

# TECHNICAL SESSION

## **Power System Analysis 1**

**Date:** Sept.21,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Guangchao Geng (Zhejiang University, China)**

**Juai Wu (Nanjing University of Posts and Telecommunications,China)**

Time: 13:30-13:45

**Paper ID:** 1570637341

Title: Electricity Purchase Strategy and Cost Allocation for Electricity Retailers

Authors: Mengyuan Wang (Shanghai Jiao Tong University, China); Xiaoyuan Xu (Shanghai Jiao Tong University, China); Yupeng Huang (Shanghai Power Exchange Center, China); ;Zheng Yan (Shanghai Jiao Tong University, China); ;Tao Yu (Shanghai Power Exchange Center, China)

Time: 13:45-14:00

**Paper ID:** 1570641649

Title: A Principal Component Analysis-Based Dimension Reduction Method for Parametric Power Flow

Authors: Danfeng Shen (Zhejiang University, China); Hao Wu (Zhejiang University, China); Bingqing Xia (Zhejiang University, China); Deqiang Gan (Zhejiang University, China)

Time: 14:00-14:15

**Paper ID:** 1570642065

Title: Development of Power Market Operation Simulation Platform

Authors: Manxia Zha (Jiangsu Frontier Electric Power Technology Co., Ltd, China); Jiawei Lu (Jiangsu Frontier Electric Power Technology Co., Ltd, China); Pengpeng Yang (Southeast University, China); Yijing Gao (Southeast University, China)

Time: 14:15-14:30

**Paper ID:** 1570642068

Title: Development of Response Curve Library for Asymmetric Fault Recovery Process of Intermittent Power Generation Equipment

Authors: Wenchen Li (China Electric Power Research Institute, China); Yanhao Huang (China Electric Power Research Institute, China); Shuwen Xu (China Electric Power Research Institute, China); Xinglei Chen (China Electric Power Research Institute, China)

Time: 14:30-14:45

**Paper ID:** 1570642214

Title: Sensitivity Analysis of Optimal Location of DC Current Flow Controller in Multi-terminal DC Grid

Authors: Hao Zhen (Nanjing University of Science and Technology, China); Puyu Wang (Nanjing

University of Science and Technology, China); Zhou Xu (Nanjing University of Science and Technology, China); Wei Yang (Nanjing University of Science and Technology, China)

Time: 14:45-15:00

**Paper ID:** 1570644509

**Title:** AGC Frequency Regulation Performance Evaluation Index Considering Disturbed Operating Conditions

**Authors:** Ting Zhou (State Grid Jiangsu Electric Power Company Dispatching Centre, China); Tianhai Zhang (Jiangsu Frontier Electric Technology Co., Ltd., China); Lin Liu (State Grid Jiangsu Electric Power Company Dispatching Centre, China); Wen Gu (Jiangsu Frontier Electric Technology Co., Ltd., China); Menglei Guo (Hohai University, China); Jianyong Zheng (School of Electrical Engineering, Southeast University, Nanjing, China)

### **Session Title: Power System Analysis 2**

**Date:** Sept.21,2020

**Room:** Meeting Room 4

**Chairs:**

**Songyan Wang (Harbin Institute of Technology, China)**

**Yunyun Xie (Nanjing University of Science and Technology, China)**

Time: 13:30-13:45

**Paper ID:** 1570644753

**Title:** Capacity Assessment of Distributed Generations Considering Operational Risks in Distribution Network

**Authors:** Shaoping Gu (State Grid Corporation of China, China); Li Liu (Southeast University, China); Kejun Qian (State Grid Jiangsu Electric Power Co. LTD, China); Kang Dai (State Grid Corporation of China, China); Yi Liu (State Grid Corporation of China, China); Yafei Li (State Grid Corporation of China, China)

Time: 13:45-14:00

**Paper ID:** 1570644899

**Title:** Power Grid Fault Diagnosis Method Based on Dynamic Computer-visualized Power Flow Using Deep Learning

**Authors:** Shixiong Fan (China Electrical Power Research Institute, China); Xingwei Liu (China Electric Power Research Institute, China); Yanpin Wang (Harbin Institute of Technology, China); Songyan Wang (Harbin Institute of Technology (HIT); , China)

Time: 14:00-14:15

**Paper ID:** 1570644954

**Title:** Coordinated Dispatch of a Power System with High Wind Power Penetration During Typhoon

**Authors:** Yinqiao Wang (Harbin Institute of Technology, China); Risheng Fang (State Grid Fujian Electric Power Research Institute, China); Weijun Zhang (State Grid Fujian Electric Power Research Institute, China); Ting Huang (State Grid Fujian Electric Power Research Institute, China); Songyan

Wang (Harbin Institute of Technology (HIT), China)

Time: 14:15-14:30

**Paper ID:** 1570645216

**Title:** Research on Transient Voltage of Receiving-End During Commutation Failure in HVDC Systems

**Authors:** Yuchen Hao (State Grid Jiangsu Electric Power Company Limited, China); Zhen Lei (State Grid Jiangsu Electric Power Company Limited, China); Ding Sun (Nanjing Institute of Technology, China)

Time: 14:30-14:45

**Paper ID:** 1570645395

**Title:** Investigation of Factors Affecting the Critical Clearing Time of Hybrid AC/DC Power Systems

**Authors:** Mingchen Gu (RMIT University, Australia); Lasantha Meegahapola (RMIT University, Australia); Alan Wong (RMIT University, Australia)

Time: 14:45-15:00

**Paper ID:** 1570646154

**Title:** Reliability Analysis of Communication Channels in Wide Area Monitoring Analysis Protection-control System

**Authors:** Sheng Qian (Southeast University, China); Tang Yi (Southeast University, China); Xiong Chen (Nanrui Group Corporation/State Power Nanrui Technology Co., Ltd, China); Guang Shi Xu (Nanrui Group Corporation/State Power Nanrui Technology Co., Ltd, China)

### **Session Title: Power System Analysis 3**

**Date:** Sept.21,2020

**Room:** Meeting Room 5

**Chairs:**

**Jie Huang (State Grid NARI Group Corporation,China)**

**Hao Quan (Nanjing University of Science and Technology, China)**

Time: 13:30-13:45

**Paper ID:** 1570646260

**Title:** Reactive Power Analysis on Emergency DC Power Support Considering Excitation Control of Generators near Inverter Station

**Authors:** Yiming Li (Southeast University, China); Jianfeng Zhao (Southeast University, China); Wu Cao (Southeast University, China); Ming Yang (Southeast University, China); Kangli Liu (Southeast University, China)

Time: 13:45-14:00

**Paper ID:** 1570646316

**Title:** Architecture Design of Simultaneous Section Generation of the Whole Network Considering Wide-Area Measurement Delay

**Authors:** Minghui Yan (NARI Technology Co., Ltd, China); Wei Xu (NARI Group Corporation, China); Haifeng Zhou (NARI Technology Co., Ltd, China); Zhen Yuan (NARI Technology Co., Ltd, China)

Time: 14:00-14:15

**Paper ID:** 1570646426

**Title:** Risk Optimization of Electricity Retailer's Revenue Considering User Utility

**Authors:** Xupeng Hao (Nanjing University of Science and Technology, China); Mingcai Kang (Nanjing University of Science and Technology, China); Qin Ying (Nanjing University of Science and Technology, China); Yuezhu Li (Nanjing University of Science and Technology, China); Ying Liu (Nanjing University of Science and Technology, China); Yujie Hua (Nanjing University of Science and Technology, China)

Time: 14:15-14:30

**Paper ID:** 1570646704

**Title:** Data Driven Surrogate Model Based Operation Quality Optimization Algorithm of Urban Transmission Network

**Authors:** Ming He (Chengdu, China); Jian Gao (Gao Jian, China); Jie Wu (Jie Wu, China); Xiangxi Duan (Chengdu, China); Feng Shilin (State Grid Sichuan Electric Power Research Institute, China); Tong Su (University of SiChuan, China); Youbo Liu (Sichuan University, China)

Time: 14:30-14:45

**Paper ID:** 1570646916

**Title:** A Novel Unified Methodology to AC/DC Hybrid Power Flow

**Authors:** Shi Peng (Shanghai Jiao Tong University, China); Ning Xie (Shanghai Jiao Tong University, China); Yu Li (Shanghai Jiao Tong University, China); Wang Chengmin (Shanghai Jiao Tong University, China); H. z. Li (Shanghai University of Electric Power, China); Jian Wang (Shanghai Jiao Tong University, China)

#### **Session Title: Power System Analysis 4**

**Date:** Sept.21,2020

**Room:** Meeting Room 6

**Chairs:**

**Can Wan (Zhejiang University, China)**

**Xun Dou (Nanjing Tech University, China)**

Time: 13:30-13:45

**Paper ID:** 1570646931

**Title:** A Comprehensive Benefits Evaluation of Transmission Investment Plans Based on Multi-Scenario AC OPF Simulation

**Authors:** Xuotong Chen (NARI Group Corporation, China); Yening Lai (NARI Group Corporation, China); Pengfei Zhang (State Grid, China); Zhanjun Meng (State Grid, China); Feng Xue (State Grid, China); Jie Huang (State Grid Electric Power Research Institute, China)

Time: 13:45-14:00

**Paper ID:** 1570646977

**Title:** Research on Using Flexibility Resources to Accommodate Uncertainty in Extension Planning of Transmission System

**Authors:** Zhenyu Qian (Shanghai Jiao Tong University, China); Saiyi Wang (State Grid, China); Ning

Xie (Shanghai Jiao Tong University, China); Wang Chengmin (Shanghai Jiao Tong University, China); Zhipeng Chen (Shanghai Jiao Tong University, China)

Time: 14:00-14:15

**Paper ID:** 1570646986

Title: Robustness Improvement Strategy of Complex Power Network Based on Fractal Mechanism

Authors: Zhipeng Chen (Shanghai Jiao Tong University, China); Ming Ying (State Grid, China); Ning Xie (Shanghai Jiao Tong University, China); Wang Chengmin (Shanghai Jiao Tong University, China); Zhenyu Qian (Shanghai Jiao Tong University, China)

Time: 14:15-14:30

**Paper ID:** 1570647014

Title: Collaborative Optimization Scheduling of the Transmission and Distribution Networks Considering Demand Response

Authors: Ying Liu (Nanjing University of Science and Technology, China); Junfang Zhang (Nanjing University of Science and Technology, China); Song Yun Yan (NARI Group Corporation, China); Chunhui Shi (Nanjing University of Science and Technology, China); Zheng Yang (Nanjing University of Science and Technology, China); Jie Zhou (State Grid Jiangsu Electric Power Co., Ltd., China)

Time: 14:30-14:45

**Paper ID:** 1570647343

Title: Susceptible Critical Branch Identification Based on Vulnerability Flow Redistribution

Authors: Jiayi Wu (Xihua University, China); Tao Huang (Politecnico di Torino, Italy); Pan Lin (Xihua University, China); Xia Lei (Xihua University, China); Yanbing Jia (Taiyuan University of Technology, China); Xiaoguang Wei (Southwest Jiaotong University, China)

### **Session Title: Power System Analysis 5**

**Date:** Sept.21,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Siyang Liao (Wuhan University, China)**

**Haoming Liu (Hohai University, China)**

Time: 15:45-16:00

**Paper ID:** 1570648486

Title: Decentralized Active Power Management of a AWS/Battery Hybrid Unit in Islanded Microgrid

Authors: Chuan Qin (Hohai University, China); Mohan Jin (HoHai University, China); Chen Shantong (HoHai University, China); Wang Xinling (HoHai University, China)

Time: 16:00-16:15

**Paper ID:** 1570648697

Title: Research on the Multiple Timescale Reactive Power Optimization of Receiving Power Grid Based on Model Predictive Control

Authors: Yuxin Shu (Hohai University, China); Rong Sun (Hohai University, Jiangsu Electric Power

Company Research Institute, China); Zhenhua Lv (Jiangsu Electric Power Company Research Institute, China); Bing Chen (Jiangsu Electric Power Company, China); Zhinong Wei (Hohai University, China)

Time: 16:15-16:30

**Paper ID:** 1570648723

**Title:** Research on Optimal Placement and Sizing of TCPST

**Authors:** Dehong Teng (Hohai University, China); Ke Zhang (Hohai University, China); Qun Li (State Grid Jiangsu Electric Power Company Research Institute, China); Jiankun Liu (State Grid Jiangsu Electric Power Company Research Institute, China); JingBo Zhao (State Grid Jiangsu Electric Power Co. Ltd. Research Institute, China); Ning Yu Zhang (JSEPCRI, China)

Time: 16:30-16:45

**Paper ID:** 1570648772

**Title:** A New Fault Location Method Based on the Relationship Between Capacitor Voltage and Its Derivative in DC Distribution Network

**Authors:** Fei Wu (Hohai University, China); Zhou Ling (Hohai University, China)

Time: 16:45-17:00

**Paper ID:** 1570648946

**Title:** Transient Voltage Security Assessment for the High Renewable Power-Penetrated UHVDC Sending-End Power Grid

**Authors:** Yaoliang Zhu (Hohai University, China); Jinqun Zhao (Hohai University, China); Ersheng Pan (State Grid Economic and Technological Research Institute Co., Ltd., China); Decao Xu (State Grid Qinghai Electric Power Company Qinghai Province, China); Ling Dong (State Grid Qinghai Electric Power Company, China)

### **Session Title: Power System Analysis 6**

**Date:** Sept.21,2020

**Room:** Meeting Room 4

**Chairs:**

**Chunyu Chen (China University of Mining and Technology, China)**

**Sheng Chen (Hohai University, China)**

Time: 15:45-16:00

**Paper ID:** 1570648954

**Title:** Trajectory Sensitivity Based Voltage Stability Constrained Reactive Optimal Power Flow in Sending-End Power System with High Penetration Renewable Energy

**Authors:** Ziqiang Zou (University of Hohai, China); Jinqun Zhao (Hohai University, China); Ersheng Pan (State Grid Economic and Technological Research Institute Co., Ltd., China); Decao Xu (State Grid Qinghai Electric Power Company Qinghai Province, China); Ling Dong (State Grid Qinghai Electric Power Company, China)

Time: 16:00-16:15

**Paper ID:** 1570649019

**Title:** Parameter Optimization of Hydro Governors for Damping Ultra-Low Frequency Oscillation

Based on NSGA-II

Authors: Weikang Wang (Hohai University, China); Xueping Pan (Hohai University, China); Xiaorong Sun (Hohai University, China)

Time: 16:15-16:30

**Paper ID:** 1570649035

Title: Reliability Evaluation of Security and Stability Control Devices Based on AHP

Authors: Le Su (Hohai University, China); Xueping Pan (Hohai University, China); Xiaorong Sun (Hohai University, China)

Time: 16:30-16:45

**Paper ID:** 1570652505

Title: Calculation Method of Equivalent Impedance of Distribution Network Based on Power Loss

Authors: Yafei Wang (Hohai University, China); Ping Ju (Hohai University, China); Yuqing Jin (Hohai University, China); Lu Cao (East Branch of STATE GRID Corporation OF CHINA, China); Jianhua Li (East Branch of STATE GRID Corporation OF CHINA, China)

Time: 16:45-17:00

**Paper ID:** 1570645860

Title: Parameter Optimization Method of PV LVRT Model Based on Central Tibet Power Grid

Authors: Hongying Zhang (China Electric Power Research Institute, China)

### **Session Title: Integrated Energy Systems 1**

**Date:** Sept.21,2020

**Room:** Meeting Room 5

**Chairs:**

**Feixiong Chen (Fuzhou University, China)**

**Jun Xie (Hohai University, China)**

Time: 15:45-16:00

**Paper ID:** 1570637648

Title: Evaluation of Multi-Energy Microgrid Based on Prospect Theory and VIKOR Method

Authors: Yuwei Zhang (Wuhan University, China); Jun Yang (Wuhan University, China); Junjie Ligao (Wuhan University & School of Electrical Engineering and Automation, China); Xuzhu Dong (Wuhan University, China); Shouwen Liu (State Grid Hubei Electric Power CO. LTD, China)

Time: 16:00-16:15

**Paper ID:** 1570638919

Title: Research on Load Distribution Control Technology for Parallel Operation of Power Source with Different Rated Capacity

Authors: Qiang Zhang (Harbin Engineering University, China); Shihao Song (Harbin Engineering University, China); Yulin Wang (Harbin Engineering University, China); Mengying Li (Harbin Engineering University, China); Hongkai Li (Harbin Engineering University, China); Nian Qiang (Harbin Engineering University, China)

Time: 16:15-16:30

**Paper ID:** 1570641490

**Title:** An Incentive-Compatible Energy Pricing Mechanism for Electricity-Gas Interconnected System Using Vickrey-Clarke-Groves Mechanism Design Theory

**Authors:** Chao Guo (Hohai University, China); Jun Xie (Hohai University, China); Xingying Chen (Hohai University, China); Mingtao Liu (Hohai University, China)

Time: 16:30-16:45

**Paper ID:** 1570641673

**Title:** Economic Analysis of a Wind Supercharging Solar Chimney Power Plant Combined with Thermal Plant for Power and Freshwater Generation

**Authors:** Lu Zuo (Hohai University, China); Zihan Liu (Hohai University, China); Ning Qu (Hohai University, China); Pengzhan Dai (Hohai University, China); Yujing Sun (Hohai University, China); Bo Qu (Hohai University, China)

Time: 16:45-17:00

**Paper ID:** 1570642520

**Title:** Research on Battery Life Prediction Based on Deep Learning

**Authors:** Yaqi Cao (Beijing Information Science and Technology University, China); Bo Zhao (Beijing Information Science and Technology University, China); Lijie Wang (Beijing Information Science and Technology University, China); Hong Shen (Global Energy Interconnection Development and Cooperation Organization, China); Juan Hu (China Electric Power Research Institute, China)

Time: 17:00-17:15

**Paper ID:** 1570645229

**Title:** Optimal Scheduling of Hydrogen Energy Storage Integrated Energy System Based on Mixed Integer Second-order Cone

**Authors:** Wan LiXin (State Grid Jiangsu Electric Power Company Limited, China); Wei Zhang (State Grid Jiangsu Electric Power Company Limited, China); Zhipeng Xu (Nanjing Institute of Technology, China)

## **Session Title: Integrated Energy Systems 2**

**Date:** Sept.21,2020

**Room:** Meeting Room 6

**Chairs:**

**Tao Jiang (Northeast Electric Power University, China)**

**Yonghui Sun (Hohai University, China)**

Time: 15:45-16:00

**Paper ID:** 1570645230

**Title:** Overview of Key Technologies and Applications of Hydrogen Energy Storage in Integrated Energy Systems

**Authors:** Wan LiXin (State Grid Jiangsu Electric Power Company Limited, China); Zhipeng Xu (Nanjing Institute of Technology, China); Wei Zhang (State Grid Jiangsu Electric Power Company Limited, China)



Time: 16:00-16:15

**Paper ID:** 1570645365

**Title:** Multi-Objective Optimization of Regional Power and Natural Gas System in Coordination with Park Level Cooling and Heating System

**Authors:** Jianxi Wang (Hohai University, China); Yonghui Sun (Hohai University, China)

Time: 16:15-16:30

**Paper ID:** 1570646271

**Title:** Integrated Energy System Risk Assessment Considering the After-Flow Effect of Line Pack

**Authors:** Zhengyong Wu (Jiangsu Fangtian Electric Technology Company, China); Hongru Wang (Southeast University, China); Lei Zou (Jiangsu Fangtian Electric Technology Company, China); Enze Shao (Jiangsu Fangtian Electric Technology Company, China); Qi Wang (Southeast University, China)

Time: 16:30-16:45

**Paper ID:** 1570646454

**Title:** Two-stage DC/DC Converter Modeling Method Based on Harmonic Equivalent Circuit

**Authors:** Shen Li (Northumbria University, United Kingdom (Great Britain); ); Jianyu Wang (Nanjing Institute of Technology, China); Xianyun Li (Nanjing Institute of Technology, China)

Time: 16:45-17:00

**Paper ID:** 1570646904

**Title:** Day-Ahead Stochastic Scheduling Model Considering Market Transactions in Multi-Energy System

**Authors:** Han Zhang (Xi'an Jiaotong University, China); Wang Xiuli (Xi'an Jiaotong University, China); Yongxi Huang (Xi'an Jiaotong University, China); Xiaokan Gou (Qinghai Electric Power Company, China)

Time: 17:00-17:15

**Paper ID:** 1570646972

**Title:** Optimal Dispatch for Cross-region DC Interconnected Electric-gas Coupled Integrated Energy System Based on ADMM Algorithm

**Authors:** Mengqi Hua (North China Electric Power University, China); Gengyin Li (North China Electric Power University, China)

### **Session Title: Integrated Energy Systems 3**

**Date:** Sept.22,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Zhiyi Li (Zhejiang University, China)**

**Yang Li (Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570647859

**Title:** Overview of Quality Control Issues Related to Submarine Cables in Project Cycle of Offshore Wind Power Projects in Jiangsu

**Authors:** Xuancheng Huang (Jiangsu Frontier Electric Technology Co., Ltd, China); Ran Ding (State Grid Corporation of China, China); Wenxia Pan (HoHai University, China); Chunlong Yang (Jiangsu Longyuan Offshore Wind Power Co, Ltd, China); Yongjun Xu (Zhongtian Techonology Submarine Cables, Co., Ltd, China); Yixing Miao (Shanghai Foundation Engineering Group, Co., Ltd, China); Qinghan Zhuang (China Three Gorges Renewables (Group); Co., Ltd, China); Jianjun Zhu (China Three Gorges Renewables (Group); Co., Ltd, China); Mumu Wu (Jiangsu Frontier Electric Technology Co., Ltd, China); Zhicheng Lei (Jiangsu Frontier Electric Technology Co., Ltd, China); Ye Li (Hohai University, China)

Time: 08:45-09:00

**Paper ID:** 1570648487

**Title:** The Optimal Utilization of IES BES Emergency Reserve Based on Risk Quantification and Demand Side Response

**Authors:** Xiaolong Liu (Hunan University, China); Xinran Li (Hunan University, China); Zhipu Liu (Hunan University, China); Yinghua Lu (Hunan University, China); Zhen Luo (Hunan University, China)

Time: 09:00-09:15

**Paper ID:** 1570648699

**Title:** Optimal Home Energy Management Strategy Considering Integrated Demand Response

**Authors:** Zhihao Yang (Hohai University, China); Ming Ni (State Grid Electric Power Research Institute, China); Yue Pu (HOHAI University, China); Haoming Liu (Hohai University, China)

Time: 09:15-09:30

**Paper ID:** 1570649814

**Title:** Research on Optimal Operation of Regional Integrated Energy System Considering Virtual Energy Storage Characteristics of Buildings

**Authors:** Zengguang Cen (Hohai University, China); Kun Yu (Hohai University, China); Cheng Chen (Hohai University, China); Xingying Chen (Hohai University, China); Lei Gan (Hohai University, China); Zhengtao Dong (Hohai University, China)

### **Session Title: Renewable & Sustainable Energy Technologies 1**

**Date:** Sept.22,2020

**Room:** Meeting Room 4

**Chairs:**

**Zhao Luo (Kunming University of Science and Technology, China)**

**Junpeng Zhu (Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570639928

**Title:** Energy Storage Planning and Economic Dispatch of Microgrid Considering Power to Gas

**Authors:** Jiaqi Gu (Hohai University, China); Fei Mei (Hohai University, China); Jixiang Lu (State

Key Laboratory of Smart Power Grid Protection and Control, China); Lu Jin Jun (State Grid Electric Power Research Institute, China); Bo Yang (China Electric Power Research Institute, China)

Time: 08:45-09:00

**Paper ID:** 1570640052

Title: Data-driven Stochastic Diffusion Process for Wind Speed Modelling and Forecasting

Authors: Chao Huang (University of Science and Technology Beijing, China); Hao Yang (University of Science and Technology Beijing, China); Long Wang (University of Science and Technology Beijing, China); Xiong Luo (University of Science and Technology Beijing, China); Weiping Wang (University of Science and Technology Beijing, China); Alain Bensoussan (City University of Hong Kong, Hong Kong)

Time: 09:00-09:15

**Paper ID:** 1570640548

Title: Performance Simulation and Distribution Strategy of Solar and Wind Coupled Power Generation Systems in Northwest China

Authors: Fei Cao (Hohai University, China); Jialing Qiu (Hohai University, China); Zixu Jing (Hohai University, China)

Time: 09:15-09:30

**Paper ID:** 1570640655

Title: Two-stage Optimal Sizing of Hybrid Energy Storage System for Wind Energy Integration in Microgrid

Authors: Ke Li (Xi'an Jiaotong University, China); Xiaoning Kang (Xi'an Jiaotong University, China); Le Liu (Xi'an Jiaotong University, China)

Time: 09:30-09:45

**Paper ID:** 1570640824

Title: An Improved Code-based Fault Simulation Model for PV Module

Authors: Yongjie Liu (Hohai University, China); Ding Kun (University of Hohai, China); Jingwei Zhang (University of Hohai, China); Yuanliang Li (Changzhou Key Laboratory of Photovoltaic System Intergration and Production Equipment Technology, China)

Time: 09:45-10:00

**Paper ID:** 1570641423

Title: Configuration Optimization of Energy Storage Power Station Considering Failure Cost

Authors: Deshun Wang (Renewable Energy Research Center China Electric Power Research Institute, China); Jinhua Xue (China, China); Ruizhe Sun (School of Electrical Engineering of Southeast University, China); Yibin Tao (China Electric Power Research Institute Company Ltd., China); Dongning Zhao (Electric Power Research Institute State Grid Qinghai Electric Power Company, China); Bingtuan Gao (School of Electrical Engineering, Southeast University, China)

Time: 10:00-10:15

**Paper ID:** 1570641707

Title: Hybrid Outliers Identification of High-dimensional Wind Power Operation Data

Authors: Wenchang Hou (North China Electric Power University, China); Lei Li (Inner Mongolia Power Company, China); Yang Hu (North China Electric China University, China)

**Session Title: Renewable & Sustainable Energy Technologies 2**

**Date:** Sept.22,2020

**Room:** Meeting Room 5

**Chairs:**

**Wentao Huang (Shanghai Jiao Tong University, China)**

**Haiteng Han (Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570641893

Title: Temporal Correlation Modeling of Wind Power Series Based on Gaussian Copula and Nonparametric Kernel Density Estimation

Authors: Junjie Lv (Nanjing University of Science and Technology, China); Hao Quan (Nanjing University of Science and Technology, China)

Time: 08:45-09:00

**Paper ID:** 1570642043

Title: The Changeable Region of Wind Power Considering Its Uncertainty

Authors: Yunkai Lei (State Grid Sichuan Economic Research Institute, China); Bo Li (State Grid Sichuan Economic Research Institute, China); Jian Meng (State Grid Economic And Technological Research Institute CO., LTD, China); Yunche Su (State Grid Sichuan Economic Research Institute, China); Ao Li (State Grid Sichuan Economic Research Institute, China); Fang Liu (State Grid Sichuan Economic Research Institute)

Time: 09:00-09:15

**Paper ID:** 1570642051

Title: Calculation of Sub-Synchronous Oscillation Probability Based on Inverse Function

Authors: Bin Sun (Hohai University, China); Ping Ju (Hohai University, China); Xueping Pan (Hohai University, China); Fu Shen (Kunming University of Science and Technology, China); Le Li (Xuchang University, China)

Time: 09:15-09:30

**Paper ID:** 1570642064

Title: Research on a Long Distance DC Transmission Method of Wind-heat Energy

Authors: Mian Duan (Wuhan University, China); Peixian Liu (Wuhan University, China); Xiqiang Chang (State Grid Xinjiang Electric Power Company, China); Qiang Zhao (China Electric Power Research Institute, China); Ghamgeen Izat Rashed (Wuhan University, China); Shaowei Yuan (State Grid Xinjiang Electric Power Company & Urumqi Power Supply Company, China)

Time: 09:30-09:45

**Paper ID:** 1570642171

Title: Impedance Modeling and Resonance Analysis of Multi-Nonsynchronous Machine Source Grid Connection

Authors: Chenxuan Yang (South China University of Technology, China); Zhenlin Huang (Electric

Power Research Institute of Guangdong Power Grid Co., Ltd, China); Guye Lin (South China University of Technology, China)

Time: 09:45-10:00

**Paper ID:** 1570642476

**Title:** Control Parameter Identification in Grid-Side Converter of Directly Driven Wind Turbine Systems

**Authors:** Minyue Kong (Zhejiang University, China); Dan Sun (Zhejiang University, China); Jing He (China Electric Power Research Institute, China); Heng Nian (Zhejiang University, China)

Time: 10:00-10:15

**Paper ID:** 1570642576

**Title:** Reactive Power Compensation Control of PV Systems for Improved Power Transfer Capability in Weak Grid

**Authors:** Chen Zhao (Zhejiang University, China); Dan Sun (Zhejiang University, China); Heng Nian (Zhejiang University, China); Yue Fan (State Grid Qinghai Electric Power Company, China)

### **Session Title: Renewable & Sustainable Energy Technologies 3**

**Date:** Sept.22,2020

**Room:** Meeting Room 6

**Chairs:**

**Qinran Hu (Southeast University, China)**

**Yuqing Bao (Nanjing Normal University, China)**

Time: 08:30-08:45

**Paper ID:** 1570644309

**Title:** Research and Application of Micro-sitting Optimization Model in Low Wind Speed Regions

**Authors:** Yu Zhang (Jiangsu Power Design Institute CO., Ltd. China Energy Engineering Group, China); Yu Hu (Jiangsu Power Design Institute CO., Ltd. China Energy Engineering Group, China); Fenghao Wang (Jiangsu Power Design Institute CO., Ltd. China Energy Engineering Group, China); Yang Liu (Jiangsu Power Design Institute CO., Ltd. China Energy Engineering Group, China)

Time: 08:45-09:00

**Paper ID:** 1570644759

**Title:** Explore the Intervalley Scattering on Phonon Bottleneck Effect and Its Application on Hot Carrier Solar Cells

**Authors:** Yi Zhang (Hohai University, China); Jing Huang (Hohai University, China); Bo Zhang (Chengdu Technological University, China); Liangliang Tang (Hohai University, China); Pei Wang (Hohai University, China); Chang Xu (Hohai University, China)

Time: 09:00-09:15

**Paper ID:** 1570646024

**Title:** Study on Coordinated Control Strategy of Wind Farm's Frequency Regulation Based on Multi-Layer Hierarchical Structure

**Authors:** Wancheng Wang (Hohai University, China); Yi Yang (Hohai University, China); Dawei Zhao

(China Electric Power Research Institute, China); Minhui Qian (China Electric Power Research Institute, China)

Time: 09:15-09:30

**Paper ID:** 1570646029

Title: Frequency Regulation Potential Prediction of Wind Power Based on Historical Data

Authors: Cheng Yan (Southeast University, China); Shiyao Qin (China Electric Power Research Institute, China); Li Zhang (China Electric Power Research Institute, China); Jianfeng Dai (Southeast University, China); Tang Yi (Southeast University, China)

Time: 09:30-09:45

**Paper ID:** 1570646141

Title: Robust Transmission Network Expansion Planning with N-k Security Criterion and Uncertainty Factors

Authors: Yuhong Wang (Sichuan University, China); Yuyan Song (Sichuan University & College of Electrical Engineering, China); Shengjie Hu (Sichuan University, China)

Time: 09:45-10:00

**Paper ID:** 1570646240

Title: Coordinated Control Strategy of Concentrated Solar Power Plant for Power System Frequency Regulation

Authors: Keman Lin (Hohai University, China); Feng Wu (Hohai University, China); Ju Xiaohui (Hohai University, China); Linjun Shi (Hohai University, China)

Time: 10:00-10:15

**Paper ID:** 1570646417

Title: Feeder-Level Deep Learning-based Photovoltaic Penetration Estimation Scheme

Authors: Xiao-Yu Zhang (University of London, United Kingdom (Great Britain); ); Stefanie Kuenzel (University of London, United Kingdom (Great Britain); ); Chris Watkins (Royal Holloway, University of London, United Kingdom (Great Britain); )

### **Session Title: Renewable & Sustainable Energy Technologies 4**

**Date:** Sept.22,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Bei Han (Shanghai Jiao Tong University, China)**

**Zhixin Fu (Hohai University, China)**

Time: 10:15-10:30

**Paper ID:** 1570646533

Title: A New Secondary Reactive Power Control Strategy of Microgrids Based on Droop Control

Authors: Chunhui Shi (Nanjing University of Science and Technology, China); Junfang Zhang (Nanjing University of Science and Technology, China); Xiaolian Zhang (Nanjing Institute of Technology, China); Ying Liu (Nanjing University of Science and Technology, China); Zheng Yang (Nanjing University of Science and Technology, China); Wei Chen (Nanjing University of Science and Technology, China)

Time: 10:30-10:45

**Paper ID:** 1570646695

Title: Capacity Optimization of Energy Storage Based on Intelligent Optimization Algorithm and Photovoltaic Power Prediction Error Data

Authors: Jie Liu (Tsinghua University, China); Chao Lu (Tsinghua University, China); Jie Song (Peking University, China); Yonghong Luo (Tsinghua University, China)

Time: 10:45-11:00

**Paper ID:** 1570646927

Title: An Optimal Scheduling Strategy for Photovoltaic-Storage-Charging Integrated Charging Stations

Authors: Ruisheng Wang (Southeast University, China); Qiaoyin Huang (Power+WWW Technology Co., Ltd, China); Zhong Chen (Southeast University, China); Qiang Xing (Southeast University, China); Ziqi Zhang (Southeast University, China)

Time: 11:00-11:15

**Paper ID:** 1570647001

Title: Study on the Transaction Management Mode of Virtual Power Plants Based on Blockchain

Authors: Ruxiang Ma (Yancheng Power Supply Company, State Grid Jiangsu Electric Power Company, China); Hongyi Zhou (Yancheng Power Supply Company, State Grid Jiangsu Electric Power Company, China); Weihang Qian (Hohai University, China); Chengzhi Zhang (Hohai University, China); Guoqiang Sun (Hohai University, China); Haixiang Zang (Hohai University, China)

Time: 11:15-11:30

**Paper ID:** 1570647081

Title: Research on Analytical Method of Thevenin Equivalent Parameters for Power System Considering Wind Power

Authors: Ping Chang (Southeast University, China); Jianfeng Dai (Southeast University, China); Tang Yi (Southeast University, China); Jun Yi (China Electric Power Research Institute, China); Weifang Lin (China Electric Power Research Institute, China); Fangfang Yu (China Electric Power Research Institute, China)

Time: 11:30-11:45

**Paper ID:** 1570647088

Title: Probabilistic Forecasting Based Adaptive Power Smoothing Framework for Hybrid Wind-Storage Systems

Authors: Weiting Qian (Zhejiang University, China); Wan Can (Zhejiang University, China); Changfei Zhao (Zhejiang University, China); Zhiyi Li (Zhejiang University, China)

Time: 11:45-12:00

**Paper ID:** 1570647341

Title: A Decision-making Tool of Storage for Non-Working Time Demand

Authors: Jing Huang (Hohai University, China); Yi Zhang (Hohai University, China)

Time: 12:00-12:15

**Paper ID:** 1570647825

**Title:** Demand-side Price Responsive EV Charging Strategy Based on Stochastic Model

**Authors:** Yue Yu (Southeast University, China); Kun Dong (Southeast University, China); Jianfeng Zhao (Southeast University, China); Lili Gong (Southeast University, China); Weicheng Liu (Southeast University, China)

**Session Title: Renewable & Sustainable Energy Technologies 5**

**Date:** Sept.22,2020

**Room:** Meeting Room 4

**Chairs:**

**Ning Xie (Shanghai Jiao Tong University, China)**

**Manyun Huang (Hohai University, China)**

Time: 10:15-10:30

**Paper ID:** 1570648676

**Title:** Voltage Optimization Strategy of Distribution Network Considering the Reactive Power of Energy Storage

**Authors:** Lijun Chen (State Grid Jiangsu Electric Power Company, China); Hongfen Cui (China Electric Power Research Institute, China); Guohua Cui (State Grid Jiangsu Electric Power Company, China); Bo Yang (China Electric Power Research Institute, China); Meng Yang (Hohai University, China); Haoming Liu (Hohai University, China)

Time: 10:30-10:45

**Paper ID:** 1570648714

**Title:** The Influence of Structural Parameters of Unpowered Wind Pressure Wheel on the Performance of Wind Supercharged Solar Chimney Power Plant

**Authors:** Lu Zuo (Hohai University, China); Ning Qu (Hohai University, China); Chuang Li (Hohai University, China); Shenglong Teng (Hohai University, China); Yujing Sun (Hohai University, China); Jiachen Li (Hohai University, China); Xinru Wang (Hohai University, China)

Time: 10:45-11:00

**Paper ID:** 1570648879

**Title:** Digital Mirroring System for DFIG Wind Turbine Generator with Parallel Converters

**Authors:** Haoshu Shao (Shanghai Jiaotong University, China); Xu Cai (Shanghai Jiaotong University, China); Aisikaer Aisikaer (Xinjiang Goldwind Science & Technology Co., Ltd, China); Tianhui Ma (State Key Laboratory of Advanced Power Transmission Technology, China); Yunfeng Cao (Shanghai Jiaotong University, China)

Time: 11:00-11:15

**Paper ID:** 1570648920

**Title:** Study on Frequency Regulation Ancillary Service Trading Mechanisms for Distributed Photovoltaic

**Authors:** Wang Yonghua (State Grid Jiangxi Electric Power Company, China); Hu Guosheng (State Grid Jiangxi Electric Power Company, China); Chen Gang (State Grid Jiangxi Electric Power



Company, China); Jinqun Zhao (Hohai University, China); Zhonghao Sun (Hohai University, China); Yang Yuhua (Hohai University, China)

Time: 11:15-11:30

**Paper ID:** 1570649551

Title: Trip Chain Simulation of Electric Vehicles Based on NHTS Data

Authors: Zhixin Fu (Hohai University, China); Weidong Liu (Hohai University, China); Junpeng Zhu (Hohai University, China); Yue Yuan (Hohai University, China)

Time: 11:30-11:45

**Paper ID:** 1570640711

Title: Interpretation of the Single-Diode Model Parameters for Dye-Sensitized Solar Cells by an Approach of Electrochemical Impedance Spectroscopy Analysis

Authors: Lei Wang (Hohai University, China); Yu Shukui (Hohai University, China); Xi Shao (Hohai University, China); Zhen Zhang (Hohai University, China)

Time: 11:45-12:00

**Paper ID:** 1570647782

Title: Typical Scenario Construction for Fast Assessment of Renewable Energy Absorption Capacity

Authors: Hongying Zhang (China Electric Power Research Institute, China)

Time: 12:00-12:15

**Paper ID:** 1570642048

Title: Inter-provincial RE Consumption Responsibility Transfer Based on Applying for Green Certificates from Receiving Province

Authors: Yuan Hao (China Electric Power Research Institute, China)

### **Session Title: Smart Grid Technologies and Utility Applications 1**

**Date:** Sept.22,2020

**Room:** Meeting Room 5

**Chairs:**

**Fei Xue (Xi'an Jiaotong-Liverpool University, China)**

**Zhou Li (Southeast University, China)**

Time: 10:15-10:30

**Paper ID:** 1570636415

Title: Reliability Probability Evaluation Method of Electronic Transformer Based on Xgboost Model

Authors: Gang Chen (State Grid Jiangsu Electric Power Co., Ltd & State Grid Jiangsu Electric Power Co., Ltd Marketing Service Cente, China); XiAng Liu (Southeast University, China); Minrui Xu (State Grid Jiangsu Electric Power Co., Ltd & State Grid Jiangsu Electric Power Co., Ltd Marketing Service Cente, China); Zigang Lu (State Grid Jiangsu Electric Power Company, China); Jiahao Guo (State Grid Jiangsu Electric Power Company, China)

Time: 10:30-10:45

**Paper ID:** 1570639702

**Title:** A Novel Event Data Augment Method for Characterizing Price Responsive Demand

**Authors:** Yeyan Xu (Wuhan University, China); Liangzhong Yao (Wuhan University, China); Siyang Liao (Wuhan University, China); Yaping Li (China Electric Power Research Institute, China); Mingyu Huang (State Grid Ningxia Electric Power Research Institute, China)

Time: 10:45-11:00

**Paper ID:** 1570640730

**Title:** Research on the Control Strategy for Black Start of Power Grid with Large-Capacity Energy Storage

**Authors:** Zhe Zhang (North China Electric Power University, China); Haibo Zhang (North China Electric Power University, China); Xianfu Gong (Guangdong Power Grid Co., Ltd, China); Xin Cheng (Guangdong Power Grid Co., Ltd, China); Shucan Zhou (Guangdong Power Grid Co., Ltd, China); Hao Yu (Guangdong Power Grid Co., Ltd, China)

Time: 11:00-11:15

**Paper ID:** 1570641758

**Title:** Monthly Load Forecasting Based on an ARIMA-BP Model: A Case Study on Shaoxing City

**Authors:** Y. Wang (China Agricultural University, China); Wen Zhang (China Agricultural University, China); Xinyu Li (China Agricultural University, China); Anqi Wang (China Agricultural University, China); Tao Wu (China Agricultural University, China); Yingkai Bao (State Grid Corporation of China, China)

Time: 11:15-11:30

**Paper ID:** 1570642855

**Title:** Operation and Configuration of Energy Storage in Distribution Network for Disaster Prevention

**Authors:** Zhe Zhang (North China Electric Power University, China); Haibo Zhang (North China Electric Power University, China); Xianfu Gong (Guangdong Power Grid Co., Ltd, China); Xin Cheng (Guangdong Power Grid Co., Ltd, China); Shucan Zhou (Guangdong Power Grid Co., Ltd, China); Hao Yu (Guangdong Power Grid Co., Ltd, China)

Time: 11:30-11:45

**Paper ID:** 1570642944

**Title:** Design and Implementation of a Lab Level Active Distribution AC Multi-Agent Testbed

**Authors:** Yufei Peng (Case Western Reserve University & China Energy Engineering Group Jiangsu Power Design Institute CO. LTD., China); Kenneth Loparo (Case Western Reserve University, USA)

## **Session Title: Smart Grid Technologies and Utility Applications 2**

**Date:** Sept.22,2020

**Room:** Meeting Room 6

**Chairs:**

**Lingen Luo (Shanghai Jiao Tong University, China)**

**Tao Chen (Southeast University, China)**

Time: 10:15-10:30

**Paper ID:** 1570643356

Title: P2P Energy Trading Based on Blockchain and Customer Risk Preference

Authors: Tao Chen (Southeast University, China); Wei Tian (China Electric Power Research Institute Co Ltd, China); Yunting Yao (Southeast University-Nanjing China, China); Ciwei Gao (Southeast University, China)

Time: 10:30-10:45

**Paper ID:** 1570643549

Title: Design of Distributed Power Trading Mechanism Based on P2P Contract

Authors: Yunting Yao (Southeast University-Nanjing China, China); Jianlin Yang (Shanghai Municipal Electric Power Company, China); Songsong Chen (China Electric Power Research Institute, China); Ciwei Gao (Southeast University, China); Tao Chen (Southeast University, China)

Time: 10:45-11:00

**Paper ID:** 1570644642

Title: Key Factor Identification of Over-Voltage in Renewable-Rich Distribution Network Based on Spectral Clustering

Authors: Junpeng Zhu (Hohai University, China); Yue Yuan (Hohai University, China); Han Wu (Hohai University, China)

Time: 11:00-11:15

**Paper ID:** 1570646049

Title: Analysis of Influencing Factors of Power Line Channel Characteristics

Authors: Yong Wang (Jiangsu Nanjing Power Supply Company, China); Ming Zhang (Jiangsu Nanjing Power Supply Company, China); Zhoujun Ma (Hohai University, China); YU Si (Hohai University, China); Qiusheng Li (Jiangsu Nanjing Power Supply Company, China); Huang Biyao (Global Energy Interconnection Research Institute, China)

Time: 11:15-11:30

**Paper ID:** 1570646277

Title: Harmonics Mitigation and Dynamics Decouple for Microgrid Transition Control

Authors: Haolu Hu (Shanghai Pudong Power Supply Company, Australia); Yaran Li (The University of New South Wales, Australia)

Time: 11:30-11:45

**Paper ID:** 1570646321

Title: Disturbance-Tracking-based Backstepping Control for VSC-HVDC Systems with Mismatched Uncertainties

Authors: Ziwen Liu (Hohai University, China); Shufan Xie (Hohai University, China); Yilong Kang (State Grid Henan Economic Research Institute, China)

### **Session Title: Smart Grid Technologies and Utility Applications 3**

**Date:** Sept.22,2020

**Room:** Meeting Room 6

**Chairs:**

**Xi Wu (Southeast University, China)**

**Xiaoyuan Xu (Shanghai Jiao Tong University, China)**

Time: 13:30-13:45

**Paper ID:** 1570646529

**Title:** Electricity Theft Detection Model for Smart Meter Based on Residual Neural Network

**Authors:** Yuan Chen (Hohai University, China); Gang Hua (State Grid Jiangsu Electric Power Co., Ltd., China); Dingdong Feng (State Grid Jiangsu Electric Power Co., Ltd., China); Haixiang Zang (Hohai University, China); Zhinong Wei (Hohai University, China); Guoqiang Sun (Hohai University, China)

Time: 13:45-14:00

**Paper ID:** 1570646611

**Title:** An Application of Auxiliary Operation of Power Dispatching Based on Semantic Analysis

**Authors:** Tao Zhang (NARI Group Corporation, China); Hao Li (NARI Group Corporation, China); Jixiang Lu (State Key Laboratory of Smart Power Grid Protection and Control, China); Lu Jin Jun (State Grid Electric Power Research Institute, China); Hong Li (NARI Group Corporation, China); Feng Xie (NARI Group Corporation, China)

Time: 14:00-14:15

**Paper ID:** 1570646853

**Title:** Classification for Text Data from the Power System Based on Improving Naïve Bayes

**Authors:** Xianglong Lian (South China University of Technology, China); Guang Liang (State Grid, China); Yonggao Yan (State Grid, China); Mi Wang (State Grid, China); Lian Xianglong (South China University of Technology, China); Mengshi Li (South China University of Technology & The University of Liverpool, China); Wenhui Tang (South China University of Technology, China)

Time: 14:15-14:30

**Paper ID:** 1570647326

**Title:** Design and Development of Intelligent Current Sensor Based on Tunnel Magnetoresistance

**Authors:** Xu Yin (Digital Grid Research Institute, China Southern Power Grid, China); Zhou Ke (Southern Power Grid, China); Peng Li (Digital Grid Research Institute, China Southern Power Grid, China); Hongdi Sun (Digital Grid Research Institute, China Southern Power Grid, China); Bing Tian (Digital Grid Research Institute, China Southern Power Grid, China); Wang Xiaoming (Southern Power Grid, China); Min Guo (Guangxi Power Grid Co., Ltd, China Southern Power Grid, China); Zhiming Wang (Digital Grid Research Institute, China Southern Power Grid, China); Zhong Liu (Digital Grid Research Institute, China Southern Power Grid, China); Jiguang Zhao (Digital Grid Research Institute, China Southern Power Grid, China); Rouyi Chen (Digital Grid Research Institute, China Southern Power Grid, China)

Time: 14:30-14:45

**Paper ID:** 1570648321

Title: A Modified Incentive-based Demand Response Model Using Deep Reinforcement Learning

Authors: Hongsheng Xu (NARI Group Corporation, China); Wenteng Kuang (NARI Group Corporation, China); Jixiang Lu (State Key Laboratory of Smart Power Grid Protection and Control, China); Qinran Hu (Southeast University, China)

Time: 14:45-15:00

**Paper ID:** 1570648722

Title: Best Practices in China Southern Power Grid Competition of AI Short-Term Load Forecasting

Authors: Jixiang Lu (State Key Laboratory of Smart Power Grid Protection and Control, China); Junxia Qian (Jiangsu Keneng Electric Power Engineering Consultant Co., Ltd., China); Qipei Zhang (NARI Group Corporation, China); Shaobo Liu (NARI Group Corporation, China); Feng Xie (NARI Group Corporation, China); Hongsheng Xu (NARI Group Corporation, China)

Time: 15:00-15:15

**Paper ID:** 1570641792

Title: Review on Smart Meter Data Clustering and Demand Response Analytics

Authors: Yue Chen (Wuhan University of Technology, China); Hui Hou (Wuhan University of Technology, China); Zhiwei Zhang (Wuhan University of Technology, China); Xiangqiang Li (Wuhan University of Technology, China); JianJian Wang (Wuhan University of Technology, China); AiHong Tang (Wuhan University of Technology, China)

### **Session Title: Power System Resilience**

**Date:** Sept.22,2020

**Room:** Meeting Room 6

**Chairs:**

**Zhi Wu (Southeast University, China)**

**Chong Wang (Hohai University, China)**

Time: 15:45-16:00

**Paper ID:** 1570644633

Title: Load Recovery Mechanism for Resilient Distribution System Based on Cloud Energy Storage

Authors: Junpeng Zhu (Hohai University, China); Yue Yuan (Hohai University, China); Yanzheng Wu (Hohai University, China); Da Cheng (China Electric Power Research Institute, China)

Time: 16:00-16:15

**Paper ID:** 1570645029

Title: Orderly Dispatching Strategy Considering the Impact of Traffic Information on Electric Vehicle Charging

Authors: Quan Yuan (Southeast University, China); Jianfeng Yao (State Grid Jiaying Electric Power Co., Ltd., China); Xiaocong Zhang (State Grid Zhejiang Electric Power Co., Ltd., China); Junjie Fan (State Grid Jiaying Electric Power Co., Ltd., China); Jie Wei (State Grid Jiaying Electric Power Co., Ltd., China); Qi Wang (Southeast University, China)

Time: 16:15-16:30

**Paper ID:** 1570646224

**Title:** Optimal Configuration Strategy of Dynamic and Static Reactive Power Compensation Equipment for DC Converter Station

**Authors:** Bailiang Liu (Jiangsu Electric Power Co., Ltd., China); Weiyuan Wang (Jiangsu Electric Power Co., Ltd., China); Jinmin Cheng (Jiangsu Electric Power Co., Ltd., China); Xiaorong Le (Jiangsu Power Design Institute Co., Ltd., China); Zhenquan Wang (Jiangsu Power Design Institute Co., Ltd., China)

Time: 16:30-16:45

**Paper ID:** 1570646231

**Title:** Full Frequency Range Harmonic Suppression Strategy of Grid-connected Inverter Based on Feedforward of Grid Voltage

**Authors:** Ming Yang (Southeast University, China); Wu Cao (Southeast University, China); Jianfeng Zhao (Southeast University, China)

Time: 16:45-17:00

**Paper ID:** 1570646861

**Title:** System Resilience Enhancement Against Cascading Failure in Consideration of Uncertainty

**Authors:** Hanchen Liu (Hohai University, China); Ping Ju (Hohai University, China); Chong Wang (Hohai University, China); Hongyu Li (Hohai University, China); Fu Shen (Kunming University of Science and Technology, China)

Time: 17:00-17:15

**Paper ID:** 1570648921

**Title:** A Multi-Period Reconfiguration Method of Distribution Networks Considering Spatial and Temporal Variation of Typhoon

**Authors:** Lei Gan (Hohai University, China); Yuting Li (Hohai University, China); Xingying Chen (Hohai University, China); Kun Yu (Hohai University, China)

Time: 17:15-17:30

**Paper ID:** 1570647324

**Title:** Temporal and Spatial Evolution Analysis and Immunization Strategy Research of Power Grid Risk Propagation Based on Complex Network Theory

**Authors:** Caoyuan Ma (China University of Mining and Technology, China); Long Yan (China University of Mining and Technology, China); Zhenning Yang (China University of Mining and Technology, China); Wei Chen (Jiangsu Normal University, China); Xianqi Huang (China University of Mining and Technology, China); Tianyu Gao (Xuhai College, China)

**Session Title: Information and Energy Integration System: Energy Internet**

**Date:** Sept.23,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Qi Wang (Southeast University, China)**

**Yingjun Wu (Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570646135

**Title:** Impact of Communication Reliability on Achieving Energy Sharing in Smart Cities

**Authors:** Chen Lin (North China Electric Power University & NCEPU, China); Jianxiao Wang (North China Electric Power University, China); Zhao yuan Wu (North China Electric Power University, China); Mingyu Yan (Illinois Institute of Technology, USA); Gengyin Li (North China Electric Power University, China); Ming Zhou (North China Electric Power University, China)

Time: 08:45-09:00

**Paper ID:** 1570645338

**Title:** Outdoor Independent Charging Platform System for Power Patrol UAV

**Authors:** Zizheng Huang (Nanjing University of Posts and Telecommunications, China); Tengfei Zhang (Nanjing University of Posts and Telecommunications, China); Peng Liu (Nanjing University of Posts and Telecommunications, China); Xinran Lu (Nanjing University of Posts and Telecommunications, China)

Time: 09:00-09:15

**Paper ID:** 1570645586

**Title:** Structure Analysis of the Cross-border Power Trade Network in Countries Along the Belt and Road

**Authors:** Xin Gu (Southeast University, China); Dongli Lu (Southeast University, China); Beibei Wang (Southeast University, China); Zhenyao Liu (State Grid Jiangsu Electric Power Co., LTD, China)

Time: 09:15-09:30

**Paper ID:** 1570645734

**Title:** Splitting Data and Forward Error Correction Methods for Solving the Interference in LoRa Networks

**Authors:** Jianqi Li (Global Energy Interconnection Research Institute, China); Chunyan AN (Global Energy Internet Research Institute, China); Mei Linchang (Hebi Power Supply Company, China); Yuandong Liu (Computer Network Information Center Chinese Academy of Sciences Guangzhou, China); Huang Qingjiang (Hebi Power Supply Company, China)

Time: 09:30-09:45

**Paper ID:** 1570646757

**Title:** Clustering Analysis Based Power Security Big Data Aggregation in Ubiquitous Power Internet of Things

**Authors:** Guofei Guan (Jiangsu Fangtian Power Technology Co., Ltd, China); Xinyuan Hu (Nanjing University of Posts and Telecommunications, China); Yan Xu (Jiangsu Fangtian Power Technology Co., Ltd, China); Qiqi Luan (Jiangsu Fangtian Power Technology Co., Ltd, China); Chunpeng Li (Jiangsu Fangtian Power Technology Co., Ltd, China); Feng Jiang (Jiangsu Fangtian Power Technology Co., Ltd, China)

## **Session Title: Power Electronics and its Applications in Smart Grids 1**

**Date:** Sept.23,2020

**Room:** Meeting Room 4

**Chairs:**

**Yan Zhou** (Nanjing University of Posts and Telecommunications,China)

**Xingwei Zhou** (Hohai University, China)

Time: 08:30-08:45

**Paper ID:** 1570640618

Title: Robust Tracking Control with Integral Action for DMC-UPFC System

Authors: Jian Han (Changsha City, Hunan Province & Hunnan University, China); Xing Li (Hunan University, China); Heyu Tian (Yuanan County Power Supply Company, China)

Time: 08:45-09:00

**Paper ID:** 1570641823

Title: Design and Analysis of a New Bidirectional DC-DC Converter with a High Voltage Conversion Ratio and Low Voltage Stress for Energy Applications

Authors: Muhan He (Xi'an Jiaotong University, China); Ye Liu (Xi'an Jiaotong University, China); Hao Liu (Xi'an Jiaotong University, China); Donghao Gu (Xi'an Jiaotong University, China)

Time: 09:00-09:15

**Paper ID:** 1570642367

Title: An Improved Droop Control Method to Improve Bus Voltage and Ensure Accurate Proportional Load Power Sharing in Isolated DC Microgrids

Authors: Xueying Zhao (Xi'an Jiao Tong University, China); Lihui Yang (Xi'an Jiaotong University, China)

Time: 09:15-09:30

**Paper ID:** 1570644716

Title: Third-Harmonic Voltage Compensation Control Strategy for Modular Multilevel Converter with Unbalanced Grid Voltage

Authors: Lixia Sun (Hohai University, China); Qiyun Wang (Hohai University, China); Qichen Pei (Jiangsu Guoxin Yangzhou Power Generation LLCO, China); Zhaoyu Zhou (Hohai University, China)

Time: 09:30-09:45

**Paper ID:** 1570646348

Title: Analysis and Suppression of the Frequency - Aliasing Phenomenon Related to the CPS-PWM Strategy in an MMC System

Authors: Chuyang Wang (Hohai University, China); Ning Xu (Nanjing, China); Li Zhang (Hohai University, China)

## **Session Title: Power Electronics and its Applications in Smart Grids 2**

**Date:** Sept.23,2020

**Room:** Meeting Room 5

**Chairs:**



**Liang Huang (University of Nottingham Ningbo China,China)**

**Han Liu (Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570646459

Title: Driving Auxiliary Circuit Based on SiC MOSFET Series Disturbance Suppression

Authors: Shen Li (Northumbria University, United Kingdom (Great Britain); ); Yu Zhang (Nanjing Institute of Technology, China); Xianyun Li (Nanjing Institute of Technology, China)

Time: 08:45-09:00

**Paper ID:** 1570647592

Title: Research on the Switching Characteristic of SiC-MOSFET and Its Applications in DC Distribution System

Authors: Wanxing Sheng (China Electric Power Research Institute, China); Rui Li (China Electric Power Research Institute, China); Pei Yang (ARIM, China); Chengsheng Wang (Chinese Academy of Sciences, China); Zhiming Lan (ARIM, China)

Time: 09:00-09:15

**Paper ID:** 1570647624

Title: A Numerical Method for Calculating the Power Loss of Device in Renewable Energy System Considering the Impact of Junction Temperature

Authors: Yu Cheng (Hohai University, China); Jianwei Cao (STATE GRID HUZHOU POWER SUPPLY COMPANY, China); Hong Ding (STATE GRID HUZHOU POWER SUPPLY COMPANY, China); Li Zhang (Hohai University, China); Jun Zhang (Hohai University, China); Yong Ding (NARI RELAYS Electric Co, China)

Time: 09:15-09:30

**Paper ID:** 1570647788

Title: Capacity Expansion of Distribution Network with Control of Multi-function Battery Storage

Authors: Xi Liu (Shaanxi Western Xianyang Power Supply Company, China); Xiao Zhang (Xi'an Jiaotong University, China); Fei Zhang (Shaanxi Xianyang Power Supply Company, China); Yang Liu (System Committee of Smart Manufacture, China); Hao Yi (School of Electrical Engineering, Xi'an Jiaotong University, China); Xiaogang Han (Xi'an Jiaotong University, China)

Time: 09:30-09:45

**Paper ID:** 1570647856

Title: Understanding the Small-Signal Output Impedance of Single-Phase Grid-Tied Inverter Concerning the Frequency-Coupling Effect of PLL

Authors: Qiang Qian (Hohai University, China); Li Zhang (Hohai University, China); Shaojun Xie (Nanjing University of Aeronautics & Astronautics, China); Chuyang Wang (Hohai University, China); Nini Zhong (Nanjing University of Aeronautics and Astronautics, China); Jinming Xu (Nanjing University of Aeronautics and Astronautics, China)

## **Session Title: Electrical Machines & Drives 1**

**Date:** Sept.23,2020

**Room:** Meeting Room 6

**Chairs:**

**Hui Yang (Southeast University, China)**

**Sa Zhu(Hohai University, China)**

Time: 08:30-08:45

**Paper ID:** 1570640641

Title: Demagnetization Analysis of a V-shape PM Salient Pole Wind Generator Under Sudden Short-Circuits After Rated Load Condition

Authors: Yujing Guo (Hohai University, China); Yan Ding (Hohai University, China); Ping Jin (Hohai University, China)

Time: 08:45-09:00

**Paper ID:** 1570641524

Title: GIS Mechanical Fault Diagnosis and Test Analysis Based on S Transform-SVM-AlexNet Model

Authors: Zhengzhou Ma (Hohai University, China); Baowen Liu (Hohai University, China); Rongchuan Tang (Hohai University, China)

Time: 09:00-09:15

**Paper ID:** 1570641965

Title: Effects of Axial Gap Length Between Disc Windings on Magnetic Field and Power Loss of Evaporative Cooling Traction Transformers

Authors: Ding Liu (Chinese Academy of Sciences & Institute of Electrical Engineering, China); Xiong Bin (Chinese Academy of Sciences, unknown); Ziran Cheng (Hunan University, China); Feihui Liu (Chinese Academy of Sciences, China)

Time: 09:15-09:30

**Paper ID:** 1570642124

Title: An Integrated On-board Battery Charger for EVs with Voltage Matching Ability Based on a Six-Phase HEFS Machine

Authors: Minghao Tong (Southeast University, China); Zhiyuan Xu (Southeast University, China); Ming Cheng (Southeast University, China); Ying Zhu (Hohai University, unknown); Zhang Gan (Southeast University, China)

Time: 09:30-09:45

**Paper ID:** 1570642131

Title: Research on Quantitative Evaluation of Power Regulation Ability of VSPSU

Authors: Liantao Ji (China Electric Power Research Institute, China); Xiangyu Niu (State Grid XinYuan Company LTD., China); Shanying Li (State Grid Hebei North power co. LTD, China); Chuanbao Yi (State Grid Xinyuan Company LTD, China); Deshun Wang (Renewable Energy Research Center China Electric Power Research Institute, China); Jun Zhuang (China Electric Power Research Institute, China); M. Li (North China Electric Power University, China)

**Session Title: Electrical Machines & Drives 2**

**Date:** Sept.23,2020

**Room:** Jiangning VIP Room

**Chairs:**

**Lu Zhang (Harbin Institute of Technology, China)**

**Wei Xie (Quanzhou Institute of Equipment Manufacturing Haixi Institute, Chinese Academy of Sciences)**

Time: 10:15-10:30

**Paper ID:** 1570644730

Title: Dissolved Gas Analysis of Insulating Oil for Power Transformer State Evaluation Based on Entropy Weight and TOPSIS Method

Authors: Xiaohong Kong (State Grid Nanjing Power Supply Company, China); Dongxu Zhou (State Grid Nanjing Power Supply Company, China); Zhongxiang Gu (Hohai University & College of Energy and Electrical Engineering, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China)

Time: 10:30-10:45

**Paper ID:** 1570646013

Title: Transformer Winding Looseness Diagnosis Based on No-load Switching-on Vibration Signal

Authors: Yong Zhang (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Li Yong (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Zhu Hao (Hohai University, China); Chen Shoulong (Nanjing Power Supply Company of State Grid Jiangsu Electric Company, China); Xu Honghua (Nanjing Power Supply Company of State Grid Jiangsu Electric Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China)

Time: 10:45-11:00

**Paper ID:** 1570646265

Title: Robust Speed Sliding Mode Control for PMSM Based on A Novel Reaching Law and High-Order Fast Terminal Sliding-Mode Observer

Authors: Xin Guo (Hunan University & College of Electrical and Information Engineering, China); Shoudao Huang (Hunan University, China); Yu Peng (Hunan University, China)

Time: 11:00-11:15

**Paper ID:** 1570646616

Title: Analysis of Flow Field Characteristics and Structure Optimization Inside Stator Domain for Air-cooled Turbo-generator

Authors: Ding Shuye (University of Nanjing Normal, China); Zhenjiang Li (University of Nanjing Normal, China)

Time: 11:15-11:30

**Paper ID:** 1570646625

Title: Optimization of Wind Deflector Structure of Permanent Magnet Wind Turbine

Authors: Ding Shuye (Nanjing Normal University, China); ZhengHui Li (Nanjing Normal University, China)

**Session Title: Electrical Machines & Drives 3**

**Date:** Sept.23,2020

**Room:** Meeting Room 4

**Chairs:**

**Yanxin Li (Zhejiang University, China)**

**Dong Liu (Hohai University, China)**

Time: 10:15-10:30

**Paper ID:** 1570647157

Title: Analysis of Fluid Field in Doubly-Fed Hydro-Generator

Authors: Ying Wang (School of Electrical and Automation Engineering, Nanjing Normal University, China); Ding Shuye (Harbin University of Science and Technology, China)

Time: 10:30-10:45

**Paper ID:** 1570647549

Title: Multi Objective Visual Optimization of SFC Starting Control System for Synchronous Generator

Authors: Haoyuan Li (China Electric Power Research Institute Co., Ltd, China); GuanJun LI (China Electric Power Research Institute, China); Liantao Ji (China Electric Power Research Institute, China); Jun Zhuang (China Electric Power Research Institute, China)

Time: 10:45-11:00

**Paper ID:** 1570648766

Title: Deadbeat Predictive Control for Permanent Magnet Synchronous Machine with Extended Sliding-mode Disturbance Observer

Authors: Zhang Runhe (Chongqing University, China); Shuai Lu (Chongqing University, China)

Time: 11:00-11:15

**Paper ID:** 1570648900

Title: Design Considerations and Short-Circuit Characteristics of Fully Superconducting Wind Turbine Generators

Authors: Dong Liu (Hohai University, China); Urfan Hasanov (Hohai University, China); Changqing Ye (Hohai University, China); Xiaofan Gou (Hohai University, China); Xuezhou Wang (Delft University of Technology, The Netherlands)

Time: 11:15-11:30

**Paper ID:** 1570647617

Title: Research on Direct Position Servo Control of Voice Coil Motor with LCL Filter Based on Active Disturbance Rejection Control

Authors: Cheng Liu (Harbin Institute of Technology, China); Baochao Wang (Harbin Institute of

Technology (HIT); , China); Jing Shang (Harbin Institute of Technology, China)

**Session Title: Power Quality, Protection and Electromagnetic Compatibility 1**

**Date:** Sept.23,2020

**Room:** Meeting Room 5

**Chairs:**

**Yi Zhang (Fuzhou University, China)**

**Difei Tang (Nanjing Normal University, China)**

Time: 10:15-10:30

**Paper ID:** 1570639007

Title: A Novel Superimposed Phase Selection Method for Transmission Line of DFIG-based Wind Farm

Authors: Zhihao Xu (Southeast University, China); Yuping Lu (Southeast University, China)

Time: 10:30-10:45

**Paper ID:** 1570640524

Title: Analysis of DG Access Impact on Adaptive Protection Suitability

Authors: Pengfei Yu (Xi'an Jiaotong University, China); Xiaoning Kang (Xi'an Jiaotong University, China); Hongyu Liao (Xi'an Jiaotong University & Shaanxi Key Laboratory of Smart Grid, China); Yanlei Yuan (Xi'an Jiaotong University, China)

Time: 10:45-11:00

**Paper ID:** 1570641552

Title: High Frequency Impedance Based Fast Directional Pilot Protection Scheme for Distribution Network with Wind DGs

Authors: Xu Li (Southeast University, China); Yuping Lu (Southeast University, China)

Time: 11:00-11:15

**Paper ID:** 1570641682

Title: A Weight Least Square State Estimation Based Fault Location for Distribution Network

Authors: Ling Wang (Electric Power Research Institute of Guangdong Power Grid Corporation, China); Zhi Deng (Electric Power Research Institute of Guangdong Power Grid Corporation, China); Ming Ma (Electric Power Research Institute of Guangdong Power Grid Corporation, China); Xin Wang (CET Electric Technology Inc., China); Donghai Yang (Shenzhen Zhongdian Power Technology Co., Ltd., China)

Time: 11:15-11:30

**Paper ID:** 1570641761

Title: A Fast Diagnosis Method Based on Open-Circuit Fault of Switch Tube of Cascade H-bridge Photovoltaic Inverter

Authors: Fusheng Wang (Hefei University of Technology, China); Tao Chen (Hefei University of Technology, China); Sheng Dou (Hefei University of Technology, China); Sai Weng (Hefei University of Technology, China)

Time: 11:30-11:45

**Paper ID:** 1570642553

Title: An Improved Natural Frequency Based Line Fault Location Method on Untransposed Lines

Authors: Yuan Nie (ShanghaiTech University, China); Yu Liu (ShanghaiTech University, China); Xiaodong Zheng (Shanghai Jiao Tong University, China); Dayou Lu (ShanghaiTech University, China)

Time: 11:45-12:00

**Paper ID:** 1570643556

Title: Fault Location in Active Distribution Networks Using Multiple Measurement-Based Bayesian Learning

Authors: Kuan Jiang (Zhejiang University, China); Huifang Wang (Zhejiang University, China); Lei Zhang (Powerchina Huadong Engineering Corporation Limited, China); Wenbin Yang (Powerchina Huadong Engineering Corporation Limited, China); Caiquan Zhou (Powerchina Huadong Engineering Corporation Limited, China); Benteng He (Zhejiang University, China)

**Session Title: Power Quality, Protection and Electromagnetic Compatibility 2**

**Date:** Sept.23,2020

**Room:** Meeting Room 6

**Chairs:**

**Liang Ji (Shanghai University of Electric Power,China)**

**Qing Wang (Nanchang University, China)**

Time: 10:15-10:30

**Paper ID:** 1570644048

Title: Optimal Implementation of SFCL for Voltage Sag Mitigation in Distribution Network

Authors: Pan Hu (SGCC, China); Kai Ding (SGCC, China); Yi Wang (SGCC, China); Yimin Qian (State Grid Hubei Electric Power Research Institute, China); Li Yin (SGCC, China)

Time: 10:30-10:45

**Paper ID:** 1570645112

Title: An Adaptive Harmonic and Inter-Harmonic Measurement Method Based on VMD-HT

Authors: Zuhua Ren (Hohai University, China); Jun Zhou (Hohai University, China)

Time: 10:45-11:00

**Paper ID:** 1570646463

Title: Power-Load Fault Diagnosis via Fractal Similarity Analysis

Authors: Jun Zhou (Hohai University, China); Xiaolan Li (Hohai University, China); Zuhua Ren (Hohai University, China)

Time: 11:00-11:15

**Paper ID:** 1570646913

Title: A Novel Pilot Protection Scheme for Wind Farm Transmission Line Based on Harmonic Content Ratio

Authors: Zilin Chen (Southeast University, China); Yuping Lu (Southeast University, China)

Time: 11:15-11:30

**Paper ID:** 1570647494

**Title:** Research on Quick Break Protection of Distribution Network Considering Inverter-interfaced Distributed Generator

**Authors:** Yida Qiao (Hefei University of Technology, China); Tonghua Wu (NARI Group Corporation, China); Xindong Li (NARI Group Corporation, China); Hongbin Wu (Hefei University of Technology, China)

Time: 11:30-11:45

**Paper ID:** 1570648682

**Title:** Research on Fusion Criterion Line Selection Based on Fuzzy Set Theory of Small Current Grounding System

**Authors:** Cui Jianshuang (Hohai University, China); Zhou Ling (Hohai University, China)

Time: 11:45-12:00

**Paper ID:** 1570648908

**Title:** Research on the Analysis and Purification of the Axis Orbit of the Hydropower Unit Based on EEMD and Correlation Coefficient

**Authors:** Ge Xinfeng (Hohai University, China); Jing Zhang (Hohai University, China); Zhang Hui (Chongqing Shipping Construction Development Co, China); Zhao Lei (Chongqing Shipping Construction Development Co, China); Song Pandeng (Hohai University, China); Han Yang (Chongqing Shipping Construction Development Co, China); Zhang Lei (Yellow River Institute of Hydraulic Research, China); Jiang Qifeng (Key Laboratory of Fluid and Power Machinery, China)

Time: 12:00-12:15

**Paper ID:** 1570647635

**Title:** Characteristics of Cross-Line Fault Between Flexible DC and AC Lines and Its Influence on DC Traveling Wave Protection

**Authors:** Wenbo Wang (Tianjin University & Key Laboratory of Smart Grid of Ministry of Education, China); Zhengguang Chen (State Grid Corporation of China, China); Xingguo Wang (China Electric Science Research Institute, China); Botong Li (Tianjin University, China); Jiaqi Liu (China Electric Power Research Institute, China); Yimin Liu (State Grid, China)

## **On-line Session 1**

**Date:** Sept.21,2020

**Room:** Board Room

Time: 13:30-13:45

**Paper ID:** 1570639508

**Title:** Influence of Converter-Based Power Sources on the Distance Relay Under System Asymmetrical Faults

**Authors:** Guang Yang (State Grid, China), Xiaohui Li (State Grid, China), Leijiao Ge (Tianjin University & School of Electrical and Information Engineering, China), Bin Liang (State Grid, China), Dan Li (State Grid, China), Yangyang Liu (State Grid, China)

Time: 13:45-14:00

**Paper ID:** 1570642054

Title: Hybrid Probabilistic and Interval Load Flow Calculation Based on Data Clustering

Authors: Chenxu Wang (School of Electrical Engineering and Automation, Wuhan University, China), Fei Tang (School of Electrical Engineering and Automation, Wuhan University, China), Yuqiong Zhang (China Electric Power Research Institute, Haidian District, Beijing, China), Weiqiang Liang (School of Electrical Engineering and Automation, Wuhan University, China), Mengqi Qing (School of Electrical Engineering and Automation, Wuhan University, China)

Time: 14:00-14:15

**Paper ID:** 1570646356

Title: Real Options Based Investment Decision Making for Distribution Networks Under Long-term Uncertainties

Authors: Shuang Cheng (University of Bath, United Kingdom (Great Britain)), Chenghong Gu (University of Bath, United Kingdom (Great Britain)), Yajun Zhang (University of Bath, United Kingdom (Great Britain)), Junlong Li (University of Bath, United Kingdom (Great Britain)), Furong Li (The University of Bath, United Kingdom (Great Britain))

Time: 14:15-14:30

**Paper ID:** 1570648887

Title: Voltage Stability Improvement Method in Large Power System During Transmission Line Faults

Authors: Kazuki Oya (University of the Ryukyus, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan), Akito Nakadomari (University of the Ryukyus, Japan), Ryo Miyara (University of the Ryukyus, Japan)

Time: 14:30-14:45

**Paper ID:** 1570647378

Title: Exploring Reinforcement Learning Method in Bidding Strategy Development for Day-Ahead Electricity Market

Authors: Rui Bo (Missouri University of Science and Technology, USA)

Time: 14:45-15:00

**Paper ID:** 1570647410

Title: Joint Bidding Strategy in Day-ahead Electricity Market and FTR Auction Market

Authors: Rui Bo (Missouri University of Science and Technology, USA)

Time: 15:45-16:00

**Paper ID:** 1570646952

Title: Dispatch Method for AC/DC Hybrid Power Systems with Flexible DC Transmission Lines and Pumped Storage Power Stations

Authors: Zongda Mu (Tsinghua University, China), Yanling Du (State Grid Jibei Electric Power, China), Zijin Li (Beijing Electric Power Research Institute, China), Bin Wang (Tsinghua University, China), Wenchuan Wu (Tsinghua University, China), Haitao Liu (State Grid Jibei Electric Power Company, China), Yifan Song (Beijing Electric Power Research Institute, China)



Time: 16:00-16:15

**Paper ID:** 1570641413

Title: Graph Database Based Knowledge Graph Storage and Query for Power Equipment Management

Authors: Yachen Tang (Advanced Computing & Data Intelligence & GEIRINA, USA), Tingting Liu (Advanced Computing & Data Intelligence, USA), Ming He (Chengdu, China), Qiang Wang (State Grid Shanxi Electric Power Company, USA), Huamin Zhang (Advanced Computing & Data Intelligence, USA), Guangyi Liu (Advanced Computing & Data Intelligence, USA), Renchang Dai (Advanced Computing & Data Intelligence, USA)

Time: 16:15-16:30

**Paper ID:** 1570641404

Title: Ontology Based Knowledge Modeling and Extraction of Power Equipment Supply Chain

Authors: Yachen Tang (Advanced Computing & Data Intelligence & GEIRINA, USA), Tingting Liu (Advanced Computing & Data Intelligence, USA), Junjie Shi (State Grid Sichuan Electric Power Company, China), Haiyun Han (Advanced Computing & Data Intelligence, USA), Guangyi Liu (Advanced Computing & Data Intelligence, USA), Renchang Dai (Advanced Computing & Data Intelligence, USA), Zhiwei Wang (SGCC, China)

Time: 16:30-16:45

**Paper ID:** 1570646050

Title: Research on the Optimal Control Model of Multi-energy Complementary Multi-source Autonomy in Smart Park

Authors: Xuesong Shao (State Grid JiangSu Marketing Service Center, China), Yongxian Yi (State Grid JiangSu Marketing Service Center, China), Bin Yang (State Grid JiangSu Electric Power Co. Ltd, China), Hongjuan Zheng (State Grid Electric Power Research Institute Co., Ltd, China)

Time: 16:45-17:00

**Paper ID:** 1570643247

Title: A Hybrid Approach for Weather-based Power Interruption Forecasting Using Multilayer Perceptrons and Parametric Models

Authors: Longfei Wei (GEIRINA, USA), Guangyi Liu (GEIRINA, USA), Renchang Dai (GEIRINA, USA), Aditya Sundararajan (Oak Ridge National Laboratory, USA), Arif Sarwat (Florida International University, USA)

Time: 17:00-17:15

**Paper ID:** 1570647038

Title: Knowledge Transfer for Long-Term Voltage Stability Assessment Between Power Grids Based on Deep Domain Adaptation Networks

Authors: Huaxiang Cai (The University of Hong Kong, Hong Kong) David J. Hill (The University of Hong Kong, Hong Kong)

Time:17:15-17:30

**Paper ID:** 1570648855

**Title:** Day-ahead Energy Scheduling in Residential Areas Based on Orderly Charge and Discharge of Electric Vehicles

**Authors:** Donglin Lu (Shanxi University, China) Xingyong Zhao (Shanxi University, China)

## **On-line Session 2**

**Date:** Sept.22,2020

**Room:** Board Room

Time: 08:30-08:45

**Paper ID:** 1570640053

**Title:** Aided Decision-making in Transactive Energy Control for Wind Power Accommodation

**Authors:** Chunxiang Yang (State Grid Gansu Electric Power Company, China), Lirong Xie (NARI Technology Co., Ltd., China), Ruopeng Tian (State Grid Gansu Electric Power Company, China), Yin Ma (State Grid Gansu Electric Power Company, China), Jian Cui (State Grid Gansu Electric Power Company, China), Xiaoliang Wang (Xi'an Jiaotong-Liverpool University, China), Bing Han (Xi'an Jiaotong-Liverpool University, China), Fei Xue (Xi'an Jiaotong-Liverpool University, China)

Time: 08:45-09:00

**Paper ID:** 1570646653

**Title:** Optimal Sizing of a Microgrid System with EV Charging Station in Park & Ride Facility

**Authors:** Kosuke Takahashi (University of the Ryukyus, Japan), Hasan Masrur (University of the Ryukyus, Japan), Akito Nakadomari (University of the Ryukyus, Japan), Narayanan K (SASTRA Deemed University & School of Electrical and Electronics Engineering, India), Hiroshi Takahashi (Fuji Electric Co., Ltd, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan)

Time: 09:00-09:15

**Paper ID:** 1570647158

**Title:** Deep-Q-Network-Based Intelligent Reschedule for Power System Operational Planning

**Authors:** Jiang Liu (Sichuan University, China), Youbo Liu (Sichuan University, China), Gao Qiu (Sichuan University, China), Yujia Gu (State Grid Ningxia Electric Power Company, China), Hongqiang Li (State Grid Ningxia Electric Power Company, China), Junyong Liu (Sichuan University, China)

Time: 09:15-09:30

**Paper ID:** 1570648790

**Title:** Peer-to-peer Energy Trading Platform Using Consortium Blockchain

**Authors:** Yingchun Feng (Jiangsu Power Exchange Center, China), Jie Fan (Jiangsu Power Exchange Center, China), Jiale Wang (Southeast University, China), Yachao Li (Southeast University, China)

Time: 09:30-09:45

**Paper ID:** 1570646156

Title: Frequency Support for DFIG Using Improved Inertial Control Strategy

Authors: Mengqi Qing (School of Electrical Engineering and Automation, Wuhan University, China), Fei Tang (School of Electrical Engineering and Automation, Wuhan University, China), Dicheng Liu (Wuhan University, China), Junbo Zhao (Mississippi State University, USA)

Time: 09:45-10:00

**Paper ID:** 1570646556

Title: Renewable Energy Power System Frequency Control by Using PID Controller and Genetic Algorithm

Authors: Lei Liu (University of the RYUKYUS, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan), Takeyoshi Kato (Nagoya University, Japan), Paras Mandal (University of Texas at El Paso, USA), Ashraf M. Hemeida (Faculty of Engineering, Aswan University, Egypt), Abdul Howlader (University of the Ryukyus, Japan)

Time: 10:15-10:30

**Paper ID:** 1570646900

Title: A Coordinated Dispatching Model of HVDC Tieline Considering Peak Load Regulation Margin Constraints

Authors: Jing Liao (Hunan University, China), Qin Jiang (Hunan University, China), Feng Wang (Hunan University, China), Hao Yu (Guangdong Power Grid Co., Ltd, China), Long Zhou (Guangdong Power Grid Co., Ltd., China), Yuqing He (State Grid Hunan Electric Power Corporation, China), Hanyu Yang (Hunan University, China)

Time: 10:30-10:45

**Paper ID:** 1570647611

Title: Optimal Capacity and Operation of Distributed Energy Resources in Microgrid by Advanced Direct Load Control

Authors: Makoto Sugimura (University of the Ryukyus, Japan), Akito Nakadomari (University of the Ryukyus, Japan), Hiroshi Takahashi (Fuji Electric Co., Ltd, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan)

Time: 10:45-11:00

**Paper ID:** 1570647753

Title: A Study on Voltage Unbalance Compensation and Minimizing Loss in Distribution System Using SVR

Authors: Akito Nakadomari (University of the Ryukyus, Japan), Ryuto Shigenobu (University of the Ryukyus, Japan), Makoto Sugimura (University of the Ryukyus, Japan), Kosuke Takahashi (University of the Ryukyus, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan)

Time: 11:00-11:15

**Paper ID:** 1570647795

Title: Unit Commitment Using Advanced Direct Load Control

Authors: Ryota Isomura (University of the Ryukyus, Japan), Tetsuya Yabiku (University of the Ryukyus, Japan), Kanato Tamashiro (University of the Ryukyus, Japan), Massingue Herminio (University of the Ryukyus, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan)

Time: 11:15-11:30

**Paper ID:** 1570647545

Title: Two-level Inter-provincial Power Purchase Model Considering Consumption Weights Regulation of Renewable Energy Power

Authors: Man Jiang (State Grid Huazhong Branch, China), Qi Sima (Huazhong University of Science and Technology, China), Yukun Bao (School of Management, Huazhong University of Science and Technology, China), Dingyi Liu (State Grid Huazhong Branch, China)

Time: 11:30-11:45

**Paper ID:** 1570649001

Title: Optimal Operation and Capacity Plan of Smart City with a Large Introduction of Renewable Energy Sources

Authors: Tetsuya Yabiku (University of the Ryukyus, Japan), Ryota Isomura (University of the Ryukyus, Japan), Hiroshi Takahashi (Fuji Electric Co., Ltd, Japan), Tomonobu Senjyu (Faculty of Engineering, University of the Ryukyus, Japan)

Time: 11:45-12:00

**Paper ID:** 1570643901

Title: Coordinated Voltage Control of Offshore Wind Farms Combined with AC Grid Based on OPF-MPC Method

Authors: Pengda Wang (Hunan University, China), Qiuwei Wu (Technical University of Denmark, Denmark), Sheng Huang (Hunan University, China), Bin Zhou (Hunan University, China), Canbing Li (SJTU, China)

## **Poster Session 1**

**Date:** Sept.22,2020

**Room:** Zijin Ballroom B

Stand No: P001

**Paper ID:** 1570623517

Title: Fast Random Fluctuation Model and Test Method of High Power Dynamic Load

Authors: Guang Yang (State Grid, China); Xiaohui Li (State Grid, China); Leijiao Ge (Tianjin University & School of Electrical and Information Engineering, China); Bin Liang (State Grid, China); Dan Li (State Grid, China); Yangyang Liu (State Grid, China)

Stand No: P002

**Paper ID:** 1570635272

Title: Active and Reactive Power Coupling Characteristics Based Inertial and Primary Frequency Control Strategy of Battery Energy Storage Station

Authors: Ding Wang (State Grid Hunan Electric Power Company Limited Research Institute, China);

Yabing Yan (State Grid Hunan Electric Power Company Limited Research Institute, China); Yangwu Shen (State Grid Hunan Electric Power Company Limited Research Institute, China); Zhen Hu (State Grid Hunan Electric Power Company Limited Research Institute, China)

Stand No: P003

**Paper ID:** 1570635691

Title: Analysis of Multiple Droop Control Strategies in DC Microgrid

Authors: Lingming Kong (University of Macau, Macao); Hongsheng Jiao (National University of Singapore, Singapore)

Stand No: P004

**Paper ID:** 1570636313

Title: On-line Identification Method of Power Limit Interval of Thermal Stability Section

Authors: Jianxing Tang (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Mingshun Liu (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Lingzi Zhu (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Yao Yao (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Jinlong Zhang (NARI Group Corporation, China); Yanhong Bao (NARI Group Corporation, China); Wei Xu (NARI Group Corporation, China)

Stand No: P005

**Paper ID:** 1570637130

Title: Identification Strategy Based on Nodes Electrical Distances for Distribution Network Topology

Authors: Haiqiang Zhang (Hohai University, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Baowen Liu (Hohai University, China); YU Si (Hohai University, China); Kun Qian (Hohai University, China); Zhongyi Fan (Hohai University, China)

Stand No: P006

**Paper ID:** 1570637378

Title : Research on UPIoT Application of Low-Voltage Station Area Based on Dual-Mode Communication

Authors: Zhipeng Shi (State Grid Changzhi Power Supply Company, China); Huinan Wang (Shanxi Electric Power Company, China); Chanqiong Wang (Changzhi Power Supply Company, China); Xiaodong Wang (Changzhi Power Supply Company, China); Jinming Wang (Nari-tech Nanjing Control Systems Ltd., China); Shijie LI (Southeast University, China)

Stand No: P007

**Paper ID:** 1570637627

Title: Source-Grid-Load Combined Security Assessment of PV-Penetrated Distribution Network

Authors: Jianping Yang (State Grid Shanghai Municipal Electric Power Company, China); Shu Liu (State Grid Shanghai Electric Power Research Institute, China); Zhuoxin Lu (Shanghai Jiaotong University, China); Zheng Yan (Shanghai Jiao Tong University, China); Xiaoyuan Xu (Shanghai Jiao Tong University, China)

Stand No: P008

**Paper ID:** 1570638752

Title: Online Error Correction Method of PMU Data Based on LSTM Model and Kalman Filter

Authors: Wenyue Zhou (Electric Power Research Institute of State Grid Sichuan Electric Power Company, China); Mingzhong Liu (Electric Power Research Institute of State Grid Sichuan Electric Power Company, China); Yuchuan Zheng (North China Electric Power University, China); Yuhan Dai (Electric Power Research Institute of State Grid Sichuan Electric Power Company, China)

Stand No: P009

**Paper ID:** 1570639107

Title: Study on the Optimal Dispatching Method of Power Grid Considering the Energy Storage Regulation on Power Supply Side

Authors: Jianchun Mei (Jiangsu Keneng Electric Power Engineering Consulting Co., LTD., China); Junxia Qian (Jiangsu Keneng Electric Power Engineering Consulting Co., LTD., China); Hai Xu (Jiangsu Keneng Electric Power Engineering Consulting Co., LTD., China); Kaiming Luo (China); Shengjie Zhao (Jiangsu Keneng Electric Power Engineering Consulting Co., LTD., China); Haixiang Zang (Hohai University, China)

Stand No: P010

**Paper ID:** 1570639111

Title: Self-optimal Piecewise Linearization Based Network Power Flow Constraints in Electrical Distribution System Optimization

Authors: Yun Zhou (Shanghai Jiao Tong University, China); Ran Xu (Shanghai JiaoTong University, China); Jingyang Yun (Shanghai JiaoTong University, China); Sumin Yu (Shanghai Jiao Tong University, China); Zheng Yan (Shanghai Jiao Tong University, China); Wei Du (NARI Technology Co., Ltd., China); Guoxin He (NARI Technology Co., Ltd., China)

Stand No: P011

**Paper ID:** 1570639149

Title: An Effective Scheduling Strategy for Hybrid Wind-Energy Storage System Considering Uncertainty and Robust Optimization

Authors: Nan Li (School of Electrical Engineering, Zhejiang University, China); Liling Huang (North China Electric Power University, China); Xiangcheng Zhang (School of Electrical Engineering, Zhejiang University, China); Xue Ma (School of Electrical Engineering, Zhejiang University, China); Haining Zhang (School of Electrical Engineering, Zhejiang University, China); Wenbao Hu (School of Electrical Engineering, Zhejiang University, China)

Stand No: P012

**Paper ID:** 1570639482

Title: Research and Application of Open Phase Monitoring and Protection System in Nuclear Power Plant Based on Optical CT

Authors: Jiasheng Chen (NREC Co. Ltd, China); Hekun Yi (CGNPC Yangjiang Nuclear Power Plant, China); Yao Wang (NREC Co. Ltd, China); Ren Yangkai (CGNPC Yangjiang Nuclear Power Plant, China); Chen Jun (Nanjing NR Electric Co, China); Wang Guang (Nanjing NR Electric Co, China)

Stand No: P013

**Paper ID:** 1570639553

**Title:** Impact of Inertia Control on the Structural Loads of DFIG-based Wind Turbine Connected to Weak Grid

**Authors:** Jie Ying (China Ship Development and Design Center, China)

Stand No: P014

**Paper ID:** 1570639659

**Title:** A New Protection Scheme of Grounding Electrode Line of UHVDC Based on Injection Method

**Authors:** Shilong Li (Chengdu, China); Xiaopeng Li (Chengdu, China); Yufei Teng (State Grid Sichuan Electric Power Research Institute, China); Xiangxi Duan (Chengdu, China); Rongsen Luo (Chengdu, China); Yongchao Sun (State Grid Sichuan Electric Power Research Institute, China)

Stand No: P015

**Paper ID:** 1570639691

**Title:** Characteristic Analysis and Parameter Optimization of Synchronous Condensers

**Authors:** Feng Dai (Institute of Computing Technology, Chinese Academy of Sciences, China); Fenglei Tan (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Mengyao Jiang (Hohai University, China); Xuan Chen (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Ming Chen (HoHai University, China)

Stand No: P016

**Paper ID:** 1570639865

**Title:** Study on the Control Strategy of Mobile Battery Energy Storage for the Overload Elimination of Distribution Transformer

**Authors:** Yabing Yan (State Grid Hunan Electric Power Company Limited Research Institute, China); Bin Yu (State Grid Hunan Electric Power Company Limited Research Institute, China); Fan Ouyang (State Grid Hunan Electric Power Company Limited Research Institute, China); Weijun Zhu (State Grid Hunan Electric Power Company Limited Research Institute, China); Hui Li (State Grid Hunan Electric Power Company Limited Research Institute, China)

Stand No: P017

**Paper ID:** 1570640004

**Title:** Research Progress and Prospect of Vibration Signal of Li-ion Battery

**Authors:** Guilin Liu (Jiangsu Nanjing Power Supply Company, China); Chen Li (Jiangsu Nanjing Power Supply Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Jingzhou Xu (Jiangsu Nanjing Power Supply Company, China); Li Chen (Jiangsu Nanjing Power Supply Company, China); Xiaohan Peng (Hohai University, China)

Stand No: P018

**Paper ID:** 1570640184

**Title:** Analytical Method of Synthesis Load Composition Based on Static Characteristics of Electrical Appliances

**Authors:** Junying Song (State Grid Hunan Electric Power Corporation, China); Yiwei Cui (Hunan University, China); Xinran Li (Hunan University, China); Taowen Liu (State Grid Hunan Electric

Power Corporation, China); Wei Zhong (State Grid Hunan Electric Power Corporation, China); Zhenyu Mao (Hunan University, China)

Stand No: P019

**Paper ID:** 1570640632

**Title:** Time-Frequency Analysis on Earth Fault Signal Response Based on the BLT Equation for Multi-Branch Distribution Networks

**Authors:** Minqiang Li (Hechi Power Supply Bureau of Guangxi Power Grid Co Ltd, China); Baiyang Liu (Guangxi University, China); Qiuzhen Wei (Hechi Power Supply Bureau of Guangxi Power Grid Co Ltd, China); Kun Yu (Changsha University of Science and Technology, China); Chen Wang (Hechi Power Supply Bureau of Guangxi Power Grid Co Ltd, China); Xiangjun Zeng (Changsha University of Science and Technology, China)

Stand No: P020

**Paper ID:** 1570640634

**Title:** Investigation on Chemical Reactions of Li-ion Battery Under Thermal Runaway

**Authors:** Chen Li (Jiangsu Nanjing Power Supply Company, China); Chunling Wang (Jiangsu Nanjing Power Supply Company, China); Jingzhou Xu (Jiangsu Nanjing Power Supply Company, China); Li Chen (Jiangsu Nanjing Power Supply Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Qifan Yang (Hohai University, China)

Stand No: P021

**Paper ID:** 1570640635

**Title:** The Heating Load Control Method of Load Aggregators Based on Cluster Analysis

**Authors:** Wei Du (NARI Technology Co., Ltd., China); Ming Zeng (School of Economics and Management, North China Electric Power University, China); Yuanfei Li (Economic and Technology Research Institute, China); Shengyuan Zhong (Tianjin University, China); Xiaoyuan Wang (Tianjin University, China)

Stand No: P022

**Paper ID:** 1570640732

**Title:** Research on the Secondary Frequency Modulation Control Strategy of Energy Storage Battery

**Authors:** Xilian Yuan (Hunan University, China); Xinran Li (Hunan University, China); Zhuangxi Tan (Hunan University, China); Ningning Zhu (State Grid, China); Bingyu Zhang (Hunan University, China); Ye Jiang (Hunan University, China)

Stand No: P023

**Paper ID:** 1570640921

**Title:** Research on Key Technologies of Power Distribution Internet of Things

**Authors:** Xiang Ma (NARI Nanjing Control System Co., Ltd., China); Siyang Shao (NARI Nanjing Control System Co., Ltd., China); Weixing Zhang (NARI Nanjing Control System Co., Ltd., China)



Stand No: P024

**Paper ID:** 1570640951

**Title:** Review of Cyber Physical System and Cyber Attack Modeling

**Authors:** Haofei Fan (NARI Group Corporation & NARI Technology Co. Ltd, China); Ming Ni (State Grid Electric Power Research Institute, China); Lili Zhao (NARI Group Corporation&NARI Technology Co. Ltd, China); Manli Li (NARI Group Corporation&NARI Technology Co. Ltd, China)

Stand No: P025

**Paper ID:** 1570641214

**Title:** More Efficient AC Filterless HVDC with Low Noise of Transformer

**Authors:** Longfu Luo (Hunan University, China); Chen Li (Hunan University, China); Juzhen Wu (State Grid Economic and Technological Research Institute, China); Yanan Li (State Grid Economic and Technological Research Institute, China); Weipeng Zhuang (Hunan University, China)

Stand No: P026

**Paper ID:** 1570641240

**Title:** Feature Recognition of Oil Immersed Transformer Winding Looseness Based on Chaos Theory

**Authors:** Xiaofeng Liu (Jiangsu Frontier Electric Technology Co., Ltd, China); Xiulian Lu (Jiangsu Frontier Electric Technology Co., Ltd, China); Yunxiang Ma (Jiangsu Frontier Electric Technology Co., Ltd, China); Lipeng He (Jiangsu Frontier Electric Technology Co., Ltd, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Pengfei Hou (Hohai University, China)

Stand No: P027

**Paper ID:** 1570641271

**Title:** Impedance-based Stability Analysis of AD-DC Hybrid System Considering Grid Impedance

**Authors:** Laifu Li (State Grid Jiangsu Electric Power Company Electric Power Research Institute, China); Yubo Yuan (State Grid Jiangsu Electric Power Co., LTD. Reserch Institute, China); Jun Yang (Zhejiang University, China); Liang Chen (State Grid Jiangsu Electric Power Company Electric Power Research Institute, China); Heng Nian (Zhejiang University, China)

Stand No: P028

**Paper ID:** 1570641401

**Title:** A Model Predictive Control for Energy Storage System Improving Microgrid Power Quality

**Authors:** Lin Jianhui (CNOOC Energy Technology & Services-Oil Production Services Co., China); Peng Xiaotao (Wuhan University, China); Zhang Zheng (Wuhan University, China); Chen Renjie (Wuhan University, China); Li Huaqu (Wuhan University, China)

Stand No: P029

**Paper ID:** 1570641410

**Title:** Comparison of Fuel-saving Effect Between Heat Accumulator and Electric Boiler Used for Wind Power Accommodation in CHP Plant

**Authors:** Lanxi Tang (Electric Power Planning and Engineering Institute, China); Xinyi Su (Electric Power Planning and Engineering Institute, China); Xiaoqi Han (Electric Power Planning and Engineering Institute, China); Shiyu Liu (Electric Power Planning and Engineering Institute, China); Yong Min (Tsinghua University, China)

Stand No: P030

**Paper ID:** 1570641456

**Title:** Positive Active Total Power Missing Value Repairing with LSTM Prediction

**Authors:** Yingwei Bai (State Grid Shandong Electric Power Company, China); Yun Cheng (State Grid Corporation of China, China); Kuanyun Zheng (NARI Group Corporation (State Grid Electric Power Research Institute); , China); Yejian Liang (Nanjing Agricultural University, China); Peisen Yuan (Nanjing Agricultural University, China)

Stand No: P031

**Paper ID:** 1570641534

**Title:** Positive Active Power Outlier Detection Based on One-Class SVM

**Authors:** Bin Ma (State Grid Hebei Electric Power Co. Ltd., China); Long Yuan (State Grid Hebei Electric Power Co. Ltd., China); Shaozhe Xu (NARI Group Co., Ltd, China); Kuanyun Zheng (NARI Group Corporation (State Grid Electric Power Research Institute); , China); Fuxing Huang (NARI Group Corporation (State Grid Electric Power Research Institute); , China); Runlong Li (Nanjing Agricultural University, China); Peisen Yuan (Nanjing Agricultural University, China)

Stand No: P032

**Paper ID:** 1570641639

**Title:** Research and Application of Selective Stator Ground Fault Protection Based on Fibre Optical CT

**Authors:** Huazhong Li (NR Electric Co., Ltd, China); Zhang Qixue (Nanjing NR Electric Co, China); Chen Jun (Nanjing NR Electric Co, China); Yao Wang (NREC Co. Ltd, China); Wang Guang (Nanjing NR Electric Co, China); Xu Jin (Nanjing NR Electric Co, China)

Stand No: P033

**Paper ID:** 1570641642

**Title:** Analysis of Fault Characteristic of HVDC Transmission Lines and Its Influence on Current Differential Protection

**Authors:** Hong Cao (China Electric Power Research Institute, China); Feiyang Dai (China Electric Power Research Institute, China); Dingxiang Du (China Electric Power Research Institute, China); Zexin Zhou (China Electric Power Research Institute, China); Xingguo Wang (China Electric Power Research Institute, China)

Stand No: P034

**Paper ID:** 1570641752

**Title:** Research on Storage and Analysis Technology of Wide-Frequency Measurement Data in Station Domain Based on Edge Computing

**Authors:** Haidong Zhang (China Electric Power Research Institute, China); Chen Fan (China Electric Power Research Institute, China); Qing Yang (Institute of Electric Power Automation China Electric Power Research Institute, China); Guoqing Zhao (Institute of Electric Power Automation China Electric Power Research Institute, China); Yanping Wu (Institute of Electric Power Automation China Electric Power Research Institute, China); Renhui Dou (China Electric Power Research Institute, China)

Stand No: P035

**Paper ID:** 1570641778

**Title:** Simulation Analysis of PT Resonance for Distribution Network Practical Test Platform

**Authors:** Huang Weixiang (Electric Power Research Institute of Guangxi Power Grid Co., Ltd., China); Xiaoyong Yu (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Lifang Wu (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Shaonan Chen (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Liqun Yin (Electric Power Research Institute, Guangxi Power Grid Corporation, China)

Stand No: P036

**Paper ID:** 1570641785

**Title:** Profit Sharing Method for Participants in Cloud Energy Storage

**Authors:** Yanzheng Wu (China Electric Power Research Institute & Hohai University, China); Junpeng Zhu (Hohai University, China); Yue Yuan (Hohai University, China); Da Cheng (China Electric Power Research Institute, China)

Stand No: P037

**Paper ID:** 1570641796

**Title:** Sequence Impedance Modeling and Analysis of Double-fed Induction Generator Based on Virtual Synchronous Control

**Authors:** Ying Xu (State Grid Economic and Technological Research Institute Co., Ltd., China); Guoyun Su (State Grid Economic and Technological Research Institute Co., Ltd., China); Qiao Kang (Xi'an Jiaotong University, China); Yue Wang (Xi'an Jiaotong University, China); Zhuling Li (Xi'an Jiaotong University, China); Fengmo Li (Xi'an Jiaotong University, China)

Stand No: P038

**Paper ID:** 1570641801

**Title:** A Flexible Planning Model for Distribution Network and Renewable Energy Integration Considering Source and Load Uncertainty

**Authors:** Zhang Zhang (State Grid Hebei Electric Power Co., Ltd., China); Qirun Sun (Southeast University, China); Guangyi Li (State Grid Hebei Electric Power Co., Ltd., China); Zhi Wu (Southeast University, China); Wei Gu (Southeast University, China)

Stand No: P039

**Paper ID:** 1570641815

**Title:** Aging Characteristics of GIS Seal Ring (O-ring)

**Authors:** Chao Gao (China Southern Power Grid, China); Jiahao Peng (South China University of Technology, China); Zhimin Zhang (South China University of Technology, China); Yanpeng Hao (South China University of Technology, China); Lin Yang (South China University of Technology, China); Guoli Wang (China Southern Power Grid, China)

Stand No: P040

**Paper ID:** 1570641816

**Title:** An Investigation on Cost-effectiveness of Photovoltaic Power Ramp Rate Control by Using

the Levelized Cost of Electricity

Authors: Dingyi Lin (University of Nanjing Normal, China); Xingshuo Li (Nanjing Normal University, China); Ding Shuye (Harbin University of Science and Technology, China)

Stand No: P041

**Paper ID:** 1570641888

Title: Research on Equivalent Modeling of PMSG-based Wind Farms Using Parameter Identification Method

Authors: Rui Gu (Southeast University, China); Jianfeng Dai (Southeast University, China); Jinping Zhang (China Electric Power Research Institute, China); Fenglin Miao (China Electric Power Research Institute, China); Tang Yi (Southeast University, China)

Stand No: P042

**Paper ID:** 1570641891

Title: Transfer Characteristics of DC Voltage Divider and Its Influence on Traveling Wave Protection

Authors: Xiaopeng Li (Chengdu, China); Hexiang Peng (Southwest Jiaotong University, China); Yuchen Qi (Southwest Jiaotong University, China); Xuanwen Ding (Chengdu, China); Kai Liao (Southwest Jiaotong University, China)

Stand No: P043

**Paper ID:** 1570641895

Title: Power Quality Ancillary Services Support from Customer-owned Electric Vehicles in Low Voltage Distribution Networks

Authors: Haoyuan Luo (Hubei Energy Group Ezhou Power Generation Co., Ltd, China); Onyema Nduka (Imperial College London, United Kingdom (Great Britain); )

Stand No: P044

**Paper ID:** 1570641904

Title: Cancellation of Closing Resistance of Extra-High Voltage Circuit Breaker in Hydro-power Station and Analysis of Closing Over-voltage in Alternatives

Authors: Wenxia Pan (HoHai University, China); Jianmin Chen (Hohai University, China); Fan Sun (Power China Northwest Engineering Corporation Limited, China)

Stand No: P045

**Paper ID:** 1570641906

Title: Control Strategy of Current Source Converter Based Three-terminal Power Transmission System

Authors: Bing Xia (State Grid Nanjing Power Supply Company, China); Fu Shen (Kunming University of Science and Technology, China); Bin Yang (State Grid Nanjing Power Supply Company, China); Hong Zhu (State Grid Nanjing Power Supply Company, China); Dongxun Zhou (State Grid Nanjing Power Supply Company, China); Honghua Xu (State Grid Nanjing Power Supply Company, China)

Stand No: P046

**Paper ID:** 1570641918

Title: Small-disturbance Line Selection Method Applied to Turn-Adjusting Arc Suppression Coil

Authors: Yuan Lei (NARI Group Corporation, China); Lei Xia (NARI Group Corporation, China); Mengyue Li (Nanjing Normal University, China); Shu Zheng (NARI Group Corporation, China); Jingtao Zhao (NARI Group Corporation, China); Mingxiang Liu (NARI Group Corporation, China)

Stand No: P047

**Paper ID:** 1570641919

Title: Optimal Allocation of Distribution Automation Terminals Considering Incremental Benefit

Authors: Xiaochun Liu (Economic & Technology Research Institute of State Grid Jiangxi Electric Power Company, China); Weizhang Wang (Nanchang University, China); Yingxue Li (Economic & Technology Research Institute of State Grid Jiangxi Electric Power Company, China); Li Wang (Economic & Technology Research Institute of State Grid Jiangxi Electric Power Company, China); Huicheng Wu (Nanchang University, China); Chun Wang (Nanchang University, China)

Stand No: P048

**Paper ID:** 1570641969

Title: Bidding Model of Generation Company Considering Volatility of Futures Market

Authors: Guangrong Yu (Jiangsu Frontier Electric Power Technology Co., Ltd, China); Hongming Zhang (Jiangsu Frontier Electric Power Technology Co., Ltd, China); Pengpeng Yang (Southeast University, China); Zhongyao Chen (Southeast University, China)

Stand No: P049

**Paper ID:** 1570641970

Title: Topological Convolutional Neural Networks for Transient Stability Assessment on Massive Historical Online Power Grid Data

Authors: Xinglei Chen (China Electric Power Research Institute, China); Yanhao Huang (China Electric Power Research Institute, China); Songtao Zhang (China Electric Power Research Institute, China); Wenchen Li (China Electric Power Research Institute, China); Shujun Zhang (State Grid Zhejiang Electric Power Corporation, China)

Stand No: P050

**Paper ID:** 1570641976

Title: An Ultrasonic Detection Method for Interface Defects of Three Post Insulators in Gas-insulated Transmission Lines

Authors: Weiguo Li (EHV Power Transmission Company China Southern Power Grid, China); Jinwei Chu (EHV Power Transmission Company China Southern Power Grid, China); Wanying Liu (EHV Power Transmission Company China Southern Power Grid, China); Fusheng Zhou (China Southern Power Grid, China); Chao Gao (China Southern Power Grid, China); Ruodong Huang (China Southern Power Grid, China); Yao Zheng (South China University of Technology & School of Electric Power, China)

Stand No: P051

**Paper ID:** 1570641986

Title: Mechanical Fault Diagnosis of Transformer Based on Improved Characteristic Matrix of Vibration Signal

Authors: Li Yong (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Long Chen (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Jin Yan (Hohai University, China); Yong Zhang (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Chunming Wang (Jiangsu Nanjing Power Supply Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China)

Stand No: P052

**Paper ID:** 1570642039

Title: Risk Assessment of Flexible Distribution District Considering Large-scale Fast Charging Load

Authors: Liu Guofeng (State Grid of Jiangsu, China); Zhu Ye (State Grid of Jiangsu, China); Honghua Xu (State Grid Nanjing Power Supply Company, China); Wang Yongqiang (State Grid of Jiangsu, China); Xu Guangkai (Hohai University, China)

Stand No: P053

**Paper ID:** 1570642063

Title: Research on Credible Capacity Evaluation Model of Wind-Energy Storage System Based on Equivalent Load-Carrying Capability

Authors: Xiao Chang (State Grid Shanxi Electric Power Research Institute, China); Min Zhang (State Grid Shanxi Electric Power Research Institute, China); Kaisheng Sun (North China Power University, China); Ruiyue Li (North China Power University, China); Chunming Liu (North China Power University, China); Rui Fan (State Grid Shanxi Electric Power Research Institute, China); Jinhao Wang (State Grid Shanxi Electric Power Research Institute, China); Ran Li (State Grid Shanxi Electric Power Research Institute, China); Jun Zhao (State Grid Shanxi Electric Power Research Institute, China)

Stand No: P054

**Paper ID:** 1570642083

Title: The Impact of Line Impedance on Current Sharing Performance for Parallel Inverters

Authors: Ya Yang (Soochow University, China); Yang Yong (Soochow University & School of Urban Railway Transportation, China); Xie Menxi (Soochow University, China); Lijun Zhang (the School of Electronics & Information Engineering, Soochow University, China)

Stand No: P055

**Paper ID:** 1570642097

Title: Energy Entropy Feature and Diagnosis of Partial Discharge Wavelet Packet in GIS Based on Support Vector Machine

Authors: Yuwei Zhang (Hohai University, China); Baowen Liu (Hohai University, China); Qi Shi (Hohai University, China)

Stand No: P056

**Paper ID:** 1570642100

Title: Analysis of Clearing Market Profit in the Spot Market Under the Action of Electricity Futures Trading

Authors: Jiawei Lu (Jiangsu Frontier Electric Power Technology Co., Ltd, China); Pengpeng Yang (Southeast University, China); Zhongyao Chen (Southeast University, China)

Stand No: P057

**Paper ID:** 1570642101

Title: Virtual Impedance and Current Harmonic Compensation of Single-Phase Parallel Inverters

Authors: Ya Yang (Soochow University, China); Yang Yong (Soochow University & School of Urban Railway Transportation, China); Xie Menxi (Soochow University, China); Lijun Zhang (the School of Electronics & Information Engineering, Soochow University, China)

Stand No: P058

**Paper ID:** 1570642104

Title: Adaptive Power Allocation Strategy for Hybrid Energy Storage System Based on Hilbert-Huang Transform

Authors: Chunming Liu (North China Power University, China); Kaisheng Sun (North China Power University, China); Ruiyue Li (North China Power University, China)

Stand No: P059

**Paper ID:** 1570642134

Title: MPPT for Wind Energy Conversion System Based on Improved Sliding Mode Extremum Seeking Control

Authors: Fei Xue (Ningxia Electric Power Limited Company, China); Zijian Qin (Laiwu Power Supply Bureau, State Grid Shandong Electric Power Company, China); Wen Qiao (North Automatic Control Technology Institute, China); Xin Ma (Electric Power Research Institute, State Grid Ningxia Electric Power Company, China)

Stand No: P060

**Paper ID:** 1570642142

Title: Based on Fuzzy Clustering Method to Explore the Influence of Disturbance on Coherent Grouping

Authors: Guye Lin (South China University of Technology, China); Zhenlin Huang (Electric Power Research Institute of Guangdong Power Grid Co., Ltd, China); Chenxuan Yang (South China University of Technology, China)

Stand No: P061

**Paper ID:** 1570642143

Title: A Novel Bidirectional Wireless Power Transmission System for Doubly-fed Motor

Authors: Ping Jin (Hohai University, China); Ling Chang (Hohai University, China); Yujing Guo (Hohai University, China)

Stand No: P062

**Paper ID:** 1570642163

Title: Operational Boundary of Flexible District Considering Large-scale EV Charging Loads

Authors: Qiang Liu (State Grid of Jiangsu, China); Tongqing Xu (State Grid of Jiangsu, China); Ningfeng Wang (State Grid of Jiangsu, China); Honghua Xu (State Grid of Jiangsu, China); Liu Guofeng (State Grid of Jiangsu, China)

Stand No: P063

**Paper ID:** 1570642166

**Title:** Research and Considerations on Active Distribution Network Participating in Transmission Congestion Management

**Authors:** Chen Wu (State Grid Jiangsu Electric Power Co., Ltd., China); Guiyuan Xue (State Grid Jiangsu Electric Power Co., Ltd., China); Yin Wu (State Grid Jiangsu Electric Power Co., Ltd. Economic Research Institute, China); Xiyun Miao (Southeast University, China)

Stand No: P064

**Paper ID:** 1570642186

**Title:** Research and Considerations of Financial Transmission Right Markets in America and Europe

**Authors:** Wen Lv (Shanxi Power Exchange Center Co., Ltd., China); Mingzhi Geng (China Electric Power Research Institute, China); Tao Zhang (Shanxi Power Exchange Center Co., Ltd., China); Maohua Shan (China Electric Power Research Institute, China); Xiyun Miao (Southeast University, China)

Stand No: P065

**Paper ID:** 1570642189

**Title:** Risk Assessment and Prevention Strategy of Wind Power Sub-synchronous Oscillation in Northeast China Power Grid

**Authors:** Deming Xia (Northeast Branch of State Grid Corporation of China, China); Junjie Sun (Electric Power Research Institute of State Grid Liaoning Electric Power Co., Ltd., China); Aihong Zhang (Northeast Branch of State Grid Corporation of China, China); Kefei Wang (Northeast Branch of State Grid Corporation of China, China); Shuang Qin (Northeast Branch of State Grid Corporation of China, China); Qingsong Gao (Northeast Branch of State Grid Corporation of China, China)

Stand No: P066

**Paper ID:** 1570642205

**Title:** Comprehensive Evaluation Method of Energy Storage System Considering Benefits of Auxiliary Services

**Authors:** Min Zhang (State Grid Shanxi Electric Power Research Institute, China); Rui Fan (State Grid Shanxi Electric Power Research Institute, China); Zhiwei Zhu (North China Electric Power University, China); Bo Zeng (North China Electric Power University, China); Houqi Dong (North China Electric Power University, China); Xiao Chang (State Grid Shanxi Electric Power Research Institute, China); Ran Li (State Grid Shanxi Electric Power Research Institute, China); Jun Zhao (State Grid Shanxi Electric Power Research Institute, China); Huipeng Li (State Grid Shanxi Electric Power Research Institute, China)

Stand No: P067

**Paper ID:** 1570642318

**Title:** Comparison and Analysis of Parameter Setting Methods of Doubly Fed Induction Generation Controller Based on Integrated Inertia Control

**Authors:** Jieyao Ling (Hohai University, China); Linjun Shi (Hohai University, China); Feng Wu (Hohai University, China); Guanghui Hua (China Electric Power Research Institute, China); Weiguo He (China Electric Power Research Institute, China)



Stand No: P068

**Paper ID:** 1570642332

Title: Optimal Trading Strategy of Inter- And Intra-provincial Medium- And Long-term Power Exchange Considering Renewable Portfolio Standard

Authors: Yingchun Feng (Jiangsu Power Exchange Center, China); Jie Fan (Jiangsu Power Exchange Center, China); Yu Jiang (Jiangsu Power Exchange Center, China); Xuesong Li (Jiangsu Power Exchange Center, China); Tianyu Li (Southeast University, China); Ciwei Gao (Southeast University, China); Tao Chen (Southeast University, China)

Stand No: P069

**Paper ID:** 1570642353

Title: Research on the Calculation Method of Low Voltage User's Loop Impedance Based on Binary Linear Regression Model

Authors: Yonghui Yan (Jiangsu Fangtian Technology Co., Ltd, China); Yong Zhao (Jiangsu Fangtian Technology Co., Ltd, China); Shijie LI (Southeast University, China); Li Jie (Southeast University, China); Liu Fei (Jiangsu Fangtian Technology Co., Ltd, China); Jia Wu (Jiangsu Fangtian Technology Co., Ltd, China)

Stand No: P070

**Paper ID:** 1570642354

Title: Improved PSO-based Parameters Optimization of ESS's Active and Reactive Controllers

Authors: Ruxiang Ma (Yancheng Power Supply Company, State Grid Jiangsu Electric Power Company, China); Chuanlin Xia (Hohai University, China); Zheng Xu (Yancheng Power Supply Company, State Grid Jiangsu Electric Power Company, China); Hongyi Zhou (Yancheng Power Supply Company, State Grid Jiangsu Electric Power Company, China); Linjun Shi (Hohai University, China); Qi Zhang (Hohai University, China)

Stand No: P071

**Paper ID:** 1570642373

Title: Optimization Model of Low-carbon Dispatch of Virtual Power Plant Considering Flexible Load Response and Electricity to Gas

Authors: Yan Liang (Shanxi Electrical Power Company of SGCC, China); Liling Huang (North China Electric Power University, China); Qiang Li (Shanxi Electrical Power Company of SGCC, China); Chunru Zhang (Shanxi Electrical Power Company of SGCC, China); Xiying Fan (Shanxi Electrical Power Company of SGCC, China); Wei Gao (Shanxi Electrical Power Company of SGCC, China)

Stand No: P072

**Paper ID:** 1570642441

Title: A Unit Protection Scheme Based on Transient Signals for Active Distribution Network

Authors: Liangzhi Sun (State Grid Shandong Electric Power Corporation, China); Yan Zhang (State Grid Shandong Electric Power Corporation, China); Tao Zhang (State Grid Shandong Electric Power Corporation, China); Zhongrun Xie (Shandong University, China); Guibin Zou (Shandong University, China)

Stand No: P073

**Paper ID:** 1570642455

Title : Research on Probabilistic Production Simulation Method for Electric Power Systems Considering Energy Storage: A Case Study of North Hebei Power Grid

Authors: Hao Yue (State Grid Jibei Electric Power Economic Research Institute, China); Yanan Zheng (China Academy of Macroeconomics, China); Jingang Yang (State Grid Jibei Electric Power Economic Research Institute, China); Zheyu Guo (State Grid Jiangxi Electric Power Company, China); Yunli Yue (State Grid Jibei Electric Power Economic Research Institute, China)

Stand No: P074

**Paper ID:** 1570642477

Title: Optimal Allocation of Energy Storage Capacity for Stabilizing Wind Power Fluctuation

Authors: Haoqing Zhu (Hohai University, China); Linjun Shi (Hohai University, China); Feng Wu (Hohai University, China)

Stand No: P075

**Paper ID:** 1570642488

Title: PV Hosting Capacity Assessment of Solar Road Considering Dynamic Shading and Spatial Correlation

Authors: Lingjie Wu (Hohai University, China); Yue Yuan (Hohai University, China); Han Wu (Hohai University, China); Kejun Qian (State Grid Jiangsu Electric Power Co. LTD, China)

Stand No: P076

**Paper ID:** 1570642596

Title: Voltage Support Ability Evaluation for Regional Partitions Using FCM and DTW

Authors: Ting Zhou (State Grid JiangSu Electric Power Co., LTD, China); Yibin Guan (State Grid JiangSu Electric Power Co., LTD, China); Xian Xu (State Grid JiangSu Electric Power Co., LTD, China); Xiang Zhao (Nanjing University of Science and Technology, China); Chongyang Zhang (Nanjing University of Science and Techonlogy, China); Wei Liu (Nanjing University of Science and Technology & Southeast University, China)

Stand No: P077

**Paper ID:** 1570642763

Title : Correlation Analysis of Deep Peak Shaving of Power Grid Under Renewable Energy Consumption

Authors: Juan Ji (Nanjing University of Posts and Telecommunications, China); Rong Fu (Nanjing University of Posts and Telecommunications, China); Zhengfeng Wang (State Grid Anhui Electric Power Co., Ltd., China); Yiqiang Ying (Nanjing University of Posts and Telecommunications, China)

Stand No: P078

**Paper ID:** 1570642768

Title: Study on the Ultrasonic Method to Detect Large Size Insulated Equipment for GIS

Authors: Tian Fang Yuan (China Southern Power Grid Research Institute, China); Fusheng Zhou (China Southern Power Grid, China); Wang Dibo (China Southern Power Grid Research Institute,

China); Gao Chao (China Southern Power Grid Research Institute, China); Ruodong Huang (China Southern Power Grid, China); Xu Yang (Maintenance & Test Center of EHV Power Transmission Company of China Southern Power Grid, China); Zhang Zhang (Maintenance and Test Center of Ultra High Voltage Company of South Grid, China); Weiguo Li (EHV Power Transmission Company China Southern Power Grid, China); Huang Zhongkang (Maintenance and Test Center of Ultra High Voltage Company of South Grid, China); Jinwei Chu (EHV Power Transmission Company China Southern Power Grid, China)

Stand No: P079

**Paper ID:** 1570642793

Title: Photovoltaic Time Series Aggregation Method Based on K-means and MCMC Algorithm

Authors: Mingshun Ma (China Agricultural University, China); Lin Ye (China Agricultural University, China); Jiachen Li (China Agricultural University, China); Pai Li (ctric Power Research Institute, China); Rui Song (State Grid Qinghai Electric Power Research Institut, China); Hongshan Zhuang (State Grid Xinjiang Electric Power Co., Ltd., China)

Stand No: P080

**Paper ID:** 1570642876

Title: A Risk Characteristic-Oriented Renewable Energy Scenario Reduction Method for Power System Risk Assessment

Authors: Zhibin Yan (State Grid NingXia Electric Power Co., Ltd., China); Bo Hu (Chongqing University, China); Xin Cheng (Chongqing University, China); Zongchuan Zhou (State Grid NingXia Electric Power Co., Ltd., China); Xue Feng (State Grid NingXia Electric Power Co., Ltd., China); Yufei Li (Chongqing University, China); Kaigui Xie (Chongqing University, China); MaoSen Cao (Chongqing University, China)

Stand No: P081

**Paper ID:** 1570642881

Title: Synchronous Line Loss Rate Analysis of Transformer District Based on K-Modes Clustering Algorithm and Deep Belief Network

Authors: Fan Yang (State Grid Shanghai Municipal Electrical Power Company, China); Shuqing Li (State Grid Shanghai Municipal Electrical Power Company, China)

Stand No: P082

**Paper ID:** 1570643389

Title: Analysis of DC-side Single Pole Grounding Fault in MMC-HVDC System Considering the Influence of Control Strategy

Authors: Xi Shi (Northwest A&F University, China); Jing Ma (North China Electric Power University, China)

Stand No: P083

**Paper ID:** 1570643416

Title: Simulation Evaluation of Floating Photovoltaic Power System

Authors: Milan Ravinath Perera (XJTLU, China); Huiqing Wen (Xi'an Jiaotong-Liverpool University, China)

Stand No: P084

**Paper ID:** 1570643471

**Title:** Distribution Network Reliability Lean Management and Combination Optimization

**Authors:** Shaohua Yu (South China University of Technology, China); Yue Yin (South China University of Technology, China); Zhaobin Du (South China University of Technology, China); Wenjuan Tao (South China University of Technology, China); Lidan Chen (South China University of Technology, China); Zhiying Chen (South China University of Technology, China)

Stand No: P085

**Paper ID:** 1570644074

**Title:** Short-term Forecasting of User Power Load in China Based on XGBoost

**Authors:** Jing Cai (State Grid Telecommunication Yili Technology Co., Ltd, China); Hui Cai (CSCEC Strait Construction and Development Co., Ltd, China); Yangyang Cai (Fujian Yongfu Power Engineering Co., Ltd, China); Lingting Wu (State Grid Telecommunication Yili Technology Co., Ltd, China); Yu Shen (State Grid Fujian Electric Power Co., Ltd, China)

Stand No: P086

**Paper ID:** 1570644117

**Title:** Dynamic Hosting Capacity Evaluation of DGs in Active Distribution Network

**Authors:** Wei Hu (State Grid Jiangsu Electric Power Co., Ltd, China); Ying Guo (Southeast University, China); Jiangping Jing (State Grid Jiangsu Electric Power Co., Ltd, China); Lijuan Chen (Southeast University, China)

Stand No: P087

**Paper ID:** 1570644352

**Title:** Measurement of Compressive Internal Stress in GIS Epoxy Composite Using Ultrasonic Longitudinal Critically Refracted Wave Method

**Authors:** Xu Yang (Maintenance & Test Center of EHV Power Transmission Company of China Southern Power Grid, China); Zhang Zhang (Maintenance and Test Center of Ultra High Voltage Company of South Grid, China); Weiguo Li (EHV Power Transmission Company China Southern Power Grid, China); Huang Zhongkang (Maintenance and Test Center of Ultra High Voltage Company of South Grid, China); Xiang Peng (Maintenance and Test Center of Ultra High Voltage Company of South Grid, China); Gao Chao (China Southern Power Grid Research Institute, China); Wang Dibo (China Southern Power Grid Research Institute, China); Fusheng Zhou (China Southern Power Grid, China); Ruodong Huang (China Southern Power Grid, China); Zhouyiao Zou (China Southern Power Grid, China)

Stand No: P088

**Pap** **Authors:** Li Xincong (State Grid Corporation of China, China); Zhang Mingze (State Grid Shanghai Economic Research Institute, China); Qiu Cheng (State Grid Shanghai Economic Research Institute, China)

Stand No: P095

**Paper ID:** 1570645591

**Title:** A Two-step Island Partition Strategy of Active Distribution System

Authors: Yi Wu (State Grid Jiangsu Electric Power Co., Ltd, China); Yi Xia (Southeast University, China); Wei Hu (State Grid Jiangsu Electric Power Co., Ltd, China); Lijuan Chen (Southeast University, China)

Stand No: P096

**Paper ID:** 1570645715

Title: Optimal Allocation of Synchronous Condensers in an Actual Weak Received Power Grid with an UHVDC System

Authors: Ting Cui (State Grid Hunan Electric Power Company Limited Research Institute, China)

Stand No: P097

**Paper ID:** 1570645757

Title: Adaptive Virtual Inertial Control of Wind Turbine Generators Considering Wind Speed and Load Variation

Authors: Tianhai Zhang (Jiangsu Frontier Electric Technology Co., Ltd., China); Jianjun Shu (Jiangsu Frontier Electric Technology Co., Ltd., China); Jingbo Wang (Nanjing University of Science and Technology, China); Keyi Tang (Jiangsu Frontier Electric Technology Co., Ltd., China); Nana Liu (Jiangsu Frontier Electric Technology Co., Ltd., China); Qian Fang (Nanjing University of Science and Technology, China)

Stand No: P098

**Paper ID:** 1570645759

Title: A Comparative Study on the Drag Model Applicability and Influence of Fluidized Velocity on Hydrodynamics of Fluidized Bed

Authors: Lijun Wang (Shenyang Aerospace University, China); Xiaocheng Du (Shenyang Aerospace University, China); Jiajun Sun (Shenyang Aerospace University, China); Xin Xie (Shenyang Aerospace University, China); Shuping Duan (Shenyang Aerospace University, China)

Stand No: P099

**Paper ID:** 1570645828

Title: Wire Metal Particle Movement and Discharge Characteristics Under DC Voltage in GIL

Authors: Feng Dai (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Branch Company, China); Xiaozheng Tang (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Dawei Duan (Hohai University, China); Chao Zhu (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Lixian Wang (Hohai University, China)

Stand No: P100

**Paper ID:** 1570645843

**er ID:** 1570644630

Title: Decision-making Model of Electricity Purchasing for Electricity Retailers Based on Conditional Value-at-Risk in Day-ahead Market

Authors: Wenbao Xu (Southeast University, China); Peng Zhang (Southeast University, China); Donghan Wen (Nanchang University, China)

Stand No: P089

**Paper ID:** 1570644832

Title: Motion Analysis of Free Metal Particle in Inhomogeneous Electric Field in GIL

Authors: Feng Dai (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Branch Company, China); Fenglei Tan (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Xuan Chen (State Grid Jiangsu Electric Power Co., Ltd. Maintenance Company, China); Lixian Wang (Hohai University, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Dawei Duan (Hohai University, China)

Stand No: P090

**Paper ID:** 1570644861

Title: Source Scheme Design of 220kV Power Grid in Vision Based on Back Propagation Neural Network

Authors: Yunhua Xi (Energy Development Research Institute, CSG, China); Zhaobin Du (South China University of Technology, China); Yumeng Zeng (South China University of Technology, China); Zheng Xu (South China University of Technology, China); Zihao Xie (South China University of Technology, China); Haoqin Zhan (South China University of Technology, China)

Stand No: P091

**Paper ID:** 1570644977

Title: Connection Identification of Low Voltage Distribution Areas Based on Distance Measurement and Trend Similarity

Authors: Xinrui Zhou (ZhengZhou University, China); Yuehao Yan (ZhengZhou Power Supply Company, China); Wei Bao (ZhengZhou Power Supply Company, China)

Stand No: P092

**Paper ID:** 1570645268

Title: Analysis of Strengthening Grid Structure on Angle Stability of Weakly Connected Group Grid

Authors: Fan Li (State Grid Economic and Technological Research Institute Co., LTD, China); Tianyi Chen (State Grid Economic and Technological Research Institute Co., LTD, China); Yang Cao (State Grid Economic and Technological Research Institute Co., LTD, China); Zhongjian Liu (State Grid Economic and Technological Research Institute Co., LTD, China); Kexin Zhang (State Grid Economic and Technological Research Institute Co., LTD, China)

Stand No: P093

**Paper ID:** 1570645269

Title: Engineering Scenario-Oriented Optimal Scheduling of Multiple Pulsed Loads in Isolated Power System

Authors: Fan Li (State Grid Economic and Technological Research Institute Co., LTD, China); Yang Cao (State Grid Economic and Technological Research Institute Co., LTD, China); Zhongjian Liu (State Grid Economic and Technological Research Institute Co., LTD, China)

Stand No: P094

**Paper ID:** 1570645323

Title: Location Evaluation of Multi-station Integration Based on AHP-Fuzzy Comprehensive Evaluation Method

Title: Wide Frequency Oscillation Mode Identification Based on Improved Prony Algorithm  
Authors: Chen Yang (Hohai University, China); Chen Fan (China Electric Power Research Institute, China); Renhui Dou (China Electric Power Research Institute, China); Wenfei Yi (State Grid Jiangsu Electric Power Co., Ltd, China); Yiping Yu (Hohai University, China)

## **Poster Session 2**

**Date:** Sept.22,2020

**Room:** Zijin Ballroom B

Stand No: P001

**Paper ID:** 1570645861

Title: Optimal Design of an Axisymmetric Electromagnetic Actuator

Authors: Sa Zhu (Hohai University, China)

Stand No: P002

**Paper ID:** 1570645862

Title: Study on Load Recovery Optimization of Distribution Network Considering Weighted Power Flow Entropy

Authors: Zongyin Fan (Hohai University, China); Shanshan Shi (State Grid Shanghai Municipal Electric Power Company, China)

Stand No: P003

**Paper ID:** 1570646008

Title: Initialization Method of Electromagnetic Transient Simulation for AC-DC Hybrid Power System Based on Three-Phase Power Flow

Authors: Zhiqiang Chong (State Grid Tianjin Electric Power Research Institute, China); Zhijun E (State Grid Tianjin Electric Power Company, China); Guangyao Yu (State Grid Tianjin Electric Power Research Institute, China); Weiping Yao (State Grid Tianjin Electric Power Company, China); Wei Liu (State Grid Tianjin Electric Power Company, China); Jifei Zhou (State Grid Tianjin Electric Power Company, China)

Stand No: P004

**Paper ID:** 1570646017

Title: Analysis on the Complementary Characteristics of Adjustable Resources in Typical Energy Scenarios

Authors: Hongjuan Zheng (State Grid Electric Power Research Institute Co., Ltd, China); Bin Yang (State Grid JiangSu Electric Power Co. Ltd, China); Xuesong Shao (State Grid JiangSu Marketing Service Center, China); Cheng Ji (State Grid Electric Power Research Institute Co., Ltd, China); Yang Yu (State Grid Electric Power Research Institute Co., Ltd, China)

Stand No: P005

**Paper ID:** 1570646018

Title: The Load Equivalence Method for Dynamic Frequency Analysis of Large Power Grid

Authors: Ruili Zhang (Hohai University, China); Chen Fan (China Electric Power Research Institute,

China); Jiajia Wang (Hohai University, China); Renhui Dou (China Electric Power Research Institute, China); Yiping Yu (Hohai University, China)

Stand No: P006

**Paper ID:** 1570646022

**Title:** Modeling of Three-limb Core-type Power Transformer No-load Closing Excitation Inrush Current

**Authors:** Xu Honghua (Nanjing Power Supply Company of State Grid Jiangsu Electric Company, China); Li Yong (Nanjing Power Supply Company of State Grid Jiangsu Electric Power Company, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Chen Shoulong (Nanjing Power Supply Company of State Grid Jiangsu Electric Company, China); Chunning Wang (Jiangsu Nanjing Power Supply Company, China); Zhu Hao (Hohai University, China)

Stand No: P007

**Paper ID:** 1570646030

**Title:** Study on the Influence of Temperature on the Standard Electricity Meter and Its Improvement Design

**Authors:** Qing Xu (State Grid Jiangsu Electric Power Co., Ltd Marketing Service Center, China); Hanmiao Cheng (State Grid Jiangsu Electric Power Company Marketing Service Center, China); Qixin Cai (State Grid Jiangsu Electric Power Co., Ltd Marketing Service Center, China); Pengfei Dai (State Grid Jiangsu Electric Power Co., Ltd Marketing Service Center, China); Fan Zhou (Shenzhen CLOU Electronic Co., Ltd, China); Bin Li (Shenzhen CLOU Electronic Co., Ltd, China)

Stand No: P008

**Paper ID:** 1570646056

**Title:** Multi-time Scale Coordinated Scheduling of Stand-alone Microgrid Considering Resource Flexibility

**Authors:** Weiwei Jing (State Grid Huaian Power Supply Company, China); Xiaochun Xu (State Grid Huaian Power Supply Company, China); Bo Ding (State Grid Huaian Power Supply Company, China); Lu Wang (Southeast University, Xuanwu District, Nanjing, China); Haifeng Qiu (Southeast University, Xuanwu District, Nanjing, China)

Stand No: P009

**Paper ID:** 1570646129

**Title:** Combined Optimization of Production Power Consumption and Power Generation of Its Own Power Plant in Electrolytic Aluminum Enterprises Based on Price Signal

**Authors:** Ying Zhou (China Electric Power Research Institute, China); Jidong Liu (State Gurd Shandong Electric Power Company, China); Haijing Zhang (State Gurd Shandong Electric Power Company, China); Ying Du (State Gurd Shandong Electric Power Company, China); Lei Ma (State Gurd Xinjiang Electric Power Company, China); Lingkai Zhu (State Gurd Shandong Electric Power Company, China); Songsong Chen (China Electric Power Research Institute, China); Zhixin Li (Hohai University, China); Yingjun Wu (Hohai University, China); Ciwei Gao (Southeast University, China)

Stand No: P010

**Paper ID:** 1570646243

**Title:** Ultra Short-Term Forecast of Photovoltaic Generation Based on Time-Division LSTM



Authors: Min Shi (State Grid Hebei Electric Power Co., Ltd, China); Rui Yin (State Grid Hebei Electric Power Co., Ltd, China); Pei Zhang (Beijing Jiaotong University, China); Jiangang Tian (East China Jiaotong University, China); Yifeng Wang (State Grid Hebei Electric Power Co., Ltd, China)

Stand No: P011

**Paper ID:** 1570646244

Title: Equivalence Method for Wind Farm Based on Clustering of Output Power Time Series Data

Authors: Mingkai Cao (Huazhong University of Science and Technology, China); Dongyuan Shi (Huazhong University of Science and Technology, China)

Stand No: P012

**Paper ID:** 1570646245

Title: Day-ahead and Intraday Optimization Models for Demand Response of the Aggregators of Thermostatically Controlled Loads

Authors: Lixia Zhou (State Grid Jibei Electric Company Limited, China); Jianyong Ding (Southeast University, China); Xiao Liu (State Grid Jibei Electric Company Limited, China); Ruiming Yuan (State Grid Jibei Electric Company Limited, China); Lirong Duan (State Grid Jibei Electric Company Limited, China); Huiling Li (State Grid Jibei Electric Company Limited, China); Ciwei Gao (Southeast University, China)

Stand No: P013

**Paper ID:** 1570646249

Title: Selection of Step Size Based on Weather Type Classification for Maximum Power Point Tracking in Photovoltaic System

Authors: Dingyi Lin (University of Nanjing Normal, China); Xingshuo Li (Nanjing Normal University, China); Ding Shuye (Harbin University of Science and Technology, China)

Stand No: P014

**Paper ID:** 1570646264

Title: The Application of Improved AdaBoost.M1-SVM on Rapid Assessment of Distribution Network Reliability

Authors: Yanyong Yang (State Grid, China); Hui Zhu (State Grid, China); Ji Ding (Xihua University, China); Shiqu Xiao (Xihua University, China); Xia Lei (Xihua University, China)

Stand No: P015

**Paper ID:** 1570646274

Title: Method to Evaluate the Impact of Cyberattacks Against Charging Piles on Distribution Network

Authors: Yunan Zhang (Guangdong Provincial Key Laboratory of Power System Network Security & Electric Power Research Institute, China Southern Power Grid, China); Yixin Jiang (China Southern Power Grid, China); Aidong Xu (Guangdong Provincial Key Laboratory of Power System Network Security & Electric Power Research Institute, China Southern Power Grid, China); Chao Hong (China Southern Power Grid, China)

Stand No: P016

**Paper ID:** 1570646278

**Title:** Anticipate Fault Sets Generation Methods for Cyber Physical Power System Considering Cyber-Attacks

**Authors:** Yixin Jiang (China Southern Power Grid, China); Aidong Xu (Guangdong Provincial Key Laboratory of Power System Network Security & Electric Power Research Institute, China Southern Power Grid, China); Yunan Zhang (China Southern Power Grid Co., Ltd., China); Chao Hong (China Southern Power Grid, China)

Stand No: P017

**Paper ID:** 1570646282

**Title:** A Double-Layer Cyber Physical Cooperative Emergency Control Strategy Modification Method for Cyber-Attacks Against Power System

**Authors:** Aidong Xu (Guangdong Provincial Key Laboratory of Power System Network Security & Electric Power Research Institute, China Southern Power Grid, China); Yixin Jiang (China Southern Power Grid, China); Yunan Zhang (China Southern Power Grid Co., Ltd., China); Chao Hong (China Southern Power Grid, China)

Stand No: P018

**Paper ID:** 1570646376

**Title:** Value Evaluation of Wind Power Forecasting Information for Economic Dispatch

**Authors:** Bohong Wang (Tsinghua University, China); Qinglai Guo (Tsinghua University, China); Tianyu Yang (Tsinghua University, China); Bojian Wen (Guangdong Power Grid Company Limited, China)

Stand No: P019

**Paper ID:** 1570646418

**Title:** Optimal Charging Strategy for EVs in Microgrid Considering Customer Urgency

**Authors:** Qing Wen Ruan (China); Xiang Yu (China); Wei Liu (Southeast University, China); Zhong Liu (China); Yu Yu (China); Shen Chuan Wu (China)

Stand No: P020

**Paper ID:** 1570646419

**Title:** Regional Generator Excitation Control Strategy for HVDC Commutation Failure Suppression

**Authors:** Jinmin Cheng (Jiangsu Electric Power Co., Ltd., China); Fei Dou (Jiangsu Electric Power Co., Ltd., China); Weiyuan Wang (Jiangsu Electric Power Co., Ltd., China); Xiaorong Le (Jiangsu Power Design Institute Co., Ltd., China); Hongning Zhen (Jiangsu Power Design Institute Co., Ltd., China)

Stand No: P021

**Paper ID:** 1570646435

**Title:** Coordinated and Optimized Allocation of Electrical/Thermal/Cold Energy Storage in Regional Integrated Energy System

**Authors:** Hanbin Diao (University of Hunan, China); Peiqiang Li (Hunan University, China)

Stand No: P022

**Paper ID:** 1570646485

**Title:** Total Transfer Capability Assessment of Multi-Infeed HVDC Links Considering Frequency Stability Requirements

**Authors:** Shiqian Wang (Henan Electric Economic Research Institute, China); Peng Yuan (Henan Electric Economic Research Institute, China); Xiaoliang Jiang (State Grid Henan Economic Research Institute, China); Linlin Yu (Henan Electric Economic Research Institute, China); Buqing Deng (Hunan University & China, China); Yunfeng Wen (Hunan University, China)

Stand No: P023

**Paper ID:** 1570646487

**Title:** Robust Energy Storage Configuration of Integrated Energy System Considering Multiple Uncertainties

**Authors:** Peiqiang Li (Hunan University, China); Hanbin Diao (University of Hunan, China); Xue Wenqi (Hunan University, China); Jifei Wang (State Grid Zhangjiakou Power Supply Company, China)

Stand No: P024

**Paper ID:** 1570646651

**Title:** Simplified Modeling of an AC Inverter Air Conditioner Based on Experimental Data Paper

**Authors:** Honghui Diao (Hohai University, China); Yuqing Jin (Hohai University, China); Ping Ju (Hohai University, China); Tingyu Jiang (HoHai University, China); Wenjie Ruan (Hohai University, China)

Stand No: P025

**Paper ID:** 1570646652

**Title:** Feasibility Study on the Characterization of Inverter Air Conditioner Load with Synthetic Load Model

**Authors:** Xue Li (Hohai University, China); Lu Cao (East Branch of STATE GRID Corporation OF CHINA, China); Ping Ju (Hohai University, China); Jianhua Li (East Branch of STATE GRID Corporation OF CHINA, China); Yuqing Jin (Hohai University, China)

Stand No: P026

**Paper ID:** 1570646654

**Title:** Optimal Power Dispatch for District Cooling System Considering Cooling Water Transport Delay

**Authors:** Ge Chen (University of Macau, Macao); Biao Yan (University of Macau, Macao); Hongcai Zhang (University of Macau, Macao); Yonghua Song (University of Macau, Macao)

Stand No: P027

**Paper ID:** 1570646656

**Title:** Simplified Model of Switching Power Supply Load

**Authors:** Wenjie Ruan (Hohai University, China); Yuqing Jin (Hohai University, China); Ping Ju (Hohai University, China); Tingyu Jiang (HoHai University, China); Honghui Diao (Hohai University, China)

Stand No: P028

**Paper ID:** 1570646668

Title: Determination of the Low-voltage Excitation Capacitor of High-low Voltage Dual Stator-winding Induction Generator for No-load Operation

Authors: Mengdi Zhao (Qingdao University, China); Xinzhen Wu (Qingdao University, China)

Stand No: P029

**Paper ID:** 1570646676

Title: Effects of the Cogeneration Unit Heat Storage System on Peaking Load Performance and Operation Cost

Authors: Haisheng Yang (Hebei Electric Power Testing and Research Institute of SGCC, China); Wenying Wang (Hebei Electric Power Testing and Research Institute, China); Hao Li (Hebei Electric Power Testing and Research Institute, China)

Stand No: P030

**Paper ID:** 1570646791

Title: Research on Electric Vehicle Charge and Discharge Dispatching Strategy Considering the Demand on Both Sides of Supply and Demand

Authors: Shaorong Cai (Southwest Branch of State Grid Corporation of China, China); Li Jiang (Southwest Branch of State Grid Corporation of China, China); Yiran Li (Sichuan University of China, China); Shu Zhang (Sichuan University of China, China)

Stand No: P031

**Paper ID:** 1570646845

Title: Characteristic of Actual Output Based Generator Modeling

Authors : Fang Guo Cao (NARI Group Corporation (State Grid Electric Power Research Institute); ,NARI Technology Co. Ltd., china); Min Li (NARI Group Corporation(State Grid Electric Power Research Institute); , NARI Technology Co. Ltd.,china); Xin Shan (NARI Group Corporation (State Grid Electric Power Research Institute); ,NARI Technology Co. Ltd.,china); Ping Ju (Hohai University, China); Yi Wang (NARI Group Corporation(State Grid Electric Power Research Institute); , NARI Technology Co. Ltd.,china); Qian Chen (Hohai University, China)

Stand No: P032

**Paper ID:** 1570646859

Title: Comprehensive Technical and Economic Evaluation of Regional Terminal Energy Systems

Authors: Yuting Yan (Yunnan Power Grid Co., Ltd, China); Zihao Zhang (Digital Grid Research Institute China Southern Power Grid Co., Ltd, China)

Stand No: P033

**Paper ID:** 1570646865

Title: Comparative Analysis of Power Loss for MMC Rectifiers with NLM and CPS Modulation Schemes

Authors: Kun Yu (Hohai University, China); Fangyuan Gu (Hohai University, China); Li Zhang (Hohai University, China); Wenjun Ruan (State Grid Jiangsu Electric Power CO., LTD., China)

Stand No: P034

**Paper ID:** 1570646910

**Title:** RoBERTa Word Embedding Based Power Grid Dispatching Entity Recognition

**Authors:** Xiao Li (State Grid Jiangsu Electric Power Co., Ltd., China); Wenteng Liang (State Grid Jiangsu Electric Power Co., Ltd., China); Yifeng Li (State Grid Jiangsu Electric Power Co., Ltd., China); Yuxuan Zhao (Southeast University, China); Zhizheng Zhang (Southeast University, China); Hengguang Yang (Taishan Polytechnic, China)

Stand No: P035

**Paper ID:** 1570646962

**Title:** Optimal Dispatch of Microgrid Considering Interruptible Load

**Authors:** Zhen Wang (Nanjing Tech University, China); Yunfan Shao (Nanjing Tech University, China); Xun Dou (Nanjing Tech University, China); Jun Wang (Nanjing Tech University, China); Xin Zhang (Nanjing Tech University, China)

Stand No: P036

**Paper ID:** 1570647000

**Title:** Day-ahead Optimal Scheduling of Power System Considering Uncertainty of New Energy and Load

**Authors:** Dongli Xia (Hohai University, China)

Stand No: P037

**Paper ID:** 1570647050

**Title:** Analysis of Influence of Wind Speed Correlation in Transmission Congestion Based on LHS-Cholesky Decomposition

**Authors:** Chenyiyang Jia (School of electrical and automation, Wuhan University); Jie Zhao (Wuhan University, China); Qi Liu (State Grid Xuzhou Power Supply Company, China); Yuhui Ma (School of Electrical and Automation, Wuhan University, China); Yang Jie (State Grid, China); Li Yaxin (State Grid, China); Hu ChunGuang (State Grid, China)

Stand No: P038

**Paper ID:** 1570647078

**Title:** Research on Source-Grid-Load-Energy Storage Collaborative Service Business Model Based on Business Model Canvas Approach

**Authors:** Chen Wu (Hohai University, China); Zhinong Wei (Hohai University, China); Haiteng Han (Hohai University, China); Guiyuan Xue (State Grid Jiangsu Electric Power Co., Ltd., China); Hui Huang (North China Electric Power University, China); Anyuan Fu (North China Electric Power University, China)

Stand No: P039

**Paper ID:** 1570647087

**Title:** Research on Line Simulation and Flexible Configuration Scheme of Distribution Network Practical-Test-Platform

**Authors:** Lifang Wu (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Xiaoyong Yu (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Huang Weixiang (Electric Power Research Institute of Guangxi Power Grid Co., Ltd., China); Shaonan Chen (Electric Power Research Institute, Guangxi Power Grid Corporation, China); Liqun Yin (Electric

Power Research Institute, Guangxi Power Grid Corporation, China)

Stand No: P040

**Paper ID:** 1570647103

Title: Research on Equivalent Electromechanical Transient Modeling of PMSG-based Wind Farms

Authors: Jinping Zhang (China Electric Power Research Institute, China); Fenglin Miao (China Electric Power Research Institute, China); Rui Gu (Southeast University, China)

Stand No: P041

**Paper ID:** 1570647121

Title: Mechanical Fault Diagnosis of Transformer Based on Vibration Signal Spectrum Centroid

Authors: Xiaofeng Liu (Jiangsu Frontier Electric Technology Co., Ltd, China); Xiulian Lu (Jiangsu Frontier Electric Technology Co., Ltd, China); Yunxiang Ma (Jiangsu Frontier Electric Technology Co., Ltd, China); Lipeng He (Jiangsu Frontier Electric Technology Co., Ltd, China); Hongzhong Ma (Hohai University & College of Energy and Electrical Engineering, China); Jinli Wu (Hohai University, China)

Stand No: P042

**Paper ID:** 1570647133

Title: A Novel High-Precision Method Based on Sequence Weighted Adaptive Unscented Kalman Filter for GPS Disciplined Crystal Oscillator

Authors: Hui Li (State Grid Hunan Electric Power Company Limited Research Institute, China); Xiaojun Zhang (State Grid Hunan Electric Power Company Limited Research Institute, China); Zhenhai Li (Wuhan University of Technology, China); Hua Pan (State Grid Hunan Electric Power Company Limited Research Institute, China); Wenqi Mao (State Grid Hunan Electric Power Company Limited Research Institute, China); Yabing Yan (State Grid Hunan Electric Power Company Limited Research Institute, China); Bin Yu (State Grid Hunan Electric Power Company Limited Research Institute, China); Jinrui Tang (Wuhan University of Technology, China)

Stand No: P043

**Paper ID:** 1570647138

Title: Research on the Collaborative Scheme of Integrated Peak-Regulation Resources Based on Generation-Grid-Load-Storage

Authors: Mengchen Liu (North China Electric Power University, China); Hua Zheng (North China Electric Power University, China); Lijun Qin (North China Electric Power University, China)

Stand No: P044

**Paper ID:** 1570647286

Title: A Method for Verifying the Secondary Virtual Circuit of Smart Substations Based on Region Partition Data Flow Direction and Port Matching

Authors: Nan Ning (Gui'an Power Supply Company, Guizhou Electric Power Co., Ltd); Zhiya Zong (Gui'an Power Supply Company, Guizhou Electric Power Co., Ltd, China); Lin Du (Gui'an Power Supply Company, Guizhou Electric Power Co., Ltd, China); Xingyan Liu (Gui'an Power Supply Company, Guizhou Electric Power Co., Ltd, China); Shiguo Wang (Gui'an Power Supply Company, Guizhou Electric Power Co., Ltd, China)

Stand No: P045

**Paper ID:** 1570647289

**Title:** Experiences in 735 kV Series Compensation Protection and Control System Upgrading Project

**Authors:** DeChang Wang (NR Electric, China); Ding Fengfeng (NR Electric Co., Ltd., China); Zhou Qiwen (NR Electric Co., Ltd., China); Liu Yunfei (NR Electric Co., Ltd., China); Fang Taixun (NR Electric Co., Ltd., China); Wang Bin (NR Electric Co., Ltd., China)

Stand No: P046

**Paper ID:** 1570647347

**Title:** Research on Joint Optimal Planning Method of Distribution Network Considering Different Operators Participation

**Authors:** Jin Liu (Nanjing Normal University, China); Zhenyu Lv (Nanjing Normal University, China); Qi Wang (Nanjing Normal University, China); Min Zhou (Nanjing Normal University, China)

Stand No: P047

**Paper ID:** 1570647365

**Title:** Research and Application of Key Technology of Intelligent Operation and Inspection in Intelligent Substation

**Authors:** Di Zhou (State Grid Jiangxi Electric Power Co., Ltd. Maintenance Branch, China); Zizhan Wang (State Grid Jiangxi Electric Power Co., Ltd. Maintenance Branch, China); Qing Deng (State Grid Jiangxi Electric Power Co., Ltd. Maintenance Branch, China); Shuming Peng (Nanchang Bay Power Supply Engineering Service Co., Ltd, China); Ke Wu (State Grid Jiangxi Electric Power Co., Ltd. Maintenance Branch, China); Quanke Ba (Wuhan Kemov Electric Co., Ltd, China)

Stand No: P048

**Paper ID:** 1570647369

**Title:** Research on Microgrid Dispatch Considering the Charge and Discharge Strategy of Electric Vehicles

**Authors:** Ke Xu (State Grid Jiangsu Electric Power Co. Ltd. Research Institute, China); Shizhen Wang (Nanjing TECH University, China); JingBo Zhao (State Grid Jiangsu Electric Power Co. Ltd. Research Institute, China); Xun Dou (Nanjing Tech University, China); Pan Zhang (Nanjing TECH University, China)

Stand No: P049

**Paper ID:** 1570647391

**Title:** A Fault Location Strategy for IGBT Open-Circuit Fault in Modular Multilevel Converter

**Authors:** Tao Yichen (Hohai University, China); Li Zhang (Hohai University, China); Chuyang Wang (Hohai University, China); Kun Yu (Hohai University, China)

Stand No: P050

**Paper ID:** 1570647422

**Title:** Identification of Low Frequency Oscillation Mechanism Based on Deep Learning

**Authors:** Lingjun Shi (HOHAI University, China); Wang Gu (Hohai University, China); Chen Fan (China Electric Power Research Institute, China); Renhui Dou (China Electric Power Research Institute, China); Wenfei Yi (State Grid Jiangsu Electric Power Co., Ltd, China); Yiping Yu (Hohai

University, China)

Stand No: P051

**Paper ID:** 1570647432

Title: Network Planning of AC/DC Hybrid Microgrid with Power Electronic Transformers

Authors: Zhebin Sun (Inner Mongolia Power Economic Technology Research Institute, China); Gaowa Sharen (Inner Mongolia Power Economic Technology Research Institute, China); Xianglong Liu (Inner Mongolia Power Economic Technology Research Institute, China); Zhihai Yan (Inner Mongolia Power Economic Technology Research Institute, China); Tao Liang (Inner Mongolia Power Economic Technology Research Institute, China); Hang Yin (Sichuan University, China)

Stand No: P052

**Paper ID:** 1570647446

Title: Emergency Frequency Control Strategy Using Demand Response Based on Deep Reinforcement Learning

Authors: Qinfeng Ma (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Heng Zhang (NARI Group Corporation/State Grid Electric Power Research Institute, China); Xianqiang He (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Jianxing Tang (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Xiaoqing Yuan (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Guosong Wang (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China)

Stand No: P053

**Paper ID:** 1570647451

Title: Evaluation Model of Demand Response Potential Based on Cost-benefit Analysis

Authors: Chong Shao (China Southern Power Grid, China); Ping Liu (China Southern Power Grid, China); Jie Hao (Southeast University, China); Ciwei Gao (Southeast University, China); Tao Chen (Southeast University, China)

Stand No: P054

**Paper ID:** 1570647453

Title: Peak-shaving Capacity Assessment of Commercial Buildings with Time-Varying Energy Comfort

Authors: Sun Yu (Changzhou Power Supply Company State Grid, China); Jing Xiaosong (State Grid, China); Liu MinLI (State Grid, China); Li Bo (State Grid, China); Heng Wu (Jiangsu Intelever Energy Technology Co., Ltd, China)

Stand No: P055

**Paper ID:** 1570647479

Title: Power System Frequency Situation Prediction Method Based on Transfer Learning

Authors: Xianqiang He (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Qiang Liu (NARI Group Corporation/State Grid Electric Power Research Institute, China); Jianxing Tang (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Qinfeng Ma (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Guosong Wang (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China); Mingshun Liu (Power Dispatching Control Center of Guizhou Power Grid Co., Ltd, China)



Stand No: P056

**Paper ID:** 1570647480

**Title:** Statistics of Defect and Fault Data of Capacitive Equipment with Three Kinds of Detection Methods

**Authors:** Liyuan Wu (China Electric Power Research Institute, China); Yu Hao (China Electric Power Research Institute, China); Zhifeng Liu (North China Electric Power University, China); Qingzhu Yang (North China Electric Power University, China); Guoliang Yue (State Grid Hebei Electric Power Research Institute, China); Xiaoxin Chen (Zhejiang Electric Power Research Institute, China)

Stand No: P057

**Paper ID:** 1570647519

**Title:** Research on Grid Connection of Wind Farms Based on VSC-HVDC System

**Authors:** Mengfei Rong (Hefei University of Technology, China); Tonghua Wu (NARI Group Corporation, China); Xindong Li (NARI Group Corporation, China); Hongbin Wu (Hefei University of Technology, China)

Stand No: P058

**Paper ID:** 1570647527

**Title:** Analysis and Optimization of the Power Generation Right Transfer Mechanism

**Authors:** Jie Fan (Jiangsu Power Exchange Center, China); Yu Jiang (Jiangsu Power Exchange Center, China); Yang Wang (State Grid Jiangsu Electric Power Co., Ltd., China); Yu Ding (State Grid Jiangsu Electric Power Co., Ltd., China); Xuwen Liu (State Grid Jiangsu Electric Power Co., Ltd., China); Yunting Yao (Southeast University-Nanjing China, China)

Stand No: P059

**Paper ID:** 1570647535

**Title:** A Regression-analysis-based TCU Failure Warning Method in Electromagnetic Environment

**Authors:** Jieqing Deng (State Grid Jiangsu Electric Power Co., Ltd, China); Jiangang Xu (State Grid Jiangsu Electric Power Co., Ltd, China); Xuan Li (Southeast University, China); Yang Xu (Electric Power Research Institute of State Grid Jiangsu Electric Power Co., Ltd, China); Tianxi Xie (State Grid Jiangsu Electric Power Co., Ltd, China)

Stand No: P060

**Paper ID:** 1570647594

**Title:** Review on the Two-layer Coordinated Architecture for Optimal Regulation and Control of Energy Interconnection System in New-type Towns

**Authors:** Qi Wang (Nanjing Normal University, China); Ning Li (Nanjing Normal University, China); Xin Gu (Nanjing Normal University, China); Nianchu Zhang (Nanjing Normal University, China); Yonghua Chen (NARI Group Corporation, China); Guoxin He (NARI Technology Co., Ltd., China)

Stand No: P061

**Paper ID:** 1570647614

**Title:** Optimized Dispatch of Multi-energy Microgrid Clusters

Authors: Wei Du (North China Electric Power University); Yunfan Shao (Nanjing TECH University, China); Xun Dou (Nanjing Tech University, China); Jun Wang (Nanjing Tech University, China); Weili Ren (State Grid Integrated Energy Service Group); Baohua Bai (State Grid Integrated Energy Service Group, China)

Stand No: P062

**Paper ID:** 1570647634

Title: Configuration of Thermal Storage Tank of Microgrid Clusters Considering Thermal Interaction

Authors: Wei Du (North China Electric Power University); Ming Zeng (School of Economics and Management, North China Electric Power University, China); Yunfan Shao (Nanjing TECH University, China); Xun Dou (Nanjing Tech University, China); Jun Wang (Nanjing Tech University, China)

Stand No: P063

**Paper ID:** 1570647690

Title: Optimal Charging Strategy of Electric Vehicles in Smart Grid Considering the Characteristics of Lithium Ion Batteries

Authors: Ruizhi Wang (Hohai University, China); Ling Zhou (Hohai University, China)

Stand No: P064

**Paper ID:** 1570647691

Title: Economic Optimization of a Community-scale Integrated Energy Microgrid Based on PSO Algorithm

Authors: Kunyu Sun (North China Electric Power University, China); Yuqin Xu (North China Electric Power University, China)

Stand No: P065

**Paper ID:** 1570647711

Title: A Fault Tracing Method of Successive Commutation Failure for Multi-Infeed DC System

Authors: Jianhua Li (East Branch of STATE GRID Corporation OF CHINA, China); Li Zhang (CHSCOM Electric Technology Co. Ltd, China); Chaoming Zhang (Southeast University, Nanjing City, Jiangsu Province, China); Haibao Zhai (East Branch of State Grid Corporation of China, China); Anna Luo (CHSCOM Electric Technology Co. Ltd, China); Xi Yang (East Branch of State Grid Corporation of China, China)

Stand No: P066

**Paper ID:** 1570647726

Title: Research on Spurious Triggering Characteristics During Reverse Recovery for Thyristors

Authors: Tianxi Xie (State Grid Jiangsu Electric Power Co., Ltd, China); Yang Xu (Electric Power Research Institute of State Grid Jiangsu Electric Power Co., Ltd, China); Jiangang Xu (State Grid Jiangsu Electric Power Co., Ltd, China); Fengbo Tao (State Grid Jiangsu Electric Power Company Research Institute, China); Lei Pang (XI'AN Jiaotong University, China); Kun Yang (State Grid Jiangsu Electric Power Company Research Institute, China); Xuan Li (Southeast University, China)

Stand No: P067

**Paper ID:** 1570647727

Title: Research on Key Technologies of Communication for Large-Scale Stability Control System in

Modern Power Grid

Authors: Jian Qiu (China Southern Power Grid, China); Shangxue Xia (NR Electric Co., Ltd., China); Jianxin Zhang (China Southern Power Grid, China); Zuyi Ren (NR Electric Co., Ltd., China); Guanghu Xu (China Southern Power Grid, China); Junfang Zhang (Nanjing University of Science and Technology, China)

Stand No: P068

**Paper ID:** 1570647732

Title: A High Proportion of Photovoltaic Grid-Connected Consumption Strategy Based on "Source Grid Storage" Coordination and Interaction

Authors: Yi Zhou (East Branch of State Grid Corporation of China, China); Xiaowen Li (CHSCOM Electric Technology Co. Ltd, China); Liangcai Zhou (East Branch of STATE GRID Corporation OF CHINA, China); Jinling Wu (CHSCOM Electric Technology Co. Ltd, China); Jianyu Lu (East China Electric Power Control Center, China); Chaoming Zhang (Southeast University, Nanjing City, Jiangsu Province, China)

Stand No: P069

**Paper ID:** 1570647736

Title: Generation Control System for Improving Stability of Medium-Voltage DC Power Systems

Authors: Lin Zhu (Tianjin University, China); Liu Haitao (China Electric Power Research Institute, China); Yizhen Wang (Tianjin University, China); Li Guo (Tianjin University, China); Xueshen Zhao (Tianjin University, China)

Stand No: P070

**Paper ID:** 1570647774

Title: Sampling Test and Comparative Analysis of Insulation Monitoring Device in DC Power System for Station

Authors: Ning Xu (State Grid Zhejiang Electric Power Co., Ltd. Research Institute, China); Hangwei Tong (State Grid Zhejiang Electric Power Research Institute, China); Yongtao Jin (State Grid Zhejiang Electric Power Co., Ltd. Research Institute, China); Jieming Xu (State Grid Zhejiang Electric Power Co., Ltd., China); Zheren Dai (State Grid Zhejiang Electric Power Co., Ltd., China); Yong Yang (State Grid Zhejiang Electric Power Co., Ltd. Research Institute, China)

Stand No: P071

**Paper ID:** 1570647784

Title: Reactive Power Optimization Model in Unbalanced Large-Scale Wind Power Integration Area

Authors: Can Chen (State Grid Jibei Electric Co. Ltd. Research Institute, China); Ruifang Zhang (State Grid Jibei Electric Co. Ltd. Research Institute, China); Yuntao Ju (China Agricultural University, China); Linlin Wu (State Grid Jibei Electric Power Co. Ltd., China); Hui Liu (State Grid Jibei Electric Co. Ltd. Research Institute, China)

Stand No: P072

**Paper ID:** 1570647801

Title: The Power Electronic Transformer Based Multi-port DC Charging Station

Authors: Yong Shi (Hefei University of Technology, China)

Stand No: P073

**Paper ID:** 1570647811

Title: Investigation of Performance of Photovoltaic Generator Control in Grid-Connected Mode

Authors: Ruogu Wang (State Grid Shaanxi Electric Power Research Institute, China); Zhenxiong Wang (Xi'an Jiaotong University, China); Zhenxue Xie (State Grid Shaanxi Electric Power Research Institute, China); Hao Yi (School of Electrical Engineering, Xi'an Jiaotong University, China); Hongli Sun (State Grid Shaanxi Electric Power Research Institute, China)

Stand No: P074

**Paper ID:** 1570647829

Title: Optimization Strategy of Electric Vehicle Charging Based on Electricity Price Demand Response

Authors: Ke Xu (State Grid Jiangsu Electric Power Co. Ltd. Research Institute, China); ShuHui Ren (Nanjing Tech University, China); Bing Xie (State Grid Jiangsu Electric Power Co. Ltd. Research Institute, China); Xun Dou (Nanjing Tech University, China); Pan Zhang (Nanjing TECH University, China)

Stand No: P075

**Paper ID:** 1570647851

Title: An Interval Power Flow Method Based on Linearized DistFlow Equations for Radial Distribution Systems

Authors: Jinqiao Du (Shenzhen Power Supply Bureau Co., Ltd., China); Jie Tian (Shenzhen Power Supply Bureau Co., Ltd., China); Zhi Wu (Southeast University, China); Ao Li (Southeast University, China); Ghulam Abbas (Southeast University, China); Qirun Sun (Southeast University, China)

Stand No: P076

**Paper ID:** 1570647861

Title: Transition Process and Influencing Factors of AC Transient Overvoltage Subject to HVDC Disturbances

Authors: Long Peng (China Electric Power Research Institute); Yong Tang (China Electric Power Research Institute, China); Zhao Bing (State Grid Corporation of China, China); Yingbiao Li (China Electric Power Research Institute, China); Fan Cheng (China Electric Power Research Institute, China); Yuankun Liu (China Electric Power Research Institute, China)

Stand No: P077

**Paper ID:** 1570647879

Title: Phasor-Transform-Based Approach for EMT Model Modularization Applicable to Distribution Network Load Categories in Commercial Software Package

Authors: Yizheng Xu (CEPRI, SGCC, China); Dechao Xu (CEPRI, SGCC, China); Xing Zhang (CEPRI, SGCC, China)

Stand No: P078

**Paper ID:** 1570647894

**Title:** Generalized Morphological Filter Designed for Zero-Sequence Voltage Detection Caused by Ground Fault

**Authors:** Shiwei Yang (Huai'an Power Supply Company State Grid Jiangsu Electric Power Co., Ltd., China); Bing Wen Xi (Huai'an Power Supply Company State Grid Jiangsu Electric Power Co., China); Chu Xu Shi (Huai'an Power Supply Company State Grid Jiangsu Electric Power Co., China); Yang Wang (Huai'an Power Supply Company State Grid Jiangsu Electric Power Co., China); Jie Ming Zeng (Huai'an Power Supply Company State Grid Jiangsu Electric Power Co., China)

Stand No: P079

**Paper ID:** 1570647957

**Title:** A Design Model of Hierarchical Dispatching for Electric Vehicles with Photovoltaic Power

**Authors:** Yang Cao (Southeast University, China); Li Yang (Southeast University, China); Shuyu Zhu (Southeast University, China)

Stand No: P080

**Paper ID:** 1570648481

**Title:** A Preliminary Study on Key Characteristics and Technical Research Framework of Urban Tenacious Power Grid

**Authors:** Jian Zhou (State Grid Shanghai Municipal Electric Power Company, China); Shanshan Shi (State Grid Shanghai Municipal Electric Power Company, China); Shen Bing (State Grid Shanghai Electric Power Research Institute, China); Ran Chen (Shanghai, China); Min Wang (HHU, China); Zongyin Fan (Hohai University, China)

Stand No: P081

**Paper ID:** 1570648502

**Title:** K-Harmonic Mean Coherency Analysis Using Power System Bus Voltage Sag-Recovery Index

**Authors:** Yawei Wei (China Electric Power Research Institute, China); Rui Zhao (State Grid Beijing Electric Power Company, China); Lulu Zhang (CEPRI, China); Hui Liu (State Grid Beijing Electric Power Company, China); Ying Lv (Chinese Electric Power Research Institute, China); Licheng Sha (State Grid Beijing Electric Power Company, China)

Stand No: P082

**Paper ID:** 1570648584

**Title:** LSTM Model for Various Types of Load Forecasting in Energy System Integration

**Authors:** Qiang Wang (State Grid Hebei Electric Power CO. LTD, China); Chen Li (National Electric Power Dispatching and Control Center, China); Yong Zhang (State Grid Hebei Electric Power CO. LTD, China); Lijuan Chen (Southeast University, China); Li Liu (Southeast University, China)

Stand No: P083

**Paper ID:** 1570648738

**Title:** A Method of Primary Frequency and Inertia Control of Photo-voltaic Station

**Authors:** Chengshu He (Hohai University, China); Qian Chen (Hohai University, China); Chensheng Wang (Hohai University, China); Qi. Zhang (Hohai University, China); Na Qiu (Hohai University, China)

Stand No: P084

**Paper ID:** 1570648744

Title: Analysis of Power Load Components Based on Neural Network

Authors: Renhui Dou (China Electric Power Research Institute, China); Chen Fan (China Electric Power Research Institute, China); Zheqian Jin (Hohai University, China); Chensheng Wang (Hohai University, China); Na Qiu (Hohai University, China); Qian Chen (Hohai University, China)

Stand No: P085

**Paper ID:** 1570648753

Title: Load Forecast of Building Integrated Energy System Based on Similar Day Method

Authors: Xiaobo Mao (Wuxi Power Supply Company, China); Yuqi Liu (Hohai University, China); Mingfeng Xue (Wuxi Power Supply Company, China); Yongtao Pan (Wuxi Power Supply Company, China); Guoqiang Sun (Hohai University, China)

Stand No: P086

**Paper ID:** 1570648801

Title: Research on the Market Mechanism of Energy Storage Participating in Electric Auxiliary Services

Authors: Wen Lv (Shanxi Power Exchange Center Co., Ltd., China); Mingzhi Geng (China Electric Power Research Institute, China); Tao Zhang (Shanxi Power Exchange Center Co., Ltd., China); Maohua Shan (China Electric Power Research Institute, China); Mingcheng Xie (Southeast University, China)

Stand No: P087

**Paper ID:** 1570648844

Title: Non-intrusive Load Decomposition Method Based on LSTM Considering Temperature Factor

Authors: Jiajun Zhang (Hohai University, China); Zhenhua Cheng (State Grid Lianyungang Power Supply Company, China); Hongyu Yang (State Grid Lianyungang Power Supply Company, China); Chuan Qin (Hohai University, China)

Stand No: P088

**Paper ID:** 1570648851

Title: Analysis of the Transmission of the Uncertainty Energy System Model

Authors: Hao Li (Tianjin University, China); Yang Li (Tianjin University, China); Jun Zhao (Tianjin University, China); Xiaoyuan Wang (Tianjin University, China); Wei Du (NARI Technology Co., Ltd., China); Dongmei Yang (NARI Technology Co., Ltd., China); Bo Yang (NARI Group Corporation, China); Ying Zhou (China Electric Power Research Institute, China); Feixiang Gong (China Electric Power Research Institute, China)

Stand No: P089

**Paper ID:** 1570648852

Title: Survivability Index and Evaluation Framework for Cyber Physical Power Systems

Authors: Xinyi Liang (Nanjing University of Posts and Telecommunications, China); Yingjun Wu (Nanjing University of Posts and Telecommunications, China); Ming Ni (State Grid Electric Power Research Institute, China); Manli Li (NARI Group Corporation&NARI Technology Co. Ltd, China)

Stand No: P090

**Paper ID:** 1570648868

Title: Aging Characteristics of 110kV Crosslinked Polyethylene Cable Insulation Materials

Authors: Jinpeng Wang (Hohai University, China)

Stand No: P091

**Paper ID:** 1570648892

Title: Electricity Gas Integrated Energy System Scheduling Model Considering Uncertainties and Multi-storage of Both Electricity and Gas Systems

Authors: Lai Tang (Nanjing Normal University, China); Yu-Qing Bao (Nanjing Normal University, China)

Stand No: P092

**Paper ID:** 1570648914

Title: Effect of Blade Grid Density and Twist Angle on Performance of Bulb Turbine

Authors: Zhu Shuangjue (Chongqing Shipping Construction Development Co, China); Li Yang (Jiangsu University of Technology, China); Cai Jianguo (Chongqing Shipping Construction Development Co, China); Wu Enquan (Hohai University, China); Han Yang (Chongqing Shipping Construction Development Co, China); Jiang Qifeng (Key Laboratory of Fluid and Power Machinery, China); Hua Hongchang (Hohai University, China); Ge Xinfeng (Hohai University, China)

Stand No: P093

**Paper ID:** 1570648917

Title: Service Recommendation Method for Integrated Energy Service Companies

Authors: Peng Wu (Jiangsu Electric Power Information Technology Co., China); Fubao Li (Jiangsu Electric Power Information Technology Co., China); Jing Cai (Jiangsu Electric Power Information Technology Co., China); Yongze Zhang (Jiangsu Electric Power Information Technology Co., China); Zhangjian Kang (Jiangsu Electric Power Information Technology Co., China); Junpeng Zhu (Hohai University, China)

Stand No: P094

**Paper ID:** 1570649014

Title: Evaluation and Decision of Joint Dispatch Schemes for Cascade Hydropower Station Based on Prospect Theory

Authors: Xinchen Chen (Hohai University, China); Xueping Pan (Hohai University, China); Xiaorong Sun (Hohai University, China)

Stand No: P095

**Paper ID:** 1570649088

Title: Simulation Research on Transformer Short Circuit

Authors: ZiTong Li (Hohai University, China); Zhou Ling (Hohai University, China)

Stand No: P096

**Paper ID:** 1570649834

Title: Techno-Economic Analysis of Powering Solutions for Small Remote Islands

Authors: Zhenda Hu (Economic Technology Research Institute of Fujian Electric Power Company Limited of State Grid, China); Rui Wu (Vestas Wind Systems A/S, Denmark); Yuchen Tang (Economic Technology Research Institute of Fujian Electric Power Company Limited, China); Rong Ye (Economic Technology Research Institute of Fujian Electric Power Company Limited, China)

Stand No: P097

**Paper ID:** 1570651654

Title: Capacity Optimization of the Hybrid Energy Storage System for Suppressing Intermittent Loads

Authors: Peipei Li (State Grid Jiangsu Electric Power Co., Ltd, China); Kai Ren (Southeast University, China); Bo Yang (China Electric Power Research Institute, China); Lei Xia (State Grid Jiangsu Electric Power Co., Ltd, China); Guozheng Zhou (State Grid Jiangsu Electric Power Co., Ltd, China); Ming Liang (State Grid Jiangsu Electric Power Co., Ltd Yangzhou Power Supply Company, China)

Stand No: P098

**Paper ID:** 1570651664

Title: A Data-driven Distribution System Scenario Generation Method with Probabilistic Assessment of PV Station Generation

Authors: Han Jun (State Grid Jiangsu Electric Power Company Economic Research, China); Haoyuan Chen (Southeast University, China); Zhenjian Xie (State Grid Jiangsu Electric Power Co., Ltd. Economic Research Institute, China); Jiang Wei (Southeast University, China); Zhou Jia (State Grid Jiangsu Electric Power Company Economic Research, China); Du Jian (State Grid Jiangsu Electric Power Company Economic Research, China); Pan Wenjie (State Grid Jiangsu Electric Power Company Economic Research, China); Cai Chao (State Grid Jiangsu Electric Power Company Economic Research, China); Wang Na (State Grid Jiangsu Electric Power Company Economic Research, China)

Stand No: P099

**Paper ID:** 1570658242

Title: Small Signal Stability Analysis and Optimal Control of AWS Based Wave Energy Conversion System

Authors: Youjun Ren (Jiangsu Electric Power Maintenance Branch, China); Jian Zhao (Hohai University, China); Chuan Qin (Hohai University, China); Lixuan Zhu (Hohai University, China)

Stand No: P100

**Paper ID:** 1570663178

Title: Research on Voltage Fluctuation of Power System Considering Wind Power Connection

Authors: Chenbo Zhu (Hohai University, China); Peng Yan (State Grid Zhejiang Electric Power Co., Ltd., China); Yiping Yu (Hohai University, China); Ping Ju (Hohai University, China)

Stand No: P101

**Paper ID:** 1570646455

Title: Evaluation of the Renewable Energy Accommodation Capacity in the Regional Power Grid

Authors: Keman Lin (Hohai University, China); Xiaoquan Lu (China); Feng Wu (Hohai University, China); Linjun Shi (Hohai University, China)