Level Detection of Insulators based on Hyperspectral Imaging and Transformer Model.....	2415
<i>Yan Zheng, Honglin Guo, Jinlin Ren, Yi Du, Lei Jia</i>	

Fully Distributed Resilient Secondary Control of Microgrids.....	2421
<i>Meina Zhai, Shu Liu, Jundi Wang, Jinxin Du</i>	
Dual-Side State Identification Technology for UHV Converter Stations Based on Cyber-Physical Integration	2426
<i>Shaoyi Wei, Jie Xu, Chenyue Lu, Kai Yang, Shutan Wu</i>	
Wildfire Detection and Localization in Power Transmission Corridors using the DETR Algorithm: A Critical Component for the Energy Internet	2432
<i>Xingqian Wang, Minghui Liu, Han Zhou, Hanying Wu, Changkui Xu, Dezhi Wang</i>	
An Automatic Analysis System for Loading Program of Emergency Generator in Nuclear Power Plant	2438
<i>Baozhu Li, Hongyu Qin, Weijie Dong, Mengkai Zhu</i>	
Research on the Calculation Method of Arc Sag in Overhead Transmission Lines under Wildfire Conditions.....	2443
<i>Ruikang Ma, You Zhou, Yangzhuojun Zhou, Enze Zhou, Lei Wang, Hao Wang</i>	
Risk-Informed Vulnerability Identification for Transmission Systems under High Uncertainty	2452
<i>Xuanman Rong, Yuxiong Huang, Gengfeng Li, Zihao Wu, Chenxi Wang</i>	
Crack Defect Detection Based on Multi-frequency Balanced Electromagnetic Field Measurements.....	2457
<i>Weilin Shao, Xiangji Meng, Yaofeng Wu, Jinzhong Chen</i>	
Privacy-Preserving Behind-the-Meter PV-Load Disaggregation via Prior Knowledge Constrained Blind Source Separation	2463
<i>Yingrui Zhuang, Lin Cheng, Kaidi Huang, Zijin Li, Bo Wang, Yongliang Zhao</i>	
Study on CO Detection Based on Wavelength Modulated Cantilever Enhanced Photoacoustic Spectroscopy	2469
<i>Xinghai Jiang, Baojia Deng, Long Li, Qiang Yao, Xianzong Chao, Fuping Zeng</i>	
Economic Dispatch for Power Systems Amidst Typhoon Events	2473
<i>Linhan Wu, Jianxiao Wang, Jie Yan, Jie Song</i>	
Simulation of thyristor single event burnout due to neutron irradiation.....	2479
<i>Kai Shi, Jingyu Lu, Lihua Mo, Ziqiang Yin, Zhong Chen, Lin Zhu</i>	
Information Security Technology and Defense Measures for Smart Grid.....	2484
<i>Bin Yu, Xiaolong Zhang, Yindong Li</i>	
Assessment of Vulnerability Severity in Power Monitoring System Based on Text Mining	2490
<i>Ming Wang, Wenhui Wang, Yuanzhi Li, Yufei Zhao, Wei Chen, Hengwei Ouyang</i>	
Lithium-Ion Battery Internal Short Circuit Fault Diagnosis by Joint Estimation of Internal Short Circuit Current and State of Charge	2495
<i>Jian Hu, Zhongbao Wei, Xiangfeng Meng</i>	
Research on optimal scheduling decision method of mobile emergency power supply vehicle under emergency condition	2501
<i>Zehao Zhang, Jie Feng, Cheng Guan, Zeyu Liu, Yiran Yan, Xiyuan Xu</i>	
Transient Voltage Stability Assessment of Hybrid Power System With Grid-Following and Grid-Forming Generation Units	2507
<i>Changjiang Wang, Haofan Yin, Tao Jiang, Jindong Cui, Song Gao, Haifeng Zhang, Yifu Zhang</i>	

Research on the Construction and Evolution Characteristics of Typhoon Disaster Chain in Distribution Network..	2512
<i>Jingqi Fan</i>	
Fault analysis of AC power supply cables in power plants affected by low voltage ride through device	2518
<i>Zhang Ruibin, Wang Guoqiang, Liao Huifan, Zhao Hongguang</i>	
Dynamic Bilinear WLAV Harmonic State Estimation Based on Kalman Filter	2523
<i>Chaodai Zhao, Fan Zhang, Yahui Li, Demin Qi, Lemeng Li, Xiaolei Hou</i>	
Fire Source Identification and Maximum Temperature Variation Analysis in Ventilated Cable Tunnels.....	2528
<i>Zheng Liu, Qingsong Liu, Zhaochen Zhang, Shoushui Han, Liang Zou, Zhiyun Han</i>	
Deadline Execution Time Design for Secondary Control of an Islanded Microgrid.....	2534
<i>Bingyu Wang, Zhaofen Tan</i>	
Active Islanding Strategy for Distribution Networks Containing Distributed Generation.....	2540
<i>Xia Xinyu, Jiao Shuaichao, Li Tingjun, Bai Hua, Han Xiaoqing</i>	
Research on Reliability Evaluation of Nuclear Power External Grid and Plant Power Supply	2546
<i>Hongyu Qin, Baozhu Li, Weijie Dong, Tingyan Jin</i>	
A Methodology for Assessing Vulnerable Lines in Offshore Wind-containing power Systems Considering the Impact of Typhoons	2552
<i>Xujiang Chen, Qing Mu, Yan Mei, Hong Fan, Mingze Sun</i>	
Cooperative Control for Multi-machine Power Systems under External Data Injection.....	2558
<i>Simian Guo, Leiyang Zhao, Sitong Dong, Zhengqi Sui, Guangliang Liu</i>	
Online Monitoring of Zinc Oxide Lightning Arrester for Electromagnetic Signal Interference	2563
<i>Yuzhe Bao, Chaoliang Qi, Liuhuan Liang, Fan Zhou, Binglin Cai, Shuang Yu, Song Chen</i>	
Research on Active Defense Strategies for Asynchronous Interconnected Power Grids Based on Two-Stage Robust Optimization	2567
<i>Ruolan Cui, Yunhe Hou</i>	
Stability Analysis for Forebay Water Level Control of Hydropower Plant Considering Nonlinear Hydraulic Turbine	2573
<i>Hao Liu, Weijia Yang, Zhecheng Wang, Ran Wang, Yiwen Liao</i>	
Multiphysics-Constrained Safe Charging Boundary for Lithium-Ion Battery Based on a Coupled Electro-Thermal-Aging Model.....	2578
<i>Hao Zhong, Zhongbao Wei, Ke Xu</i>	
Risk Assessment Method for Renewable Energy Uncertainty Considering Energy Storage and Automatic Generation Control.....	2583
<i>Haifeng Ye, Wei Tang, Zhi Li, Shun Li, Yichi Chen, Yue Yang</i>	
Multi-objective Optimization of Power Supply and Demand Balance Considering the Impact of Coal Prices on Coal-Fired Power Generation Willingness	2588
<i>Jiaxi Li, Ming Wen, Bo Wen, Zongchao Yu, Yue Qin, Xinyang Zhang</i>	

Research on Evaluation Method of New Power System Industry Chain Autonomy Level.....	2594
<i>Lin Liu, Suxiu Li, Xue Wang, Jing Lu</i>	
Research on the Penetration Testing Model in the Vertical Field Using Generative AI Technology.....	2601
<i>Yue Sun, Cong Hou, Yuyue Su</i>	
Influence of Interval Between Successive Power-Offs on Extreme Value of Hydraulic Parameters in a Pumped Storage System with Fixed and Variable Speed Units	2607
<i>Qingbo Wang, Weijia Yang, Zheng Cao, Yanmei Ma, Jiayi Fan, Jian Zhang</i>	
Exploring Security Communication Tactics for Intelligent Substations Grounded on Edge Computing.....	2612
<i>Yufei Song, Haofeng Zheng, Kaiyang Liu, Xuan Liu</i>	
Research on Early Warning Methods for Electrical Safety Risks in AC and DC Systems.....	2618
<i>Silei Chen, Bo Zhang, Jiayu Gao, Siyu Yang, Yanan Huang</i>	
Impact of Time Synchronization Attacks on State Estimation of Distribution Networks	2624
<i>Haobo Liu, Xia Shao, Liwei Xie, Hang Gong, Ming Ma, Yong Li, Jie Xu, Rong Zeng</i>	
Transient Voltage Instability Mechanism of New Energy Station Based on Repeated LVRT	2630
<i>Hui Liu, Jingbo Liu, Bingchao Zhao, Changjiang Wang, Jindong Cui</i>	
Fault line selection of distribution networks based on sparse coefficient Hamming distance.....	2635
<i>Rui Yu, Yi Tian, Jinheng Zhao</i>	
Online SVR Neural Network Based Ultra High Voltage Transmission Early Warning of Construction Progress	2640
<i>Liang Zhou, Yinjie Zhu, Yi Qian, Yiquan Zhang, Mingyang Chen, Yuhan Xu, Xingtang Wu, Fang Fang</i>	
Power Grid Resilience Assessment based on Network Centrality.....	2649
<i>Ziyan Zhang, Rui Wang</i>	
Prediction of the Thyristor Failure Rate under Various Operating Conditions Due to Atmospheric Neutron Irradiation	2654
<i>Ziqiang Yin, Jingyu Lu, Mingmin Zhao, Zhiliang Hu, Zhong Chen, Lin Zhu</i>	
Towards Efficient SOH Estimation for Lithium-ion Batteries via Structural Re-parameterization	2658
<i>Qian Zhou, Yun Wang, Guang Wu, Laeeq Aslam</i>	
Lithium Plating Diagnosis of Lithium-ion Batteries Based on Clustering with Multidimensional Features	2664
<i>Runrun Dai, Zhongbao Wei, Sheng Kang, Meihui Zhang</i>	
Detection Method of Leakage Holes in Long-Distance Natural Gas Pipelines Based on Permanent Magnetic Perturbation	2669
<i>Jiayin Li, Wenxue Zheng, Lijian Yang, Peng Guo</i>	
A Transformer Approach to Identifying False Data Injection Attacks.....	2676
<i>Hu Li, Huan Pan, Jiayi Jin, Mengna Sun</i>	
General Session 09: Electric Motor Technology and Intelligent Drive Systems	
Intersection weld seam curve fitting based on NURBS.....	2682
<i>Geng Jialong, Wu Wei, Du Shaoqing</i>	

Demagnetization Fault Detection of Permanent Magnet Synchronous Motor Based on Continuous Variational Mode Decomposition and Random Forest.....	2687
<i>Ruiyu Yuan, Xiuping Wang, Dong Xu, Lanhao Li</i>	
Research on Motor Rotor Fault Diagnosis Method Based on Speed Sensorless Closed Loop Control System.....	2695
<i>Jinwei Zhang</i>	
Temperature Field Simulation of A Six-Phase Permanent Magnet Synchronous Motor With Stator Water-Cooling Pipe Structure	2707
<i>Xingyun Shi, Tongjun Zhang, Xiaoqin Zheng</i>	
Sliding Mode Control of Permanent Magnet Synchronous Motor Based on New Approach Rate and Feedforward Compensation	2712
<i>Yingqi Zhao, Chunyu Qu, Dong Xu, Jiubin Fan</i>	
Working Condition Diagnosis of Sucker Rod Pump Based on Kernel Density Distance Domain Adaptation	2717
<i>Fujing Fan, Yijiang Liu, Tong Wang</i>	
Design and Temperature Field Analysis of hybrid Excitation Alternating pole Permanent Magnet Linear Motor	2723
<i>Lanhao Li, Xiuping Wang, Dong Xu, Ruiyu Yuan</i>	
Research on Sensorless Starting of Permanent Magnet Synchronous Motor Based on Vibration Signal	2732
<i>Linxin Yu, Xin Yuan</i>	
Optimizing Fault Ride-through Control Parameters of Renewable Energy Generators for Frequency Stability Enhancement	2738
<i>Bowei Dai, Chao Duan</i>	
Calculating the Temperature Rise during the Starting Process of a Large-capacity Line Start Permanent Magnet Synchronous Motor	2746
<i>Dongming Li, Sen Wang, Xiaohong Chen, Chong Tang</i>	
Virtual Phase Sequence Exchange-Based Control for Transient Stability in Virtual Synchronous Generator	2750
<i>Jitong Gong, Zebang Yang, Lei Xia, Xiaoqiang Xiang, Hui Li, Yifan Li</i>	
Experimental Study on Spectral Signal Characteristics of Internal Discharge Arc in Switch Cabinet.....	2757
<i>Yonghong Chen, He Huang, Zhibing Li, Shan Jiang, Jiaming Li, Guoming Ma</i>	
The Development of Power Transformer Noise Optimization Calculation Software	2763
<i>Yan Zhang, Fangxu Han, Xiangxuan Dong, Xiangkun Meng</i>	
Motor control technology based on integrated meta-heuristic algorithm optimizer	2767
<i>Du Shaoqing, Wu Wei, Geng Jialong</i>	
Design of Low-speed High Torque Permanent Magnet Direct Drive Motor.....	2773
<i>Chong Tang, Sen Wang, Xiaohong Chen, Dongming Li</i>	
Research on Rotor Protection Scheme for Variable Speed Pumped Storage Units	2777
<i>Yadong Liu, Zhi Zhang, Yanjun Li, Wenhuan Wang, Chenguang Gao, Zhijie Wang, Yinping Zhou</i>	
Study on Electromagnetic and Vibration Characteristics of Power Transformer Iron Core under DC Magnetic Bias	2782
<i>Xin Li, Ziwei Li</i>	

Research on Intelligent Control Technology for Motor Operating Mechanism Applied to Vacuum Circuit Breakers	2787
<i>Dongpeng Han, Jinwei Zhang, Kaiyuan Guang, Hebin Wang, Lei Huang</i>	
Multi Spectral Detection Technology for Partial Discharge in Oil Based on SiPM Sensing.....	2793
<i>Qingdong Zhu, Mengzhao Zhu, Zhaoliang Gu, Jian Wang, Chenyang Gao, Haoyuan He, Cheng Pan</i>	
Research on Stepless On-load Voltage Regulation Method Based on Auxiliary Potential Transformer	2798
<i>YANG Qing, QU Gang, ZHANG Liang, JIN Haochun, WU Xin, ZHAI Haibao</i>	
The Optimization Design and Performance Analysis of the Accumulator Lifting System for 500kV Oil-Filled Submarine Cable Pumping Station	2803
<i>Chi Cai, Xiaowei Huang, Kaiyu Zeng, Yilin Hu, Tailong Lv, Zhenjin Cen, Hangwei Chen, Jianying Wang</i>	
An Investigation into Electromagnetic Performance in Novel Reverse-salient Permanent Magnet Synchronous Motors	2808
<i>Shuang Che, Chunyan Li</i>	
General Session 10: Key Supporting Technologies for New Power Systems	
Transmission Characteristics Analysis of Underwater Three-Coil WPT Systems under Various Misalignment Conditions	2814
<i>Yihui Zhao, Sicheng Shen, Jiayi Wang, Fanghui Yin, Liming Wang</i>	
Preliminary Analysis of Hydropower Unit Characteristics in Reactive Power Support Scenarios	2819
<i>Ruixin Shen, Weijia Yang, Zhitan Liu, Ruiji Yi, Kunlong Song, Xinqiang Niu, Wei Zhou</i>	
Microservice-Based Design and Key Technology of the Dispatching and Control Business Middle Platform for the Large Power Grid	2825
<i>Lingtao Zhang, Yanyan Liu, Wenxi Cui, Haitao Dong, Shuai Cui</i>	
Optimization Scheduling Method of Medium and Low Voltage AC / DC Distribution System for Distributed Resource Access.....	2831
<i>Zezhou Wang, Nengwen Shu, Jianqin Lu, Jianfei Bao, Yuanchao Lu, Jianzhou Cheng</i>	
Innovative V2G Control Strategy for Isolated AC-DC Matrix Converters	2840
<i>Kai Yan, Wenlang Deng, Quande Zong, Zuling Chen</i>	
Identification of Transformer Leakage Inductance Parameters Based on Dynamic Resistance of Windings	2846
<i>Guoqiang Sun, Yajun Jia, Junjie Jiang, Dongmin Xi, Binghou Yan</i>	
Research on a Three-Phase Phase-Locked Loop Based on Improved SOGI-DDSRF	2853
<i>Xinyi Yang, Caixue Chen, Bobin Wu, Yingguang Xiao, Yuhua Mi, Laibin Zhang</i>	
Mechanism of High-frequency Oscillations Induced by the Measurement Link of Voltage Transformer in an Islanded Converter Station Connected to the VSC-HVDC.....	2859
<i>Peng Cheng, Yuchen Shen, Guangzu Yin, Qian Ren</i>	
Predictive Power Control of AC-DC Matrix Converter Model.....	2865
<i>Zuling Chen, Wenlang Deng, Quande Zong, Kai Yan, Lu Zeng</i>	

Discharge Streamer Development Morphology in Multi-element Mixed Insulation Oil Considering Ionization Energy Effect	2871
<i>Han Zhou, Jian Hao, Hongwei Li, Xiong Liu, Junyi Zhang, Qian Wang</i>	
Interpretable Transient Frequency Stability Prediction Based on Graph Convolutional Learning.....	2877
<i>Tao Wang, Lipeng Zhu, Weijia Wen, Jie Hou</i>	
An Efficiency Optimization Method of DLCC Compensated IPT System	2883
<i>Weiju Dai, Dexu Zou, Zhihu Hong, Zhaoyu Peng, Haoruo Sun, Zhou Yang, Qiyuan Cui</i>	
Comparative Analysis of Online Monitoring Methods for Inertia in New Power System	2888
<i>Chen Fan, Yalun Wang, Qi Wang, Yefeng Jiang, Qibing Zhang, Lin Shi</i>	
Coordinated Control of LCC-MMC Cascaded Hybrid HVDC for Receiving-End Fault Overcurrent Limiting.....	2893
<i>Wang Ding, Xiaojie Shi, Tianhao Deng, Lei Lin</i>	
Photovoltaic Utilization Benefit Evaluation of Flexible DC Traction Power Systems.....	2899
<i>Zhanhe Li, Kaibin Miao, Weihao Bao, Chao Lu, Xiaoqian Li, Lingyun Zhang</i>	
Segmented Detection for Wideband Oscillations in Renewable Powered Systems	2905
<i>Ningjia Ma, Xiaorong Xie, Huawei Li, Mingjun Huang, Jiawei Xing, Song Yang</i>	
Research on Topology Optimization of a Dual Bridge Wide Voltage Range LCLC Resonant Converter	2910
<i>Bobin Wu, Caixue Chen, Dan Yang, Yuhua Mi, Yingguang Xiao, Xinyi Yang</i>	
An Improved SiC MOSFET Analytical Model for Multi-timescale Simulation and Loss Analysis of Power Electronic Systems.....	2916
<i>Yikang Xiao, Jiayao Pei, Zhuang Liu, Bochen Shi, Shiqi Ji, Liqiang Yuan, Zhengming Zhao</i>	
A Multi-regional Implementation Strategy for Economic Dispatch of Virtual Power Plants.....	2922
<i>Fei Wang, Chao Mu, Ming Fan, Qiaorong Zhan</i>	
Steel load prediction based on SSA-LSTM algorithm	2927
<i>Feixiang Gong, Songsong CHEN, Xiangyu KONG, Kun SHI, Taorong GONG</i>	
Information Modelling of Battery Energy Storage System Based on IEC 61850 Object-oriented Technique.....	2931
<i>Xianzhao Liu, Jiale Liu, Bo Peng, Hao Chen</i>	
Integrating Distributed Generation into Power Flow Calculations: An Improved Newton-Raphson Approach	2937
<i>Shule Zheng, Zeyu Zhang, Tong Qian, Wenhui Tang</i>	
A Single-Phase Line Break Fault Detection Method Based on Phase Voltage Difference Across Disconnection Points	2943
<i>Xiaoyong Yu, Biyun Zhang, Quanxing Yue, Kewen Li, Lifang Wu</i>	
Distributionally Robust Co-optimization of Regulation Resources for Flexible Distribution Networks	2949
<i>Mintong Zhao, Jiajia Huan, Zuogang Guo, Yingjie Tan</i>	
A Review of Load Capacity Evaluation Methods for Large-Scale Electric Vehicles in Distribution Networks	2956
<i>Yuanxing Zhang, Jianfeng Li, Taoyong Li, Linjuan Zhang, Jing Zhang, Xiaobin Shen, Bin Li</i>	
Modeling and Analysis of Transient Synchronous Stability for Grid-Forming Inverter	2962
<i>Zichen Wang, Renzhi Huang, Zaijun Wu, Chen Dong, Xueyong Xu, Yushu Chen</i>	

State of Charge Estimation of All-Vanadium Redox Battery Based on BIGRU-UKF Network	2967
<i>Xifeng Lin, Chengyan Li, Xiangxiao Chen, Yibo Yu, Zhan Wang, Binyu Xiong</i>	
Optimal Allocation of Energy Storage System Considering the Risk of Insufficient Flexibility in Distribution Network	2973
<i>Jiayu Xu, Zeliang Zhao, Qi Wu, Bing Li, Mingyue Yong, Rui Gong</i>	
Reactive Power Control of Photovoltaic Grid-Connected Inverters Based on Unfolding Inverter	2979
<i>Tao Fan, Jianhua Wang, Yang Huang</i>	
Active Power Response Rapidity of Variable Speed Pumped Storage Units with Full-Size Converter under Different Coordination Control Modes	2987
<i>Peilin Wu, Weijia Yang, Zhecheng Wang, Jun Xie</i>	
Identification system of key communication nodes of cyber physical power system based on line impedance and power flow information	2993
<i>Yanxing Du, Jian Dong, Xinyi Lu, Linglin Meng, Chang Liu, Mingze Zhang, Haixin Wang, Junyou Yang</i>	
A Hybrid Transient Voltage-Based Fast Auto-Reclosing Scheme for Renewable Energy Outgoing Lines.....	2998
<i>Yi Zhang, Yunpeng Jiang</i>	
Impact of Hybrid Grid-Following and Grid-Forming Converters on Post-Fault Overvoltage in Renewable Energy Base	3004
<i>Xindi Liu, Jiawen Cao, Dongbao Lv, Changgang Li, Shanshan Wang, Jingya Jiang</i>	
Research on Modeling and Optimization Scheduling of Electrochemical Energy Storage System under Multi Resource Coordination	3011
<i>Qiu Xia, Jian-hu Lv, Jian Geng, Xiao-rui Guo, Jing Zhou</i>	
Pilot Protection Based on Time-domain Model Recognition for Low-frequency Transmission Lines of Offshore wind Farm.....	3017
<i>Gaofeng Hao, Ziyang Wang, Wei Han, Qionglin Li, Fengqing Cui, Yang Wang, Zhen Liu, Wenyan Duan</i>	
Study on the Aging Characteristics of Retired O-Ring Seals in Transformers	3025
<i>Wei Liang, Yuan La, Zengchao Wang, Yao Yuan, Fanghui Yin, Liming Wang</i>	
A Reconfigurable Three-Level Conversion Scheme for Power Router based on ANPC Flexible Modules	3031
<i>Xianzhe Pang, Alian Chen, Yanjie Cui, Hong Tang, Shihui Su</i>	
Research on the fault characteristics of the generator motor during the self starting process of the variable speed pumped storage unit under pumping conditions and its adaptability to relay protection	3037
<i>Gao Chenguang, Huang Kun, Chen Longxiang, Li Yanjun, Liu Yadong</i>	
Transient Over-voltage Assessment for Renewable Powered Systems with Practical Case Studies	3043
<i>Zenghui Yao, Feng Zhao, Zheng Yuan, Qianyu Wu, Xiaorong Xie</i>	
Design of Five-Level Full-Bridge LLC Converter Based on Switching Capacitance.....	3049
<i>Lu Zeng, Zhaohong Wang, Caixue Chen, Xuanwen Xiong, Jiale Chen, Wu Wang</i>	
A Novel Start-up Strategy for High Voltage Cascaded Energy Storage Device	3054
<i>Xingjia Wang, Naiyuan Fan, Jiahao Guo, Yuan Deng, Jinpei Duan, Yongle Wang, Yushuo Chen, Zhiling Huang, Guodong Li, Shibo Cong</i>	

Inactive Constraint Identification for Unit Commitment by Neural Network.....	3058
<i>Lishen Wei, Liqian Gao, Bangxian Zhu, Runfeng Zhong, Chuanyu Xu, Huang Zhou, Xiaomeng Ai, Jiakun Fang, Jinyu Wen</i>	
AoI-aware Adaptive Learning Empowered Resource Allocation for Multispectral Corona Detection.....	3063
<i>Jianyang Liu, Zijia Yao, Yiling Shu, Haijun Liao, Zhenyu Zhou, Zhongwei Sun</i>	
Multi-Switching-Cycle Modulation for Power Dispatching of Bipolar DC-DC Converter	3068
<i>Yijia Chen, Jianjun Ma, Zhengmei Lu, Miao Zhu</i>	
Research on Reactive Power Optimization Strategy for Voltage Regulation Involving Large-Scale Distributed Photovoltaics in Multi-Time Scales.....	3074
<i>Gang Yuan, Pupu Chao, Baoju Li, Weixing Li, Guanqun Zhuang, Yao Wang</i>	
Frequency and Voltage Cooperative Control of Islanded Microgrids Based on Deep Deterministic Policy Gradient Algorithm	3081
<i>Juntao Zhong, Jing He, Junpeng Zhang, Xinlin Li, Wei Zhang, Dingze Liu</i>	
Thermal Distribution Simulation and Temperature Rise Prediction of Low-Voltage Comprehensive Distribution Box	3089
<i>Yang Wenqiang, Wu Chunjiu, Dai Jing, Jin Jianwei, Xie Chunlun, Wu Lide</i>	
Power quality improvement control strategy based on active disturbance rejection control based on modified particle swarm optimization algorithm.....	3095
<i>Jiazheng Sun, Shida She, Jingwei Han, Zhenyang Zhao, Dawei Hu, Peng Yu, Hengyu Liu, Zhi Zhang</i>	
Real-time Regional Auxiliary Service Market Trading Strategies under High Renewable Energy Penetration	3102
<i>Jiahao Yan, Wenbo Mao, Yaping Li, Kedong Zhu</i>	
Arc Fault Detection and Line Selection in DC Multi-branch Power Supply Systems	3108
<i>Silei Chen, Lujia Cui, Kaige Xue, Bo Zhang, Yanan Huang</i>	
Research on Data Integration Technology of Large Power Grid Operation Mode for Unconventional Event Analysis	3114
<i>Xuetao Yang, Kaixin Liu, Dunwen Song, Weiwei Miao, Facai Xing, HaiCheng Tu</i>	
Research on Investment and Construction Strategies for Grid-Side Energy Storage Based on Multi-Scenario Applications.....	3120
<i>Bobo Chen, Yunhui Chen, Yixiao Wang, Lingjie Cao</i>	
Automatic Modeling Method of Transmission Line for Electromagnetic Simulation of Power System Considering Traveling Wave Transmission and Integration Step Size.....	3127
<i>Qu Shi, Wei Li, Feng Li, Qinghan Zhou, Xiaoqin Xia, Xijian Dong</i>	
Reliability assessment method for distribution system with distributed generations in anti-islanding operation mode	3133
<i>Xiaohui Ye, Qiang Luo, Wenbo Shao, Chong Gao, Zhiheng Xu, Lin Cheng</i>	
User Satisfaction-Focused Scheduling Strategies for Virtual Power Plants	3140
<i>Zaimin Yang, Wenchuan Meng, Jianbin Lu, Shuai Han, Sheng Su</i>	
Molecular Dynamics Simulation of Nano Modifications on Insulation Pressboard under Thermal Field	3145
<i>Jiayi Chen, Zhida Huang, Jingjing Li, Wei Zhang, Liang Zou, Guan Wang</i>	

Investigating the Impact of Noise on Transient-Based Fault Location methods in Lossy Transmission Lines.....	3150
<i>Akif Nadeem, Arslan A. Rizvi, Salah-ud-din Khokhar, Yanling Wang, Cao Feng, Dou Ximeng, Li Yi</i>	
Intelligent Transient Stability Assessment for High-Renewable Sending-End System with VSC-HVDC Links	3156
<i>Shaocong Gong, Lipeng Zhu, Chen Yu, Jingyi Zhang, Pan Gu, Siyun Shen, Shanhe Liu, Yan Li</i>	
Analysis of Transient Characteristics of Arc Grounding Voltage under Single-Phase Ground Fault in Distribution Networks.....	3162
<i>YUE ZHENG</i>	
A New Type of Capacity Market Dispatch Model Considering the Available Capacity of Electrochemical Energy Storage Station.....	3168
<i>Bangjin Liu, Min Zhang, Bin Wu, Zhiqiang Wang, Zheng Weng</i>	
Multiple Optimization Method Based on Comprehensive Adjustment Coefficient for Axial Partition Bridge Arm Reactor.....	3173
<i>Cheng Chang, Qingsong Liu, Kejie Huang, Lingjun Dai, Liang Zou, Zhiyun Han</i>	
Linearization and Acceleration Strategy of Unit Commitment Model Incorporating Cascade Hydropower	3179
<i>Zhi Cai, Xiaojing Hu, Qiang Ding, Yuxuan Li, Chi Zhang</i>	
Transient Voltage Support Technology Based on Flexible DC Traction Power Supply Systems.....	3186
<i>Bo Chang, Guorong Yue, Fei Li, Liang Sun, Shilong Cai, Chao Lu</i>	
Optimized Joint Configuration Strategy of Independent Grid-Side Energy Storage for System Value	3191
<i>Shucan Zhou, Weijie Wu, Xianfu Gong, Yu Cai, Xin Zheng, Yidan Chen</i>	
Attention Mechanism Based Calculation of Pseudo-measurements of Key Nodes	3197
<i>Xuebin Jin, Dongli Jia, Xueshun Ye, Bo Li, Wenbin Liu</i>	
Simulation calculation of stable operation of isolated power grid based on grid-forming energy storage.....	3203
<i>Yunfei Xu, Jianfei Liu, Jingshu Xing, Wenbo Hu, Jie Chen, Chen Zhou</i>	
Stability analysis of grid-connected inverter systems based on sequential impedance modelling accounting for grid strength	3208
<i>Chen Dong, Zaijun Wu, Xiangjun Quan, Zichen Wang, Junjie Xiong</i>	
Research on the Protection Action Strategy for Multi-terminal AC/DC Converter with Fault Blocking Capability ...	3213
<i>Huanhuan Qi, Gaocheng Zhang, Yadong Liu, Yidan Ni, Mingqing Chen, Yihan Liu</i>	
Analysis of the Application of MOV-Based Voltage Balancing Circuit in Series-Connected IGBTs	3219
<i>Kaiyuan Wang, Juanjuan Lu, Chen Jia</i>	
An Improved Bat Algorithm for Load Model Parameter Identification of Power System.....	3223
<i>Yan Pan, Dinghao Luo, Wei Zhao, Qifang Chen, Ye Dong, Jiayi Yu</i>	
Ultra-short-term Load Forecasting Using TCN-LSTM with Photovoltaic Penetration Rate and Temporal Feature Extraction.....	3228
<i>Wenjing Zhang, Ai Zhong, Kai Duan, Linling Shao</i>	
Adaptive Control Method of Grid-Forming SVG under Non-ideal Power Grid Condition	3237
<i>Yufei Teng, Xi Wang, Peng Shi, Zhengwei Chang, Biao Wang, Xi Ye, Jiayu Bai, Lianshan Han, Tong Dai, Yuhong Wang, Tian Cao, Zongsheng Zheng</i>	

A Reactive Power Control Method for the PCC of Wind Farm with System-Side Participation	3242
<i>Biao Zhao, Xinwei Shen, Haoran Wang</i>	
A Control Strategy for VSC under Unbalanced Conditions in AC Distribution Networks	3248
<i>Yu Ji, Yaoxuan Wang, Lijing Sun, Ran Chen, Chen Wei, Hai Zhang, Yini Xu, Linbo Zhang</i>	
Oscillation Risk Assessment for a Dual-infeed MMC-HVDC System Using Impedance Network Modeling and Aggregation	3255
<i>Hui Qin, Jieyi Xu, Qiuquan Deng, Xiaorong Xie</i>	
Model Predictive Control of Three Phase DAB-LLC DC Converter	3260
<i>Linjiang Deng, Guangyu Tan, Xinchu Yang, Ximan Sun, Zhuoqian Zhao</i>	
A Hybrid Cross-Entropy Method and Local Neighborhood Search Method for Low-Carbon Economic Dispatch Problem of IES.....	3266
<i>Jiao Li, Xiaotong Yang, Chao Mou, Deshuo Tian</i>	
Probability Assessment of Power System Resilience Based on Stochastic Dynamics Under Sandstorms	3272
<i>Xianhai Liao, Daren Li, Yongzhi Zhou, Zhiqiang Yuan</i>	
A Hybrid Modulation Strategy for Fractional Level MMC	3278
<i>Zhuoning Song, Chen Wang, Yi Wang</i>	
A Distribution Network Flexibility Evaluation Method Based on Maximum Flow Algorithm	3283
<i>Renjie Wang, Jinghong Zheng, Yusheng Ding, Songzhe Li, Jie Zeng, Chenying Xu</i>	
Close-loop Predict-and-Optimize Method for Power System Operation: Concepts, Rationality, Applications, and Prospects.....	3289
<i>Yixuan Chen, Yunhe Hou</i>	
A Low Loss Modulation Strategy at Light Load for Three Phase DAB-LLC DC Converter	3297
<i>Linjiang Deng, Zhenqi Zhao, Yingwei Qi, Guangyu Tan, Yanjun Guo, Zhuoqian Zhao</i>	
Operational Optimization of Photovoltaic-Storage System Considering Demand Response.....	3303
<i>Xuefeng Gao, Wenwen Qin, He Wang, Yiwen Yao, Cuiping Li, Hao Peng, Xingxu Zhu, Junhui Li</i>	
Virtual synchronous generator control strategy for railway power conditioner with integrated renewable energy ...	3309
<i>Pei Luo, Longyu Xie, Qian Ma, Yufan Lu, Yulong Zhao, Longde Li</i>	
Converter Energy Based Droop ADRC Control with Enhanced Dynamic Performance and Stability	3315
<i>Tingfan Huang, Jintong Nie, Zican Wang, Taixun Bai, Yijun Shen, Gengli Song, Sheng Long, Yinchao Zhang</i>	
Power Flow Calculation of Multi-voltage Level DC Microgrid Based on DAB	3320
<i>Pengfei Li, Zhiyong Zhou, Zeyuan Lin, Benshuai Han</i>	
A New Electrical Distribution Systems Uniform Scale Model-ing Approach Based on Improved Empirical Modal Decomposition.....	3325
<i>Xuebin Jin, Jun Zhou, Dongli Jia, Xueshun Ye</i>	
Wind Power Forecasting Research Based on Autoformer.....	3332
<i>Yu Hua, Xin Guan, Haoran Xu, Chenhao Zhao</i>	

Effect of Vulcanization Time on Electrical Properties of 500 kV EHVDC XLPE Cable Factory Joints	3337
<i>Yuchen Liu, Tianyin Zhang, Yuyang Jin, Xiangrong Chen</i>	
Improved LSTM Network Wind Speed Second-level Forecast Based on Error Modal Decomposition.....	3341
<i>Xiaoxuan BAN, Qing LI, Shaolin LI, Chunyan LI, Pengpeng KANG, Xiaoyi TIAN</i>	
Icing thickness prediction model of transmission line based on KPCA-INGO-BiLSTM	3348
<i>Huida Duan, Ying Zhao, Shengyang Zheng, Yanjuan Xu, Zhanpeng Liu</i>	
Wind Power Probability Model Based on Spatiotemporal Correlation	3354
<i>Xining Li, Peng Ye, Wei Feng, Jicheng Liu, Tianmeng Yang</i>	
Simulation of Fast Cascading Failures Considering Voltage Ride Through Capability of Renewable Generation....	3359
<i>Dongbao Lv, Shanshan Qiu, Yujun Zhou, Changgang Li, Junjun Yang, Wei Xu, Xing Lei, Changhui Ma</i>	
Static Security Analysis Method Considering Source-Load Uncertainty	3365
<i>Kemeng LI, Yi WANG, Xin SHAN, Juanjuan LU</i>	
Modeling and Simulation of Information Physical Fusion in New Distribution Systems Based on Unified Formal Matrix	3371
<i>Jun Zhou, XueBin Jin, DongLi Jia, XueShun Ye</i>	
Capacity Enhancement Method for Distribution Network Considering Multi-Power Charging Pile Planning	3378
<i>Xu Jiayu, Li Xiaotong, Li Bing, Zhao Zeliang, Li Jinyi, Su Rui</i>	
Transient Overvoltage Analysis in Large-Scale Wind Power Sending End Systems with Grid-Following and Grid-Forming Converters.....	3386
<i>Jiawen Cao, Xindi Liu, Dongbao Lv, Changgang Li, Shanshan Wang, Jingya Jiang</i>	
Analysis of Internal Discharge and Burn in 750kV HGIS Disconnecter Switches	3392
<i>Yi Zhao, Peipei Su, Xinhua Zhang, Zhangzihao Song</i>	
Optimal Configuration of Regenerative Electric Heating for Improving Distribution Network Carrying Capacity..	3398
<i>Jiayu Xu, Fangmin Wang, Bing Li, Changyuan Xiang, Ning Su, Zhulu Zhang</i>	
Stress Analysis and Dynamic Performance Study for Insulated Pull Rod of GIS	3404
<i>Tian Chen, Ruizhi Hu, Yutong Zhang, Chenbin Jin, Peng Liu, Zongren Peng</i>	
Wasserstein Distance-Based Renewable Scenario Generation Method.....	3408
<i>Zhi Cai, Shengnan Xu, Linghao Li, Wei Wang</i>	
Effect of Frequency, Temperature and Thermal Aging on Breakdown Characteristics of Oil-paper Insulation of 220 kV Converter Transformers	3413
<i>Zheng Niu, Guangwei Liu, Ka Mu, Chenguang Ai, Qilong Wang, Xiangrong Chen</i>	
Fast Soft Startup Strategy for DAB-SRC ISOP Hybrid Modular DC Transformers based on SRC Resonant Tank State Observing	3418
<i>Zijing Song, Wei Wang, Shijie Cheng, Jiao Du, Alian Chen</i>	
Optimal Power Control Strategy for Distribution Networks Considering Active Support of Distributed Photovoltaic Power Sources	3423
<i>Yisong Liang, Heng Ji, Hongyang Jin, Donglai Wang, Yan Zhao</i>	

Instantaneous DC Bias Suppression Strategy for Isolated AC/DC Matrix Converters.....	3430
<i>Quande Zong, Wenlang Deng, Kai Yan, Zuling Chen</i>	
Scenario Generation Method for Provincial Summer Load Based on Load Decomposition	3436
<i>Yifan Liu, Jinxin Huang, Weijie Gong, Mengxia Wang</i>	
Small-Signal Modeling and Analysis of Offshore Wind-Farms-Side MMC Based on Linear Time-Periodic Theory	3442
<i>Hui Qin, Jiali Kui, Guojie Zhao, Zefei Wu, Zhaolin Zhang, Zeren Guo, Buyang Du, Yingbiao Li, Wenyi Tian, Shilong Liu, Jianxiang Huang</i>	
Topology Analysis and Parameter Calculation of a Novel MMC Sub-module	3448
<i>Mengze Yu, Yanfeng Wang, Xiangsheng Lei, Qingxin Wang, Xinyi Lin, Yang Huang, Zhida Kong, Qingjian Wang</i>	
Impedance Characteristics Comparison of Different Grid-Forming Control Strategies.....	3455
<i>Qingchao Zhang, Xiong Du, Tinghao Ma, Qi Zhang</i>	
Rolling Smooth Control Method for Renewable Energy Output with Supporting Energy Storage Considered	3461
<i>Zhi Cai, Xiaojing Hu, Qiang Ding, Shengnan Xu, Yuxuan Li, Chi Zhang</i>	
Modelling Feasible Operation Region of An Electricity Distribution Network: A Hybrid Simulation-Analytical Approach	3466
<i>Xun Jiang, Yue Zhou, Jianzhong Wu</i>	
Analysis of the Application of BeiDou DPE Positioning Technology in Power Grid Infrastructure Construction and Inspection	3472
<i>Bo-jie YANG, Xiang-dong CHEN</i>	
Anti-Fault Resistance Protection of AC Outgoing Transmission Lines Emanating from Inverter-interfaced Renewable Energy Power Plants.....	3477
<i>Zhiyuan Xie</i>	
A Theoretical Analysis of Performance Improvement in Multi-Frequency and Multi-System Integrated Positioning Based on the Cramér-Rao Lower Bound.....	3483
<i>Ri-ning WANG, Qing WU</i>	
Wide Input Voltage Range LLC Resonant Converter Based on Fuzzy PI Control.....	3488
<i>Yingguang Xiao, Caixue Chen, Bobin Wu, Xinyi Yang, Yuhua Mi, Sihong Li</i>	
Study on Micro-mechanism of Protective Effect of Metal Passivator Against Multiple Sulfides in Power Transformers	3493
<i>WANG Qiong, FU Wen-guang, YANG Yue, FAN Zi-ming</i>	
Research on Unit Combination Optimization Model Considering the Change of Climbing Rate under Deep Adjustment of Coal fired Power Units	3498
<i>Qiu Xia, Jing Zhou, Song Gao, Jian-hu Lv, Xiao-rui Guo, Jian Geng</i>	
Analysis and Application of Non-contact Wide-frequency Voltage Measurement Technology	3504
<i>Wendong Jiang, Pei Li, Can Li, Panpan Zhao</i>	
A Reactive Power Optimization Method Based on SOCP Relaxation with Feasibility Guarantee	3511
<i>Haoran Wang, Xinwei Shen, Biao Zhao</i>	

Active and Reactive Power Optimization of VSG-IIDG during Fault Ride Through Considering Inrush Fault Current Constraints	3517
<i>Liu Yang, Jiamei Zhang, Yuebin Zhou, Yue Wu</i>	
Zero Mode Analysis of Single Pole to Ground Fault in the DC Distribution Networks.....	3523
<i>He Wang, Wenpeng Liu, Yuhan Pan, Jing Bian, Xiaolu Shang</i>	
Offshore wind Power Output Prediction Method Based on Bi-LSTM and Time Attention Mechanism	3531
<i>Ruanming Huang, Haoen Li, Linxin Miao</i>	
Multi-ports Modular Frequency-Domain Modeling Method of Wind Power Generation Systems.....	3536
<i>Chengmao Du, Xiong Du, Ziming Qiu, Qi Zhang, Yingang Tu</i>	
Optimal Scheduling of Virtual Power Plants Considering Distributed PV Volatility	3542
<i>Zaimin Yang, Wenchuan Meng, Jianbin Lu, Shuai Han, Sheng Su</i>	
Research on Hierarchical Regulation and Control Technology for Power Grids in High Penetration Areas	3547
<i>JianDong Wo, Jing Wang, Dong Liu, Xiang Ma, Jiang Li, WenQiang Duan</i>	
Exploration of New Power System Protection Architecture.....	3553
<i>Xiaobing Ding, Shenxing Shi, Jiang Yu, Zhaohui Chen, Yichen Shang, Xiangjun Zeng, Yao Zhang, Xinzhou Dong</i>	
Analysis of the Transmission Characteristics of $\pm 500\text{kV}$ Metal-Enclosed DC Potential Transformer	3560
<i>Xiaokang Xu, Jianwei Wei, Shichao Xie, Yuan Gao, Xiaomeng Zhan, Gang Wang, Zhenqi Jiao, Hongkai Wen</i>	
Design of Single Frequency Oscillation Suppression Damping Channel for Three-phase Grid-connected Inverter Covering Full Frequency Band.....	3567
<i>Wenhao Jian, Zhanjun Gao, Lei Lei, Zhengchen Tao</i>	
IGRA-LSTM Photovoltaic Power Generation Prediction Model Considering Weather Factors and Similar Days...	3572
<i>Wenwei Li, Jie Hu, Deshuo Tian, Qiaorong Zhan</i>	
Analysis of Small Signal Stability and Optimization of Control Strategy for Inverter	3578
<i>Wang Zezhong, Wang Lidi, Zhang Heming</i>	
FPGA-based Voltage Balancing Control for MMC.....	3584
<i>Yanqi Hou, Kuan Li, Lemeng Li, Deling Fan, Kongming Sun, Qiang Huang, Yuntao Sun, Guohui Zhang</i>	
SiC/Epoxy Coating with Graded Conductivity for Surface Charge Inhibition Based on Electric Field-Induced Assistant Technology	3590
<i>Shiyi Mao, Cheng Pan, Pu Han, Zijun Pan, Ran Zhuo, Dibo Wang</i>	
Research on Offshore Wind Power Collection and High Voltage Direct Current Transmission System Topology ...	3596
<i>Feng Li, Ruoping Liu, Shuxin Luo, Hao Yu, Minjia Zheng, Sui Peng, Lang Liu, Ying Huang</i>	
Research on Bifurcation and High-Frequency Stability of the Secondary System in the Measurement Link of Flexible DC Power Transmission	3602
<i>Hu Yinghong, Zhang Bowen</i>	
Technical and Economic Analysis of Multi-terminal MMC Flexible DC System for Offshore Wind Power Integration	3609
<i>Mengze Yu, Yanfeng Wang, Xiangsheng Lei, Tiantian He, Xinyi Lin, Yang Huang, Zhida Kong, Qingjian Wang</i>	

A Hierarchical Control Strategy for Microgrid Cluster Connection under Different Time Levels	3616
<i>Qidan Zhang, Sheng Ma, Bo Zhang, Yaoxuan Huang</i>	
A two-layer optimization method with distributed energy stations based on demand response.....	3620
<i>Zhi Zhang, Xiaoxiao Hu, Fangwei Duan, Jingwei Han, Dawei Hu, Zhifan Xu, Hengyu Liu, Jiazheng Sun</i>	
Research on DC Fault Clearing Strategy Based on MMC Sub-module Transmission System	3626
<i>Mengze Yu, Yanfeng Wang, Xiangsheng Lei, Junyuan Zhang, Xinyi Lin, Yang Huang, Zhida Kong, Qingjian Wang</i>	
Analysis of Sub-synchronous Oscillation of Wind Farm with MMC-HVDC System	3633
<i>Hui Qin, Guojie Zhao, Jiali Kui, Zefei Wu, Zhaolin Zhang, Zeren Guo, Buyang Du, Yingbiao Li, Wenyi Tian, Shilong Liu, Xin Lin</i>	
Analysis of Security and Stability Characteristics in New Power System	3639
<i>Dongmin Huang, Ping Wu, Xin Wang, Dongwei Wang</i>	
An Investigation on Thermal Ageing of 500 kV EHVDC XLPE Cables Based on Molecular Structure Changes....	3647
<i>Weilong Peng, Tianyu Ruan, Lei Zhang, Shiqiang Li, Jiahao Liu, Nanqing Chen, Xiangrong Chen</i>	
Research on Protection Configuration Method for Low Voltage Flexible DC Interconnection System	3651
<i>Yini Xu, Yu Ji, Lijing Sun, Xi Ran</i>	
Measurement and Analysis Model Study of Harmonic Losses in Converter Transformers	3656
<i>Yi Fuquan, Li Hui, Ouyang Zhen, Li Sheng, Xue Chuliang, Zhu Zhengyi</i>	
Simulation and Design Optimization of Electric Field in Ultra-high Voltage Flexible DC Valve Hall.....	3661
<i>Yuan La, Zehua Wu, Zengcao Wang, Jianwei Cheng, Kejie Huang, Yiyu Guo</i>	
Pilot Protection for MTDC Grid Based on Phase frequency characteristics of Measured-impedance.....	3665
<i>He Wang, Gaokai Zou, Ligang Li, Xiangyu Yin, Qiaochu Zhang, Kuo Li, Xinyun Zhu, Xiaolin Zhang</i>	
Topology Design and Multi Condition Simulation Analysis of Flexible Interactive System in Low Voltage Distribution Station Area	3671
<i>Ze Zhou Wang, Jianfei Bao, Nengwen Shu, Jianqin Lu, Songsong Hu, Xiandong Duan, Yuanchao Lu, Zhaoying Ren, Shuai Wang, Zhao Li, Jianzhou Cheng</i>	
Quantitative Evaluation Method for Regulation Capability of Grid-Forming Controlled Photovoltaic-Energy Storage Substation	3680
<i>Liqun Han, Xinhua Chen, Chen Xing, Shuai Liang</i>	
A Extended State Observer Based Backstepping Control for Improving Stability of DC-DC Boost Converters with Constant Power Loads	3686
<i>Zhen Tian, Rufe Ren, Deshuo Tian</i>	
Development of Loop Closure Current Calculation and Auxiliary Discrimination System for 10 kV Urban Distribution Network	3691
<i>Zefeng Zhang, Yuning Chen, Rui Zhang, Fei Zhou, Yan Ma</i>	
Optimization of Liquid Cooling Double-layer Heatsink for SiC Power Modules.....	3696
<i>Damir Galiev, Weiyu Tang, Zan Wu</i>	
Research on Magnetic Levitation Control System of Large Inertia Rotor of Energy Storage Flywheel.....	3702
<i>Sen Su, Fang Fang, Qinrui Bu, Kun Han, Yinxiao Jiang</i>	

Vehicle-to-grid Global Application and the Prospect in Shanghai Power Grid: A Review and Analysis	3708
<i>Chen Fu, Mingxing Guo, Li Lan, Yanyuan Qian, Yubo Yan, Zhuoxin Lu</i>	
A Novel Five-level LLC Resonant Converter and Its Modulation Strategy	3714
<i>Jiale Chen, Zhaohong Wang, Yonghong Lan, Lu Zeng, Xuanwen Xiong, Wu Wang</i>	
DQ Admittance Modeling of SVG Considering DC Voltage Fluctuation	3720
<i>Chenting Zhao, Haitao Zhang, Ruxi Zhang, Yiming Wei, Qianwen Zhang, Yi Lu, Chao Ding, Lianhui Ning</i>	
Generation method of anti-misoperation locking logic rules for substations based on typical wiring	3726
<i>Jingxiang Zhang, Hui Zou, Hewei Hou, Junhui Li, Rongrong Ji, Kaiyuan Duan, Cuiping Li, Xingxu Zhu</i>	
An Effective Two-Stage Column Generation Strategy for Solving Unit Commitment.....	3732
<i>Zhao-Gang Su, Sheng-Jie Chen, Yu-Fei Li, Liang Chen, Jia-Yi Deng</i>	
Investigation on Steady-state Performance of 500 kV Single-core AC Submarine Cables under Different Grounding Methods	3738
<i>Ningjie Su, Junkai Ge, Yong Yang, Enzhe Wang, Jialin Zhang, Xiangrong Chen</i>	
EEAC-Based Emergency Power Support Strategy for Improving Total Transmission Capacity of Multiple HVDC Links	3742
<i>Chen Yu, Lipeng Zhu, Feng Zhao, Shaocong Gong, Yan Zhang, Yang Cao, Xiaofei Li, Jinming Bao, Xu Zhu, Gechao Huang</i>	
Panel Session 01: Optimal Regulation of Virtual Power Plant for Intelligent Energy Management	
Typical Model of Virtual Power Plant Participation in the Market and Relevant Suggestions	3748
<i>Can Wan, Cong Xiao, Weijia Guo, Yang Li</i>	
Linear Planning-Based Energy Management Strategies for Home Energy Storage Systems under Virtual Power Plants	3752
<i>Wang Tao, Zhou Baorong, Cheng Zhe, Zhao Wenmeng, Mao Tian, Wang Siliang</i>	
Research on Privacy Protection Methods for Virtual Power Plant Users Based on Data Precision Desensitization..	3757
<i>Yilin Pan, Yue Zuo, Liuchun Wu, Yiming Gao, Tianru Wang, Xinrui Liu</i>	
Internal Aggregation Optimization Model of Virtual Power Plant Considering the Uncertainty of New Energy Output	3762
<i>Lanyu Zhang, Zhenggang Wang, Weijia Guo, Chaochun Luo</i>	
Panel Session 02: Protection and Control Technology for Power Systems with High Penetration of Renewables	
Analysis of Asymmetrical Fault Short-Circuit Currents in PMSG Considering PLL and Current Inner-Loop Transient Processes.....	3767
<i>Juncheng Wang, Congbo Wang, Guosheng Yang, Zhe Lv, Tong Wang, Zengping Wang</i>	
Improved Grey Wolf Optimized Integral Terminal Sliding Mode Controller for Offshore DC Microgrid.....	3773
<i>Naghmesh Ali, Xinwei Shen, Hammad Armghan, Umar Farooq</i>	
An Enhanced Impedance Trajectory-Based Adaptive Distance Protection for Renewable Energy Systems	3779
<i>Lanlan Qu, Bing Hou, Zebang Yang, Lei Xia, Hui Li, Yifan Li</i>	

Fault Current Analysis Method for IRES Considering the Transient Processes of both the PLL and the Current Inner Loop.....	3785
<i>Congbo Wang, Tong Wang, Yue Yu, Qian Xu</i>	
A Differential Protection for Active Distribution Networks Based on Additional Fitting Factor.....	3791
<i>Bing Hou, Lansha Qin, Hao Wu, Jiashuo Lv, Hui Li, Yifan Li</i>	
New principle of distance protection for asymmetric short circuit of the transmission line of inverter renewable energy station	3797
<i>Congbo Wang, Runliang Wang, Guosheng Yang, Bo Zhang, Yue Yu</i>	
Research on the Impact of Distributed Photovoltaics on Traditional Protection of Distribution Networks under Different Grid-Connection Conditions and Optimization Strategies	3805
<i>Qiangren Zheng, Cheng Li, Tianyi Li, Zhiyi Zhang, Naihui Yang, Pengxiang Li, Miao Guo</i>	
Emergency Control Strategy for Voltage Stability of Receiving-end Grid Considering the Coordination of Multi-type Resource	3812
<i>Zhe Zhang, Minghua Jiang, Yan Wang, Han Wang, Fengrui Yang, Boyu Qin</i>	
A prediction method of relay protection defects.....	3817
<i>Dan Liu, Lingrao Wang, Shenglin Xu, Peng Dong, Hongzhi Su</i>	
Averaged-value Model of Low Frequency AC Transmission System and Stability Analysis	3822
<i>Tianqi Zhao, Tianzhi Cao, Yunfeng Tian, Peng Song, Tianshu Wang, Feifan Wang, Xin Qian, Tong Wang</i>	
Analysis of DFIG Fault Short-circuit Current Considering Crowbar Unloading Circuit Switching.....	3829
<i>Bin Li, Congbo Wang, Bing Yu, Yue Yu, Xiaoping Feng, Guosheng Yang, Juncheng Wang</i>	
Harmonic Resonance Control Strategy for Offshore Wind Power System Based on Additional Control.....	3835
<i>Xiaoming Huang, Xing Pan, Hongyang Huang, Qunwei Xu, Hongtao Xiong, Wenrui Zhao, Qianqian Qin, Tong Wang</i>	
Panel Session 03: Trustworthy AI for Low Carbon Energy Systems Operation and Control	
Artificial Intelligence in Smart Grids: A Comprehensive Bibliometric Analysis.....	3841
<i>Wenrui Guo, Jianxiao Wang, Qiang Jin, Yong Yang</i>	
Research on the Scheduling Model Adapted to the Multi Operating Conditions and Wide Power Operation Regulation Characteristics of Coal Power	3848
<i>Xiaorui GUO, Jianhu LV, Jian GENG, Jing ZHOU, Qiu XIA, Jianxiang QIN</i>	
Offshore Wind Power Forecasting Method Based on Hybrid Model Optimization	3854
<i>Pengzhan Xu, Qi Li, Kaiqi Ye, Pengxin Luo, Xianbo Wang, Donglian Qi</i>	
Panel Session 04: Models, Methods and Key Technologies for Flexible Resources Integrating and Interacting within Multi-Energy Systems	
Carbon Emission Analysis of Power Transmission Equipment Based on XLPE Insulated Cables: From Cradle to Gate	3860
<i>Chongyue Xu, Peifeng Xu, Nianfeng Tian, Haotian Zhao, Bin Wang, Hongbin Sun</i>	

Electric Vehicle Charging Load Forecasting Based on Sequence Optimization Decomposition and Reconstructed Bidirectional Long Short-Term Memory Neural Networks.....	3865
<i>Xilong Wang, Ning Zhang, LingXiao Yang, Rui Su, Zhongqin Liu</i>	
Optimal Dispatch of Hydropower Plants Considering the Vibration Zone of the Unit and Price-Guided Pumped Storage Hydropower Plants	3871
<i>Wenran Li, Chenhui Lin, Yue Yang, Haotian Zhao, Shuwei Xu, Bin Wang</i>	
Low-Carbon Optimization Operation Method of Flexible Distribution Network Based on Carbon Emission Flow...	3877
<i>Chao Gao, Songyuan Pang, Changwei Wang, Yabin Chen, Rui Qu</i>	
Power Control and Equalization Strategy for MMC-BESS.....	3883
<i>Yu Shen, Ming Xu, Jiajun Xu, Jiarong Kan, Yadong Li, Mingxuan Fan, Yixin Guo</i>	
Charging Station Planning with Mobile Charging Stations under Energy-Transport-Information Integration	3889
<i>Tingting Xu, Yi Long, Xiaorui Hu, Shun Li, Tianxi Qin, Qian Zhang</i>	
Resilience Enhancement of Polar Electric-Thermal Integrated Energy Systems with Energy Storage.....	3896
<i>Huimin Wang, Yixun Xue, Ke Wang, Xinyue Chang, Zening Li, Jia Su, Hongbin Sun</i>	
Optimal Capacity Configuration of High-Pressure Gas Storage Tanks for Cascade Utilization of Liquefied Natural Gas Cold Energy	3902
<i>Yuhao Guo, Bo Wang, Xingying Chen, Leangheng Loch, Kun Yu, Lei Gan, Haochen Hua</i>	
Rolling Optimization Method for Day-Ahead and Intra-Day Coordination of Virtual Power Plants Based on Dynamic Weights of Combined Neural Network Predictions.....	3907
<i>Wentao Huang, Ming Cheng, Xinyue Chang, Zhenhua Cui, Xinyi Lai, Siyu Lu</i>	
Panel Session 05: Transient Voltage and Synchronization Stability Analysis of New Type Power System	
Adaptive Decoupling Control Strategy for Improving Inertia Support Capability of MMC-HVDC System	3914
<i>Shouqi Jiang, Yuhao Xie, Chenggang Li, Hongda Dong, Hui Cao, Pei Li</i>	
Transient Overvoltage Stability Mechanism of AC-DC Sending-End System with Renewable Energy	3920
<i>Xiangyu Lv, Wei Wang, Song Gao, Ruize Xia, Changjiang Wang, Shicheng Zhong, Yubo Wang</i>	
Coordinated Control Strategy of Inertia Support for MMC-HVDC Connecting Offshore Wind Farms Considering Frequency Secondary Drop	3924
<i>Shouqi Jiang, Wannian Ren, Chenggang Li, Hongda Dong, Hui Cao, Pei Li, Ziqiang Wang</i>	
Calculation of the Limit Acceptance Capacity of Renewable Energy	3930
<i>Mingkui Wei, Hanbo Zhang, Li Shen, Yuxuan Tao, Changjiang Wang, Shicheng Zhong</i>	
Automatic Identification Method for Reactive Power and Voltage Control Area in Distribution Network Based on Dynamic Segmentation Theory-Reactive Voltage Sensitivity	3935
<i>Yutong Wu, Chen Wang, Mingda Li, Shuyu Hao, Yang Li, Bo Yang, Xinyu Song, Chenqi Zhang, Maoze Wang</i>	
Multi-agent Deep Reinforcement Learning-based Method for Active Distribution Network Optimal Power Flow..	3941
<i>He Wang, Jinling Li, Guanfu Wang</i>	
Research on Switching Capacitor of Vacuum Circuit Breaker	3947
<i>Wang Yihan, Yu Li, Gai Yuqing, Yang Xue, Jia Yanchao</i>	

A Graph Cut Approach for Coherency Identification with Wind-Integrated Power System	3952
<i>Tao Jiang, Ning Jian, Changjiang Wang, Xiong Chen, Guanjun Tang, Shicheng Zhong</i>	
Key Fault Screening of AC/DC Receiving Power Grid Based on Super Efficiency Data Envelopment Analysis.....	3958
<i>Tie Zhao, Fei Xie, Xiaoxiao Dai, Changjiang Wang</i>	
Panel Session 06: Fundamental Theory and Methodology of Energy Management of Large Scale Integrated Energy Systems	
Dynamic Model and Optimal Scheduling for Hydrogen Integrated Multi-energy System	3964
<i>Hengyi Li, Minghua Jiang, Yujie Sheng, Rui Li, Chenxu Mi, Wentao Feng, Boyu Qin</i>	
Research on the influence of dynamic characteristics of heating networks on operation characteristics of integrated electricity and heating systems considering the refined heat network model.....	3969
<i>Limin Yang, Xingtao Tian, Yixun Xue, Xinyue Chang, Hongbin Sun, Xiaojie Lin</i>	
Dual-Objective Optimization of Integrated Energy System Dispatch with Energy Efficiency	3975
<i>Junzhe Huang, Keyi Chen, Yong Sun, Baoju Li, Dexin Li, Linjuehao Mei, Lei Yan, Yongzhi Zhou, Zuyi Li</i>	
The Consumption and Evaluation of the Source, Network, Load and Storage Integration Project Based on Goldwind Integrated Energy Simulation Platform	3981
<i>Zhilei Xin, Chao Gao, Shouqiang Fu, Yanfeng Hao, Xinyue Bai</i>	
Reinforcement Learning-Based Voltage Control for Power Systems with Static Var Generator Integration.....	3988
<i>Jun Wei, Youyuan Xu, Zheng Wang, Jiong Ma, Mouyuan Chen, Ran Zhang</i>	
Special Session 01: Emerging AI-Powered Innovations for Next-Generation Smart Grids	
Multi-Agent Reinforcement Learning-based Two-stage Coordinated Scheduling and Operation Optimization	3994
<i>Xiao Han, Qi Zhao, Fan Yang, Xinying Wang</i>	
A Dynamic Business Model for Battery Swapping Stations with Pricing and Charging Scheduling	4000
<i>Wenjun Tang, Jie Liu, Shan He, Yuming Zhao, Xiaoying Tang</i>	
Supply Function Equilibrium-based Generation Capacity Expansion Planning for Capacity Market.....	4006
<i>Aoxiang Zhang, Yibo Ding, Huayi Wu, Zhao Xu</i>	
Machine-Learning-Driven Lifecycle Carbon Footprint Assessment in Electric Vehicle Batteries.....	4011
<i>Zhe Chen, Zhiwei Huang, Zeqi Zhang, Yingjie Li</i>	
A Review of the Reinforcement Learning for Wind Farm Operation and Control.....	4017
<i>Huiyu Dong, Peipei Yu, Chao Huang</i>	
Enhancing Renewable Energy Forecasting: A Novel Approach Integrating Satellite Imagery with Deep Learning Models	4022
<i>Xiangrui Meng, Yifan Zhu, Jiaqi Ruan, Gaoqi Liang</i>	
Comprehensive Approaches to a Low-Carbon Transition of the Power Grid	4027
<i>Chenxi Zhang, Yi Yang, Jing Qiu, Jiaqi Ruan, Gaoqi Liang, Lixin Yang</i>	
Interpretable Deep Learning for Strategic Behavior Analysis in Joint Electricity and Carbon Markets	4033
<i>Zhe Chen, Yingjie Li, Zhiwei Huang, Zeqi Zhang</i>	

Global Carbon Management: Current Status and Future Trends.....	4039
<i>Yugui Liu, Yibo Ding, Zhao Xu, Xiaoli Zhao</i>	
LMDI-ARIMA Model for Carbon Emissions Analysis and Prediction in High Energy Consuming Industries with Emission Reduction Measures.....	4047
<i>Mingyue Zhou, Wen Chu, Xu Xu, Xiangmin Xu, Bowen Zheng, Weitao Yao, Chang Liu, Xuchen Wang</i>	
Deep Learning Based Behavior Modeling in Coupled Electricity and Carbon Market.....	4054
<i>Zhenshang Wang, Yuming Zhao, Jing Wang, Shan He, Wenjun Tang, Yuxie Zhou</i>	
Multi-objective Reinforcement Learning for PV-EV Integrated Energy Management	4061
<i>Jie Liu, Wenjun Tang, Yuming Zhao, Jionghao Zhu, Xiaoying Tang</i>	
A Novel Spatial-Temporal Agent for Transmission Section Limit Calculation Considering Multiple Stability Constraints	4067
<i>Junbo Pi, Shixiong Qi, Hongru Wang</i>	
Special Session 02: AI Enabling Technologies for Active Distribution Networks	
A Physics-Informed Neural Network Approach Towards Fast Gas Flow Calculation	4072
<i>Shangyang HE, Safwat Khair Rayeem, Suhan Zhang, Zipeng Liang, Chi Yung Chung</i>	
An LLM-Based Modeling and Decision Optimization for User-Centric Electric Vehicle Charging	4078
<i>Pengfei Ou, Yingxiao Wang, Wei Lin, Jianghua Wu</i>	
Research on Electromechanical Intelligent Construction of Multi-fusion Hydropower Station Based on BIM Technology	4084
<i>Yuhong Qin, Xiang Wu, Zhibo Jiang, Yun Luo, Renbo Tang, Shaoqin Yu</i>	
Integrated Energy Production Unit Planning and Dispatching Method Considering Flexibility.....	4090
<i>Ziwei Chen, Jiameng Gao, Sheng Liu, Linze Yang</i>	
Power System Evolution with Synergy of Multiple Energy Storage Planning Technologies	4098
<i>Zhenhua Yuan, Peng An, Bo Chen, Xin Tian, Lina Zhang, Peng Wang, Yaowang Li</i>	
Coordination optimization of multi-micro-network and distribution network based on multi-agent reinforcement learning	4104
<i>Jinlong Li, Xiao Han, Ziqiang Liu, Rui Ge, Shixiong Qi, Ye Li, Lei Dong</i>	
Distribution network fault reconfiguration method based on interpretable reinforcement learning.....	4110
<i>Zixuan Zhao, Ji Qiao, Kaixuan Ji, Hao Yu, Zibo Wang</i>	
Machine Learning Methods Integrated Analysis for Detecting False Distribution Power System Data Injection Attack under High Proportional Renewable Energy Integration.....	4118
<i>Yujie Zhao, Yidian Gao, Weiyu Bao, Kaiqi Sun, Yahui Li, Jie Liu, Lei Cui, Guofeng Liu</i>	
Energy Scheduling of VPPs with Renewable Generation: A Hybrid Data-Driven Convex Hull Approach.....	4124
<i>Zipeng Liang, Safwat Khair Rayeem, C.Y. Chung, Shangyang He, Yanjin Zhu, Xin Yin</i>	

Special Session 03: Flexible Resource Optimization for Enhancing the Resilience of New Power Systems

A Distributed Resource Aggregator Pricing Strategy and Energy Optimization of Consumers Considering Thermal Inertia of Buildings	4130
<i>Xuerui Zheng, Bo Jiang, Jiexin Wang, Zizhang Yu, Tao Jia, He Gao, Wenchao Liu, Fan Sun</i>	
An Incentive Mechanism for Energy Communities to Foster Resilience Investment Initiatives	4136
<i>Mingze Xu, Shunbo Lei, Cheng Ma, Haoran Liu, Jianghua Wu, Chaoyi Peng</i>	
Optimizing Configuration of Mobile Power Sources to Enhance Distribution System Resilience	4142
<i>Xin Liu, Zhengcheng Dong, Meng Tian, Huan Deng, Linhai Guo, Yu Wang</i>	
Demand-side Flexible Resource Intelligent Dispatch Strategy Embedded with Domain Knowledge	4148
<i>Yaping Li, Jiahao Yan, Wenbo Mao, Kedong Zhu, Shengchun Yang, Feng Li</i>	
Complementary configuration and operation of Wind-Solar-Hydropower-Storage Systems: A comprehensive review	4153
<i>Xinzhong Ding, Dayi Li, Wei Huang, Yiping Chen</i>	
Learning-Enabled Optimization for Security-Constrained Unit Commitment with Energy Storage	4159
<i>Weimao Xu, Junru Lin, Xuebing Sheng, Ou Zhang, Xue Jiang, Xiao Wang</i>	
Insulator Detection Based on Feature-Enhanced Convolution Attention Method	4166
<i>Hangfan Dong, Jun Feng, Yijie Wang, Yang Li, Yibo Yu, Binyu Xiong</i>	
UAV-Assisted Emergency Restoration Strategy for Distribution Systems With Deep Learning	4171
<i>Haochen Zhang, Chen Chen, Jian Zhong, Zhaohong Bie</i>	
Flexibility Retrofit Time Series Planning for Multiple Generation Resources Considering Complementary Wind-PV-Coal-Storage Characteristics	4177
<i>Jiayi Luo, Feilong Fan, Nengling Tai, Ran Liu, Yanla Qin, Zeru Huang</i>	
Real-time Bidding and Dispatch Strategies for Electric Vehicle Aggregator in Joint Energy and Reserve Markets Considering EV User's Preference	4183
<i>Manqi Xu, Ye Guo, Qiuwei Wu</i>	
Vibration detection of power equipment based on sound and video fusion	4189
<i>Shenglong Zhu, Wei Lou, Cheng Zhao, Wei Wang, Dongdong Yang</i>	
Analysis of Adjustable Potential of Hotel Air Conditioning Load based on Limited Data	4195
<i>Yuting Xu, Zhuofan Tang, Qingrong Zheng, Mingyu Yang</i>	
Resilience enhancement of port power systems through integration of multi-energy systems	4200
<i>Daogui Tang, Hao Tang, Yuxin Li, Josep M. Guerrero</i>	

Special Session 04: Enhancing the Resilience of Urban Integrated Energy Systems: Challenges and Solutions

Research on Integrated Analytical Model for Coupled Development of Energy Decarbonization and Urbanization	4206
<i>Li Peng, Li Huixuan, Tian Chunzheng, Wu Sijie</i>	
Joint Maintenance Strategy For Urban Integrated Energy Systems Considering Distribution Network Reconfiguration Under Earthquake Disasters	4212
<i>Yong Sun, Baoju Li, Wenchao Liu, Dexin Li, Benxin Li, Shidong Cui, Tao Jia, He GAO</i>	

Load Restoration of Distribution Network with Solar-Storage-Charging Stations Integration	4218
<i>Minghong Yang, Chengwei Shen, Yuan Zhang</i>	
Real-time Crew Scheduling for Post-Disaster Restoration of Integrated Power and Gas Networks	4223
<i>Mingxuan Li, Wei Wei, Yin Xu, Shanshan Shi, Xinchu Wei</i>	
Evaluating Multi-dimensional Response Capability of Adjustable Resources in New Urban Power Grids	4229
<i>Junliang Qian, Rui Zhang, Jiaxuan Du, Bingjun Song, Panpan Liu, Zhenglong Sun</i>	
A Profit-Oriented FDI Attack Strategy in Real-Time Peer-to-Peer Energy Trading Market	4239
<i>Aichao Zhang, Shunbo Lei, Chongyang Wan, Haoran Zhang, Yuan Luo</i>	
A Collaborative Load Recovery Method for Power-Transportation Systems	4245
<i>Xiangyu Zhai, Zening Li, Bing Ding, Xuexue Qin, Longwen Chang, Hongbin Sun</i>	
Improved CBBA Algorithm for Task Allocation in Multi-UAV Inspections of Power Systems	4251
<i>Ming Zhao, Yanchu Li, Xinzhou Dong, Qingqing Ding</i>	
A Rapid Self-Healing Method Enhancing Resilience and Adaptability in Overhead Distribution Networks Against Failure Occurrence	4257
<i>Gang Chen, Zezhou Wang, Lun Chen, Bao Li</i>	
Resilience Assessment of Power System for Extreme Ice disasters	4263
<i>Yunfei Chu, Ao Liu, Mingze Li, Peng Wang, Dachi Zhang, Boqiang Li, Yong Wang, Changjiang Wang</i>	
An Optimal Network Reconfiguration Approach in Smart Distribution Networks under Overhead Line and Wireless Communication Faults.....	4268
<i>Zezhou Wang, Gang Chen, Jianxin Chu, Yucheng Gan, Bao Li</i>	
Load Resource Investigation and Model Construction Methods for Typical Industries.....	4273
<i>Mingyu Yang, Bowen Zheng, Chang Liu, Yuting Xu, Mingming Pan, Shiming Tian</i>	
Special Session 05: Advanced Vehicle-to-Grid Integration for Enhanced Urban Transportation and Power Systems	
A Bi-Level Charging Station Planning Model Based on the Interaction of Load and Electricity Price	4278
<i>Junyan Yuan, Jing Qiu</i>	
An Active Battery Balancing Strategy for Battery Packs in Series	4285
<i>Shengqi Zhang, Lingbo Yu, Zhe Zhou, Yuhui Miao, Yujie Sheng, Shiwei Xie</i>	
Day-Ahead Scheduling for Microgrid Considering the V2G Mode of Electric Vehicles	4292
<i>Yongxi Liu, Yiqiao Shen, Chunyang Liu, Zhengsong Wang, Yanxu Song, Hanrun Wang</i>	
Research on the Standard System Construction of Vehicle to Grid and Relevant Suggestions.....	4297
<i>Peijun Li, Yunchen Feng, Wen Wang, Heping Jia, Yajuan Guo, Shu Su</i>	
Quantification of Adjustable Charging Capacity for EVs Fast-Charging Stations in Urban Transportation Network	4302
<i>Boxin Yuan, Yujie Sheng, Tao Qian, Qinran Hu</i>	
Identifying Differentiated User Preferences for Spatial Flexibility Assessment of Fast Charging Station Loads.....	4308
<i>Mengjie Liu, Yujie Sheng, Qinglai Guo, Hongbin Sun, Tao Qian</i>	

A Variational Inequality Approach for Modeling Bounded Rationality in Electric Vehicle User Behavior	4313
<i>Yanyu Yan, Yujie Sheng, Shiwei Xie, Yachao Zhang</i>	
Comprehensive Benefits Assessment Framework for Orderly Integration of Electric Vehicles in Three-phase Distribution Networks	4319
<i>Jing Huang, Jiale Guo, Dong Yao, Zheng Cao, Cuichao He, Chenjia Gu, Qun Zhou</i>	
A Review of Collaborative Optimization Strategies of Distribution Networks with Electric Vehicle Loads.....	4325
<i>Binwen Zhang, Ji Qiao, Ye Li, Jiateng Li</i>	
Reviews on the Capacity Market Bidding Strategy of Virtual Power Plants with Electric Vehicles	4330
<i>Mei Xin, Zhao Tianhui, Huang Cheng</i>	
Robust Scheduling of a Charging Station Considering Uncertain Charging Demand and Demand Response	4336
<i>Yuling Ren, Mao Tan, Zibin Li, Zhuocen Dai, Wei Tan</i>	
Special Session 06: Key Technologies for Energy Storage and Virtual Power Plants Flexibility Resources to Participate in Power System Operations and Commercial Mechanisms	
Reverse Overload Mitigation for Rural Low-Voltage Distribution Areas Based on PV Power Forecasting and Energy Storage Operation Optimization	4342
<i>Boyu Zhou, Zhenjia Qiao, Min Li, Xiangzhi Yin, Yanjie Cui, Yifeng He</i>	
Economic Analysis of Typical Business Model of Grid-side Energy Storage Considering Full Life Cycle	4348
<i>Nana Li, Zhiyong Shi, Jing Hu</i>	
Long Term Load Forecasting Method for Holiday Correction Based on LSTM.....	4354
<i>Keming Zhan, Zhibo Zhang, Jiayi Zhou, Chao Wang, Yu Zhang, Weidong Li</i>	
Economic Evaluation Method for Electric-hydrogen Synergy Business model Based on Typical Application Scenarios	4361
<i>Xifeng Zhang, Ning Zhang, Bibin Huang, Suxiu Li</i>	
Domestic and foreign energy storage participation in electricity market trading: practical analysis and prospects...	4367
<i>Dandan Zhang, Yonggang Li, Li Chang, Lili Li</i>	
A Pricing Mechanism and a Cost Diversion Optimization Method for Designing a Standalone New Energy Storage Power Station.....	4377
<i>Zhiyong Shi, Jing Hu, Nana Li</i>	
An Optimization Method for Determining the Proportion between Year and Day-ahead Procurement of Frequency Response Reserve	4384
<i>Zhibo Liu, Mingze Zhang, Huanhuan Luo, Weidong Li</i>	
Estimating Behind-the-Meter Storage Capacity: A Data-Driven Approach Facing Time-of-Use Pricing.....	4390
<i>Wenpu Sun, Zhirui Tian, Chenye Wu</i>	
Impact of Energy Storage Lifespan on System Operation Strategy in Full-Horizon Operation Simulation by Machine Learning.....	4396
<i>Ming Yu, Chunli Zhou, Qideng Luo, Shuyi Xia</i>	

Day-Ahead Optimization Scheduling Strategy for Photovoltaic-Storage-Load Virtual Power Plant Considering Electric Vehicles.....	4400
<i>Cenfeng Wang, Xinyi Zhu, Yingjing He, Feifei Sun, Zhiheng Shen, Sheng Zhou, Zhenzhi Lin</i>	
Application of Photovoltaic Energy Storage Integration and Flexible Control Technology Based on the Construction Industry	4406
<i>Renge Li, Lixian Dai, Jimin Zeng, Jun Wei</i>	
Application of virtual power plant technology in facility agriculture	4410
<i>Ningning Li, Weiyao Xu, Qiuyu Zeng, Yanjie Ren, Wenchuan Ma, Kezhu Tan</i>	
Research on Electricity Market Pricing Strategy for Virtual Power Plants Based on Q-Learning Algorithm.....	4421
<i>Wang Tao, Zhou Baorong, Li Jiangnan, Zhao Wenmeng, Mao Tian, Wang Siliang</i>	
Research on the Operation Mode of Virtual Power Plants Participating in Day-ahead market.....	4426
<i>PAN Lingling, Geng Jian, Chen Ailin, Yu Shaoyuan</i>	
Special Session 07: Advanced and Emerging Forecasting Technologies for Future Power and Energy Systems	
Ultra-short-term multi-step power load forecasting based on generative adversarial framework.....	4430
<i>Litong Wu, Yanjun Chen, Bowen Wang, Xi Huang, Zihan Ouyang, Yingkai Xiang, Ruiyan Shi</i>	
Application of LSTM Network Combining Global and Local Learning in Power Load Forecasting.....	4436
<i>Bowen Zheng, Chang Liu, Chen Xu, Zhenlan Dou, Yongjun Li, Mingyu Yang</i>	
Research on the Multi-user Behavior Modeling Methods Considering Demand Response.....	4442
<i>Boyuan Ye, Jiexin Ou, Yadi Luo, Xuri Song</i>	
A Method for Predicting the Ownership of Electric Vehicles Based on a Comprehensive Prediction Model.....	4448
<i>Yan Pan, Dinghao Luo, Wei Zhao, Qifang Chen, Ye Dong, Jiayi Yu</i>	
Distributed Photovoltaic Power Prediction Based on GAT-TST	4453
<i>Ziheng Li, Yutong Li, Shengyi Li, Yufei Han</i>	
Wind Power Prediction Based on Multidimensional Power Technical Indicators and LSTNet Algorithm.....	4459
<i>Xuehui Wang, Yongsheng Wang, Hailong Li, Chunlei Liu, Bo Cheng, Haotian Chen</i>	
Analysis of the Integration and Development of Energy Network, Transportation Network, and Information Network	4465
<i>Jinmao Chen, Wanli Xu, Yujuan Yin, Man Ruan, Mengyi Wang, Xudong Wang</i>	
Wind Power Forecasting Method Under Extreme Weather Conditions Based on Meta-Learning and Multi-Head Attention Mechanism	4471
<i>ShiHua Liu, Han Wang, WeiYe Song, Shuang Han, Jie Yan, Yongqian Liu, Qiangsheng Dai, Xuesong Huo</i>	
Prediction of Dynamic Carbon Emission Factors Based on the Informer Model.....	4477
<i>Jing Yan, Jingxian Yang, Yufan Hong, Hongxiang Liang</i>	
Combining Physical Mechanisms with Data-Driven Approaches for Short-Term Photovoltaic Power Forecasting ...	4482
<i>Xuan Yu, Yue Xia, Zheng Wang</i>	

GRU-ATT high-precision short-term PV power combination prediction model combining improved MVMD and INFO	4488
<i>Xifeng GUO, Boyu Jin, Xinlu Wang, Yi Ning, Zedi Wang</i>	
Research on photovoltaic power combination model prediction based on 5G+ technology and irradiance correction	4494
<i>Xuri Fan, Haibo Pan, Ruyi Ding</i>	
Ultra-Short-Term Wind Power Forecasting Method Based on an Improved XGBoost Algorithm Combined with the Smoothed Stochastic Indicator	4501
<i>Shijie Guan, Yingying Zheng</i>	
Annual Time-Series Operation Simulation and Rapid Solution Method for Power Systems.....	4506
<i>Chen Wang, Zhiqiang Lu, Wenzhe Chen, Chunmiao Zhang</i>	
An Improved Extreme Learning Machine Approach to Real-Time Electricity Price Forecasting in Electricity Markets	4512
<i>Yunlong Bai, Kangzhen Zheng, Hao Han, Jingbo Qiao, Wei Cheng, Pin Wang</i>	
A Channel-Wise Cross Attention Mechanism Based Aggregated Distributed Photovoltaic Power Day-ahead Forecasting Method.....	4517
<i>Jian Xiao, Shuangjian Peng, Yuxiang Cai, Xiangyan Gan, Chudong Shan, Wenjing Zhang, Ziyue Wang</i>	
Topology Identification Based on GCN-Graph Lasso.....	4524
<i>Shiyu Zheng, Ying Chen</i>	
Special Session 08: Key Technologies for Energy Storage Applications in New Electric Power Systems	
Techno-economic Comparison of Long Duration Energy Storage.....	4530
<i>Junzhao Cheng, Xiaopeng Liu</i>	
Coordinated Planning of Electricity Lines and Energy Storage Systems Based on Time Series Aggregation.....	4538
<i>Yonglong Fan, Xiong Wu, Yating Wang, Lanxi Tang, Minjian Cao, Qiang Liu</i>	
Distributionally robust scheduling of electric-thermal-hydrogen microgrid based on comprehensive norm.....	4544
<i>Jiahe Li, Jian Chen, Wen Zhang, Xirui Sun</i>	
Zonotope-Based Aggregation and Control Method for Distributed Energy Storage in Networks	4550
<i>Jiaorong Ren, Chengeng Niu, Chuanxun Pei, Chen Ye, Shunjiang Yu, Zhenzhi Lin</i>	
Energy Storage Planning Method of Renewable Energy Power System Considering Coordination of Transmission and Distribution Systems.....	4556
<i>Guodong Guo, Zheng Wang, Kanqin Zhuang, Cheng Zhang, Shanke Mou, Shengjin Huang, Yawei Xue, Dong Liu</i>	
Comparison of Active Power Response Rapidity Between Small-Scale and Large-Scale Pumped Storage Plants under Power Control Mode	4562
<i>Zhecheng Wang, Weijia Yang, Peilin Wu, Yiming Qian, Zhuang Hu, Jian Zheng, Kai Ding</i>	
Influence of Initial Rotational Speed of Variable-Speed Pump Storage Units on the Hydraulic Interference for Fixed-Speed Units During Pump Power-Off	4568
<i>Zheng Cao, Weijia Yang, Qingbo Wang, Zhecheng Wang</i>	

Optimization Method for Fault Ride-Through Parameters of Energy Storage to Reduce Short-Term Power Impacts Under Faults	4573
<i>Yudong Zhang, Yu Wang, Fan Tang, Zhiyang Yu, Jiayu Liu, Xifang Huang</i>	
Research on Optimal Configuration of Pumped Storage Energy in Power Grid Considering Voltage Transient Stability	4578
<i>Jianing Zhang, Xin Zhang, Qibin Bo, Xiangyang Cao, Can Cui, Shenquan Yang</i>	
Automatic Topology Identification Technology for Distribution Systems Based on the Internet of Things.....	4585
<i>Huiqing Mao, Mingliang Mu, Guohua Bao, Xiaodong Wu</i>	
A Transformer-CNN-BiLSTM Architecture for SOH Prediction of Battery Storage Systems	4591
<i>Taile Wang, Kun Wang, Kaikai Pan</i>	
A Joint Planning Method for Wind-Solar-Storage Capacity Allocation in New Energy Transmission Bases.....	4597
<i>Tian Wei, Ren Juan, Gao Guiliang, Wei Junchen, Xin Chaoshan, Xu Liliang, Zhu Xiaonan, Li Jiacheng</i>	
Review of Lithium-Ion Battery Energy Storage Systems: Topology, Power Allocation, and SOC Estimation	4606
<i>Ligen Xie, Jingrui Tang, Yachao Yang, Binyu Xiong, Xin Huang, Xiang Chen</i>	
A study on the coordinated optimization and economic dispatch of hybrid energy storage systems based on carbon trading.....	4614
<i>Ren Juan, Tian Wei, Zhang Shuhua, Wei Junchen, Xin Chaoshan, Zhou Qi, Cui Wenjin, Ye Mengni</i>	
Multiphysics-Coupled Stress Analysis of Hydrogen Storage Filling Using Diverse Composite Layer Winding Patterns	4622
<i>Yi Chen, Zuoqin Qian, Jianxiao Wang, Jie Song</i>	
Study on the Synergistic Operation of Pumped Storage and Electrochemical Energy Storage under High Percentage New Energy Power System	4629
<i>Gao Guiliang, Ren Juan, Yu Guokang, Xin Chaoshan, Zhang Shuhua, Yao Peng, Ye Mengni, Cong Biao</i>	
Special Session 09: Artificial Intelligence-Based Optimal Control and Resilient Operation in Cyber-Physical Power Systems	
Considering the Green Environmental Value Attribute of Electricity: A Deep Learning Model for Green Electricity Price Forecasting.....	4637
<i>Ran Ding, Haixiang Xu, Yiming Yao, Wenyu Zhang, Bin Wang, Xiaochuan Xu, Hongyong Liu</i>	
An Enhanced Ransomware Defense Strategy through Behavior-Based Detection using Machine Learning Algorithms	4643
<i>Cornelia Khoza, Giresse M Komba, Solly P Maswikaneng</i>	
Measurement and Co-optimisation Model of Electricity Carbon Emission Factors Considering Time-Series Characteristics	4647
<i>Ming Li, Weixi Ren, Hongyong Liu, Wenyu Zhang, Xiaochuan Xu</i>	
A Q-Learning-Based Optimization Framework for Cost-Efficient and Grid-Friendly Energy Management of Electric Vehicle Fleets.....	4652
<i>Thomas Tongxin Li, Peijin Li, Yitong Shang, Alexis Pengfei Zhao</i>	
Overvoltage Risk Assessment for Renewable Energy Based on Active Control Prediction	4658
<i>Xuefeng Gao, Shiyun Xu, Zonghan Li, Xin Li, Cheng Wu, Huan Ma</i>	

Koopman enhanced distributed computing Kalman filtering for stochastic dynamic discrete systems in smart grids	4662
<i>Zihao Wang, Xiaoyuan Zheng, Xindi Yang</i>	
Optimization strategy for monthly green electricity and green certificate transactions for electricity retailer considering renewable energy consumption responsibilities	4667
<i>Bin Wang, Yan Geng, Yiming Yao, Xiaochuan Xu, Wenyu Zhang, Hongyong Liu</i>	
Research on the Optimization Strategy of Time-of-Use Tariff for Electricity Sales Considering the Two-Side Linkage Mechanism of Supply and Demand.....	4672
<i>Yifan Zhang, Xiaoxiao Zhang, Yifei Sun, Xiaochun Zhang</i>	
Special Session 10: Data-Driven Modeling and Optimization Techniques for Low-Carbon Integrated Energy Systems	
Graph-Based Electricity Carbon Sensitivity Analysis for Distribution Substations	4677
<i>Wenwen Deng, Yachen Tang, Xiaolei Yang, Guangyi Liu, Shuning Chen, Hong Fan</i>	
Frequency-Coupled Admittance Modeling Of Converter-Interfaced Generators Using Linear Regression	4683
<i>Linguang Wang, Xiaorong Xie, Xvtao Li, Yong Ren</i>	
Power Equilibrating of Multi-microgrids in a Market Environment: A Multi-agent Shadow-Price Deep Reinforcement Learning Based approach	4688
<i>Heng Hu, Meng Hou, Zhigang Du, Jian Liu, Yunpeng Jiang, Xi Zhang</i>	
Short-term PV Power Prediction Based on Feature Fusion and Multi-strategy HPO	4694
<i>Rui Zhang, Huize Wang, Xifeng Guo, Yi Ning, Qingyun Zhang</i>	
A Coupled Coordination Model to Evaluate "Energy-Economy-Carbon Emission" Synergistic Development in Tianjin	4701
<i>Shuai Luo, Yang Wang, Jin Zhou, Dawei Yan, Lai Zhang, Na Li</i>	
Numeric Analysis of Active and Reactive Power Coupling under Load and Renewable Variations in Transmission Networks with Storages.....	4706
<i>Ming Yu, Hengwang Zhou, Qideng Luo, Teng Lin</i>	
Typical Scenario Selection for Energy Storage Planning from Annual-Horizon Operation of A Large-Scale Power System with Renewable Integration	4710
<i>Qiuquan Deng, Li Xiong, Ling Li, Shuyi Xia</i>	
Energy System Prediction and Optimal Scheduling Based on Operating Condition Identification for Steel Enterprises	4714
<i>Gang Sheng, Yanguang Sun, Jialong Liu, Jinxiang Chen</i>	
Modeling and Regulating Electric Vehicles Carbon Flow in Coupled Transportation-Power Networks	4721
<i>Weimin Wu, Shunbo Lei, Chongyang Wan, Yanting Huang, Yiting Xiong, Yuan Luo</i>	
Virtual Power Plant Energy Coordination: A Global Solution to Three-Level Scheduling.....	4727
<i>Yanjin Zhu, Haoyong Chen, Xin Yin, Zipeng Liang, JiaYue Li</i>	
Optimal Scheduling Method of Integrated Energy System Considering Hybrid Energy Storage	4733
<i>Yu Pan, Yan Zhao, Heng Ji, Hongyang Jin, Donglai Wang</i>	

Multi-modal Prediction of Solar Power Generation in Various Provinces of China	4739
<i>Chongyang Wan, Jiyuan Wang, Weimin Wu, Aichao Zhang, Yuan Luo, Shunbo Lei</i>	
Low-carbon Economic Optimization of Smart Distribution Networks Based on Seasonal Carbon Trading Method and Refined Demand Response Model	4745
<i>Yuxi Huang, Dongge Wu, Xinyue Chang, Yixun Xue, Xingtao Tian, Hongbin Sun</i>	
Special Session 11: Key Technologies on Coordinated Operation and Control of Multiple Types of Resources Towards Frequency Security	
Deep Clustering for Interpretable Electric-Carbon Potential Analysis in Smart Grid Resource Management.....	4750
<i>Yifan Lv, Yinliang Xu</i>	
Cost-Benefit Analysis Method for Disaster Prevention and Restoration Resource Investment in Power Systems Based on Resilience Assessment.....	4756
<i>Jianjun He, Longteng Wu, Zijie Meng, Xin Hu, Xinlei Cai, Yiheng Bian, Gengfeng Li</i>	
Research on the Design Method for Flexibility Transformation of Thermal Power Generation.....	4763
<i>Nan Zhao, Hao Liu, Qiu Chunmiao, Wangcheng Long, Zheng Qiao, Ning Wang, Jianye Rao</i>	
A Multi-stage Coordinated Scheduling Method for Heterogeneous Resources in Distribution Systems.....	4769
<i>Jiexing Zhao, Qiaozhu Zhai, Yuzhou Zhou, Lun Yang, Xiaohong Guan</i>	
Low-carbon Optimal Energy Management of Integrated Electricity-Natural Gas Systems Considering Uncertainties	4775
<i>Shiqi Sun, Yinliang Xu</i>	
Modelling of DFIG Based Wind Turbines with Inertia Control for Frequency Response Study	4781
<i>Jingying Yang, Shuyu Zhou, Chao Jiang</i>	
Research on Cascading Fault Path Analysis of Power System Based on GPU Parallel Computing	4786
<i>Jing Xu, Dai Cui, Zhengwen Li, Guangyu Zhu, Chenyang Zhao, Yiheng Bian, Gengfeng Li</i>	
Active and Reactive Power Coordination Optimization under High Photovoltaic Penetration for Distribution Station Areas.....	4792
<i>Jiayao Bao, Xinbao Ma, Dongliang Xu, Zaijun Wu</i>	
Assessment Method for Minimum Inertia Considering the Differences in Support Characteristics of Various Types of Renewable Energy Sources	4798
<i>Yihua Zhu, Yechun Xin, Guangnan Zhang, Jiawei Yu, Dongxu Chang, Shouqi Jiang, Yunfei Liu</i>	
An Optimization-based Development Path Planning Approach Considering Coal Power and New Energy Transformation	4803
<i>Hao Liu, Nan Zhao, Chunmiao Qiu, Wangcheng Long, Ning Wang, Jianye Rao, Jin Xu</i>	
An enhanced multifactor authentication using decision-tree and Logistics-Regression machine learning algorithm	4809
<i>Phetole A Malematsa, Giresse M Komba, Solly P Maswikaneng</i>	
Voltage Stability in Three-Phase Unbalanced Networks: A Pseudo-measurement Modeling Based Dynamic State Estimation Framework.....	4814
<i>Xinbao Ma, Jiayao Bao, Dongliang Xu, Shuheng Wei, Yuhang Chen, Zaijun Wu</i>	

Special Session 12: Digital Twins and On-line Monitoring Technology of Electrical Equipment for New Power System

GIS Switch Contact Fault Simulation Analysis.....	4820
<i>Chen Cao, Qingli Wang, Jialin Wang, Zheng Li, Jiayv Zhang, Ying Li</i>	
Analysis of Factors Affecting the Performance of O-rings of 110kV Transformer Bushing Conservator	4825
<i>Kejie Huang, Yao Yuan, Wenhao Li, Yuan La, Zengchao Wang, Ximing Gao</i>	
Calculus Accumulation-based Inspection Reading Method for Substation Pointer Meter.....	4830
<i>Li Zhou, Bo Li, Guoce Shao, Xiaoju Yin, Xiaoxiao Li, Shiyu Lu</i>	
Simulation of Airflow Field for 252kV Eco-gas GIS Fast Earthing Switch.....	4835
<i>T. B. ZHANG, S. A. WANG, Y. S. JIN, D. W. XIN, Z. X. GENG, J. Y. XU</i>	
Research on Voltage Sag Suppression Method Based on Improved Sparrow Optimization Search Algorithm.....	4842
<i>Rong Liu, Zhaokun Zeng, Fan Zhang, Hui Wang, Yongming Zhu</i>	
Partial Discharge Pattern Recognition of MV Switchgear Based on Fluorescent Optical Fiber	4848
<i>Jihang Sun, Jiaming Li, Ruihan Pei, Mengyi Cai, Xunbo Gao, Guoming Ma</i>	
Simulation Research on GIS Temperature Field Distribution Characteristics under Different Influencing Factors ..	4852
<i>Long He, Wenchang Zhao, Xin Chen, Yifan Wu, Chen Cao</i>	
Study on Thermal Aging Test of 500kV Three-core XLPE Insulated Submarine Cable.....	4858
<i>Hui Gong, Xiuping Wu, Hao Liu, Nan Chen, Shize Zhang, Xiantao Tao</i>	
Ultrasonic Spectral Characteristics of the Interface Defects between the Conductor Insert and Tri-post Insulator of 550 kV GIL.....	4863
<i>Liucheng Hao, Yaxiang Wang, Duanpeng Yuan, Mingyang Ma, Yuhuai Wang, Jin Li</i>	
FWZIC Method Based on q-Rung Orthopair Fuzzy Set for Life Cycle Quality Assessment of Power Equipment...	4867
<i>Shize Zhang, Xiantao Tao, Yating Jin, Qiang Cui, Jiawei Mao, Hui Gong</i>	
Reconstruction of switching overvoltage waveform measuring in a 500kV substation using electro-optical E-field sensor	4873
<i>Shen Chen, Yang Xu, Yang Chen, Ying Chen, Siyuan Xie, Chang Liu, Hengxin He</i>	
Deadbeat Nearest Current Modulation Strategy of MMC-based SAB Converter	4877
<i>Guangqi Lu, Xuan Wang, Yongliang Yao, Dongliang Liu, Xiaolong Li, Zhengying Mi, Haitao Yang</i>	
Performance study of the acoustic detection algorithm for the local discharge model.....	4883
<i>Qi Yang, Deng Song, Liuqing Yang, Xianyin Mao, Huarong Zeng, Yao Zhong</i>	
GIS Electrical Contact Characteristics Simulation Based on Electric-Magnetic-Force Coupling	4889
<i>Qunying Yu, Chunming Zhao, Haidan Lin, Daiyong Yang, Chen Cao</i>	
Analysis of Partial Discharge Characteristics in Power Cables with Different Defects Under Power Frequency Voltage	4895
<i>Jianming Zhang, Jingzhi Liu, Quanlei Qu, Hongyi Yang, Zhidong Liu, Jialin Wang</i>	
Study on local discharge type identification based on acoustic signal processing and PCA-BP method.....	4900
<i>Qi Yang, Deng Song, Liuqing Yang, Xianyin Mao, Huarong Zeng, Yao Zhong</i>	

The Simulation and Analysis of Transformer Winding Based on Voicing Pattern	4907
<i>Chen Cao, Jiayu Zhang, Jialin Wang, Ying Li, Ruifeng Hua</i>	
MEF-YOLOv8-Based Foreign Object Detection Method in Transmission Lines Under Complex Environments....	4912
<i>Baijie Yang, Huangxia Shi, Jiading Jiang, Yin Zheng</i>	
Analysis of the Internal Electric Field of the Transformer Under Overvoltage Conditions	4918
<i>Chen Cao, Ruifeng Hua, Ying Li, Zheng Li, Jiayu Zhang</i>	
Effects of Surface Treatment on the Flashover Characteristics of the GIL Tri-post Insulators	4923
<i>Yaxiang Wang, Liucheng Hao, Duanpeng Yuan, Hein Htet Aung, Yuhuai Wang, Jin Li</i>	
A Semi-Supervised Learning-Based Method for Classifying the Status of DC Charging Piles	4927
<i>Zihan Xu, Zhijuan Qu, Ke Xu, Zhongbao Wei, Jiaxin Tan, Qiuchen Yun, Weijia Zheng, Xiaonan Song</i>	
Research on Active Noise Reduction Technology of Power Transformer.....	4933
<i>Jun Deng, Chunyan Zang, Zhicheng Xie, Haibin Zhou, Yajun Wei, Zhicheng Pan, Minpeng Dai</i>	
Propagation of Partial Discharge Ultrasonic Signal on the Surface of Cable Cold Shrinkable Tube	4939
<i>Jingzhi Liu, Quanlei Qu, Jianming Zhang, Zhenghong Bao, Hongyi Yang, Jialin Wang</i>	
Special Session 13: Enhancing Distribution Network Operation through Flexible Demand-Side Participation	
An Incentive Mechanism for Motivating Industrial Loads to Participate in the Power Guarantee Supply-Coordinated Operation of Power Grid	4943
<i>Guodong Wang, Zhifei Cai, Junfeng Qu, Di Ge, Li Ma, Haiyang Li, Xinhe Chen</i>	
Fault Analysis of Zhejiang Power Grid in China during 2024 Super Typhoon Gaemi.....	4949
<i>Zhongda Li, Hui Hou, Shaohua Wang, Zhenguo Wang, Kaihua Jiang, Te Li</i>	
Pattern Recognition of Partial Discharge using Acoustic Array Data Based on DCNN.....	4954
<i>Shenglong Zhu, Wei Lou, Cheng Zhao, Wei Wang, Dongdong Yang</i>	
Wind Deflection Characteristics of Suspension Insulator Strings for 500kV Transmission Lines Based on Realistic 3D Models	4959
<i>Xiang Jia, Hao Wu, Gang Luo, Tianyang Zhan, Guohui Chen, Xianqiang Li</i>	
A BERT-Based Method for Residential Behind-the-Meter PV Monitoring with NILM	4964
<i>Xiangrui Li, Yunqi Wang, Yang Gao, Bo Jie</i>	
Research on Intelligent Accounting Method for Power Transmission Channel Clearing Engineering Based on Binocular Visual Perception	4970
<i>Peng Luo, Bo Wang, Jiaxin Zhang, Jiahao Wang</i>	
Special Session 14: Distributed Optimization and Machine Learning for Energy Internet	
Optimal Scheduling of Thermal Power Plants Considering Demand Response and Carbon Capture	4976
<i>Lai Wei, Fuyuhui Fu, Delong Zhang, Fengyi Guan</i>	
Ontology-Based Construction of Fault Knowledge Base for Energy-Consuming Equipment.....	4982
<i>Qianyu Guo, Ziqiang Gu, Xiaoling Zhang, Shuhao Qiang, Dongbing Yin, Yi Huang</i>	

Thermal Power Plant Generation Cost Optimization Model in Consideration of Integrated Energy System	4988
<i>Zhenqi Ye, Shaoyang Xiao, Richeng Cong, Dan Pei</i>	
Minimizing Age-of-Information for Multisystem Energy IoT System with Multiple Subsystems	4994
<i>Xiao Xie, Xiaoling Zhang, Fengxiao Yan, Tianjiao Bai, Zhibo Pang, Yi Huang</i>	
Securing Energy Internet Construction: An Optical Fiber Fence Intrusion Monitoring Method Based on Improved Spatial Attention Mechanism.....	4999
<i>Ning Li, Hongyu Huang, Xu Ji, Qing Liu, Jingjiang Qu, Fanghong Guo</i>	
Transmission Line Maintenance Strategy Based on Multidimensional Risk Analysis.....	5005
<i>Fangning Zhao, Yun Teng, Tieyan Zhang, Xin Zhang, Yongfeng Xia, Yang Zhao</i>	
Characterization of Spatial Electromagnetic Parameters and Propagation Properties of Overhead Transmission Lines Fault.....	5011
<i>Zihao Li, Fuchao Li, Ziyang Ye, Yankai Xing, Yalong Mai, Jian Li</i>	
Lightweight Digital Twin of Power Electronics	5017
<i>Jiangbin Tian, Guohui Zeng, Jinbin Zhao</i>	
Position Optimization of Non-contact Current Measurement Array for Overhead Transmission Lines	5022
<i>Daotian Pang, Yankai Xing, Yalong Mai, Fuchao Li, Ziyang Ye, Jian Li</i>	
Regional Short-term Load Forecasting Based on PLE-residual Correction	5028
<i>Yayun TIAN, Chao JIN, Jie YANG, Maosong ZHANG, Lingxiao YANG, Luyao ZHANG</i>	
Reserve Capacity Optimization of Power System Connected to Large-Scale Wind Farm Based on Chance Constrained Objective Programming.....	5034
<i>Rui Zhang, Yun Teng, Zhe Chen, Bingxi Chen, Bo Wang</i>	
Energy Internet Power CPS Risk Transmission Modeling and Simulation.....	5040
<i>Mengzhe Fan, Ji Yao, Yu Nie, Wenmao Gao, Ran Xin, Siyu Chen</i>	
Digital Twin-Empowered Voltage Control for Power Systems	5045
<i>Jiachen Xu, Yushuai Li, Torben Bach Pedersen, Yuqiang He, Kim Guldstrand Larsen, Tianyi Li</i>	
A Distributed Fixed-time Economic Dispatch Strategy for Smart Grids Over Switching Communication Networks	5051
<i>Lining Liu, Jiayu Yan, Haifeng Li, Zaixiang Chen, Kefan Chen, Yulong Huang</i>	
Operating Model Study of Micro Energy Network Considering Economy and Security of Distribution Grids	5057
<i>Zhi Zhang, Kejian Shi, Luyu Yang, Dawei Hu, Zhichao Qiu, Chongguang Wang</i>	
Application and Prospect of Machine Learning in Coupling Electricity-Carbon Market under the Energy Internet	5064
<i>Zhe Jin, Lingxiao Yang, Di Wu, Maosong Zhang, Ning Zhang, Yutong Cao</i>	
Calculation and Evaluation Method of Adjustable Capacity of Virtual Power Plant	5070
<i>Wangzhang Cao, Zongyi Wang, Xin Jin, Hao Yang</i>	
Optimal Scheduling Strategy for High Proportion of Electric Vehicles and Wind Turbine Participation	5076
<i>Haoran Wang, Yun Teng, Huan Li, Delong Zhang</i>	

A Deep Reinforcement Learning Algorithm for Accelerating Unit Commitment Optimization.....	5082
<i>Jinbo Liu, Wangqing Mao, Zhoujun Ma, Yishen Wang, Renjie Wei, Jingyu Wan, Tao Ding</i>	
Transient stability assessment of power system based on Bayesian deep learning	5088
<i>Zhengzhong Chen, Yun Teng, Huan Li, Yang Cheng</i>	
Optimization Method for Multi Energy Microgrid Operation Considering Carbon Emissions	5093
<i>Zhou Wanpeng, Yang Libin, Li Zhengxi, Wang Kai, Zhang Weiwen, Lin Qianjie</i>	
Carbon emission index calculation and influencing factors analysis of coal-fired power plants considering distributed photovoltaic and integrated energy	5099
<i>Yuhui Fu, Yang Cheng, Yunan Wang, Shaozong Xu</i>	
Transformer fault diagnosis method based on multi-classification logistic regression	5104
<i>Qing Mu, Yun Teng, Qianjie Lin, Shaoyang Xiao</i>	
Risk-Averse Optimal Scheduling Model of a Virtual Power Plant Considering Uncertainties	5110
<i>Zhe Luo, Junfeng Huang</i>	
Robust optimal allocation method for distributed shared energy storage of new energy station based on cooperative game	5116
<i>Weihao Liu, Tieyan Zhang, Yun Teng, Chao Wang, Yunan Wang, Xing Zhang</i>	
An improved three-phase unbalanced power flow calculation algorithm of microgrids based on the enhanced loop incidence matrix	5120
<i>Jin DAI, Wei WU, Hongsheng ZHAO, Jie YANG, Maosong ZHANG, Lingxiao YANG, Luyao ZHANG</i>	
Carbon Emission Optimization Model for Thermal Power Plants Considering Distributed Multi-energy Coordination	5128
<i>Shaoyang Xiao, Bingxi Chen, Yongfeng Xia, Jinli Song</i>	
An Improved ARIMA Based Anomaly Detection Method for Time Series Data.....	5132
<i>Guangwei Sun, Chaofan Yin, Tian Xia, Yunpeng Lu, Jiawei Mao</i>	
Optimal Scheduling of Rural Microgrid Based on Approximate Dynamic Programming	5139
<i>Shida She, Guanqiao Hao, Fuhai Yu, Taiming Jiao, Hai He, Jingshu Tian, Xiujuan Yang</i>	
Optimized Operation of Integrated Energy System in Zero-Carbon Park Based on Deep Reinforcement Learning	5145
<i>Bin Zhou, Jie Yang, Yaxin Li, Maosong Zhang, Lingxiao Yang, Yangyang Lu</i>	
Special Session 15: Optimization, Carbon Trading, and Grid Flexibility in New Power Systems	
Energy Storage Capacity and Line Configuration Based on Operation Economy	5151
<i>Yueyi Lei, Chen Liang, Yibo Su, Bo Zeng, Xuyan Zhou, Liangyou Wang</i>	
Optimal scheduling of Wind-Solar-Hydrogen-Storage Integrated Energy System Considering Internal Mechanism of PEM Electrolyzer	5157
<i>Yangqihang Liu, Mei Su, Xubin Liu, Haozheng Huang</i>	
Flexibility Resource Peaking Compensation Price Decisions in the Context of Ancillary Services Markets.....	5163
<i>Huiyi Zhou, Chen Liang, Yibo Su, Bo Zeng, Penglei Wang, Liangyou Wang</i>	

Distributed Photovoltaic Consumption Capacity Enhancement Methods for Distribution Grids	5170
<i>Xingming Shang, Kai Liu</i>	
Two-Stage Stochastic Optimization for Low-Carbon Dispatch in a Combined Energy System	5178
<i>Manling Hu, Manqi Xu, Dunnan Liu</i>	
Research on the Comprehensive Evaluation index System for Assessing the Development Level of New Power Systems	5183
<i>Feng Zhao, Lingyue Kou, Jie Zhou, Yunhong Li, Tianyu Zhang</i>	
Research on Changes in Power System under the Coupling of Electricity-Carbon-Green Certificate Market	5190
<i>HUO Chengjun, CHENG Xueting, LIU Jinkui, ZOU Peng, WAN Jun, WU Jia</i>	
The cooperative optimization strategy of fault recovery and emergency repair of distribution network after disaster is considered.....	5196
<i>Bo Tang, Xuejiao Gong, Shifeng Hu, Ruijin Zhu, Zhifan Zhang</i>	
Characteristics and Prospects of the New Power System in the Western Inner Mongolia Region	5201
<i>Dong Dou, Yanyu Wang, Yuxin Tai, Ting Wang, Xiaochao Huan, Zhongwei Wang, Haitong Zheng</i>	
An Optimal Operation Control Method Considering Multiple Operating States Of New Power Systems	5206
<i>Fan Liu, Chuan Liu, Liang Fang, Ziyuan Yin, Yujing Meng, Saizong Xu, Zheng Zhang, Heqi Wang</i>	
Evaluate the Performance of New Power System: A Multi-criteria Decision-making Framework.....	5214
<i>Xuemeng Dong, Yihang Zhao</i>	
Multi-time scale optimal scheduling strategy of integrated energy system considering integrated demand response	5220
<i>Sitong Zhu, Ming Li, Junbo Feng, Xinrui Liu</i>	
Research on Dynamic Pricing and Operation Optimization Strategies for Virtual Power Plants Based on Stackelberg Game Theory	5226
<i>Xuemeng Dong, Yihang Zhao</i>	
Multi-state Interval Optimization Strategy of Energy Storage Cluster Considering Frequency Regulation Capability	5232
<i>Han Wang, Chen Liang, Yibo Su, Bo Zeng, Penglei Wang, Liangyou Wang</i>	
Computational Modeling and Solution Methods for power Flow in Multilevel Grids.....	5238
<i>Xiaolu Shang, He Wang, Yuchen Hao, Xue Li, Fang Liang, Yun Chai</i>	
Voltage Regulation and Reactive Power Sharing in AC Microgrids: A Non-cooperative Game Approach	5245
<i>Xiaolu Ye, Zhanshan Wang, Yihui Huang, Shuran Wang</i>	
A Fast Risk Assessment Method for Power System Considering Wind Power Uncertainty	5252
<i>Haiyu Huang, Wei Xiong, Zheng Yang, Bo Sun</i>	
The Cluster Partitioning and Autonomous Optimization Control Based on the Dung Beetle Optimization Algorithm	5257
<i>PengFei Yang, TengShuo Li, Zhe Yin, Ruijin Zhu</i>	

A Method for Evaluating the Benefits of Independent Energy Storage Participation in the Day Ahead Market Based on Ideal Scheduling	5262
<i>Yibo Su, Chen Liang, Xuyan Zhou, Bo Zeng, Liangyou Wang, Han Wang</i>	
Frequency-Voltage Coordinated Regulation Method based on Support Capability of Wind-Storage Combined Systems	5268
<i>Xubin Liu, Nanxing Huang, Guangming Zhu, Leijiao Ge, Zhengwei Shen, Zhenghong Chen</i>	
Optimization Study on the Operation of Micro-energy Network of Photovoltaic-storage Agricultural Greenhouses Based on the Choice of Operation Mode.....	5274
<i>Li Peng, Li Huixuan, Tian Chunzheng, Yue Xianyu</i>	
Special Session 16: Active Distribution Network and Distributed Power Supply	
Improved Risk Analysis for Micro-grids based on Multi-Parametric Programming.....	5281
<i>Haonan Xie, Xiaowen Liang, Xiaomin Sun, Kunquan Liang, Fengming Zhang, Chunfang Liu</i>	
Research on Transformer Fault Diagnosis Method Based on Small Sample Voiceprint Recognition Technology	5286
<i>Huajian Lu, Daili Liang, Yang Zhang, Liru Gu, Wenxue Yin, Yanhui Xiao</i>	
Low-Carbon Dispatch of Distribution Networks Considering Demand Response and Photovoltaic Integration	5291
<i>Xiaolong Jiang, Zifa Liu, Biao Cong, Mengni Ye, Xiaonan Zhu</i>	
Optimization of regional net load prediction based on integrated algorithm.....	5298
<i>Xiaoming Zhang, Jingjing Wang, Jing Xu, Liyang Ren, Jiao Men, Yi Zhao, Ming Yu</i>	
Transmission and Distribution Coordinated Blocking Scheduling Strategy with Dynamic Integration of Distribution Network Flexibility Resources	5303
<i>Shubo Hu, Xiaotong Zhang, Luyu Yang, Quan Qi, Zhengnan Gao, Hui Sun</i>	
Power Prediction Model of Wind-solar Combined Power Generation Based on Cluster Scene Reduction Method ...	5308
<i>Ming Yu, Yi Zhao, Xinmei Wang, Jiyu Du, Xiaoyi Qian</i>	
Bi-level Optimization for Dispatching Grid-Interactive Electric Vehicles in an Urban Community	5313
<i>Jia Huang, Zhiyi Li</i>	
A Methodology for Analyzing the Autonomy Capacity of Distribution Network Stations Considering the Synergy of Distributed Controllable Resources	5320
<i>Baodi Ding, Lanfang Liu, Ming Wu, Lingfeng Kou</i>	
A Robust Optimization Method for Dynamic Operating Envelope Coordination in Distribution Networks	5326
<i>Zhisen Jiang, Ye Guo, Jianxiao Wang</i>	
Short-term PV power forecasting system Based on GraphCast Weather Forecasting Model	5331
<i>Jie Wang, Wenping Qin, Ruipeng Lu, Wenbo Zhang, Haixiao Zhu, Anting Zhao</i>	
Combined Operational Decision Making for Multi-microgrid System Based on Cloud-edge Collaborative Computing Framework.....	5336
<i>Jiabei Ge, Zehao Song, Dongqi Wu, Junyi Li, Yong Yan</i>	
Multidimensional Data Aggregation of Flexible Resources Based on Fog Computing	5342
<i>Minghan Zheng, Zhuhui Wu, Zhiyi Li</i>	

Design of coal quantity measurement system based on laser scanning	5348
<i>Li Bodi, Wang Weiping, Huang Mingteng, Huaqian Lu</i>	
Rationality Analysis on the Location of Distributed Generation Access based on Load Moment	5353
<i>Wenyan Zhang, Lu Gao, Xiaoxiao Zhao, Baoquan Su, Zixun Zheng, Lixia Zhao</i>	
A Novel LambdaRank-Based Method for Assessing the Cost-Effectiveness of Power Enterprise Projects	5358
<i>Junmin Zhang, Shaojun Jin, Wendi Xu, Lifeng Fang</i>	
Research on the Application of Power Internet of Things Based on 5G Technology	5363
<i>Junhong Li, Yuguang Shi, Bo Sun, Xiaohong Chen</i>	
Research on a new county power distribution system based on metric hierarchical coordinated control	5368
<i>Sheng Hu, Wangsong Chen, Chao Xu, Liqing Gao</i>	
A quantum-classical hybrid optimization method for restoration of active distribution networks	5374
<i>Kaiping Qu, Yue Chen, Changhong Zhao, Shihan Huang, Yan Xu</i>	
Imaging-Based Super-Resolution Reconstruction of Volatile Photovoltaic Generation Curves	5380
<i>Yi Zhou, Wei Gu, Zhiyi Li</i>	
Regional Autonomous Optimization Scheduling of Active Distribution Networks	5386
<i>Zhaolu Han, Huan Wang</i>	

Author Index