



IEEE EI²
2020



The 4th IEEE Conference on Energy Internet and Energy System Integration

Connecting the grids towards a low-carbon high-efficiency energy system

Program

Oct. 30th – Nov. 1st , 2020, Wuhan, China

Organizers:

Wuhan University
Tsinghua University
IEEE Power & Energy Society (IEEE PES)
Chinese Society for Electrical Engineering (CSEE)

Technical sponsors :

China Electrotechnical Society (CES)
Chinese Association of Automation (CAA)
China Power Supply Society (CPSS)
IEEE Power Electronics Society (IEEE PELS)
Energy Internet Research Institute (EIRI), Tsinghua University
IEEE Power & Energy Society (IEEE PES), China
Tsinghua-Berkeley Shenzhen Institute (TBSI)

Financial sponsors:

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Hubei Health Code



Health International Code



Meeting Schedule APP



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1. Invitation

On behalf of the IEEE Power & Energy Society (IEEE PES), Tsinghua University, Chinese Society for Electrical Engineering (CSEE), and Wuhan University, I cordially welcome all delegates to join the 4th IEEE Conference on Energy Internet and Energy System Integration (IEEE EI² 2020).

The 4th IEEE Conference on Energy Internet and Energy System Integration is focused on the new development of the “Energy Internet” and “Energy System Integration”. The conference offers a platform for the attendees to share advanced knowledge, abundant experience and creative ideas among electrical engineers and researchers worldwide. Over 1000 experts and scholars worldwide will share their latest research results and innovative thinking around hot topics of EI².

IEEE EI² 2020 received 1018 full papers from 24 countries and regions, 849 papers were accepted.

IEEE EI² 2020 has

- 2 plenary sessions
- 2 super sessions
- 20 technical sessions
- 35 paper sessions
- 22 National Smart Grid Key R&D Project sessions
- 12 poster sessions
- 1 grand exhibition

The chair of the award committee of IEEE EI² 2020 is Yuanzhang Sun, and the committee members include Hongbin Sun, Jinyue Yan, Yilu Liu, Jianhui Wang, Jianming Liu, Jianjun Zhao, Xiaoming Zha, Liangzhong Yao, Xuzhu Dong. The award committee will set 30 best paper awards and 30 best student paper awards, which will be recommended by the technical committee, 10-20 volunteer awards, 20 student volunteer awards and several best editor awards will be recommended by the organizer, Energy Internet Pioneering Award will be recommended by IEEE PES Energy Internet Coordinating Committee (EICC) and EI² Conference.

IEEE EI² 2020 is co-sponsored by the IEEE Power & Energy Society (IEEE PES), Chinese Society for Electrical Engineering (CSEE), Wuhan University, and Tsinghua University, and technically co-sponsored by China Electrotechnical Society (CES), Chinese Association of Automation (CAA),

China Power Supply Society (CPSS), IEEE Power Electronics Society (PELS), Energy Internet Research Institute (EIRI) of Tsinghua University, China Chapter of IEEE Power & Energy Society, Tsinghua-Berkeley-Shenzhen Institute (TBSI). It's a great pleasure for the IEEE Power & Energy Society (IEEE PES), Chinese Society for Electrical Engineering (CSEE), Wuhan University, and Tsinghua University to invite prospective authors to discuss the developments and challenges about interconnection, openness, sharing, and collaboration of various energy resources, and to create green, low-carbon, high-efficiency and low-cost smart energy systems. I would like to take this opportunity to express my gratitude to the co-sponsors and technical co-sponsors who helped prepare this conference. Special thanks to all authors, plenary speakers, panel chairpersons, reviewers and delegates for their great concern and vigorous support for this conference. Without their kind cooperation, hard work and sincerity, this event simply would not be possible.

IEEE EI² 2020 is to be held in Wuhan, which is the central city of the People's Republic of China. Wuhan is the center of politics, economy, finance, commerce, logistics, technology, culture, and education in central China. As an ancient city with a long history, Wuhan has been the heart of China's history for centuries. There are many buildings of any age that have at least some national historical significance. The city is renowned for its opulent towers, magnificent bridges, and impressive cuisine. Its art treasures and universities have long made it a center of culture and art in China. Wuhan has made a great deal of sacrifice in the COVID-19 epidemic, but as President Jinping Xi of the People's Republic of China said: "Wuhan is a city worthy of being a hero, and the people of Wuhan worthy of being heroic people." I wish all of you have a successful, memorable and pleasant stay in Wuhan, China.

Yinbiao Shu

General Chair of IEEE EI² 2020

Dear delegates, presenters and speakers of the EI² Conference,

As a member of the Governing Board of the IEEE PES representing Region 10, I have the pleasure of welcoming you to the Energy Internet and Energy System Integration (EI²) conference in Wuhan, China. As our energy landscape changes, energy internet and energy system integration concepts become increasingly important. Addressing the emerging challenges and utilizing the opportunities of grid modernization through advanced technologies and the internet are innovative approaches which enable our modern energy ecosystem and the environment to benefit from integration of new types of energy resources. EI² has successfully facilitated the discussions and the research collaboration in this area for the last few years and become a great platform for cooperation between IEEE PES, CSEE and other Chinese associations, universities and research institutes. My hope is that in the coming years we will have this event outside China and give it a global attention that it truly deserves.

I hope you will have an engaging and informative event this year and the conference organisers and delegates succeed in their pursuit of managing the challenges of energy system modernisation.

Dean Sharafi
Region 10 Representative
IEEE Power and Energy Society

2. Introduction

The 4th IEEE Conference on Energy Internet and Energy System Integration (EI² 2020) focuses on innovative technologies and practical applications regarding – “Energy Internet” and “Energy System Integration” (EI² in abbreviation). The theme of EI² 2020 is **Connecting the grids towards a low-carbon high-efficiency energy system**. EI² integrates multiple energy systems, e.g. electricity, gas, heating, cooling and transportation, with energy storage and ICT technologies, including cloud computation, big data analysis, internet of things (IoT), mobile internet, artificial intelligence (AI) and applications of 5G communication, to promote the interconnection, openness, sharing and coordination of various energy resources and to shape a green, low-carbon, efficient, low-cost and environmental-friendly energy ecosystem.

3 Registration

Online registration: Participants who have registered online and paid the registration fee are required to go to the corresponding sign-in place to report your e-mails and names for registration and pick up the delegate packs. The website for online registration is: <https://evt.miting.net.cn/evt/p/event/247497>

On-site registration: Fill out the registration form and pay the fee at the registration desk to receive the delegate pack. The on-site registration desk is located at the 1st Floor, Lobby of Ballroom (Outside Jingchu Auditorium) of Wuhan East Lake Hotel Conference Center.

NOTICE: Authors of the accepted disquisitions can only register online. Upon registration for IEEE EI² 2020, each delegate will receive a delegate pack and a name badge. Please ensure that you put on your name badge all the time during the conference. **Your name badge is also required for admittance to the banquet.**

Registration desk opening time

Friday, Oct. 30th, 2020 8:30 – 21:00 and Saturday, and Oct. 31st, 2020 7:30 – 18:15 at the 1st Floor, Lobby of Ballroom (Outside Jingchu Auditorium) of Wuhan East Lake Hotel Conference Center.

The registration fee will cover

- A name badge and delegate pack.
- Luncheons, coffee breaks, dinners and a banquet.

- Participation in all the plenary sessions, national smart grid key R&D program sessions, technical sessions, poster sessions, and paper sessions.

Materials in the delegate pack include Conference Program, Conference Proceedings USB, Abstract Book, and Meal Tickets.

NOTICE:

The registration fee **WILL NOT** cover

- Accommodation fee

- Traffic fare

We suggest that you reserve your accommodation during the conference ahead for the accommodation will not be arranged uniformly.

4. Organizers

Co-Sponsors:

Wuhan University

Tsinghua University

IEEE Power & Energy Society (IEEE PES)

Chinese Society for Electrical Engineering (CSEE)

Technical Co-Sponsors:

China Electrotechnical Society (CES)

Chinese Association of Automation (CAA)

China Power Supply Society (CPSS)

IEEE Power Electronics Society (IEEE PELS)

Energy Internet Research Institute (EIRI), Tsinghua University

IEEE Power & Energy Society (IEEE PES), China

Tsinghua-Berkeley Shenzhen Institute (TBSI)

Sponsors:

Dongfang Electronics Co., Ltd.

Journal of Huadian Technology

Beijing Sifang Automation Co., Ltd.

Sunwoda Electronic Co., Ltd.

South China Intelligent Electrical Technology Co., Ltd.

Hubei Tianrui Electronic Co., Ltd.

Fiber Home Telecommunication Technologies Co., Ltd.

5. Committees

Conference Chairs

General Chair:

Yinbiao Shu	President of International Electrotechnical Commission, Academician of Chinese Academy of Engineering, President of Chinese Society for Electrical Engineering, Chairman of China Huaneng Group Co., Ltd.	China
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Executive Chair:

Hongbin Sun	Tsinghua University	China
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Conference Advisor:

Yuanzhang Sun	Wuhan University	China
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Co-chair:

Xuzhu Dong	Wuhan University	China
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Shujun Lu	CSEE, Deputy President of Chinese Society for Electrical Engineering	China
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Jianhui Wang	Southern Methodist University	USA
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Jinyue Yan	Royal Institute of Technology	Sweden
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International Advisory

Committee:

Xiaoxin Zhou	Academician of Chinese Academy of Sciences	China
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Qiang Lu	Academician of Chinese Academy of Sciences	China
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Guobiao Gu	Academician of Chinese Academy of Engineering	China
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Yusheng Xue	Academician of Chinese Academy of Engineering	China
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Yingduo Han	Academician of Chinese Academy of Sciences	China
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Licheng Li	Academician of Chinese Academy of Engineering	China
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Shijie Cheng	Academician of Chinese Academy of Sciences	China
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Yixin Yu	Academician of Chinese Academy of Engineering	China
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Xifan Wang	Academician of Chinese Academy of Sciences	China
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An Luo	Academician of Chinese Academy of Engineering	China
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Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

Jianbo Guo	Academician of Chinese Academy of Engineering	China
Weijiang Chen	Academician of Chinese Academy of Sciences	China
Guangfu Tang	Academician of Chinese Academy of Engineering	China
Yaonan Wang	Academician of Chinese Academy of Engineering	China
Anjan Bose	US National Academy of Engineering	USA
Tim Green	UK Royal Academy of Engineering	UK
Yilu Liu	US National Academy of Engineering	USA
Mohammad Shahidehpour	US National Academy of Engineering	USA
Vijay Vittal	US National Academy of Engineering	USA
C.C. Liu	US National Academy of Engineering	USA
Frede Blaabjerg	President of IEEE Power Electronics Society	Denmark
Yosuke Nakanishi	Waseda University	Japan
Jay Giri	GE Grid Software Solutions	USA
Nikos Hatziargyriou	National Technical University of Athens	Greece
Kai Strunz	Technical University of Berlin	German
Gary W. Chang	Chairman of IEEE PES Transmission & Distribution Committee	China Taiwan
Yonghua Song	Macau University, UK Royal Academy of Engineering	China Macau
David J. Hill	Hongkong University	China HK
Dean Sharafi	IEEE PES Asia Pacific	Australia
Farnoosh Rahmatian	IEEE PES Technical Council	Canada
Zhiqian Bo	IEEE PES China	China
Mingshan Lin	Secretary-General of CSEE	China
Dehong Xu	China Power Supply Society	China
Xiqiang He	China Southern Power Grid	China
Mingsheng Liu	State Power Investment Corporation Ltd.	China
Hongzhi Wang	Huadian Group	China
Hong Rao	EPRI of China Southern Power Grid	China
Chongqing Kang	Tsinghua University	China
Gang Mu	Northeast Electric Power University	China

Technical Program Committee (TPC)**Chair:**

Liangzhong Yao	Wuhan University	China
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Vice Chair:

Jianming Liu	Chinese Society for Electrical Engineering	China
Peng Li	China Southern Power Grid Digital Grid Research Institute	China
Ping Ju	Hohai University	China
Kai Strunz	Technische Universität Berlin	Germany
Vladimir Terzija	University of Manchester	UK
Huadong Sun	China Electric Power Research Institute	China
Ju Tang	Wuhan University	China
Feng Xue	NARI Group Corporation	China
Jian Xu	Wuhan University	China
Jianjun Zhao	Chinese Society for Electrical Engineering	China

Member:

Ram Adapa	Electric Power Research Institute	USA
Janusz Bialek	Newcastle University	UK
Zhaohong, Bie	Xi'an Jiao Tong University	China
Math Bollen	Luleå University of Technology	Sweden
Haisheng Chen	Institute of Engineering Thermophysics, Chinese Academy of Sciences	China
Zhe Chen	Aalborg University	Denmark
Lin Cheng	Tsinghua University	China
Kwok Cheung	GE Digital (GE Grid Solutions)	USA
Hsiao-Dong Chiang	Cornell University	USA
Xiang Cui	North China Electric Power University	China
Xin Zhou Dong	Tsinghua University	China
Zhaoyang Dong	The University of New South Wales	Australia
Mingli Fu	EPRI of China Southern Power Grid	China
Jinghan He	Beijing Jiaotong University	China
Jinliang He	Tsinghua University	China
Yigang He	Wuhan University	China
Zhengyou He	Southwest Jiaotong University	China
Jiabing Hu	Huazhong University of Science and Technology	China
Qi Huang	University of Electronic Science and Technology of China	China
Hongjie Jia	Tianjin University	China
Lin Jiang	University of Liverpool	UK
Xiuchen Jiang	Shanghai Jiao Tong University	China

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

Yong Jing	EHV Power Transmission Company of China Southern Power Grid	China
Laili Lai	Guangdong University of Technology	China
Xiaokang Lai	China Electric Power Research Institute	China
Chongjian Li	Automation Research and Design Institute of Metallurgical Industry	China
Fangxing Li	University of Tennessee, Knoxville	USA
Furong Li	University of Bath	UK
Liang Jun	Cardiff University	UK
Guofeng Li	Dalian University of Technology	China
Hong Li	Institute of Physics CAS	China
Tao Lin	Wuhan University	China
Guangyi Liu	Global Energy Interconnection Research Institute North America	USA
Guoping Liu	Wuhan University	China
Jia Liu	Ministry of Industry and Information Technology	China
Junyong Liu	Sichuan University	China
Zhigang Lu	Yanshan University	China
Wenpeng Luan	Tianjin University	China
Zhao Ma	Shandong University	China
Chris Marnay	Lawrence Berkeley National Laboratory	USA
Yong Min	Tsinghua University	China
Ming Ni	NARI Group Corporation	China
Tianjiao Pu	China Electric Power Research Institute	China
Ronghai Qu	Huazhong University of Science and Technology	China
Uwe Riechert	ABB Power Grids Switzerland Ltd.	Switzerland
Jiangjun Ruan	Wuhan University	China
Xinbo Ruan	Nanjing University of Aeronautics and Astronautics	China
Tielong Shen	Sophia University	Japan
Yan Shi	Beihang University, Chongqing University of Science & Technology	China
Hongchun Shu	Kunming University of Science and Technology	China
Gareth Taylor	Brunel University	UK
Chengshan Wang	Tianjin University	China
Peng Wang	Nanyang Technological University	Singapore
Zhongdong Wang	University of Exeter	UK
Wei Wei	Zhejiang University	China

Jinyu Wen	Huazhong University of Science and Technology	China
Jianzhong Wu	Cardiff University	UK
Qiuwei Wu	Technical University of Denmark	Denmark
Xiong Wu	China Electric Power Research Institute	China
Liye Xiao	Institute of Electrical Engineering of the Chinese Academy of Sciences	China
Kaigui Xie	Chongqing University	China
Lie Xu	University of Strathclyde	UK
Zheng Xu	Zhejiang University	China
Lin Ye	China Agricultural University	China
Xiaoming Yuan	Huazhong University of Science and Technology	China
Peng Zeng	Shenyang Institute of Automation Chinese Academy of Sciences	China
Pingliang Zeng	Hangzhou Dianzi University	China
Xiao-Ping Zhang	University of Birmingham	UK
Chengke Zhou	Glasgow Caledonian University	UK
Erzhuan Zhou	China Electric Power Research Institute	China
Haoshen Zhou	Nanjing University	China
Wenjun Zhou	Wuhan University	China
Jizhong Zhu	South China University of Technology	China

Local Organizing Committee

Chair:

Xiaoming Zha

Vice-Chair:

Jian Xu

Secretary:

Chengxi Liu

Siyang Liao

Hui Zhang

Yuzheng Guo

Yanpu Zhao

Long Yang

Mi Zhou

Zhongyu Dai

Fei Liu

Lei Chen

Daochun Huang

Lei Shang

Jun Zhang

Jiaxin Yuan

Deping Ke

Fei Tang

Yu Wang

Meng Huang

Shangzhi Pan

Qijun Deng

Bo Wang

Li Cai

Hailiang Lu

Treasurer:

Hui Qiao

Volunteer Organization:

Jun Zhou

Transportation, Design:

Long Yang

Emergencies:

Junming Kang

Exhibition:

Junhua Wang

Publicity:

Jun Zhang

Chengxi Liu

Bo Wang

Shangzhi Pan

Yuzheng Guo

Yanpu Zhao

Banquet:

Yun Peng

6. Language

The conference language is English. The oral and poster presentations of the papers should use English as the official language.

7. Venue

The 4th IEEE conference on Energy Internet and Energy system Integration (IEEE EI² 2020) will be held in Wuhan East Lake Hotel Conference Center. The address is No. 142, Donghu Road, Wuchang District, Wuhan City, Hubei Province.

8. Schedule at a glance

Overall Program of EI²

Place	Lobby of Ballroom (Jingchu Auditorium)	Jingchu Auditorium (荆楚会堂)	Huanghe Hall (黄鹤厅)	Qingchuan Hall (晴川厅)	Jingzhou Hall (荆州厅)	Shennongji Hall (神农架厅)	Qianjiang Hall (潜江厅)	Dingxiang Hall (丁香厅)	Tianmen Hall (天门厅)	Xiantao Hall (仙桃厅)	Ezhou Hall (鄂州厅)	Exhibition Area (Outside Tianmen Hall)	
Oct. 30th Friday	08:30-21:00	Filed-site Registration	Opening Ceremony	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Exhibition	
	07:30-08:30												
Oct. 31st Saturday	08:30-09:10	Filed-site Registration	Plenary Session 1	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Exhibition	
	09:10-09:45		Plenary Session 2										
	09:45-10:00		Super Session 1										
	10:00-11:50		Super Session 2										
	12:00-13:00		Technical Session 1										
	13:30-15:30		Technical Session 2										
	15:30-15:45		Technical Session 3										
	15:45-17:45		SG Session 1										
	18:00-20:00		SG Session 2										
	18:00-20:00		SG Session 3										
Oct. 30th Friday	07:30-08:30	Filed-site Registration	Opening Ceremony	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Exhibition	
	08:30-09:10												
Oct. 31st Saturday	08:30-09:10	Filed-site Registration	Opening Ceremony	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Exhibition	
	09:10-09:45												Plenary Session 1
	09:45-10:00												Super Session 1
	10:00-11:45												Super Session 2
	12:00-13:00												Technical Session 1
	13:30-15:30												Technical Session 2
	15:30-15:45												Technical Session 3
	15:45-17:45												SG Session 1
	18:00-20:00												SG Session 2
	18:00-20:00												SG Session 3
18:00-20:00	SG Session 4												

Note: SG Session 9: 13:30-15:30, October 30th

Overall Program of EI²

Time	Place	Jingzhou Hall 荆州厅	Shennongjia Hall 神农架厅	Qianjiang Hall 潜江厅	Dingxiang Hall 丁香厅	Tianmen Hall 天门厅	Xiantao Hall 仙桃厅	Ezhou Hall 鄂州厅	Wuhan Hall 武汉厅	Xiangyang Hall 襄阳厅	Exhibition Area (Outside)			
Nov. 1st Sunday	8:00-10:00	Paper Session 1	Paper Session 2	Paper Session 3	Paper Session 4	Paper Session 5	Paper Session 6	Paper Session 7	Technical Session 4	Technical Session 10	Exhibition			
	10:00-10:15	Coffee Break												
	10:15-12:15	Technical Session 17	Paper Session 8	Paper Session 9	Paper Session 10	Paper Session 11	Paper Session 12	Paper Session 13	Paper Session 14	Paper Session 15				
	12:15-13:15	Buffet Lunch												
	13:30-15:30	Technical Session 18	Paper Session 17	Paper Session 18	Paper Session 19	Paper Session 20	Paper Session 21	Paper Session 22	Paper Session 23	Paper Session 24				
	15:30-15:45	Coffee Break												
	15:45-17:45	Paper Session 26	Paper Session 27	Paper Session 28	Paper Session 29	Paper Session 30	Paper Session 31	Paper Session 32	Paper Session 33	Paper Session 34				
	6:00:00 PM	Dinner												
	Nov. 1st Sunday	8:00-10:00	Technical Session 11	Technical Session 12	Technical Session 13	SG Session 12	SG Session 19	SG Session 4	Technical Session 16	Poster Session 5		Poster Session 6	Exhibition	
		10:00-10:15	Coffee Break											
		10:15-12:15	Paper Session 16	SG Session 16	SG Session 22	SG Session 13	Technical Session 9	Technical Session 5		Poster Session 7		Poster Session 8		
		12:15-13:15	Buffet Lunch											
		13:30-15:30	Paper Session 25	SG Session 14	SG Session 18	Technical Session 6	Technical Session 7	Technical Session 8	Technical Session 8	Poster Session 9		Poster Session 10		
		15:30-15:45	Coffee Break											
15:45-17:45		Paper Session 35	Technical Session 14	Technical Session 15	Technical Session 19	Technical Session 20			Poster Session 11	Poster Session 12				
6:00:00 PM		Dinner												

Note: SG Session 9: 13:30-15:30, October 30th

9. Opening ceremony speakers

Yinbiao Shu

President of International Electrotechnical Commission, Academician of Chinese Academy of Engineering, President of Chinese Society for Electrical Engineering, Chairman of China Huaneng Group Co., Ltd.



Yinbiao Shu was born in Hebei Province, China. He received the B.S. degree in North China Electric Power University in 1977. He was a senior visiting scholar at Strathclyde University in the UK from 1989 to 1991. He received the PhD degree in power system and automation from Wuhan University in 2007. Yinbiao Shu was awarded the Special Prize of 2017 National Science and Technology Progress Award. He was elected as an academician of the Chinese Academy of Engineering in 2019.

Xiankang Dou

President of Wuhan University, Academician of the Chinese Academy of Sciences



Xiankang Dou, a space physicist, an academician of the Chinese Academy of Sciences, a professor, doctoral supervisor, and president of Wuhan University. He was admitted to the Department of Earth and Space Sciences of the University of Science and Technology of China, and received the B.S. degree in 1987. He received the PhD degree in remote sensing physics from the Paris Diderot University in France in 1993, and then he worked as a postdoctoral researcher at the French National Research Center. After returning to China in 1995, he worked at University of Science and Technology of China. From 2005 to 2016, he served as the vice president of the University of Science and Technology of China. He has been serving as the president of Wuhan University since 2016. He was elected as an academician of the Chinese Academy of Sciences in 2017.

Representative from Government of Wuhan

Frank Lambert

President of IEEE Power & Energy Society



Frank Lambert received the B.S. and M.S. degrees in Electrical Engineering from the Georgia Institute of Technology, Atlanta, GA, USA. He serves as the Associate Director of the National Electric Energy Testing Research and Applications Center (NEETRAC), Georgia Institute of Technology. He is responsible for interfacing with NEETRAC's members to develop and conduct research projects dealing with transmission and distribution issues. He previously worked at Georgia Power Company for 22 years in transmission/distribution system design, construction, operation, maintenance, and automation. Mr. Lambert participates in the IEEE PES Distribution Subcommittee and the PES Switchgear Committee and is serving on the PES Governing Board as the Vice President for Chapters.

Jia Liu

Deputy Director of the Third Special Office of the Industry Development and Promotion Center of Ministry of Industry and Information Technology of the People's Republic of China



Jia Liu, deputy director of the third special office of the industry development and promotion center of ministry of industry and information technology of the people's republic of China. She is responsible for the project management of National Key Research and Development Program and National Key Science and Technology Projects.

Zehong Liu

Deputy General Manager of State Grid Corporation of China



Zehong Liu, a professor-level senior engineer, an adjunct professor at Xi'an Jiaotong University, is the Executive Vice President of the State Grid Corporation of China. He received the B.S. degree from Hunan University in 1981 and the M.S. degree from China Electric Power Research Institute in 1983. He used to serve as the director of the DC Construction Department of State Grid Corporation of China. Since 2015, he has been the Executive Vice President of the State Grid Corporation of China. Zehong Liu has long participated in and organized the planning, scientific research, design, and engineering construction management of the AC and DC ultra-high voltage transmission system of the State Grid Corporation of China. He presided the technology research and projects of the world's highest voltage level and largest transmission capacity of $\pm 800\text{kV}/6.4\text{-}10$ million kilowatts, $\pm 1100\text{kV}/12$ million kilowatts UHV DC transmission, and Yu-E and Zhangbei flexible DC grid projects construction. He is the chief expert of the National 863 Project, serves as the convener or the Chinese representative of several working groups of the International Council on Large Electric systems, the International Electrotechnical Commission. He is a well-known expert in the field of DC transmission in China. He was awarded the special prize of the National Science and Technology Progress Award for "UHV AC and DC" in 2012 and 2018 respectively. In 2017, he was awarded the highest honor in the field of HVDC transmission-IEEE PES Uno Lamm.

Jianguo Yu

Chief Information Engineer of China Southern Power Grid Co., Ltd.



Jianguo Yu, professor-level senior engineer, is awarded special allowance of the State Council, the chief information engineer of China Southern Power Grid Co., Ltd. He has successively served as general manager of China Southern Power Grid EHV transmission company and Guangxi power grid company, director of Production and Technology Department of China Southern Power Grid, deputy chief engineer, chairman of China Southern Power Grid Research Institute, director of Science and Technology Department, etc. He has long been engaged in planning, construction, operation and management of the power industry. He has presided a number of national science and technology support programs and the 863 projects. He was awarded the first and second prizes of national science and technology progress, and 6 provincial and ministerial awards.

Mingsheng Liu

Deputy General Manager of State Power Investment Group Co., Ltd.



Mingsheng Liu was born in May 1969 in Xiantao, Hubei. He started working in July 1991. He graduated from Huazhong University of Science and Technology in December 1997, majoring in thermal dynamics. Mingsheng Liu has been working in the power industry for nearly 30 years, involving power grids, thermal power, wind power, photovoltaics, electrolytic aluminum and other power system generation, transmission, distribution, and utilization. Mingsheng Liu was awarded the first prize of National Power Industry Equipment Management Innovation Achievements, the Second Prize of China Electric Power Science and Technology Progress, and the Third Prize of China Electric Power Innovation.

10. Plenary speakers

Dan Kammen

Director of Renewable and Appropriate Energy Laboratory (RAEL), Professor in the Energy and Resources Group Energy and Resources Group (ERG), Professor of Public Policy Goldman School of Public Policy, Class of 1935 Distinguished Professor of Energy at the University of California.



Dr. Kammen was Assistant Professor and Chair of the Science, Technology and Environmental Policy Program at the Woodrow Wilson School at Princeton University before moving to the University of California, Berkeley. He has served as a contributing or coordinating lead author on various reports of the Intergovernmental Panel on Climate Change since 1999. He won the 2007 Nobel Peace Prize for his report Climate Change 2007 for IPCC. He served as the World Bank Group's Chief Technical Specialist for Renewable Energy and Energy Efficiency during 2010-2011. He serves on the Advisory Committee for Energy & Environment for the X-Prize Foundation. Dr. Kammen has authored or co-authored 12 books, written more than 300 peer-reviewed journal publications, testified more than 40 times to U.S. state and federal congressional briefings, and has provided various governments with more than 50 technical reports. Kammen is a frequent contributor and commentator in the international news media, including Newsweek, Time, The New York Times, The Guardian, and The Financial Times. Kammen has appeared on '60 Minutes' (twice), NOVA, Frontline, and hosted the six-part Discovery Channel series Ecopolis. Dr. Kammen is a Permanent Fellow of the African Academy of Sciences, a fellow of the American Academy for the Advancement of Science, and the American Physical Society. In the US, he has served on several boards and panels of the National Academy of Sciences.

Deren Li

Academician of the Chinese Academy of Sciences, Academician of the Chinese Academy of Engineering, Academician of the International Eurasian Academy of Sciences, Director of the Academic Committee of Wuhan University



Prof. Deren Li is a scientist in surveying, mapping and remote sensing from Wuhan University, China. He enjoys dual memberships of both Chinese Academy of Sciences and Chinese Academy of Engineering. He is also the member of International Eurasia Academy of Sciences and International Academy of Astronautics. He received doctor degree from University of Stuttgart in 1985 and honorary doctorate from ETH Zürich in 2008. In 2012, International Society for Photogrammetry and Remote Sensing awarded him Honorary Member, the number of which ISPRS limits to a maximum of ten at any time as the highest honor.

Prof. Deren Li was the president of Wuhan Technical University of Surveying and Mapping, and director of State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS). At present, he is the chairman of academic committee of LIESMARS, director of Collaborative Innovation Center of Geospatial Technology, chairman of Wuhan Association for Science and Technology, and chief scientist of Optics Valley of China in Wuhan.

Minggao Ouyang

Academician of the Chinese Academy of Sciences, Professor at Tsinghua University



Minggao Ouyang received his Ph.D. degree from the Energy Engineering Department of the Technical University of Denmark. He is currently the deputy director of the Academic Committee of Tsinghua University, the founding editor-in-chief of the Elsevier international transportation electrification journal eTransportation, and concurrently the deputy chairman of the Democratic League Central Committee and a member of the CPPCC National Committee. Ouyang Minggao has long been engaged in research on new power systems for energy-saving and new energy vehicles,

including electronically controlled internal combustion engines, fuel cell engines, power battery systems, and multi-energy hybrid power systems. He established a system of research and personnel training for automotive power systems. He won the second prize of National Technology Invention, the second prize of National Technology Invention, the first prize of Beijing Science and Technology Award. He has Published 215 papers in the Scientific Index (SCI), SCI cited 5,300 times, and was included in the 2015, 16, 17, and 18 China Highly Cited Scholars (Energy Science) and 2017 Global Highly Cited Scientists (Engineering Science).

Hongbin Sun

Changjiang scholar of the Ministry of Education, Professor at Tsinghua University



Hongbin Sun received a Ph.D. degree in power system and automation from the Department of Electrical Engineering of Tsinghua University in 1996. He is currently a Professor of the Department of Electrical Engineering of Tsinghua University, Deputy Director of the Academic Affairs Office of Tsinghua University, Director of the Energy Management and Regulation Research Center of Tsinghua University Energy Internet, Deputy Director of the Tsinghua-Berkeley Shenzhen Institute (TBSI) Environmental Science and New Energy Technology Research Center, national-level teacher, Changjiang scholar of the Ministry of Education, scientific and technological leader in the Ten Thousand Talents Program of the Organization Department of the Central Organization Department, winner of the National Outstanding Youth Fund, candidate of the National Hundred and Thousand Talents Project, young expert with outstanding national contributions, State Council Special Allowance Expert. He is the editorial board member and editor of many well-known international journals in the field of electric energy such as IEEE Trans on Smart Grid, IEEE PE, Applied Energy, IET RPG. He has won first prize of National Science and Technology Progress Award (ranking 1), second prize of National Technological Invention Award (ranking 2), first prizes of National Teaching Achievement Award (ranking 1 and 3 respectively). He has published more than 500 papers and more than 120 academic papers have been included in SCI. He has co-authored 5 books and holds 15 US patents and more than 100 Chinese invention patents.

Frede Blaabjerg

President of IEEE Power Electronics Society, Vice-President of the Danish Academy of Technical Sciences



Frede Blaabjerg was with ABB-Scandia, Randers, Denmark, from 1987 to 1988. From 1988 to 1992, he got the PhD degree in Electrical Engineering at Aalborg University in 1995. He became an Assistant Professor in 1992, an Associate Professor in 1996, and a Full Professor of power electronics and drives in 1998. From 2017 he became a Villum Investigator. He is honoris causa at University Politehnica Timisoara (UPT), Romania and Tallinn Technical University (TTU) in Estonia. His current research interests include power electronics and its applications such as in wind turbines, PV systems, reliability, harmonics and adjustable speed drives. He has published more than 600 journal papers in the fields of power electronics and its applications. He is the co-author of four monographs and editor of ten books in power electronics and its applications. He has received 32 IEEE Prize Paper Awards, the IEEE PELS Distinguished Service Award in 2009, the EPE-PEMC Council Award in 2010, the IEEE William E. Newell Power Electronics Award 2014, the Villum Kann Rasmussen Research Award 2014, the Global Energy Prize in 2019 and the 2020 IEEE Edison Medal. He was the Editor-in-Chief of the IEEE Transactions on Power Electronics from 2006 to 2012. He has been Distinguished Lecturer for the IEEE Power Electronics Society from 2005 to 2007 and for the IEEE Industry Applications Society from 2010 to 2011 as well as 2017 to 2018. In 2019-2020 he serves as President of IEEE Power Electronics Society. He is the Vice-President of the Danish Academy of Technical Sciences too. He is nominated in 2014-2019 by Thomson Reuters to be the most 250 cited researchers in Engineering in the world.

11. Program

11.1 Opening ceremony guide

Opening Ceremony

Oct. 31st, Saturday 8:30-9:15, Jingchu Auditorium

Chair(s):

Shujun Lu

Deputy President of Chinese Society for Electrical Engineering

Speakers:

8:30-8:35

Op1-01

Congratulations from China Huaneng Group Co., Ltd.

Yinbiao Shu

President of International Electrotechnical Commission
Academician of Chinese Academy of Engineering
President of Chinese Society for Electrical Engineering
Chairman of China Huaneng Group Co., Ltd.

8:35-8:40

Op1-02

Acknowledgement from Wuhan University

Xiankang Dou

President of Wuhan University
Academician of the Chinese Academy of Sciences

8:40-8:45

Op1-03

Congratulations from Wuhan Municipal Government

Representative from Government of Wuhan

8:45-8:50

Op1-04

Acknowledgement from IEEE PES

Frank Lambert

President of IEEE Power & Energy Society

8:50-8:55

Op1-05

Congratulations from Ministry of Industry and Information Technology of China

Jia Liu

Deputy Director of the Third Special Office of the Industry Development and Promotion Center Ministry of Industry and

Information Technology of China

- 8:55-9:00 Op1-06
Congratulations from State Grid Corporation of China
Zehong Liu
Deputy General Manager of State Grid Corporation of China
- 9:00-9:05 Op1-07
Congratulations from China Southern Power Grid Co., Ltd.
Jianguo Yu
Chief Information Engineer of China Southern Power Grid Co., Ltd.
- 9:05-9:10 Op1-08
Congratulations from State Power Investment Group Co., Ltd.
Mingsheng Liu
Deputy General Manager of State Power Investment Group Co., Ltd.
- 9:10-9:15 Op1-09
Report on the Work of Technical Program Committee
Liangzhong Yao
TPC Chair, Professor at Wuhan University

11.2 Plenary session guide

Plenary Session 1

Oct. 31st, Saturday 9:15-9:45, Jingchu Auditorium

Chair(s):

Liangzhong Yao
Wuhan University
TPC Chair, Professor at Wuhan University

Speaker:

- 9:15-9:45 P11-01
Smart Grids for Clean Energy Economies
Dan Kammen
Director of Renewable and Appropriate Energy Laboratory (RAEL)

Professor in the Energy and Resources Group Energy and Resources Group (ERG)
Professor of Public Policy Goldman School of Public Policy

Plenary Session 2

Oct. 31st, Saturday 10:00-11:50, Jingchu Auditorium

Chair(s):

Liangzhong Yao
Wuhan University
TPC Chair, Professor at Wuhan University

Speakers:

- 10:00-10:25 PI2-01
Spatio-temporal Big Data and Smart Energy
Deren Li
Academician of the Chinese Academy of Sciences
Academician of the Chinese Academy of Engineering
Academician of the International Eurasian Academy of Sciences
Director of the Academic Committee of Wuhan University
- 10:25-11:00 PI2-02
Safety Management and Fast-charging Control of Lithium-ion Battery Systems
Minggao Ouyang
Academician of the Chinese Academy of Sciences
Professor at Tsinghua University
- 11:00-11:25 PI2-03
Unified Energy Circuit Theory with Its Applications
Hongbin Sun
Changjiang scholar of the Ministry of Education
Professor at Tsinghua University
- 11:25-11:50 PI2-04
Power Electronics — the Key Technology for Grid Integration
Frede Blaabjerg
President of IEEE Power Electronics Society

Vice-President of the Danish Academy of Technical Sciences

11.3 Super session guide

Super Session 1: New Infrastructure & Smart Energy

Oct. 31st, Saturday 13:30-15:30, Huanghe Hall

Chair(s):

Xuzhu Dong
Wuhan University
Professor at Wuhan University

Jianming Liu
Chinese Society for Electrical Engineering

Speakers:

- 13:30-13:55 Su1-01
New Challenges and Developments on Energy Internet
Zhaohong Bie / Chen Chen
School of Electrical Engineering of Xi'an Jiaotong University
- 13:55-14:20 Su1-02
International Standardization for Power & Energy Systems
Jianbin Fan
Deputy Secretary General of the Chinese Society for Electrical Engineering
Deputy Director General of International Corporation
Department in State Grid Corporation of China
- 14:20-14:45 Su1-03
Discussion on Enterprise Digital Transformation and Digital Grid Construction
Zhiying Wang
Professor-level Senior Engineer
Distinguished researcher of China Southern Power Grid Co., Ltd. Reform and Development Research Center
- 14:45-15:10 Su1-04
Digitalization Drives the Power Energy Transition

Jihong Fan

Director of Science and Technology Innovation and
Chairman of the Central Research Institute of State Power
Investment Corporation

15:10-15:30 Su1-05
Research and Practice in Integrated Energy Management
Zhenhua Ding
President of Dongfang Electronics Co., Ltd.

Super Session 2: WHU-HUST-NUEPLA Joint Session

Oct. 31st, Saturday 13:30-15:30, Qingchuan Hall

Chair(s):

Jian Xu

Wuhan University

Professor at Wuhan University

Xia Chen

Huazhong University of Science and Technology

Associate Professor at Huazhong University of Science and
Technology

Speakers:

13:30-13:50 Su2-01
*State of the Art and Outlook of Integrated Power System
Technology*

Dong Wang

Naval University of Engineering

13:50-14:10 Su2-02
Progress and Prospect of Electromagnetic Emission

Junyong Lu

Naval University of Engineering

14:10-14:30 Su2-03
*Basic Theory, Equipment and System Research of Power
Grid with Three-high-level integration*

Yuanzhang Sun

Wuhan University

- 14:30-14:50 Su2-04
*Research Process on Triggered Lightning to Power
Distribution Line*
Jianguo Wang
Wuhan University
- 14:50-15:10 Su2-05
*Flux Modulation Machines - Innovation for High Torque
Density Machines & Beyond*
Ronghai Qu
Huazhong University of Science and Technology
- 15:10-15:30 Su2-06
Integrated Power and Natural Gas System with P2H/P2G
Jiakun Fang
Huazhong University of Science and Technology

11.4 National smart grid key R&D program session guide

Session Name	Topic	Session Number	Time	Location	Page
National Smart Grid Key R&D Program Session 1	Key Technologies on Liquid Metal Energy Storage Batteries	SG1	Oct. 31st, Saturday 15:45-17:45	Xiangyang Hall	36
National Smart Grid Key R&D Program Session 2	Technology and Application of Wind Power / Photovoltaic Power Prediction for Promoting Renewable Energy Consumption	SG2	Oct. 31st, Saturday 15:45-17:45	Shiyan Hall	37
National Smart Grid Key R&D Program Session 3	Fault Current Limiting Measures and Their Recent Progress	SG3	Oct. 31st, Saturday 15:45-17:45	Huangshi Hall	38
National Smart Grid Key R&D Program Session 4	Research on Cascaded Hydro-PV-VSPS Union Operation Control & Intelligent Scheduling Technology	SG4	Nov. 1st, Sunday 8:00-10:00	Huanggang Hall	40
National Smart Grid Key R&D Program Session 5	Optimal Sizing and Integration Technology of Cascade Hydropower and Distributed Photovoltaic Included Complementary Power Generation System	SG5	Oct. 31st, Saturday 15:45-17:45	Xianning Hall	41
National Smart Grid Key R&D Program Session 6	Research and Application of Key Technologies of AC / DC Hybrid Flexible Power Distribution System	SG6	Oct. 31st, Saturday 15:45-17:45	Enshi Hall	42
National Smart Grid Key R&D Program Session 7	Protection and Fault Diagnosis of the Smart Distribution Networks	SG7	Oct. 31st, Saturday 15:45-17:45	Huanggang Hall	43
National Smart Grid Key R&D Program Session 8	The High-Performance Analysis and Situation Awareness Technology of Interconnected Large Power Grids	SG8	Oct. 31st, Saturday 15:45-17:45	Xiaogan Hall	45
National Smart Grid Key R&D Program Session 9	Multi-physical Field Comprehensive Analysis and Reliability Evaluation of Large Capacity Power Electronic Equipment	SG9	Oct. 30th, Friday 13:30-15:30	To be determined	46

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National Smart Grid Key R&D Program Session 10	Medium and Low Voltage DC Power Distribution Technology	SG10	Oct. 31st, Saturday 15:45-17:45	Suizhou Hall	47
National Smart Grid Key R&D Program Session 11	Key Technology and Development of Complete Power Variable Speed Constant Frequency Reversible Pumped Storage Equipment	SG11	Oct. 31st, Saturday 15:45-17:45	Dingxiang Hall	48
National Smart Grid Key R&D Program Session 12	Planning Theory and Methods for Power Systems with High Proportion of Renewable Energy	SG12	Nov. 1st, Sunday 8:00-10:00	Xianning Hall	49
National Smart Grid Key R&D Program Session 13	Special Chip and Operating System for Power Terminal and Their Security Protection	SG13	Nov. 1st, Sunday 10:15-12:15	Xianning Hall	51
National Smart Grid Key R&D Program Session 14	Research on Prospective Technology of Seawater Pumped Storage Power Station	SG14	Nov. 1st, Sunday 13:30-15:30	Huangshi Hall	52
National Smart Grid Key R&D Program Session 15	Analysis and Simulation of Cyber-Physics systems for Power Grid	SG15	Oct. 31st, Saturday 15:45-17:45	Tianmen Hall	53
National Smart Grid Key R&D Program Session 16	Advanced Measurement and Control Technologies for Smart Distribution Systems	SG16	Nov. 1st, Sunday 10:15-12:15	Huangshi Hall	54
National Smart Grid Key R&D Program Session 17	Key Technologies and Applications of New Environment-friendly Insulation Gases	SG17	Oct. 31st, Saturday 15:45-17:45	Xiantao Hall	55
National Smart Grid Key R&D Program Session 18	Grid-friendly Control Technology for Large Capacity Wind Turbines	SG18	Nov. 1st, Sunday 13:30-15:30	Suizhou Hall	56
National Smart Grid Key R&D Program Session 19	Special Chip and Operating System for Power Terminal and Their Security Protection	SG19	Nov. 1st, Sunday 8:00-10:00	Enshi Hall	57
National Smart Grid Key R&D Program Session 20	Stability Analysis and Control of Complementary Power Generation System with Cascaded Hydropower and Distributed Photovoltaic	SG20	Oct. 31st, Saturday 15:45-17:45	Ezhou Hall	58
National Smart Grid Key R&D Program Session 21	Key Technology and Application of Energy Internet Oriented to New-type Towns	SG21	Oct. 31st, Saturday 15:45-17:45	Wuhan Hall	59
National Smart Grid Key R&D Program Session 22	Distributed Information Energy System	SG22	Nov. 1st, Sunday 10:15-12:15	Suizhou Hall	60

11.5 Technical session guide

Session Name	Topic	Session Number	Time	Location	Page
Technical Session 1	Emerging Applications of Power Electronics in Modern Energy Systems	Te1	Oct. 31st, Saturday 15:45-17:45	Jingzhou Hall	62
Technical Session 2	Energy and Transportation Nexus with Electric Vehicles	Te2	Oct. 31st, Saturday 15:45-17:45	Shennongjia Hall	63
Technical Session 3	Innovative Applications in Smart Distribution System	Te3	Oct. 31st, Saturday 15:45-17:45	Qianjiang Hall	64
Technical Session 4	Novel Frameworks for Power System Analysis and Computation	Te4	Nov 1st, Sunday 8:00-10:00	Wuhan Hall	65
Technical Session 5	Modern Energy System: Planning, Operation and Transaction	Te5	Nov 1st, Sunday 10:15-12:15	Huanggang Hall	67
Technical Session 6	Urban Energy Network: Simulation, Planning and Operation	Te6	Nov 1st, Sunday 13:30-15:30	Xianning Hall	68
Technical Session 7	Advance in Energy Internet Technologies: From Equipments to Operation	Te7	Nov 1st, Sunday 13:30-15:30	Enshi Hall	69
Technical Session 8	Cyber Physical Energy System Modelling and Analysis	Te8	Nov 1st, Sunday 13:30-15:30	Huanggang Hall	70
Technical Session 9	Business Model and Optimal Operation of Virtual Power Plants	Te9	Nov. 1st, Sunday 10:15-12:15	Enshi Hall	71
Technical Session 10	Energy Internet Project Construction: Scheme, Implementation and Evaluation	Te10	Nov. 1st, Sunday 8:00-10:00	Xiangyang Hall	73
Technical Session 11	Merging of Integrated Energy System and Power Distribution System: Modeling, Evaluation and Optimization	Te11	Nov. 1st, Sunday 8:00-10:00	Shiyan Hall	74
Technical Session 12	Dynamic Demand Response for Renewable Energy Integration into Power Grid	Te12	Nov. 1st, Sunday 8:00-10:00	Huangshi Hall	75

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Technical Session 13	Applications and Frontiers of Deep reinforcement Learning (DRL) in Power Systems	Te13	Nov. 1st, Sunday 8:00-10:00	Suizhou Hall	76
Technical Session 14	Applications and Frontiers of Human-Machine Hybrid-augmented Intelligence in Power Systems	Te14	Nov. 1st, Sunday 15:45-17:45	Huangsshi Hall	77
Technical Session 15	Numerical Multi-Physics and Large-scale Solution Methods	Te15	Nov. 1st, Sunday 15:45-17:45	Suizhou Hall	79
Technical Session 16	Smart Village and Energy Development	Te16	Nov. 1st, Sunday 8:00-10:00	Xiaogan Hall	80
Technical Session 17	Women in Engineering / Women in Power: Encourage and Empower Women Engineers, for the Diversity and Innovation	Te17	Nov. 1st, Sunday 10:15-12:15	Jingzhou Hall	81
Technical Session 18	Women in Engineering / Women in Power: Humanitarian Technology and Actions for the Challenge of Covid-19	Te18	Nov. 1st, Sunday 15:45-17:45	Jingzhou Hall	82
Technical Session 19	Research on Lightning Protection and Grounding Technology in Energy Systems	Te19	Nov. 1st, Sunday 15:45-17:45	Xianning Hall	83
Technical Session 20	Key Technologies of Power Vision and Edge Intelligence	Te20	Nov. 1st, Sunday 15:45-17:45	Enshi Hall	85

11.6 Paper session guide

Session Name	Topic	Session Number	Time	Location	Page
Paper Session 1	System modelling, simulation, optimization and design I	Pa1	Nov. 1st, Sunday 8:00-10:00	Jingzhou Hall	86
Paper Session 2	System modelling, simulation, optimization and design II	Pa2	Nov. 1st, Sunday 8:00-10:00	Shennongjia Hall	86
Paper Session 3	System modelling, simulation, optimization and design III	Pa3	Nov. 1st, Sunday 8:00-10:00	Qianjiang Hall	87

Paper Session 4	System modelling, simulation, optimization and design IV	Pa4	Nov. 1st, Sunday 8:00-10:00	Dingxiang Hall	88
Paper Session 5	Planning, operation, control and protection I	Pa5	Nov. 1st, Sunday 8:00-10:00	Tianmen Hall	89
Paper Session 6	Planning, operation, control and protection II	Pa6	Nov. 1st, Sunday 8:00-10:00	Xiantao Hall	90
Paper Session 7	Planning, operation, control and protection III	Pa7	Nov. 1st, Sunday 8:00-10:00	Ezhou Hall	91
Paper Session 8	Planning, operation, control and protection IV	Pa8	Nov. 1st, Sunday 10:15-12:15	Shennongjia Hall	91
Paper Session 9	Planning, operation, control and protection V	Pa9	Nov. 1st, Sunday 10:15-12:15	Qianjiang Hall	92
Paper Session 10	Planning, operation, control and protection VI	Pa10	Nov. 1st, Sunday 10:15-12:15	Dingxiang Hall	93
Paper Session 11	Energy management I	Pa11	Nov. 1st, Sunday 10:15-12:15	Tianmen Hall	94
Paper Session 12	Energy management II	Pa12	Nov. 1st, Sunday 10:15-12:15	Xiantao Hall	95
Paper Session 13	Energy management III	Pa13	Nov. 1st, Sunday 10:15-12:15	Ezhou Hall	96
Paper Session 14	Energy management IV	Pa14	Nov. 1st, Sunday 10:15-12:15	Wuhan Hall	97
Paper Session 15	Energy management V	Pa15	Nov. 1st, Sunday 10:15-12:15	Xiangyang Hall	98
Paper Session 16	Energy management VI	Pa16	Nov. 1st, Sunday 10:15-12:15	Shiyan Hall	98
Paper Session 17	Ubiquitous power internet of things and digital power grids	Pa17	Nov. 1st, Sunday 13:30-15:30	Shennongjia Hall	99

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Paper Session 18	Emerging key facilities I	Pa18	Nov. 1st, Sunday 13:30-15:30	Qianjiang Hall	100
Paper Session 19	Emerging key facilities II	Pa19	Nov. 1st, Sunday 13:30-15:30	Dingxiang Hall	101
Paper Session 20	Emerging key facilities III	Pa20	Nov. 1st, Sunday 13:30-15:30	Tianmen Hall	102
Paper Session 21	Enabling techniques on information, computation and communication I	Pa21	Nov. 1st, Sunday 13:30-15:30	Xiantao Hall	102
Paper Session 22	Enabling techniques on information, computation and communication II	Pa22	Nov. 1st, Sunday 13:30-15:30	Ezhou Hall	103
Paper Session 23	Cyber-physical system and cyber security	Pa23	Nov. 1st, Sunday 13:30-15:30	Wuhan Hall	104
Paper Session 24	UHV AC and DC transmission systems I	Pa24	Nov. 1st, Sunday 13:30-15:30	Xiangyang Hall	105
Paper Session 25	UHV AC and DC transmission systems II	Pa25	Nov. 1st, Sunday 13:30-15:30	Shiyan Hall	106
Paper Session 26	UHV AC and DC transmission systems III	Pa26	Nov. 1st, Sunday 15:45-17:45	Jingzhou Hall	107
Paper Session 27	Urban energy transition, energy internet supporting smart cities	Pa27	Nov. 1st, Sunday 15:45-17:45	Shennongjia Hall	107
Paper Session 28	Power and energy market, energy policies and business models I	Pa28	Nov. 1st, Sunday 15:45-17:45	Qianjiang Hall	108
Paper Session 29	Power and energy market, energy policies and business models II	Pa29	Nov. 1st, Sunday 15:45-17:45	Dingxiang Hall	109
Paper Session 30	Experimentations, implementations and demonstrations of the projects	Pa30	Nov. 1st, Sunday 15:45-17:45	Tianmen Hall	110
Paper Session 31	National key research and development plan “Smart grid technology and equipment” Major Projects	Pa31	Nov. 1st, Sunday 15:45-17:45	Xiantao Hall	111

Paper Session 32	IEEE PES Technical Committee (China) Covered fields & Experimentations	Pa32	Nov. 1st, Sunday 15:45-17:45	Ezhou Hall	112
Paper Session 33	Power system analysis and simulation	Pa33	Nov. 1st, Sunday 15:45-17:45	Wuhan Hall	112
Paper Session 34	Numerical techniques for field analysis in simulating HVDC system	Pa34	Nov. 1st, Sunday 15:45-17:45	Xiangyang Hall	113
Paper Session 35	Analysis and simulation of electric field of transmission line	Pa35	Nov. 1st, Sunday 15:45-17:45	Shiyan Hall	114

11.7 Poster session guide

Session Name	Session Number	Time	Location	Page
Poster Session 1	Po1	Oct. 31st, Saturday 13:30-15:30	Huilan Hall	116
Poster Session 2	Po2	Oct. 31st, Saturday 13:30-15:30	Walkway between Qingchuan Hall and Huanghe Hall	120
Poster Session 3	Po3	Oct. 31st, Saturday 15:45-17:45	Huilan Hall	125
Poster Session 4	Po4	Oct. 31st, Saturday 15:45-17:45	Walkway between Qingchuan Hall and Huanghe Hall	129
Poster Session 5	Po5	Nov. 1st, Sunday 8:00-10:00	Huilan Hall	134
Poster Session 6	Po6	Nov. 1st, Sunday 8:00-10:00	Walkway between Qingchuan Hall and Huanghe Hall	139
Poster Session 7	Po7	Nov. 1st, Sunday 10:15-12:15	Huilan Hall	144
Poster Session 8	Po8	Nov. 1st, Sunday 10:15-12:15	Walkway between Qingchuan Hall and Huanghe Hall	148
Poster Session 9	Po9	Nov. 1st, Sunday 13:30-15:30	Huilan Hall	153
Poster Session 10	Po10	Nov. 1st, Sunday 13:30-15:30	Walkway between Qingchuan Hall and Huanghe Hall	157
Poster Session 11	Po11	Nov. 1st, Sunday 15:45-17:45	Huilan Hall	162
Poster Session 12	Po12	Nov. 1st, Sunday 15:45-17:45	Walkway between Qingchuan Hall and Huanghe Hall	166

12. National smart grid key R&D program session details

National Smart Grid Key R&D Program Session 1: Key Technologies on Liquid Metal Energy Storage

Batteries

Oct. 31st, Saturday 15:45-17:45, Xiangyang Hall
Project Number: 2018YFB0905600

Chair(s):

Kai Jiang
Huazhong University of Science and Technology

Panelist:

- 15:45-16:05 SG1-01
Introduction on Liquid Metal Battery for Energy Storage Applications
Kai Jiang
Professor
- 16:05-16:25 SG1-02
Design of High Energy Density Electrodes/Electrolytes Materials of Novel LMBs
Kangli Wang
Professor
- 16:25-16:45 SG1-03
Reaction Mechanisms and Construction Techniques of Stable Liquid-liquid Interfaces of LMBs
Yixiang Shi
Associate Professor
- 16:45-17:05 SG1-04
Long-term High-temperature Sealing and Insulation Materials and Technologies for LMBs
Fei Chen
Professor

17:05-17:25 SG1-05
Analysis of the Failure Mechanisms of LMBs and the Modulation Strategies
Hailei Zhao
Professor

17:25-17:45 SG1-06
Key Technologies on Packing and Application of Large-capacity LMBs
Xiaohui Ning
Associate Professor

Contact Person: Yuzheng Guo
Phone Number: 16619861647

**National Smart Grid Key R&D Program Session 2:
Technology and Application of Wind Power /
Photovoltaic Power Prediction for Promoting
Renewable Energy Consumption**

Oct. 31st, Saturday 15:45-17:45, Shiyan Hall
Project Number: 2018YFB0904200

Chair(s):

Weisheng Wang

Panelist:

15:45-16:09 SG2-01
Numerical Forecasts Bias Correction System for Wind Power Prediction of Large-scale Wind Farm in China
Jingjing Xu

16:09-16:33 SG2-02
Short Term Wind Power Prediction of Wind Farm Clusters based on Data Mining and Deep Learning
Xiaosheng Peng

16:33-16:57 SG2-03

*Ultra-short-term PV Power Forecasting Technology
Considering the Influence of Cloud Movement*
Zhao Zhen

16:57-17:21 SG2-04
*Risk-limited Dispatch of Power System Considering
Uncertainties of Renewable Energy*
Wenchuan Wu

17:21-17:45 SG2-05
*Power System Adequacy Optimization for Large-scale
Renewable Energy Integration*
Dongliang Xie

Contact Person: Jiaxin Yuan
Phone Number: 18627755068

National Smart Grid Key R&D Program Session 3: Fault Current Limiting Measures and Their Recent Progress

Oct. 31st, Saturday 15:45-17:45, Huangshi Hall
Project Number: 2018YFB0904300

Chair(s):

Shenli Jia

Panelist:

15:45-15:59 SG3-01
DC current limiter
Liye Xiao
Institute of Electrical Engineering Chinese Academy of
Sciences

15:59-16:13 SG3-02
*Voltage Distribution Analysis of High Coupled Split Reactor
in 500 kV AC Fault Current Limiter*
Kaijian Wu
Huazhong University of Science and Technology

- 16:13-16:27 SG3-03
Research on the Insulation Design and Electromagnetic Environment of 500kV Fault Current Limiter Based on a High Coupling Split Reactor
Yongxia Han
South China University of Technology
- 16:27-16:40 SG3-04
Calculation and analysis of overvoltage and suppression measures of 500kV high voltage AC current limiter
Ying Zhang
Northwestern Polytechnical University
- 16:40-16:53 SG3-05
Research on the Mechanical Dynamics Characteristics of Tank Type Fast Vacuum Switch for 500kV High Voltage Current Limiter
Lijun Wang
Xi'an Jiaotong University
- 16:53-17:06 SG3-06
Fast detection and identification technology of short circuit fault
Hongkun Chen
Wuhan University
- 17:06-17:19 SG3-07
Introduction of the test scheme for 500kV AC fault current limiter based on high coupled split reactor
Peiren Wang
Xi'an High Voltage Apparatus Research Institute Co., Ltd.
- 17:19-17:32 SG3-08
Optimal configuration of fault current limiter based on virtual branch method
Rong Fu
Wuhan University
- 17:32-17:45 SG3-09
Study on insulation coordination of 500kV high coupling split current limiting reactor
Taishan Hu
Research Institute of China Southern Power Grid Co., Ltd.

Contact Person: Deping Ke

Phone Number: 15071083119

**National Smart Grid Key R&D Program Session 4:
Research on Cascaded Hydro-PV-VSPS Union
Operation Control & Intelligent Scheduling Technology**

Nov. 1st, Sunday 8:00-10:00, Huanggang Hall
Project Number: 2018YFB0905200

Chair(s):

Jun Wang
NARI Technology Co. Ltd.

Panelist:

- 8:00-8:30 SG4-01
Research on the Suppression Technology of PV Power Fluctuation for the Cascade Hydro-PV-Pumped Storage Generation System
Fan Wu
- 8:30-9:00 SG4-02
Research on Estimation of Regional Distributed Photovoltaic Output
Ji Wu
- 9:00-9:30 SG4-03
Research on Cascaded Hydro-PV-VSPS Union Operation Control & Intelligent Scheduling Technology
Pengzhu Shan
- 9:30-10:00 SG4-04
Complementary Operation of a Small Cascade Hydropower Station Group and Photovoltaic Power Stations
Shijun Chen

Contact Person: Hailiang Lu
Phone Number: 18986230118

**National Smart Grid Key R&D Program Session 5:
Optimal Sizing and Integration Technology of Cascade
Hydropower and Distributed Photovoltaic Included
Complementary Power Generation System**

Oct. 31st, Saturday 15:45-17:45, Xianning Hall
Project Number: 2018YFB0905200

Chair(s):

Junyong Liu
Sichuan University

Panelist:

- 15:45-16:09 SG5-01
Research on Optimal Sizing and Integration Technology of Cascade Hydropower and Distributed Photovoltaic Included Complementary Power Generation System
Junyong Liu
- 16:09-16:33 SG5-02
Research on the Evaluation and Decision-making Method for Cascade Hydro-PV-pumped Storage Generation System
Ze'an Zhu
- 16:33-16:57 SG5-03
Comprehensive Electricity Price Estimation for Cascaded Hydro-PV_PHS Hybrid Power System Based on Probabilistic Production Simulation Technology
Shuai Zhang
- 16:57-17:21 SG5-04
Optimized Sizing of a Standalone PV-wind-hydropower Station with Pumped-storage Installation Hybrid Energy System
Xiao Xu
- 17:21-17:45 SG5-05
An Uncertain Scenario Generation Based on Data-Driven Method for Hybrid Hydro-PV Power System

Jingxian Yang

Contact Person: Fei Tang

Phone Number: 18062050586

**National Smart Grid Key R&D Program Session 6:
Research and Application of Key Technologies of AC /
DC Hybrid Flexible Power Distribution System**

Oct. 31st, Saturday 15:45-17:45, Enshi Hall

Project Number: 2017YFB0903200

Chair(s):

Hongming He

**Guangdong Power Grid Electric Power Research
Institute**

Panelist:

- 15:45-16:00 SG6-01
*Applications of Silicon Carbide Based Power Electronics in
Distribution Grids: Advantages, State-of-the-Art Techniques
and Challenges*
Shiqi Ji
Tsinghua University
- 16:00-16:15 SG6-02
*Research on Design Scheme of Core Devices and
Equipment for AC / DC Hybrid Distribution Power Grid*
Zhanqing Yu
Tsinghua University
- 16:15-16:30 SG6-03
*Key Technology and Application of Control and Protection
for AC / DC Hybrid Distribution Network*
Yi Wang
Beijing Sifang Automation Co., Ltd.
- 16:30-16:45 SG6-04
*Demonstration Application and Project Overview Zhuhai
Tangjiawan Multi-terminal Flexible DC Distribution Grid*

Jianfu Chen

Zhuhai Power Supply Bureau Co., Ltd.

16:45-17:00 SG6-05
Key Technology Research and Demonstration Project Achievements of Power Distribution and Utilization System with Multi User Interaction in Industrial Park

Junge Li

Guangzhou Power Supply Bureau Co., Ltd.

17:00-17:15 SG6-06
Key Technologies and Engineering Demonstration of Energy Internet for Megacities

Yuan Xu

Guangzhou Power Supply Bureau Co., Ltd.

17:15-17:30 SG6-07
Research and application of equipment commissioning and operation and maintenance technology of flexible power distribution and utilization system

Jie Zeng

Integrated Energy Co., Ltd. of China Southern Power Grid

17:30-17:45 SG6-08
Research and application of key technologies of smart distribution and utilization flexible DC system for data center

Bing Chen

Guangdong Electric Power Design Institute Co., Ltd.

Contact Person: Yu Wang

Phone Number: 18171391216

National Smart Grid Key R&D Program Session 7:

Protection and Fault Diagnosis of the Smart

Distribution Networks

Oct. 31st, Saturday 15:45-17:45, Huanggang Hall

Project Number: 2017YFB0902800

Chair(s):

Hengxu Zhang
Shandong University

Panelist:

- 15:45-16:09 SG7-01
Protection Technology for the DC Distribution Network
Ke Jia
Professor at North China Electric Power University.
- 16:09-16:33 SG7-02
Key Technology for Fault Location of Medium-voltage Distribution Network with Synchrophasor Measurement Units
Zaibing Jiao
Professor at Xian Jiaotong University
- 16:33-16:57 SG7-03
Modeling and Detection Technology of Arc Grounding Fault in Distribution Network
Bin Wang
Associate Professor at Tsinghua University
- 16:57-17:21 SG7-04
A Transfer Learning Based High Impedance Fault Detection Method under the Cloud-edge Collaboration Framework
Xiaojun Wang
Associate Professor at Beijing Jiaotong University
- 17:21-17:45 SG7-05
Broadband Signal High-precision Synchronous Measurement and Its Application in Fault Detection in the Distribution Networks
Fang Shi
Associate Professor Shandong University

Contact Person: Hailiang Lu
Phone Number: 18986230118

National Smart Grid Key R&D Program Session 8:
The High-Performance Analysis and Situation
Awareness Technology of Interconnected Large Power
Grids

Oct. 31st, Saturday 15:45-17:45, Xiaogan Hall
Project Number: 2018YFB0904500

Chair(s):

Yuan Zeng
Tianjin University

Panelist:

- 15:45-16:05 SG8-01
An Intelligent Method for Characteristic Events Trace and Path Identification of Cascading Failures in AC/DC Hybrid Power System
Wei Xu
NARI Group Corporation
- 16:05-16:25 SG8-02
Hierarchical Load Aggregation Modelling Based on NILM and Data Integration
Wenpeng Luan
Tianjin University
- 16:25-16:45 SG8-03
Real-time Online Analysis of Large-Scale Power Grid
Mike Zhou
China EPRI
- 16:45-17:05 SG8-04
Data-Driven Transient Stability Assessment with "Sample-Model" Closed Loop
Lei Chen
Tsinghua University
- 17:05-17:25 SG8-05

Intelligent Panoramic System and Intelligent Panoramic Power Grid

Hongying Yang

China EPRI

17:25-17:45 SG8-06

A Unified Modeling Method for Inverter-interfaced Power Generation Systems

Weixing Li

Harbin Institute of Technology

Contact Person: Li Cai

Phone Number: 18971676120

National Smart Grid Key R&D Program Session 9:

Multi-physical Field Comprehensive Analysis and

Reliability Evaluation of Large Capacity Power

Electronic Equipment

Oct. 30th, Friday 13:30-15:30, To be determined

Project Number: 2018YFB0905800

Chair(s):

Jinjun Liu

Xi'an Jiaotong University

Panelist:

13:30-13:50 SG9-01

Research on Methods for Multi-physical Field

Comprehensive Analysis and Reliability Evaluation of Large Capacity Power Electronic Equipment

Jinjun Liu

13:50-14:10 SG9-02

Multi-physics Modeling and Analysis of Short-Term Stresses on Power Semiconductor Devices

Laili Wang

14:10-14:30 SG9-03

Mission Profile Emulator and Reliability Test for Power Electronic Equipment

Ke Ma

14:30-14:50 SG9-04

Control and Protection of Power Electronics for Reconfigurable Distribution Networks

Li Ran

14:50-15:10 SG9-05

Modeling and Simulation Analysis for Short and Long Time Scales of Power Electronic Devices

Bo Zhang

15:10-15:30 SG9-06

Optimization Design Method of Large Capacity Power Electronic Equipment

Wanjun Lei, Chang Yuan

Contact Person: Bo Wang

Phone Number: 15972976215

National Smart Grid Key R&D Program Session 10:

Medium and Low Voltage DC Power Distribution

Technology

Oct. 31st, Saturday 15:45-17:45, Suizhou Hall

Project Number: 2018YFB0904700, 2017YFB0903300

Chair(s):

Yubo Yuan

State Grid Jiangsu Electric Power Co. Ltd.

Panelist:

15:45-16:05 SG10-01

Exploration and Thinking of Low and Medium Voltage DC Power Distribution Technology

Yubo Yuan

16:05-16:25 SG10-02

Analysis and Design of Medium Voltage DC Distribution Network

Minxiao Han

16:25-16:45 SG10-03
Technology and Application of Fast Current Switching in DC Distribution System
Yifei Wu

16:45-17:05 SG10-04
Study on Fine Control of Multiple Operation State of DC Distribution System
Xiong Xiong

17:05-17:25 SG10-05
Research on Fault Identification and Protection of DC Power Distribution System
Shouxiang Wang

17:25-17:45 SG10-06
4 Port Power Electronic Transformer Efficiency Test
Chenyu Zhang

Contact Person: Siyang Liao
Phone Number: 15002716467

**National Smart Grid Key R&D Program Session 11:
Key Technology and Development of Complete Power
Variable Speed Constant Frequency Reversible
Pumped Storage Equipment**

Oct. 31st, Saturday 15:45-17:45, Dingxiang Hall
Project Number: 2018YFB0905200

Chair(s):

Zhijie Ma
**China Institute of Water Resource and Hydropower
Research (IWHR)**

Panelist:

15:45-16:05 SG11-01
*Research on Complete Power Variable Speed Constant
Frequency Reversible Pumped Storage Equipment*
Zhijie Ma

16:05-16:25 SG11-02
*Research on the Key Technology of Variable Speed
Reversible Pump Turbine*
Zhongnian Peng

16:25-16:45 SG11-03
*Research on the Key Technology of Variable Speed
Reversible Generator Motor*
Hailong Gong

16:45-17:05 SG11-04
*Research on Key Technologies of 5MW Variable Speed
Pumped Storage Full Power Converter*
Dianshun Lv

17:05-17:25 SG11-05
*Virtual Synchronous Generator Control of Full Power
Converter for Variable Speed Pumped-storage Unit*
Wei Wang

17:25-17:45 SG11-06
*Development of Hardware-in-the-loop Simulation Test
Verification Platform for the Controller of Variable Speed
Pumping Unit*
Jian Tang

Contact Person: Lei Shang
Phone Number: 18672787755

**National Smart Grid Key R&D Program Session 12:
Planning Theory and Methods for Power Systems with
High Proportion of Renewable Energy**

Nov. 1st, Sunday 8:00-10:00, Xianning Hall

Chair(s):

Zongxiang Lu
Tsinghua University

Panelist:

- 8:00-8:17 SG12-01
The Flexibility Test System for Studies of High Share of Variable Renewable Energy Resources
Zongxiang Lu
Tsinghua University
- 8:17-8:34 SG12-02
Integrated Wind Power Prediction on Multi-spatial Scales
Jie Yan
North China Electric Power University
- 8:34-8:51 SG12-03
Study on Coordinated Generation and Transmission Expansion Planning in Power Systems with High Proportion of Renewable Energy
Yaowu Wu
Huazhong University of Science and Technology
- 8:51-9:08 SG12-04
Research on Large Scale Renewable Energy Planning
Zhidong Wang
State Grid Economic Technology Research Institute Co. Ltd.
- 9:08-9:25 SG12-05
Comprehensive Matching Method of Renewable Energy Consumption in Distribution System
Jun Xiao
Tianjin University
- 9:25-9:42 SG12-06
Joint Planning of Distribution System and Distributed Energy Storage
Zechun Hu
Tsinghua University

9:42-10:00 SG12-07
*Research on Impedance Adaptive Dual-Mode Control of
Grid-Connected Inverters for High-Penetration New Energy
Power Generation*

Ming Li

Hefei University of Technology

Contact Person: Fei Tang

Phone Number: 18062050586

**National Smart Grid Key R&D Program Session 13:
Special Chip and Operating System for Power Terminal
and Their Security Protection**

Nov. 1st, Sunday 10:15-12:15, Xianning Hall

Project Number: 2018YFB0904900

Chair(s):

Wenyuan Xu

Panelist:

10:15-10:55 SG13-01
*Research on Power System Intelligent Terminal Security
Monitoring Method Based on Business Logic Consistency*
Keng Xu
Huanan Industrial Technology Research Institute of Zhejiang
University

10:55-11:35 SG13-02
Smart Grid Data Security Protection
Tao Wu
Chongqing University of Posts and Telecommunications

11:35-12:15 SG13-03
*The Edge Computing Aided Security Information
Transformation via Relay Nodes*
Tengyue Zhang
University of Electronic Science and Technology of China

Contact Person: Fei Tang

**National Smart Grid Key R&D Program Session 14:
Research on Prospective Technology of Seawater**

Pumped Storage Power Station

NOV. 1st, Sunday 13:30-15:30, Huangshi Hall
Project Number: 2017YFB0903700

Chair(s):

Man Chen
China Southern Power Grid Co., Ltd.

Panelist:

- 13:30-13:47 SG14-01
Analysis and Research Ideas of Key Problems in the Construction of Seawater Pumped Storage Power Station
Man Chen
- 13:47-14:04 SG14-02
Biofouling and Its Control in a Seawater Pumped Storage Power Station
Chao Liu
- 14:04-14:21 SG14-03
Metal Corrosion Behavior Modeling Based on Magnetoelectrochemistry
Hongguang Piao
- 14:21-14:38 SG14-04
Environmental Sensitivity Factor Analysis of Seawater Pumped Storage Power Station
Guangli Liu
- 14:38-14:55 SG14-05
Operation Control of Doubly Fed Variable Speed Pumped Storage Unit
Guoxian Gong

14:55-15:12 SG14-06
Analysis About the Selection Difference of Variable-speed and Fixed-speed Pump-turbine of Pumped Storage Units on Different Heads
Tao Zhang

15:12-15:30 SG14-07
Research on the Key Technologies of the Combined Operation of Variable Speed Seawater Pumped Storage and Renewable Energy
Changhong Deng

Contact Person: Deping Ke
Phone Number: 15071083119

**National Smart Grid Key R&D Program Session 15:
Analysis and Simulation of Cyber-Physics systems for
Power Grid**

Oct. 31st, Saturday 15:45-17:45, Tianmen Hall
Project Number: 2017YFB0903000

Chair(s):

Dong Liu

Panelist:

15:45-16:09 SG15-01
Energy Transition Supported by Digitalization and Intelligence: A Perspective of CPS
Bo Chai
GEIRI Co. Ltd.

16:09-16:33 SG15-02
Dynamic Hybrid Simulation of Cyber Physical Social Systems in Energy – A Example of Power Companies Participating in Carbon Emission Market
Jie Huang
NARI Group Corporation

16:33-16:57 SG15-03

Vulnerability Evaluation and Risk Alert of Active Distribution Network under Cyber Attack

Jiaming Weng

Shanghai Jiao Tong University

16:57-17:21 SG15-04

A FDI Attack-Resilient Secondary Control Strategy for Islanded Microgrids

Donglian Qi

Zhejiang University

17:21-17:45 SG15-05

A State-Caching-Based Co-Simulation Platform for Cyber-Physical System Evaluation

Qi Wang

Southeast University

Contact Person: Lei Chen

Phone Number: 13517205365

**National Smart Grid Key R&D Program Session 16:
Advanced Measurement and Control Technologies for
Smart Distribution Systems**

Nov. 1st, Sunday 10:15-12:15, Huangshi Hall

Project Number: 2017YFB0902800

Chair(s):

Zheng Yan

Shanghai Jiao Tong University

Panelist:

10:15-10:39 SG16-01

On-line Capacity Checking for Distribution Transformers

Xuan Liu

Hunan University

10:39-11:03 SG16-02

Joint Design of Energy-Efficient Transmission and Decentralized Estimation for Wireless Control Systems

Shanying Zhu

Shanghai Jiao Tong University

11:03-11:27

SG16-03

*Harmonic Contribution Evaluation Based on the
Distribution-level PMUs*

Yuanyuan Sun

Shandong University

11:27-11:51

SG16-04

*Topology Identification for Partially Observable Distribution
Network*

Xiaoyuan Xu

Shanghai Jiao Tong University

11:51-12:15

SG16-05

*Micro-PMU-based Perception and Control technologies of
Smart distribution systems*

Chen Fang

State Grid Shanghai Electric Power Research Institute

Contact Person: Deping Ke

Phone Number: 15071083119

National Smart Grid Key R&D Program Session 17:

Key Technologies and Applications of New

Environment-friendly Insulation Gases

Oct. 31st, Saturday 15:45-17:45, Xiantao Hall

Project Number: 2017YFB0902500

Chair(s):

Keli Gao

China Electric Power Research Institute

Panelist:

15:45-16:15

SG17-01

*Key Characteristic of Environment-friendly Insulation Gases
and Development of Environment-friendly Switchgears*

Zhibin Li



16:15-16:45 SG17-02
Insulation Design of Gas-solid Interface in C4F7N/CO2 Gas Mixture
Weidong Ding

16:45-17:15 SG17-03
Influence of Gas Molecular Structure Parameters on the Insulation Strength
Wenjun Zhou

17:15-17:45 SG17-04
Structure-activity Relationship and Molecular Design for Discovery of Environmentally Sustainable Dielectric Gases
Baoshan Wang

Contact Person: Daochun Huang

Phone Number: 13469992745

National Smart Grid Key R&D Program Session 18: Grid-friendly Control Technology for Large Capacity

Wind Turbines

Nov. 1st, Sunday 13:30-15:30, Suizhou Hall

Project Number: 2018YFB0904000

Chair(s):

Shiyao Qin
China Electric Power Research Institute

Panelist:

13:30-13:54 SG18-01
The Dynamic Characteristics and Quantitative Analysis Methods of Doubly-fed and Direct-driven Wind Turbines
Haishun Sun

13:54-14:18 SG18-02
Optimal Control Technology of the Wind Turbine Supporting Grid Inertia and Primary Frequency Regulation
Zhen Chen

14:18-14:42 SG18-03
Optimal Control Technology of Dynamic Characteristics of Wind Power Generation at Sub/Super-synchronous frequencies
Huanhai Xin

14:42-15:06 SG18-04
Research on Voltage/Frequency Transient Active Support Technology for Wind Turbines under Grid Fault
Lei Ding

15:06-15:30 SG18-05
Load Analysis and Stability Optimization Control of Wind Turbines under Grid Fault/Disturbance
Yong Sun

Contact Person: Siyang Liao
Phone Number: 15002716467

**National Smart Grid Key R&D Program Session 19:
Special Chip and Operating System for Power Terminal
and Their Security Protection**

Nov. 1st, Sunday 8:00-10:00, Enshi Hall
Project Number: 2018YFB0904900

Chair(s):

Xiangjun Zeng
Changsha University of Science & Technology

Panelist:

8:00-8:30 SG19-01
Key Technology and Industrialization of Secondary Equipment and System for National Power Generation
Xiangjun Zeng
Changsha University of Science & Technology

8:30-9:00 SG19-02
Self-controllable Special Chip for Power System



Wei Xi

China Southern Power Grid Digital Grid Research Institute
Co., Ltd.

9:00-9:30 SG19-03

Embedded Heterogeneous Multi-processor SoC Design

Siheng Chen

Zhejiang University

9:30-10:00 SG19-04

MS-RTOS Redefine the IoT OS

Jiawei Yan

Beijing Yihui Information Technology Co. Ltd.

Contact Person: Yu Wang

Phone Number: 18171391216

**National Smart Grid Key R&D Program Session 20:
Stability Analysis and Control of Complementary Power
Generation System with Cascaded Hydropower and
Distributed Photovoltaic**

Oct. 31st, Saturday 15:45-17:45, Ezhou Hall

Project Number: 2018YFB0905200

Chair(s):

Jin Lin

Tsinghua University

Panelist:

15:45-16:09 SG20-01

*Modeling and Simulation of Full-power Variable Speed
Pumped Storage Units*

Tao Liu

16:09-16:33 SG20-02

*Stability Analysis and Optimal Control of Cascaded Hydro-
solar Systems Considering the Uncertainty of Photovoltaic
Generation*

Zhipeng Yu

16:33-16:57 SG20-03
*Oscillation Analysis and Damping Control of Hydro-solar
Complementary Systems*
Sijia Wang

16:57-17:21 SG20-04
*Non-invasive Safety Analysis Software for Cascaded Hydro-
solar Systems Based on Polynomial Chaos Theory*
Bin Luo

17:21-17:45 SG20-05
*Small Signal Stability Analysis of Power System Connected
with Full-power Variable Speed Pumped Storage Unit*
Huabo Shi

Contact Person: Yanpu Zhao
Phone Number: 18942916293

**National Smart Grid Key R&D Program Session 21:
Key Technology and Application of Energy Internet
Oriented to New-type Towns**

Oct. 31st, Saturday 15:45-17:45, Wuhan Hall
Project Number: 2018YFB0905000

Chair(s):

Yuping Zheng
NARI Technology Co., Ltd.

Panelist:

15:45-16:15 SG21-01
*Key Technology and Engineering Application of Energy
Internet Oriented to New-type Towns*
Yuping Zheng
NARI Technology Co., Ltd.

16:15-16:45 SG21-02



Integrated Energy Management System with Multi-energy Flow for Energy Internet: Design and Application

Tian Xia

Tsinghua University

16:45-17:15 SG21-03

Research Status and Prospect of Energy Trading Mode and User Demand Response in Urban Energy Internet

Can Wan

Zhejiang University

17:15-17:45 SG21-04

Optimal Operation of Energy Storage and Conversion Devices in Multi-energy Systems to Meet Flexibility Requirements

Xuezhi Liu

Shanghai Jiao Tong University

Contact Person: Jun Zhang

Phone Number: 13971085061

National Smart Grid Key R&D Program Session 22:

Distributed Information Energy System

Nov. 1st, Sunday 10:15-12:15, Suizhou Hall

Project Number: 2018YFA0702200

Chair(s):

Huaguang Zhang

Northeastern University

Panelist:

10:15-10:39 SG22-01

Electricity-Hydrogen Charging and Waste Disposing Service Multi-Energy Microgrid and Its Optimal Operation

Yun Teng

Shenyang University of Technology

10:39-11:03 SG22-02

Optimization Operation of Integrated Energy System Based on Virtual Energy Storage System

Yunfei Mu
Tianjin University

11:03-11:27 SG22-03
Distributed Energy Management Strategy for Intelligent Ship with General Noise

Fei Teng
Daliann Maritime University

11:27-11:51 SG22-04
Fast Distributed Energy Management Strategy for Distributed Cyber-Energy System

Yushuai Li
Northeastern University

11:51-12:15 SG22-05
Real-time Optimal Power Allocation for Smart Grid System via Deep Neural Network: A Learning-based Approach

Fanghong Guo
Zhejiang University of Technology

Contact Person: Siyang Liao
Phone Number: 15002716467

13. Technical session details

Technical Session 1: Emerging Applications of Power Electronics in Modern Energy Systems

Oct. 31st, Saturday 15:45-17:45, Jingzhou Hall

Chair(s):

Yi Tang

Nanyang Technological University

Associate Professor at Nanyang Technological University

Panelist:

- 15:45-16:09 Te1-01
Multilevel Converters with Symmetrical Half-Bridge Submodules
Jingyang Fang
Postdoctoral Fellow at Duke University
- 16:09-16:33 Te1-02
Reduced-Order Average Models of Resonant Converters
Hongchang Li
Xinjiang University
- 16:33-16:57 Te1-03
Stability Blind-Area-Free Control Design for Microgrid-Interfaced Voltage Source Inverters under Dual-Mode Operation
Xiaoqiang Li
Associate Professor at China University of Mining and Technology
- 16:57-17:21 Te1-04
Distributed Control for Modular Multilevel Converters
Shunfeng Yang
Associate Professor at Southwest Jiaotong University
- 17:21-17:45 Te1-05
Simplified Model Predictive Control of Multilevel Converters with Internal Identical Structure
Dehong Zhou
University of Electronic Science and Technology of China

Contact Person: Mi Zhou

Phone Number: 18971065515

Technical Session 2: Energy and Transportation Nexus with Electric Vehicles

Oct. 31st, Saturday 15:45-17:45, Shennongjia Hall

Chair(s):

Zechun Hu

Tsinghua University, China

Associate Professor at Tsinghua University

Hongcai Zhang

University of Macau, China

Assistant Professor at University of Macau

Panelist:

- 15:45-16:05 Te2-01
Facility Planning and Operations Management for Electric Vehicles
Fang He
Associate Professor at Tsinghua University
- 16:05-16:25 Te2-02
Shared On-Demand Electric Vehicle Fleet Management via Deep Reinforcement Learning
Zhaohao Ding
Associate Professor at North China Electric Power University
- 16:25-16:45 Te2-03
Power and transport nexus: Autonomous Electric Vehicle Fleet Operation and Optimization
Hongcai Zhang
Assistant Professor at University of Macau
- 16:45-17:05 Te2-04
Demand Elasticity Analysis and Optimal Pricing for EV Public Charging Stations
Zechun Hu
Associate Professor at Tsinghua University
- 17:05-17:25 Te2-05

*Research on Massive Introduction of Electric Vehicles
Considering Extreme Environmental Conditions*

Hongyu Long

Associate Professor at Chongqing University of Post and
Telecommunications

17:25-17:45 Te2-06

*Outlook of Road Traffic Electrification and Corresponding
Charging Demand in China for 2030*

Shan Xiaonian, Gong Chengming

TELD New Energy Co., Ltd., Hohai University

Contact Person: Zhongyu Dai

Phone Number: 18071060848

Technical Session 3: Innovative applications in Smart Distribution System

Oct. 31st, Saturday 15:45-17:45, Qianjiang Hall

Chair(s):

Zhiyong Yuan

Vice Chair, IEEE PES (China) Power Transmission and
Distribution Committee

Panelist:

15:45-16:05 Te3-01

*Solid state Hydrogen Storage Technology and Its
Applications in Power Distribution System*

Jinying Zhang

Professor at Xi'an Jiaotong University

16:05-16:25 Te3-02

*Typical scenarios and applications of the AC/DC Hybrid
Power Distribution System*

Weiwei Li

Electric Power Research Institute of China Southern Power
Grid

16:25-16:45 Te3-03

*Applications of Silicon Carbide Based Power Electronics in
Distribution Grids: Advantages, State-of-the-Art Techniques
and Challenges*

Shiqi Ji

Assistant Professor at the University of Tennessee

16:45-17:05 Te3-04

Industrial Parks Smart Distribution Grid to Support Multi-energy Coordination

Zhiwen Yu

Senior Engineer at Guangzhou Power Supply Bureau of Guangdong Power Grid Corporation

17:05-17:25 Te3-05

Third-party Operated Storage-A novel Business Model for Storage in the Distribution Network

Xiaohe Yan

Assistant Professor at North China Electric Power University

17:25-17:45 Te3-06

The Application of Automatic Inspection Technology based on Multi-rotor Unmanned Aerial Vehicle (UAV) in distribution system

Xinqiao Wu

Senior Manager at Digital Grid Research Institute of China Southern Power Grid

Contact Person: Zhen Tian

Phone Number: 13020231858

Technical Session 4: Novel Frameworks for Power

System Analysis and Computation

Nov. 1st, Sunday 8:00-10:00, Wuhan Hall

Chair(s):

Chengxi Liu

Wuhan University, China

Professor at Wuhan University

Yu Wang

NARI Group Co., / State Grid Electric Power Research Institute

Senior Engineer at NARI Group Co., / State Grid Electric Power Research Institute

Panelist:

- 8:00-8:20 Te4-01
Understanding, Modal Decoupling and Stabilization of Nonlinear Power System Oscillations
Kai Sun
Professor at University of Tennessee
- 8:20-8:40 Te4-02
Analysis and Mitigation of Sub/super-Synchronous Oscillation with Wind Farms
Yanhui Xu
Professor at North China Electric Power University
- 8:40-9:00 Te4-03
Conducting the Computer-aided Power System Analysis on Domestic Computing Platforms
Tao Wang
Associate Professor at Sun Yat-sen University
- 9:00-9:20 Te4-04
An Analytical Framework for Online Power Flow Calculation Based on the Holomorphic Embedding
Chengxi Liu
Professor at Wuhan University
- 9:20-9:40 Te4-05
Region-based Security Analysis for Power Distribution Systems
Guoqiang Zu
Technical Engineer at State Grid Tianjin Electric Power Research Institute / Tianjin University
- 9:40-10:00 Te4-06
Smart Open-VQ for High-Performance Power Grids
Hsiao-Dong Chiang
Professor at Cornell University

Contact Person: Jun Zhang
Phone Number: 13971085061

Technical Session 5: Modern Energy System: Planning, Operation and Transaction

Nov. 1st, Sunday 10:15-12:15, Huanggang Hall

Chair(s):

Ming Zeng

IEEE PES (China) Energy Internet Policy and Planning
Subcommittee

Yongli Wang

IEEE PES (China) Energy Internet Policy and Planning
Subcommittee

Panelist:

- 10:15-10:39 Te5-01
*Practice of Park Integrated Energy System Operation
Optimization, Senior Engineer*
Kunpeng Zhao
Senior engineer at Customer service center of State Grid
Co., Ltd.
- 10:39-11:03 Te5-02
*Multiobjective Interval Optimization for Regional Multi-
energy System Planning with Consideration of Renewable
Energy and Demand Response Synergies*
Bo Zeng
Associate Professor at North China Electric Power
University
- 11:03-11:27 Te5-03
*Research on distributed energy transaction based on
blockchain*
Shuo Zhang
Associate Professor at North China Electric Power
University
- 11:27-11:51 Te5-04
*Research on Regional Integrated Energy System Demand
Forecasting and System Planning*
Yingxin Liu
Lecturer at Zhongyuan Institute of Technology
- 11:51-12:15 Te5-05

Research on Capacity Planning and Optimization of Regional Integrated Energy System Based on Hybrid Energy Storage system

Yongli Wang

Associated Professor at North China Electric Power University

Contact Person: Hailiang Lu

Phone Number: 18986230118

Technical Session 6: Urban Energy Network:

Simulation, Planning and Operation

Nov. 1st, Sunday 13:30-15:30, Xianning Hall

Chair(s):

Wei Gu

IEEE PES (China) Energy Internet Operation and Control Subcommittee

Qinglai Guo

IEEE PES (China) Energy Internet Operation and Control Subcommittee

Panelist:

13:30-13:54 Te6-01
Urban Integrated Energy Management System: Intelligence from Edge to Cloud

Zhaoguang Pan

Assistant Professor at Tsinghua University

13:54-14:18 Te6-02
Planning and Design of Regional Integrated Energy System

Ji Li

Senior engineer at China academy of building research

14:18-14:42 Te6-03
Collaborative Simulation and Evaluation of Urban Power Transportation Integrated Energy System Based on EV Interconnection

Yunfei Mu

Associate Professor at Tianjin University

14:42-15:06 Te6-04

Commercial Mode and Demonstration Projects of Integrated Energy System

Xiaodong Yuan

Professor at State Grid Jiangsu Electric Power Co., Ltd.
Electric Power Research Institute

15:06-15:30 Te6-05

Key Technologies Research and Demonstration Application of Smart City Energy Network Cooperative Management and Operation Optimization over One Belt One Road Countries

Hai Lu

Senior engineering at Yunnan Power Grid Co., Ltd. Electric Power Research Institute

Contact Person: Fei Tang

Phone Number: 18062050586

Technical Session 7: Advance in Energy Internet

Technologies: From Equipments to Operation

Nov. 1st, Sunday 13:30-15:30, Enshi Hall

Chair(s):

Tao Lin

IEEE PES (China) Energy Internet Equipments Subcommittee

Panelist:

13:30-13:54 Te7-01

Development of Electrical Vehicle Charging and Discharging System Technology

Haiping Xu

Professor at Institute of Electrical Engineering, Chinese Academy of Sciences (CAS)

13:54-14:18 Te7-02

Research and Application of Modular Hybrid High Voltage DC Circuit Breaker

Xiaoguang Wei

Professor at State Grid global energy interconnection research institute



- 14:18-14:42 Te7-03
Power and Traffic Nexus: From Perspective of Power Transmission Network and Electrified Highway Network
Guoqiang Sun
Associate Professor at Hohai University
- 14:42-15:06 Te7-04
Improved Four-layer Capacitor Voltage Balancing Control for MMC-type Electric Energy Router with AC and DC Fault Ride Through
Jinmu Lai
Huazhong University of Science and Technology University
- 15:06-15:30 Te7-05
A Decentralized SCOPF Approach for Coordinated Corrective Control of Interconnected Grids
Hui Du
Wuhan University
- Contact Person: Yu Wang
Phone Number: 18171391216

Technical Session 8: Cyber Physical Energy System

Modelling and Analysis

Nov. 1st, Sunday 13:30-15:30, Huanggang Hall

Chair(s):

Qi Wang

IEEE PES (China) Cyber Physical Energy System
Subcommittee

Ming Ni

IEEE PES (China) Cyber Physical Energy System
Subcommittee

Panelist:

- 13:30-13:54 Te8-01
Power system Resilience Analysis by Considering Cyber-physical Interdependencies
Zhiyi Li
Professor at Zhejiang University
- 13:54-14:18 Te8-02

Exploring the Evolution Mechanism and Early Warning of Cascading Failures Caused by Coordinated Cyber Attacks

Yufei Wang

Doctor at Wuhan University

14:18-14:42 Te8-03

An Investigation of Cyber-attack-tolerant Data-driven Power System Frequency Control Scheme

Chunyu Chen

Associate Professor at China University of Mining and Technology

14:42-15:06 Te8-04

Sharing Economy for Energy Trading in Cyber-physical Systems

Jianxiao Wang

Associate Professor at North China Electric Power University

15:06-15:30 Te8-05

Collaborative Security Defense Method for Cyber Physical Power System

Qi Wang

Associate Professor at Southeast University

Contact Person: Hailiang Lu

Phone Number: 18986230118

Technical Session 9: Business Model and Optimal

Operation of Virtual Power Plants

Nov. 1st, Sunday 10:15-12:15, Enshi Hall

Chair(s):

Dunnan Liu

IEEE PES (China) Energy internet Market and Business Model Subcommittee

Panelist:

10:15-10:32 Te9-01

Research, Design, Construction, and Operation of Virtual Power Plants

Xuanyuan Wang

Senior Engineer at Power Exchange Center



- 10:32-10:49 Te9-02
Power Internet of Things: Data Science Perspective and Business Models
Haoyong Chen
Professor at South China University of Technology
- 10:49-11:06 Te9-03
Key Technology of Hybrid AC/DC Distribution Network to Accommodate Renewable Energy
Lu Zhang
Associate Professor at China Agricultural University
- 11:06-11:23 Te9-04
Business Model of Energy Internet
Suxiu Li
Researcher at State Grid Energy Research Institute
- 11:23-11:40 Te9-05
An integrated Modeling Approach for the Reliable Operation of Integrated Energy Systems
Changzheng Shao
Lecturer at Chongqing University
- 11:40-11:57 Te9-06
Equivalent Modeling and Control of Inverter Air Conditioners for Providing Frequency Regulation Service
Hongxun Hui
Postdoctoral Fellow at University of Macau
- 11:57-12:15 Te9-07
Operating Reliability Evaluation of Smart Grids Considering Flexible Reserve Provider in Demand Side
Heping Jia
Postdoctoral Fellow at North China Electric Power University

Contact Person: Yu Wang
Phone Number: 18171391216

Technical Session 10: Energy Internet Project

Construction: Scheme, Implementation and Evaluation

Nov. 1st, Sunday 8:00-10:00, Xiangyang Hall

Chair(s):

Ruisheng Li

IEEE PES (China) Energy Internet Engineering and Benefit Evaluation Subcommittee

Bin Li

IEEE PES (China) Energy Internet Engineering and Benefit Evaluation Subcommittee

Panelist:

8:00-8:24

Te10-01

Reliability Evaluation Technology of Integrated Energy System Based on Impact Increment

Kai Hou

Associate Professor at Tianjin University

8:24-8:48

Te10-02

Analysis on Key points of Integrated Energy Service Project Engineering Construction Evaluation

Ying Fan

Senior engineering at State Grid Integrated Energy Service Group Co., Ltd.

8:48-9:12

Te10-03

Power Quality Enhancement and Engineering Application with High Permeability Distributed Photovoltaic Access to Low-voltage Distribution Networks in Australia

Kun Wang

Xuji Group Corporation

9:12-9:36

Te10-04

Application and Technical Research of Subway Regenerative Energy Device in Energy Management System

Zhneyu Yang

Xuji Group Corporation

9:36-10:00

Te10-05

Practice and Thinking about High-quality Power Supply of Distribution Network in Energy Internet

Lei Su

Senior engineering at State Grid Hubei Electric Power Company

Contact Person: Yuzheng Guo

Phone Number: 16619861647

Technical Session 11: Merging of Integrated Energy System and Power Distribution System: Modeling, Evaluation and Optimization

Nov. 1st, Sunday 8:00-10:00, Shiyan Hall

Chair(s):

Xinwei Shen

Tsinghua-Berkeley Shenzhen Institute, Tsinghua University

Panelist:

8:00-8:30 Te11-01
Reliability Evaluation of Integrated Energy Systems Based on Machine Learning

Gengfeng Li

Associate Professor at Xi'an Jiaotong University

8:30-9:00 Te11-02
Distribution System Reliability Evaluation based on Fault Incidence Matrix

Fengzhang Luo

Associate Professor at Tianjin University

9:00-9:30 Te11-03
Distributionally Robust Planning for Integrated Energy Systems Incorporating Electric-thermal Demand Response

Hongjun Gao

Associate Professor at Sichuan University

9:30-10:00 Te11-04
Optimal Dispatch of a Multi-Energy Residential Microgrid with Dispatchable Multi-Energy Loads

Yan Xu

Assistant Professor at Nanyang Technological University
Contact Person: Jiaxin Yuan
Phone Number: 18627755068

Technical Session 12: Dynamic Demand Response for Renewable Energy Integration into Power Grid

Nov. 1st, Sunday 8:00-10:00, Huangshi Hall

Chair(s):

Siyang Liao

Wuhan University, China

Associate Professor at Wuhan University

Haiwang Zhong

Tsinghua University, China

Associate Professor at Tsinghua University

Panelist:

8:00-8:17

Te12-01

*Achieving Renewable Dominated Power System via
Integrated Demand Response*

Jianxiao Wang

Associate Professor at North China Electric Power
University

8:17-8:34

Te12-02

*A Game Model of Electricity Demand Response Transaction
Considering Multi-energy Complementation of Users*

Yingjun Wu

Associate Professor at Hohai University

8:34-8:51

Te12-03

*The Application of Reinforcement Learning in Demand
Response and Demand side Management*

Tao Chen

Lecture at Southeastern University

8:51-9:08

Te12-04

*Virtual Energy Storage Characteristic Modeling and Control
of Industrial load for Wind Power Fluctuation Smoothing*

Siyang Liao

Associate Professor at Wuhan University

9:08-9:25

Te12-05

Evolution and Future Development Prospects of Automated Demand Response

Bin Li

Associate Professor at North China Electric Power University

9:25-9:42

Te12-06

Application and Practice of Adjustable Load for Demand Response

SongSong Chen

Deputy director at Power Usage & Energy Efficiency Research Department, China Electric Power Research Institute,

9:42-10:00

Te12-07

Development of Demand Response with the Emerging of Multi-Energy System

Haiwang Zhong

Associate Professor at Tsinghua University

Contact Person: Deping Ke

Phone Number: 15071083119

Technical Session 13: Applications and Frontiers of Deep reinforcement Learning (DRL) in Power Systems

Nov. 1st, Sunday 8:00-10:00, Suizhou Hall

Chair(s):

Jun Zhang

Wuhan University, China
Professor at Wuhan University

Panelist:

8:00-8:24

Te13-01

Research on Real-time Autonomous Control Strategies for Power Grid based on AI Technologies

Jiajun Duan

Global Energy Interconnection Research Institute North America

8:24-8:48

Te13-02

Future Smart Building Control and Distribution Power System State Estimation

Jun Hao

University of Denver

8:48-9:12

Te13-03

An overview of Tutoring Deep Reinforcement Learning

Xiaoshuang Li

Institute of Automation, Chinese Academy of Sciences

9:12-9:36

Te13-04

Study on Fast Charging Demand Guidance in Coupled Power-Transportation Networks Based on Graph Reinforcement Learning

Peidong Xu

Wuhan University

9:36-10:00

Te13-05

Dynamic Loadshedding Strategy Using Distributional Deep Reinforcement Learning in Power System

Siyuan Chen

Wuhan University

Contact Person: SiYang Liao

Phone Number: 15002716467

Technical Session 14: Applications and frontiers of Human-Machine Hybrid-augmented Intelligence in power systems

Nov. 1st, Sunday 15:45-17:45, Huangshi Hall

Chair(s):

Jun Zhang

Wuhan University, China

Professor at Wuhan University

Panelist:

- 15:45-16:05 Te14-01
A Simulation-Constraint Graph Reinforcement Learning Method for Line Flow Control
Jun Zhang
Professor at Wuhan University
- 16:05-16:25 Te14-02
Modeling of Human-Machine Complex Dispatch-Control Behavior Based on Heterogeneous Information Network
Linyao Yang
Institute of Automation, Chinese Academy of Sciences
- 16:25-16:45 Te14-03
Review of AI and AI Intelligence Assessment
Jiachen Hou
Macau University of Science and Technology
- 16:45-17:05 Te14-04
Research on Mining of Transmission Grid Assets of Heterogeneous System Based on Digital Twin
Jing Yan
Hubei Electric Power Company, The State Grid of China
- 17:05-17:25 Te14-05
Explainable AI in Deep Reinforcement Learning Models: A SHAP Method Applied in Power System Emergency Control
Ke Zhang
Wuhan University
- 17:25-17:45 Te14-06
Spatial-temporal Adaptive Transient Stability Assessment for Power System under Missing Data
Yangzhou Pei
Wuhan University

Contact Person: Deping Ke
Phone Number: 15071083119

Technical Session 15: Numerical Multi-physics and Large-scale Solution Methods

Nov. 1st, Sunday 15:45-17:45, Suizhou Hall

Chair(s):

Yanpu Zhao
Wuhan University, China
Professor at Wuhan University

Panelist:

- 15:45-16:09 Te15-01
*Research and Development of Low- and Mid- Voltage DC
Circuit Breaker*
Fei Yang
Professor at Xi'an Jiaotong University
- 16:09-16:33 Te15-02
*Calculation Method and Application for the Dynamic
Characteristics of Electric Filed in the Package of Press-
pack IGBT Device*
Xuebao Li
Associate Professor at North China Electric Power
University
- 16:33-16:57 Te15-03
PHG and Its Applications in Large-scale Problems
Tao Cui
Associate Professor at Academy of Mathematics and
Systems Science
- 16:57-17:21 Te15-04
*A Platform Developed for Multiphysics Simulation in
Electrical Engineering*
Xiaoyu Xu
Associate Professor at Chinese Academy of Sciences
- 17:21-17:45 Te15-05
*Limitation Method of Short-circuit Current in UHVDC
Transmission System*
Jiaxin Yuan
Professor at Wuhan University

Contact Person: Siyang Liao

Technical Session 16: Smart Village and Energy

Development

Nov. 1st, Sunday 8:00-10:00, Xiaogan Hall

Chair(s):

Xiaofeng Zhang

IEEE PES China Smart Village Committee

Hongjun Gao

Associate Professor at Sichuan University, China

Panelist:

8:00-8:20

Te16-01

Smart Energy and Agriculture

Junyong Liu

Professor at Sichuan University

8:20-8:40

Te16-02

The Promotion of the Ubiquitous Power Internet of Things to Electricity Substitution in the Rural Poverty Industry

Zhensheng Wu

Professor at Beijing Jiaotong University

8:40-9:00

Te16-03

Analysis, Design Methodology and Practice of Hybrid Solar Microgrid in Rural Areas

Haiwang Zhong

Associate Professor at Tsinghua University

9:00-9:20

Te16-04

Aggregation of EVs Charging and Discharging to Promote Renewable Energy Consumption

Dunnan Liu

Associate Professor at North China Electric Power University

9:20-9:40

Te16-05

Voltage Control Method for Rural Distribution Network with High Proportion Distributed Renewable Generation

Mingyou Chen

Professor at Chongqing University

9:40-10:00 Te16-06

Blockchain + Energy Application

Yaluo Sun

IEEE PES China Smart Village Committee

Contact Person: Li Cai

Phone Number: 18971676120

**Technical Session 17: Women in Engineering / Women
in Power: Encourage and Empower Women Engineers,
for the Diversity and Innovation**

Nov. 1st, Sunday 10:15-12:15, Jingzhou Hall

Chair(s):

Ruomei Li

Chair of PES WIP

Xia Chen

Chair of WIP Wuhan, China

Panelist:

10:15-10:20 Te17-01

Introduction

Xia Chen

Chair of WIP Wuhan, China

10:20-10:35 Te17-02

Opening Speech

Frank C. Lambert

IEEE PES President

10:35-10:50 Te17-03

Hong Chen

Vice Chair of TC, IEEE PES

10:50-11:05 Te17-04

Akar Simay

Vice Chair of YP, IEEE PES

11:05-11:15 Te17-05

Jinghan He

Vice Chair of WIP China

11:15-11:25 Te17-06

Mingyao Ma

Professor at Hefei University of Technology

11:25-11:35 Te17-07

Han Peng

Professor at Huazhong Science and Technology University

11:35-12:15 Te17-08

Q&A and Summary

Ruomei Li

Chair of PES WIP

Contact Person: Mi Zhou

Phone Number: 18971065515

**Technical Session 18: Women in Engineering / Women
in Power: Humanitarian Technology and Actions for the
Challenge of Covid-19**

Nov. 1st, Sunday 13:30-15:30, Jingzhou Hall

Chair(s):

Ruomei Li

Chair of PES WIP

Hui Zhang

Wuhan University, China

Professor at Wuhan University

Panelist:

13:30-13:35 Te18-01

Inruoduction

Hui Zhang

Professor at Wuhan University

13:35-13:45 Te18-02

Opening Speech

Jenifer P. Castillo Rodriguez

IEEE WIE Chair

- 13:45-13:55 Te18-03
Jessica Bian
IEEE PES President Elected
- 13:55-14:05 Te18-04
Jing Dong
IEEE HAC R10 Chair
- 14:05-14:15 Te18-05
Zilan Xiong
Professor at Huazhong Science and Technology University
- 14:15-14:25 Te18-06
Xinggan Guo
Rural Electrification Research Institute, Ministry of Water Resources of PRC
- 14:25-14:35 Te18-07
Ping Lu
Professor at Huazhong Science and Technology University
- 14:35-15:30 Te18-08
Q&A and Summary
Ruomei Li
Chair of PES WIP

Contact Person: Mi Zhou

Phone Number: 18971065515

Technical Session 19: Research on Lightning Protection and Grounding Technology in Energy Systems

Nov. 1st, Sunday 15:45-17:45, Xianning Hall

Chair(s):

Yu Wang

Associate Professor and LuoJia Young Scholar of Wuhan University

Panelist:

- 15:45-16:05 Te19-01
Lightning Protection of Offshore Booster Station
Jianjun Yang
Chief Engineer at Huadong Engineering Co., Ltd.
- 16:05-16:25 Te19-02
Engineering Performance Verification Test of Deep Well Grounding Electrode
Hansheng Cai
Professorate Senior Engineer at China Southern Power Grid Research Institute Co., Ltd.
- 16:25-16:45 Te19-03
Lightning characteristics over wind farms and the electromagnetic radiation of lightning strikes to wind turbines
Yu Wang
Senior Engineer at Wuhan Nanrui Co., Ltd. of State Grid Electric Power Research Institute
- 16:45-17:05 Te19-04
The Key Technology and Application of Natural Lightning Observation and Lightning Protection for Transmission Lines
Gang Liu
Senior Engineer at China Southern Power Grid Research Institute Co., Ltd.
- 17:05-17:25 Te19-05
Correlation Analysis of Topography and Earth Resistivity Distribution with Risk of Generalized DC Bias
Zhuohong Pan
Associate Professor at North China Electric Power University
- 17:25-17:45 Te19-06
Research on lightning simulation experiment and discharge characteristics of rotating wind turbine
Lu Qu
Researcher at China Southern Power Grid Research Institute Co., Ltd.

Contact Person: Fei Tang

Phone Number: 18062050586

Technical Session 20: Key Technologies of Power

Vision and Edge Intelligence

Nov. 1st, Sunday 15:45-17:45, Enshi Hall

Chair(s):

Fuqi Ma
Wuhan University

Panelist:

- 15:45-16:09 Te20-01
Research Progress on Visual Inspection of Transmission Line Components
Zhenbing Zhao
Associate Professor
- 16:09-16:33 Te20-02
Automatic Aerial Inspection System and Computer Vision Application in Large-Scale Photovoltaic Farms
Qiang Yang
Professor
- 16:33-16:57 Te20-03
A Survey of The Frontier Technology of Computer Vision
Bo Du
Professor
- 16:57-17:21 Te20-04
Application and Practice of Whole Area Visual Monitoring Technology Based on Artificial Intelligence for Power Transmission, Transformation and Distribution
Yi Wang
- 17:21-17:45 Te20-05
Power Vision Understanding and Edge Intelligence
Bo Wang
Professor at Wuhan University

Contact Person: Yu Wang
Phone Number: 18171391216

14. Paper session details

Paper Session 1: Nov. 1st, Sunday 8:00-10:00, Jingzhou Hall

Paper Session 1: System modelling, simulation, optimization and design I Chair(s): Fei Tang Associate Professor, Wuhan University Hongcai Chen Research Assistant Professor, Southern University of Science and Technology Time & Place: Nov. 1st, Sunday 8:00-10:00, Jingzhou Hall			
Paper Number	Oral Number	Author	Title
52	Pa1-01	Renchang Dai	Power Flow Calculation using Integrated Circuit Simulator
129	Pa1-02	Yijie Wang, Yuehua Huang, Nan Yang	Study on Method of User's Comprehensive Energy Use Behavior Decision Based on Evolutionary Game
207	Pa1-03	Zimu Feng	Simulation Study on the Power Transmission Stability of HVDC-connected Offshore Wind Farms
209	Pa1-04	Peng Lu	Research on Wind Power Optimal Dispatch Based on Model Predictive Control
214	Pa1-05	Shuai Yao, Wei Gu	A Novel Cross Iteration Method for Dynamic Energy Flow Calculation of the Hot-water Heating Network in the Integrated Energy System
243	Pa1-06	Haoxiang Li, Xiang Xiang Liu, Jie Lu, Jing Tian, Xiaoyu Lin	Energy demand forecasting for an office building based on Random forests

Contact Person: Mi Zhou

Phone Number: 18971065515

Paper Session 2: Nov. 1st, Sunday 8:00-10:00, Shennongjia Hall

Paper Session 2: System modelling, simulation, optimization and design II Chair(s): Fuping Zeng Associate Professor, Wuhan University Tian Wu Assistant Professor, China Three Gorges University Time & Place: Nov. 1st, Sunday 8:00-10:00, Shennongjia Hall			
Paper Number	Oral Number	Author	Title

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

227	Pa2-01	Da Lei, Jun Zhao, Mingjian Hu, Xiao Chang, Xu Zhang, Xiaoqing Song	Optimized configuration scheme of harmonic measuring device considering practical situations of grid nodes and monitoring device
242	Pa2-02	Shuoqi Wang, Yihan Wei, Languang Lu, Kai Sun, Minggao Ouyang	A novel framework for optimal sizing of a DC microgrid considering energy management and battery degradation
323	Pa2-03	Yinqiu Guo, Jinsong Kang, Jianhua Liu	Rule-based Energy Management Strategies for a Fuel Cell-Battery Hybrid Locomotive
406	Pa2-04	Yidan Wang, Guofeng Liu, Ji Xiang	A direct method based on incidence matrix for unbalanced three-phase distributed network
409	Pa2-05	Liangliang Guo, Lie Xu, Kai Sun, Yongdong Li	Stability Analysis of Stand-alone Photovoltaic System Considering Time Delay
347	Pa2-06	Lei Li, Dekun Zhou, Jinhua Zhang, Jing Dai, Zheng Zhou, Weidong Feng, Jun Sun, Pu Chen, Jialin Chen, Yi Mao, Peng Zhan, Yi Tang, Lu Ye, Shuo Yang, Jingru Li	Particle Swarm Optimization Based on Fuzzy C-means Cluster for Day-ahead Allocation Plan of Multiple Photovoltaic Distributed Generation

Contact Person: Zhongyu Dai

Phone Number: 18071060848

Paper Session 3: Nov. 1st, Sunday 8:00-10:00, Qianjiang Hall

Paper Session 3: System modelling, simulation, optimization and design III Chair(s): Xinyu Chen Professor, Huazhong University of Science and Technology Quanxin Li Research Associate, Wuhan University Time & Place: Nov. 1st, Sunday 8:00-10:00, Qianjiang Hall			
Paper Number	Oral Number	Author	Title
420	Pa3-01	Lei Wang, Hsiao-Dong Chiang, Wenjing Lou	Bus-bar Splitting on Enhancing Static Voltage Stability for the Base and Contingency Cases
529	Pa3-02	Chongyang Xie, Qing Zeng, Dong Liu, Jin	Modelling and Control of Wind-PV-SOFC-Battery Based DC Microgrid

		Lin, Qiang Hu, Chengxi Liu	
660	Pa3-03	Zongchao Yu, Yufei Song, Xuan Liu, Kang Yan	DLR based Preventive Dispatch for Mitigating Wind Power Uncertainty Induced Line Overloads
876	Pa3-04	Xian Xu, Ting Zhou, Ze Zhu, Ronggang Xue, Wei Liu	Dynamic Parameter Optimization of STATCOM Based on Model Predictive Control
973	Pa3-05	Xinhe Zhang, Kecheng Li, Guixiong He, Ming Zhong, Wei Huang	Comprehensive energy system evaluation method considering multi-index system
1031	Pa3-06	Yanhong, Ma, Qiang, Zhou, Wang, Dingmei, Chen, Yue, Yang, shiyou	Optimal Configuration of Multi-energy Capacity Based on Complementary Characteristics of Wind, Solar, Hydro, Thermal and Battery Energy

Contact Person: Zhen Tian

Phone Number: 13020231858

Paper Session 4: Nov. 1st, Sunday 8:00-10:00, Dingxiang Hall

Paper Session 4: System modelling, simulation, optimization and design IV Chair(s): Chunhua Fang Associate Professor, Three Gorges University Libin Wen Senior Engineer, Electric Power Research Institute of Guangxi Power Grid Co., Ltd. Time & Place: Nov. 1st, Sunday 8:00-10:00, Dingxiang Hall			
Paper Number	Oral Number	Author	Title
513	Pa4-01	Qinwei Duan	Estimation of Solar Power by Combining Ground Measured and Satellite Data Using Artificial Neural Networks
514	Pa4-02	Qinwei Duan	Impact of Integrating Solar Generation in Power Systems with Battery Energy Storage
626	Pa4-03	Chen Zhang, Haifeng Bian, Xianzhong Dai, Xinyang Han	Model of The Energy Internet Architecture Based on The Hetero-Functional Graph Theory
658	Pa4-04	Shenkai Xu, Chengxi Liu	Fast Power System Dynamic Simulations Based on Differential Transform Method

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

795	Pa4-05	Yunfei Ma, Guangchao Geng, Quanyuan Jiang, Chunguang Hu	LCC-HVDC System Dynamic Phasor Modeling Based on Improved Switch Function
1042	Pa4-06	Wenbo Hao, Yihe Luan, Boyang Li, Qingyu Yan, Xiaoguang Chen, Shuang Rong	Frequency Response Characteristics of PMSG-based Wind Turbines

Contact Person: Lei Shang

Phone Number: 18672787755

Paper Session 5: Nov. 1st, Sunday 8:00-10:00, Tianmen Hall

Paper Session 5: Planning, operation, control and protection I Chair(s): Wei Chen Associate Professor, Huazhong University of Science & Technology Yu Zheng Research Associate, Wuhan University Time & Place: Nov. 1st, Sunday 8:00-10:00, Tianmen Hall			
Paper Number	Oral Number	Author	Title
733	Pa5-01	Min Wei, Beichen Li, Yong Sun, Lei Wang, Zheng Feng, Xiaoyu Yue, Bingqian Xu	Optimal Configuration of Pumped Storage Capacity in Power Systems with High Penetration of Wind Power
829	Pa5-02	Ke Sun, Chun Li, Qiao Peng	Planning of Microgrid Based on Information Gap Decision Theory
846	Pa5-03	Zhongqing Sun, Junliang Wang, Guijun Liu, Yinghao Yang, Lin Dong, Yu Wang, Chengyi Zhang, Jie Lei, Haijun Chang	The Control Experience of the AC-DC interconnected power system in China and its Reference Significance to Brazilian power system
141	Pa5-04	Ming Sun, Gangwen Xie, Lei Chen, Yuming Liu, Xiaoju Li, Yong Min	Study on the Necessity and Role of Inertia in Power System Frequency Response
177	Pa5-05	Aifang Zhang, Wei Wang, Kejie Zhang, Qibin Liu, Xin Xu, Xubin Liu, Xinyu Chen	Optimal Control Parameters of Battery Storage System for Frequency Regulation and Economic Analysis

191	Pa5-06	Qiyuan Cai, Boyu Fan, Yinan Li, Yuanfei Li, Pengjia Shi, Juhua Hong, Nan Zheng	Integrated Routing of Medium Voltage Distribution Network Based on Power Supply Unit Partitioning
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Contact Person: Lei Chen
Phone Number: 13517205365

Paper Session 6: Nov. 1st, Sunday 8:00-10:00, Xiantao Hall

Paper Session 6: Planning, operation, control and protection II Chair(s): Songsong Chen Deputy Director of Power Usage & Energy Efficiency Research Department, China Electric Power Research Institute Qinwei Duan Guangdong Power Grid Power Dispatch and Control Center Time & Place: Nov. 1st, Sunday 8:00-10:00, Xiantao Hall			
Paper Number	Oral Number	Author	Title
249	Pa6-01	Zhenrui Peng	A Novel Hybrid Optimization Method in Distribution Network Feeder Reconfiguration
309	Pa6-02	Ning Luo, Lijun Liu, Feng Xie, Tong Wu	Flexibility optimal dispatch of the distribution network with virtual power plant
345	Pa6-03	Yunyun Wang, Haiying Dong, Dingmei Wang, Xin Die	Optimal Scheduling Considering Wind- Solar-Pumped Storage Economy and Fairness under Non-cooperative Game
455	Pa6-04	Xingyuan Li, Peng Zhang, Chenyang Han	Wide Frequency Range Suppression of Subsynchronous Oscillation for DFIG Wind Farm Based on Optimal Control
503	Pa6-05	Yiqi Xing, Yu Liu, Xiaodong Zheng	A Systematic Framework Presenting Impact of Dataset Completeness on Data Driven Approaches: A Transmission Line Fault Classification Study
402	Pa6-06	Fangfang Shi, Zehui Zhang, Zejing Zhao, Zhaohui Zhang	Study on Autotransformer's Low Voltage Side Over-current Protection with Circulating Current

Contact Person: Daochun Huang
Phone Number: 13469992745

Paper Session 7: Nov. 1st, Sunday 8:00-10:00, Ezhou Hall

Paper Session 7: Planning, operation, control and protection III Chair(s): Zechun Hu Associate Professor, Tsinghua University Hansheng Cai Senior Technical Expert, China Southern Power Grid Research Institute Co., Ltd. Time & Place: Nov. 1st, Sunday 8:00-10:00, Ezhou Hall			
Paper Number	Oral Number	Author	Title
510	Pa7-01	Enhua Xu, Yuping Lu	Protection Scheme for Collector Lines Based on the Current Amplitude Ratio with Spectrum Index
518	Pa7-02	Qiyuan Cai, Yinan Li, Changyong Lin, Yuanfei Li, Kangli Xiang, Xianan Huang, Nan Zheng, Song Guo	Fast Security Analysis for Urban Power System Based on Full Voltage Level Security Region
543	Pa7-03	Zuxun Xiong, Xinwei Shen, Bin Wang, Qinglai Guo, Hongbin Sun, Zhaoguang Pan	Optimal Planning of Electric-Heat Coupled Integrated Energy System with N-1 Constraints
554	Pa7-04	Wei Hu, Yi Zhang, Qiuting Guo, Xu Huang, Gang Li, Weiheng Wang, Yan Meng	Research on Short-Term Load Forecasting Method of Power System Based on Seq2Seq-Attention Model
1002	Pa7-05	Huang, Ming Yu, Ding, Li, Kong, Zheng Min, Li, Wen Qu	Observer Based Fault-tolerant Control for DC Microgrids with Sensor Fault
912	Pa7-06	Hangjie Han, Mengke Wu, Jun Gao, Weisheng Xue, Linbo Xu, Fuheng Wang, Kun Yu, Li Li, Xiangjun Zeng	A Protection Method based on Phase Voltage Variation Characteristics for Generator Stator Ground Fault

Contact Person: Yanpu Zhao
 Phone Number: 18942916293

Paper Session 8: Nov. 1st, Sunday 10:15-12:15, Shennongjia Hall

Paper Session 8: Planning, operation, control and protection IV Chair(s): Jin Lin Associate Professor, Tsinghua University			
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Gang Liu Director of Overvoltage and Lightning Protection Technology Research Office, China Southern Power Grid Research Institute Co., Ltd. Time & Place: Nov. 1st, Sunday 10:15-12:15, Shennongjia Hall			
Paper Number	Oral Number	Author	Title
579	Pa8-01	Xiaobing Ding, Zebing Shi, Jiang Yu, Qin Pang, Kun Yu, Xiangjun Zeng	Protection method of small current grounding system based on phase current variation
742	Pa8-02	Siyuan Chen, Yuyang Bai, Jun Zhang	Dynamic load shedding strategy using distributional deep reinforcement learning in power system emergency control
762	Pa8-03	Min Wei, Bingqian Xu, Yong Sun, Yan Luo, Yitian Chen, Xiaoyu Yue	Economic Analysis of Thermal Power Plants Considering Hidden Costs in Deep Peak Shaving
764	Pa8-04	Fang Liu, Biao Huang, Yang Yu, Hui Song, Fangze Zhou, Hui Zhou	Cool Storage Technology Selection Based on the Operation Simulation of Electric-thermal Integrated Energy System
868	Pa8-05	Fengquan Liu, Chengfu Wang, Zhenwei Zhang, Huacan Lv, Meng Zhang	Decentralized economic dispatch of integrated electricity-gas energy system considering P2G and line pack
874	Pa8-06	Ying Yang, Wei Liu, Shigong Jiang, Junfang Zhang	Non-cooperative-game-based Multi-agent Collaborative Planning Method for Distributed Generations

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Paper Session 9: Nov. 1st, Sunday 10:15-12:15, Qianjiang Hall

Paper Session 9: Planning, operation, control and protection V Chair(s): Zaibin Jiao Professor, Xi'an Jiaotong University Lu Qu Researcher, China Southern Power Grid Research Institute Co., Ltd. Time & Place: Nov. 1st, Sunday 10:15-12:15, Qianjiang Hall			
Paper Number	Oral Number	Author	Title

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

933	Pa9-01	Xueling Zheng, Ye Su, Luping Wei, Jiangfeng Zhang, Xinwei Shen, Hongbin Sun	Cost-Benefit Evaluation for Battery Energy Storage Considering Degradation and Data Clustering in Performance-Based Frequency Regulation Service
964	Pa9-02	Xin Ding, Jian Xu, Yuanzhang Sun, Siyang Liao	A Demand Side Control based on Output Regulator Theory for Wind Power Smoothing in an Industrial Aluminum Production Microgrid
978	Pa9-03	Chunyan Rong, Chuncheng Cao, Hangli Jian*, Jiang Li, Jikai Chen	Fault Location Technology of Transmission Line and Asynchronous Phasor Measurement from PMUs
986	Pa9-04	Jun Wang, Jian Xu, Zhiye Du, Yan Gan, Shuang Liu	Lightning Probability Warning of Transmission Line Based on Bayesian Network
329	Pa9-05	Yi Du, Qiyuan Cai, Yinan Li, Kangli Xiang, Changyong Lin, Yuanfei Li	Research on the Influencing Factors Affecting Carbon Emissions in Fujian Province
440	Pa9-06	Zeyang Tang, Yong Yao, Xiaoshuang Li, Lu Chen, Xiang Zou, Ling Ruan, Shen Yu	The Influence of Urban Rail Transit's Stray Current on Power Grid and Its Synchronous Monitoring

Contact Person: Zhen Tian

Phone Number: 13020231858

Paper Session 10: Nov. 1st, Sunday 10:15-12:15, Dingxiang Hall

Paper Session 10: Planning, operation, control and protection VI Chair(s): Hongjun Gao Associate Professor, Sichuan University Meng Huang Associate Professor, Wuhan University Time & Place: Nov. 1st, Sunday 10:15-12:15, Dingxiang Hall			
Paper Number	Oral Number	Author	Title
566	Pa10-01	Qiupin Lai, Chengxi Liu, Liangzhong Yao	Remote Harmonic Mitigation within Offshore Wind Power Plants by Embedded Active Filters in Grid-Side Converters

740	Pa10-02	Peidong Xu, Jun Zhang, Yangzhou Pei	A Simulation-Constraint Graph Reinforcement Learning Method for Line Flow Control
772	Pa10-03	Guanxiong Yin, Baohua Bai, Jianfeng Jiang, Hongbin Sun, Lingxi Bu, Bin Wang, Binbin Chen	Cooperative Optimal Operation of Multi-Area Integrated Electricity and Natural Gas System Based on Bargaining Game Mode
779	Pa10-04	Tianqi Zhao, Huan Xie, Xue Xia, Mengdi Li, Zesen Wang, Hao Liang	Analysis on transient overvoltage mechanism of large-scale renewable energy integration system
913	Pa10-05	Xinqi Chen, Linbo Xu, Lihang Zhao, Hangjie Han, Bin Tang, Kun Yu, Li Li, Xiangjun Zeng	Monitoring method of injection-type generator stator-to-earth insulation state in neutral point combined grounding mode
1019	Pa10-06	Hong Liu, Zhiwei Li, Qing Cheng, Tianliang Yao, Xianlong Yang, Yun Hu	Construction of the evaluation index system of the regional integrated energy system compatible with the hierarchical structure of the energy Internet

Contact Person: Lei Shang

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Paper Session 11: Nov. 1st, Sunday 10:15-12:15, Tianmen Hall

Paper Session 11: Energy management I			
Chair(s): Jing Shi Associate Professor, Huazhong University of Science and Technology			
Yingjun Wu Associate Professor, Hohai University			
Time & Place: Nov. 1st, Sunday 10:15-12:15, Tianmen Hall			
Paper Number	Oral Number	Author	Title
39	Pa11-01	Jinhua Xue, Deshun Wang, Yibin Tao, Jinshan Qi, Siyang Liao, Beilin Mao, Liangzhong Yao	Evaluation of Frequency Regulation Performance of Energy Storage Power Plants Based on Correlation Analysis and Combined Weighting Method
54	Pa11-02	Youjie Shi	Design and Control of Battery Energy Storage System Based on Cascaded

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

			Multilevel Converter with Reduced Low-Frequency Battery Current Ripple
74	Pa11-03	Hao Yuan	Modal Frequency and Damping Evaluation of Grid-Connected VSCs in Sub-Synchronous Range Based on Motion Equation Method
93	Pa11-04	Ming Li, Fan Zhang, Hongjun Gao, Zhuyu Qing, Jingqian Yang, Lei Zhong	Hierarchical Game Trading Model for Multiple VPPs Considering the Interaction with Distribution
474	Pa11-05	Weiwei Yao, Changhong Deng, Peng Peng	Optimal Sizing of Variable-speed Seawater Pumped Storage Based on Maximum Efficiency Tracking
430	Pa11-06	Jiangbo Ren, Shuai Jiang, Zhongqing Li, Yifeng Yuan, Jinxin Ouyang	Impact Suppression Method for PV Power Generation Grid-reconnection Based on DC Voltage Control

Contact Person: Lei Chen

Phone Number: 13517205365

Paper Session 12: Nov. 1st, Sunday 10:15-12:15, Xiantao Hall

Paper Session 12: Energy management II Chair(s): Hua Li Professor, Huazhong University of Science and Technology Jianxiao Wang Assistant Professor, North China Electric Power University Time & Place: Nov. 1st, Sunday 10:15-12:15, Xiantao Hall			
Paper Number	Oral Number	Author	Title
321	Pa12-01	Shifeng Zhao, Jinjun Liu, Sixing Du	An Improved Control Method for Suppressing Capacitor Voltage Fluctuation of Medium-Voltage Motor Drives based on Cascaded H-Bridge
388	Pa12-02	Xining Li, Fuyuan Ma, Tian Wu, Cheng Cheng, Yu Zhao, Guangchao Geng	State of Health Equalization Strategy for Retired Battery based Energy Storage System
391	Pa12-03	Jianlin Yang, Gujing Lin, Ran Lv, Ciwei Gao, Tao Chen	Research on Construction and Dispatching of Virtual Power Plant Based on Reserve Energy Storage of Communication Base Station

479	Pa12-04	Haotian Zhao, Ji Zhou, Chen Li, Bin Wang, Yong Zhang, Zhaoguang Pan	Capacity Limitation Service for Multi-Energy Virtual Power Plants Based on Multi-Parametric Programming
562	Pa12-05	Lingfeng Kou, Xiaoyun Qu, Geng Niu, Baodi Ding	The Design method of AC-DC Microgrid Based on Smart Energy Station
583	Pa12-06	Zhenghua Xu, Changhong Deng, Yahong Chen, Dinglin Li, Man Chen, Peng Peng	Robust Adaptive Frequency Modulation Strategy for Variable Speed Pumped Storage in Generator Mode

Contact Person: Daochun Huang
Phone Number: 13469992745

Paper Session 13: Nov. 1st, Sunday 10:15-12:15, Ezhou Hall

Paper Session 13: Energy management III Chair(s): Chao Chen Senior Engineer, State Grid Zhejiang Electric Power Co., Ltd. Yin Yao Lecturer, Shanghai University of Electric Power Time & Place: Nov. 1st, Sunday 10:15-12:15, Ezhou Hall			
Paper Number	Oral Number	Author	Title
714	Pa13-01	Shang Gao, Lei Yao, Yang Li	Stability Analysis of Cascaded H-Bridge Power Electric Transformer-Boost Converter Cascade System
808	Pa13-02	Yan Feng, Ahmed Rabee Sayed*, Xiaoyang Liu, Yanyun Jin, Tao Wang, Liu Zhisong, Cheng Wang	Adaptive Robust Unit Commitment in Coordinated Electricity and Natural Gas System
814	Pa13-03	Bin Lin, Kaiwen Zeng, Haizhu Wang, Jianing Liu, Bin Du, Chunchao Hu	Coordination of Industrial Load Management and Micro-Turbines for Improving Renewable Energy Utilization Efficiency
892	Pa13-04	Chen Pan	Life cycle economic analysis of integrated energy station combined with a practical project
927	Pa13-05	Binzheng Wang, Jing Yan, Fan Liu, Yanhai Rong, Jianglong Li	Research on Key technologies and prospects for port shore power construction

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984	Pa13-06	Jingjing Wang, Liangzhong Yao, Siyang Liao, Jian Xu, Zhaowei Li, Yazhou Lv, Wei Li, Pengyu Wang	Frequency control strategy of energy storage system based on SOC under distributed photovoltaic intensive access
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Contact Person: Yanpu Zhao

Phone Number: 18942916293

Paper Session 14: Nov. 1st, Sunday 10:15-12:15, Wuhan Hall

Paper Session 14: Energy management IV Chair(s): Jun Zhang Professor, Wuhan University Tao Chen Senior Engineer, Southeast University Time & Place: Nov. 1st, Sunday 10:15-12:15, Wuhan Hall			
Paper Number	Oral Number	Author	Title
126	Pa14-01	Xubin Wang, Jun Zhang, Yanna Xi	Collaborative optimization dispatch for multi-microgrids system with combined cooling, heating and power
173	Pa14-02	Congli Li, Han Yan, Zhen Zhang, Jianhua Wang, Xianghong Zuo	Service Restoration Based on Interruption Loss for Resilient Distribution System Considering Distributed Generations
208	Pa14-03	Qing Ge, Hongyang Yu, Guoliang Zhao, Zhanfeng Deng, Chaoliang Wang	Research on Low-Frequency Offshore Wind Power Transmission and Frequency Conversion Technology
213	Pa14-04	Yi Xiong, Hengxu Zhang, Fang Shi, Changhui Ma	Transient Stability Analysis of Power System with Integration of DFIGs Based on Complementary Cluster Center of Inertia-Relative Motion
315	Pa14-05	Xiaohan Fang, Yinghua Han, Yaxin Huo, Jinkuan Wang	Energy Scheduling and Decision Learning of Combined Cooling, Heating and Power Microgrid Based on Deep Deterministic Policy Gradient
318	Pa14-06	Yaning Han, Lei Guo, Yong Zhang, Mengnan Yang, Yingjian Hu	Dispatching methods and strategies for controllable charging pile clusters to participate in grid ancillary services

Contact Person: Jun Zhang

Phone Number: 13971085061

Paper Session 15: Nov. 1st, Sunday 10:15-12:15, Xiangyang Hall

Paper Session 15: Energy management V Chair(s): Haiwang Zhong Associate Professor, Tsinghua University Dan Liu Senior Engineer, Electric Power Research Institute of State Grid Hubei Electric Power Company Time & Place: Nov. 1st, Sunday 10:15-12:15, Xiangyang Hall			
Paper Number	Oral Number	Author	Title
595	Pa15-01	Guanghai Hua, Chen Li, Yong Zhang, Dan Li, Chuang Liu, Cheng Wang	Robust Dispatch of Integrated Electric-Heat Systems Considering Weather-Parameter-Driven Residential Thermal Demands
604	Pa15-02	Ziqi Zhu, Xiaomei Ma, Xing Li, Luo Li	A New Integrated Heat Storage and Heat Load Control Method to Erase the Wind Power Curtailment
711	Pa15-03	Qianyu Li, Zihao Xu, Xinyou Qin, Kun Zhang, Changhua Zhang Shengyong Ye	A Convolution Neural Network Method for Power System Oscillation Type Identification
782	Pa15-04	Biping Guan, Jiangxin Zhou, Haobin Yu, Wanjian Zhao, Shiwei Zhang, Qiu Zou, Xin Yang, Fengzhang Luo	Reliability Evaluation of Distribution System with Multi-energy Integration Considering Comprehensive Demand Response
807	Pa15-05	Jianing Liu, Kaiwen Zeng, Haizhu Wang, Bin Lin, Bin Du, Chunchao Hu	Coordinated Operation of An Islanded Multi-energy Microgrid with Demand Response
820	Pa15-06	Yue Pu, Wei Chen, Ruicong Zhang, Haoming Liu	Optimal Operation Strategy of Port Integrated Energy System Considering Demand Response

Contact Person: Yuzheng Guo
 Phone Number: 16619861647

Paper Session 16: Nov. 1st, Sunday 10:15-12:15, Shiyan Hall

Paper Session 16: Energy management VI Chair(s): Xiaoyu Xu Associate Professor, Institute of Electrical Engineering of Chinese Academy of Science Xiaoyue Chen			
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Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

Research Associate, Wuhan University			
Time & Place: Nov. 1st, Sunday 10:15-12:15, Shiyan Hall			
Paper Number	Oral Number	Author	Title
830	Pa16-01	Jiawei Wang, Haibo Zhao, Ende Hu, Zhi Zhang, Zeyuan Shen, Guopeng Zhao, Dong Wang, Youbo Zhang	Distributed generation capacity planning method of AC/DC hybrid distribution network based on different functions of energy storage
918	Pa16-02	Yan Zhang, Meng Zhang, Han Gao	A Fuzzy Control Strategy for Grid Connected DFIG System Based on Dissipated Energy Coefficient
580	Pa16-03	Jianing Liu, Kaiwen Zeng, Haizhu Wang, Bin Du, Yufeng Tang	Efficient Operation of Electricity Market Considering the Flexible Load Based on Improved PSO Algorithm
352	Pa16-04	Shunqi Zeng, Yuquan Zeng, Li Wang, Xin Li, Hang Xu, Chengsi Xu, Shufeng Dong	Integrated energy coordinated control system of industrial park and its application
366	Pa16-05	Yanwan Huang, Yongchun Yang, Haifeng Liang	Simulation Research of MMC based Multi-terminal AC/DC converter
371	Pa16-06	Ji Ke, Yude Qin, Biao Wang	Optimizing and Controlling Building Electric Energy Using CatBoost under the Energy Internet of Things

Contact Person: Jiaxin Yuan

Phone Number: 18627755068

Paper Session 17: Nov. 1st, Sunday 13:30-15:30, Shennongjia Hall

Paper Session 17: Ubiquitous power internet of things and digital power grids			
Chair(s): Liming Chen			
Director of Information and Communication Application Research Office of Information Security Center, Electric Power Research Institute of China Southern Power Grid			
Lei Chen			
Associate Professor, Tsinghua University			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Shennongjia Hall			
Paper Number	Oral Number	Author	Title
103	Pa17-01	Zhang Tianyu, Zhao Yuchao, Li Jinsheng, Wang Geng	Design and Research of Substation Measurement System Based on Internet of Things Technology

42	Pa17-02	Limin Cheng, Yuqing Bao, Yanmin Zhou	An Improved Short-Term Load Forecasting Method Considering Thermal Inertia Effect
25	Pa17-03	Qiankuan Liu, Hongjun Liu, Jin Li	Research on digital design and control technology of secondary circuit in Substation
335	Pa17-04	Ming Lei, Shangpeng Wang, Tian Xia, Qi Wang, Xin Wang, Jun Li	Composite Error Model Analysis of Digital Metering System in Smart Substations
448	Pa17-05	Jian Wang, Xihai Zhang, Peiyi Li, Xingyang Liu	A comprehensive survey on transformer fault diagnosis and operating condition prediction
612	Pa17-06	Wei Hu, Yue Liu, Qiuting Guo, Weiheng Wang, Shuhong Song, Yu Liu	A data-driven method of users-transformer relationship identification in the secondary power distribution system

Contact Person: Yuzhong Dai
Phone Number: 18071060848

Paper Session 18: Nov. 1st, Sunday 13:30-15:30, Qianjiang Hall

Paper Session 18: Emerging key facilities I Chair(s): Chengxi Liu Professor, Wuhan University Pan Hu Senior Engineer, State grid Hubei Electric Power Research Institute Time & Place: Nov. 1st, Sunday 13:30-15:30, Qianjiang Hall			
Paper Number	Oral Number	Author	Title
14	Pa18-01	Cheng Zhang, Songyan Niu, Linni Jian	Vehicle Position Measurement and Misalignment-Effect-Eliminated Metal Object Detection for Wireless EV Charging System: A Dual-Purpose Design of Sensing Coils
19	Pa18-02	Li Zhang, Huiwen Liu	Research on the Optimization Method of Capacity Configuration of DC Microgrid
67	Pa18-03	Pengfei Sun, Xiaosheng Liu	Robust Frequency Lock Loop based Power Control and Harmonic Compensation Method for Bidirectional AC/DC Converter

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96	Pa18-04	Songyan Niu, Hang Yu, Linni Jian	Thermal Behavior Analysis of Wireless Electric Vehicle Charging System under Various Misalignment Conditions
365	Pa18-05	Hang Yu, Songyan Niu, Linni Jian	A Novel Hybrid AC/DC Microgrid Architecture with Hierarchical Power Control for Nearly/Net Zero Energy Buildings
412	Pa18-06	Shuxuan Song, Weifeng Zhang, Zhengjun Jin, Qichen Geng	Analysis of S-S Resonance Compensation Circuit of Electric Vehicle Wireless Power Transfer System

Contact Person: Zhen Tian

Phone Number: 13020231858

Paper Session 19: Nov. 1st, Sunday 13:30-15:30, Dingxiang Hall

Paper Session 19: Emerging key facilities II Chair(s): Qing Zeng Research Fellow, Sichuan Energy Internet Research Institute, Tsinghua University Zhen Tian Postdoctoral Fellow, Wuhan University Time & Place: Nov. 1st, Sunday 13:30-15:30, Dingxiang Hall			
Paper Number	Oral Number	Author	Title
155	Pa19-01	Jiale Tian, Gang Chen, Longzhou Luo	Sliding Mode MPPT Control Based on Fuzzy Exponential Approach Rate for PV Cells
443	Pa19-02	Haixu Shi, Kai Sun	Dual-Port Machine Imitation Control for AC-DC Interlinking Converters in Hybrid Microgrids
458	Pa19-03	Mingyuan Han, Ying Chen, Shilin Gao, Jian Zhou, Chen Ren	Coupled Optimization of Topology Reconfiguration and Voltage Source Converter Control for Enlarging Load Margin of AC/DC Distribution Network
478	Pa19-04	Liang Zhou, Hao Ma	A Current Spike Reduction Method for Totem-pole Bridgeless PFC at Zero-crossing
623	Pa19-05	Qihong Dai, Tao Jin, Yunzhi Lin	Analysis and Simulation of Energy Router Suitable for Metro Power Supply Network
624	Pa19-06	Zewen Li, Tao Jin, Yunzhi Lin	A Novel Model Predictive Control Approach for Voltage Regulation and

			Efficiency Optimization of Wireless Power Transfer Systems
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Phone Number: 18672787755

Paper Session 20: Nov. 1st, Sunday 13:30-15:30, Tianmen Hall

Paper Session 20: Emerging key facilities III			
Chair(s): Xiao Zhou			
Postdoctoral Fellow, China Southern Power Grid			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Tianmen Hall			
Paper Number	Oral Number	Author	Title
697	Pa20-01	Weijiang Wan, Jun Zhou, Jian Cai, Xiaoyin Ding, Linru, Jiang	The interoperability test of off-board charger for electric vehicle
728	Pa20-02	Yilin Wen, Zechun Hu	Coordinated charging strategy for electric vehicle charging station based on demand prediction
654	Pa20-03	Xianyu Li, Liangzhong Yao	Start-up Strategy for DR-MMC Paralleled Hybrid HVDC Integrated with Offshore Wind Power
747	Pa20-04	Mingchao Xia, Teng Lu, Qifang Chen	Coordinated Frequency Control Strategy for Electric Vehicles and Air Conditioners Based on Hierarchical Control Scheme
769	Pa20-05	Guibin Chen, Ye Guo, Qinglai Guo, Hongbin Sun	Bidding Strategy for FTR Auction Market Based on Deep Reinforcement Learning
835	Pa20-06	Qiang Jin, Weijing Ma, Hongjun Li	Research on Energy Station System Design Based on Substation Function Expansion

Contact Person: Lei Chen

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Paper Session 21: Nov. 1st, Sunday 13:30-15:30, Xiantao Hall

Paper Session 21: Enabling techniques on information, computation and communication I			
Chair(s): Zhengmin Kong			
Associate Professor, Wuhan University			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Xiantao Hall			
Paper	Oral	Author	Title

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

Number	Number		
188	Pa21-01	Xiao Hao, Wei Deng, Dajian Peng, Yanjun Li, Li Kong	LSTM Recurrent Neural Network based Interactive Behaviour Learning of Microgrid under Incomplete Information
390	Pa21-02	Tianjing Wang, Tang Yong, Yanhao Huang, Xinglei Chen, Songtao Zhang, Hekai Huang	Automatic Adjustment Method of Power Flow Calculation Convergence for Large-scale Power Grid Based on Knowledge Experience and Deep Reinforcement Learning
523	Pa21-03	Zhuohong Pan, Xuan Zhang, Yalin Yan	Measurement of the Resistive Component of Grounding Impedance by Square Wave Excitation
948	Pa21-04	Defu Cai, Rusi Chen, Kunpeng Zhou, Chang Ye, Li Wan, Tao Wang, Kun Chen, Xiaodong Yu, Daobo Yan, Lei Wan, Fei Yu	A Bi-directional Maximum Matching Method Based on Thesaurus for Power Outage Address Matching
750	Pa21-05	Ke Zhang, Peidong Xu, Jun Zhang	Explainable AI in deep reinforcement learning models: A SHAP method applied in power system emergency control
789	Pa21-06	Hui Li, Hua Pan, Yabing Yan, Wenqi Mao, Gang Li	Analysis on New Techniques of Secondary and Auxiliary Control System in Intelligent Substation

Contact Person: Daochun Huang

Phone Number: 13469992745

Paper Session 22: Nov. 1st, Sunday 13:30-15:30, Ezhou Hall

Paper Session 22: Enabling techniques on information, computation and communication II			
Chair(s): Rui Liu			
Senior Engineer, Hubei Electric Power Research Institute of State Grid Corporation of China			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Ezhou Hall			
Paper Number	Oral Number	Author	Title
930	Pa22-01	Jian Lan, Qinglai Guo, Yanzhen Zhou, Hongbin Sun	Generation of large-scale convergent power flow samples through a data- driven approach
1040	Pa22-02	Menghan Fan, Xisheng Tang, Wei Pei	Peer-Peer Electricity Transaction and Integrated Regulation of VPP based on Blockchain

313	Pa22-03	Siwei Miu, Sixun Zhu, Zhijun Tang, Chaoyang Zhu, Jindong He, Yayun Zhu, Xiaojuan Zhang	A Novel Smart Grid Simulation Framework Based on Software Defined System and Cloud Computing
542	Pa22-04	Tengyue Zhang, Aidong Xu, Yixin Jiang, Yunan Zhang, Jie Tang, Hong Wen	The Edge Computing Aided Security Information Transformation via Relay
647	Pa22-05	Mao Tan, Yong Liu, Bumin Meng, Yongxin Su	Multinodal forecasting of industrial power load using participation factor and ensemble learning
698	Pa22-06	Fangliao Yang, Shi Zhu, Xiaohui Chen, Haitao Nie, Yuxuan Peng, Yizhe Jiang	Edge risk assessment method for transmission line tower construction safety

Contact Person: Yanpu Zhao

Phone Number: 18942916293

Paper Session 23: Nov. 1st, Sunday 13:30-15:30, Wuhan Hall

Paper Session 23: Cyber-physical system and cyber security			
Chair(s): Huajun Chen Vice Manager of Digital Power Grid Research Institute, China Southern Power Grid			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Wuhan Hall			
Paper Number	Oral Number	Author	Title
725	Pa23-01	Zhou Zhou, Wei Wang, Jing Jiang, Fangxiao Dong, Mohsen Kavehrad	Application of optical wireless communications for the 5G enforced Smart Grid
216	Pa23-02	Long Li, Zhenwen Li, Ying Liu, Zhenfeng Xiao, Ye Cai, Fang Liu	Vulnerability Analysis of Cyber-physical System Based on Improved Structural Entropy
223	Pa23-03	Weijia Sun, Qi Wang, Manli Li, Ming Ni	Extreme Risk Assessment in Power System Considering Cyber Attacks
279	Pa23-04	Xianxu Li, Wei Hu, Tao Shang, Junchen Liu, Xueqin Gao, Shulin Zhang, Jing Li, Jianwei Liu	Countermeasure Analysis of Power System Network based on Markov Game Theory

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

357	Pa23-05	Anan Zhao, Manli Li, Qi Wang	Cyber Security Risk Identification in Power Internet of Things System
941	Pa23-06	Nianfeng Tian, Qinglai Guo, Hongbin Sun, Jianye Huang	A Synchronous Iterative Method of Power Flow in Inter-Connected Power Grids Considering Privacy Preservation

Contact Person: Jun Zhang

Phone Number: 13971085061

Paper Session 24: Nov. 1st, Sunday 13:30-15:30, Xiangyang Hall

Paper Session 24: UHV AC and DC transmission systems I Chair(s): Zhuohong Pan Associate Professor, North China Electric Power University Yuheng Tang Engineer, State Grid Hubei Electric Power Co., Ltd. Wuhan Power Supply Company Time & Place: Nov. 1st, Sunday 13:30-15:30, Xiangyang Hall			
Paper Number	Oral Number	Author	Title
343	Pa24-01	Yishan Chen, Zhonggui Fang, Sicong Liu, Yushuang Wang, Cheng Zhong, Chuanxiong Cai, Yuan Zhang, Ying Wei, Zheng Wang	A Soft-Robotic Gripper for Ultra High- Voltage Transmission Line Operations
472	Pa24-02	Huan Ma, Mingli Ping, Daoyang Li, Meijuan Yang, Xuhui Liu, Yuebin Zhou	Optimized AC fault ride-through strategy for back-to-back VSC-HVDC system
484	Pa24-03	Chong Niu, Meijuan Yang, Rui Xue, Longzhen Zhu, Xianwei Wang, Jinlong Wu	Research on Inverter Side AC Fault Ride-through Strategy for Hybrid Cascaded Multi-terminal HVDC System
577	Pa24-04	Long Li, Ying Zhang, Chen Li, Shiling Zhang, Yulong Miao, Qiang Yao, Fuping Zeng	Decomposition Characteristics of SF6/N2 Under Partial Discharge of Different Degrees
586	Pa24-05	Ping Wu, Bing Zhao, Dongmin Huang, Hao Chang, Junchuan Jia	Research on UHV DC Fault Form and Its Influence

759	Pa24-06	Wei Wang	Research on Soil Resistivity Modeling Method of DC Grounding Electrode
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Phone Number: 16619861647

Paper Session 25: Nov. 1st, Sunday 13:30-15:30, Shiyan Hall

Paper Session 25: UHV AC and DC transmission systems II			
Chair(s): Jiixin Yuan Professor, Wuhan University			
Cheng Pan Associate Professor, Wuhan University			
Time & Place: Nov. 1st, Sunday 13:30-15:30, Shiyan Hall			
Paper Number	Oral Number	Author	Title
326	Pa25-01	Ruopei Zhan, Huan Xie, Chuanbao Yi, Liantao Ji, Shanying Li, Zhou Li	Coordinating Operation and Control Strategy for the Integrated Wind-Storage VSC-MTDC System
421	Pa25-02	Yinhong Lin, Hui Liu, Huaichang Ge, Wang Bin, Licheng Sha, Qinglai Guo	Dimension Reduction Based Short-Term Voltage Security Preventive Control
571	Pa25-03	Zhang Lu, Xuan Zhang, Yalin Yan, Zhuohong Pan	Calculation of Wide-Area Earth Surface Potential of HVDC Grounding Electrodes
686	Pa25-04	Yaru He, Xiaotian Zhang, Xu Yang, Zhilin Xiao, Yanan Ye	Comparison Analysis of Modulation Strategies for Modular Multilevel Converter
1058	Pa25-05	Jun Ma, Hongqiao Yu, Tianlin Lu, Xia Cai, Lei Zhang, Jing Ye, Zhenhua Li, Yuehua Huang	Analysis of Operating Voltage Characteristics of UHV Transformer Medium-Voltage Side Reactive Power Compensation
511	Pa25-06	Jiaying Zhong, Bo Zhang, Liucheng Hao, Shengwu Tan, Yongqi Yao, Zhijun Wang, Hao Zhang, Guohui Han, Yingqian Du	Thermoelectric Coupling Characteristics of 1100kV GIS/GIL Basin Insulators Under AC and DC Voltage

Contact Person: Jiixin Yuan

Phone Number: 18627755068

Paper Session 26: Nov. 1st, Sunday 15:45-17:45, Jingzhou Hall

Paper Session 26: UHV AC and DC transmission systems III Chair(s): Mi Zhou Associate Professor, Wuhan University Shouheng Shu General Manager, Shanghai Jiaweisi Information Technology Co., Ltd. Time & Place: Nov. 1st, Sunday 15:45-17:45, Jingzhou Hall			
Paper Number	Oral Number	Author	Title
780	Pa26-01	Guohua Yue, Zhiye Du, Liancheng Xiu, Shuang Liu, Pai Xiao	Electric Field Joint Checking Method for Isolated Power Supply Transformer of 535kV DC Circuit Breaker Considering Air Conductivity
64	Pa26-02	Liuho Wang, PANG Xiaofeng	Study on Wind Induced Vibration Response of High-voltage Disconnecter Switch by Wind Tunnel Test
351	Pa26-03	Xiaodong Yu	The Influence of Shan-Wu HVDC System on the Operation Characteristics of Hubei Power Grid
186	Pa26-04	Fangcheng Lv, Pin Lv, Yaxiang Wang, Qing Xie, Zhenyu Zhan, Haoou Ruan	Preparation and mechanical properties of modified epoxy composites through plasma fluorination of filler
73	Pa26-05	Tianxiao Huang, Binghui Wang, Huan Xie, Tao Wu, Changyu Li, Shanying Li, Jing Hao, Jing Luo	Research on Reactive Power Control Strategy of MMC HVDC Converter
261	Pa26-06	Yudi Zhao, Chongtao Li, Guihong Wu, Feng Zeng, Fanchao Cong, Yangyang Zhao	The Multiple Solution Problem of Static Power Flow in AC/DC Hybrid System

Contact Person: Mi Zhou

Phone Number: 18971065515

Paper Session 27: Nov. 1st, Sunday 15:45-17:45, Shennongjia Hall

Paper Session 27: Urban energy transition, energy internet supporting smart cities Chair(s): Jianjun Sun Professor, Wuhan University Xiaoyong Yu			
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Deputy Director of Smart Distribution Grid Research Department, Electric Power Research Institute of Guangxi Power Grid Co., Ltd.			
Time & Place: Nov. 1st, Sunday 15:45-17:45, Shennongjia Hall			
Paper Number	Oral Number	Author	Title
467	Pa27-01	Jun Jia, Hengyang Zhao, Bodou Xiao, Bo Wang	Multi Source Partial Discharge Signal Separation and recognition Method Based on manifold Learning in Oil-pressboard Insulation System
550	Pa27-02	Yang Bai, Jianbin Wu, Qian Zhang, Yuehua Feng, Xiaofei Zhang, Zhenbo Xu	Optimal Placement of Dynamic VAR Compensation for Lessening Commutation Failure Risk in Multi-infeed AC/DC System
541	Pa27-03	Cong Wei, Li Qiao, Hongsheng Zhao, Hui Zhou, Jun Wu, Bo Wang, Peiyang Gan	Analysis Method of Factors Affecting the Settlement of Large Power Users
578	Pa27-04	Zhenguo Wang, Qiang Liu, Shenxiong Lu, Yaoxiao Chen, Xiaobo Xu, Xiaoming Zhou	Distributed Generation Placement Considering Carbon Trading in the Context of Energy Internet
680	Pa27-05	Yun Zhang, Zhongwei Chen, Peizhe Li, Haotian Liu, Zhicheng Zhou, Yudong Tan	Radiation Influence Model of Electric Vehicle Charging Station
1000	Pa27-06	Hao Yang, Yuming, Zhao, Yanzhang Gu, Zhe Li, Hongcai Chen, Yang Zhang	The Development of Smart Low-Voltage Distribution Network in Shenzhen

Contact Person: Zhongyu Dai
Phone Number: 18071060848

Paper Session 28: Nov. 1st, Sunday 15:45-17:45, Qianjiang Hall

Paper Session 28: Power and energy market, energy policies and business models I			
Chair(s): Li Cai Associate Professor, Wuhan University			
Jingpeng Yue Engineer, Electric Power Research Institute of Guangdong Power Grid Co., Ltd.			
Time & Place: Nov. 1st, Sunday 15:45-17:45, Qianjiang Hall			
Paper Number	Oral Number	Author	Title

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

24	Pa28-01	Honghai Tang, Liang Xu, Shengnan Zhang, Mengkai Wu, Yanling Wang, Yiping Cheng	Competitiveness Analysis of Resources Comprehensive Utilization Self-generation Power Plants Under New Situations
204	Pa28-02	Yang Du, Xingang Yang, Lingyu Guo, Shuangrui Yin, Qian Ai	Day-ahead Bidding Strategy for the Smart-building Virtual Power Plant Participating in Energy and Frequency Regulation Market
360	Pa28-03	Guiyuan Xue, Chen Wu, Yin Wu, Yingjun Wu, Jiajie Peng	Research on application path of power big data realization under the background of Energy Internet
639	Pa28-04	Yajun Chen, Luyao Ye, Qingqing Zhou, Yufeng Jiang, Wen Qiang, Yuhan Zhang	Bidding strategies for thermal power units considering the randomness of new energy sources in a unified power market
743	Pa28-05	Fang Tang	Integrated Energy Service for "5G" in China: Market Prediction and Case Study
156	Pa28-06	Ning Xiong, Xueting Zhang, Hua Zhang, Yuan Xiao, Ming Gao	Research on Differential Distribution Price of Incremental Distribution Network

Contact Person: Zhen Tian

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Paper Session 29: Nov. 1st, Sunday 15:45-17:45, Dingxiang Hall

Paper Session 29: Power and energy market, energy policies and business models II Chair(s): Shangzhi Pan Professor, Wuhan University Lei Shang Lecturer, Wuhan University Time & Place: Nov. 1st, Sunday 15:45-17:45, Dingxiang Hall			
Paper Number	Oral Number	Author	Title
834	Pa29-01	Yi Zong, Jiawei Wang, Shi You, Wenjing Su	Identifying the System-related Conditions and Consequences of Power-to-X Solutions for a High Renewables Penetration in Denmark
995	Pa29-02	Changzhi Peng, Xuzhu Dong, Jun Yang	Research on Economic Evaluation for Typical Integrated Energy Services

348	Pa29-03	Zhiwei Ying, Tao Yu, Yupeng Huang, Dunnan Liu, Heping Jia, Mingguang Liu	Analysis of multi-time-scale business models for the development of virtual power plants
507	Pa29-04	Yajun Chen, Yuhan Zhang, Yingzhi Meng, Xingzhong Bai, Qingqing Zhou, Jinbing Liang	A calculation method of network charge based on the shortest path of typical topology
649	Pa29-05	Mang Jiang, Ruiqing Shan, Huaichang Ge, Zhenan Zhang, Qinglai Guo, Wei Cui, Bin Wang	Procurement Market for Reactive Power Reserve Considering Coupling of Energy with Reactive Power
748	Pa29-06	Chendan Li, Olav Bjarte Fosso, Jingpeng Yue	Defining Three Distribution System Scenarios for Microgrid Applications

Contact Person: Lei Shang

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Paper Session 30: Nov. 1st, Sunday 15:45-17:45, Tianmen Hall

Paper Session 30: Experimentations, implementations and demonstrations of the projects Chair(s): Qijun Deng Professor, Wuhan University Lei Chen Associate Professor, Wuhan University Time & Place: Nov. 1st, Sunday 15:45-17:45, Tianmen Hall			
Paper Number	Oral Number	Author	Title
128	Pa30-01	Yanna Xi, Wei Li	Impact of energy storage on security-constrained unit commitment of power system with wind power integration
291	Pa30-02	Chunlei Xu, Tong Liu, Baolong Lei, Hui Peng	Design of Real-time Message Synchronization cross Smart Grid Dispatching System
201	Pa30-03	Chi Zhang, Zhuoxin Lu, Zheng Zhu, Zhixiong Shi, Xiaoyuan Xu, Zheng Yan	Demonstration Project and State Estimation Application in PMU-Based Distribution Network
254	Pa30-04	Long Peng, Guangjun Li, Baohong Zhu	Design and Performance Test of Power Compensated Energy Storage Flywheel on Drilling Platform

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788	Pa30-05	Cheng Lei, Liang Li, Lei Yang, Yongqiang Wang	Design of Dry-type Transformer Online Monitoring and Fault Diagnosis System
791	Pa30-06	Chao Xing, Xinze Xi, Xin He, Mingqun Liu, Shengnan Li, Zhi Xu	Analysis on the Optimized Current Control for Delta-Connected Cascaded STATCOM

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Paper Session 31: Nov. 1st, Sunday 15:45-17:45 Xiantao Hall

Paper Session 31: National key research and development plan "smart grid technology and equipment" Major Projects Chair(s): Daochun Huang Professor, Wuhan University Deping Ke Associate Professor, Wuhan University Time & Place: Nov. 1st, Sunday 15:45-17:45, Xiantao Hall			
Paper Number	Oral Number	Author	Title
230	Pa31-01	Longfei Ma, Yaowu Wu, Suhua Lou, Shuhao Liang, Mei Liu, Yuan Gao	Coordinated Generation and Transmission Expansion Planning with High Proportion of Renewable Energy
544	Pa31-02	Hang Yin, Youbo Liu, Qiang Li, Xianglong Liu, Hongjun Gao, Junyong Liu	Optimal configuration for power electronic transformer ports considering the optimization of transfer paths
819	Pa31-03	Hai Shang, Lin Liang, Lubin Han, Rui Wang	Design Key Points and Multi-Field Simulations for Half Bridge Module of Converter Valve Based on SiC IGBT
732	Pa31-04	Yongliang Liu, Qiang Tong, Gangfeng Yan, Yutong Li	Power safety warning method based on GM-FHMM load decomposition algorithm
805	Pa31-05	Wenjun Cao, Wei Xi, Hao Yao, Wei Chen	Compressed Sampling and Reconstruction Method of Transient Power Quality Signal
217	Pa31-06	Xiaohu Yang, Dongliang Xie, Chen Yu, Linjun Cai, Zheng Zhang, Haohuai Wang	Research on Optimal Configuration of Emergency Reserve for Fluctuation Risk of Renewable Energy Output

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Paper Session 32: Nov. 1st, Sunday 15:45-17:45, Ezhou Hall

Paper Session 32: IEEE PES Technical Committee (China) Covered fields & Experimentations Chair(s): Yanpu Zhao Professor, Wuhan University Zhihang Qin Engineer, Economic and technological Research Institute of State Grid Wuhan Power Supply Company Time & Place: Nov. 1st, Sunday 15:45-17:45, Ezhou Hall			
Paper Number	Oral Number	Author	Title
125	Pa32-01	Huen Lou, Yue Xiang, Xiangyu Wei	Spatial Correlation Based Short-term Wind Speed Forecasting
766	Pa32-02	Zhen Peng, Shuqing Zhang, Yubo Sun, Jianbing Xu, Jingsen Zhou	Dynamic Reactive Power Compensation in Multi-Infeed HVDC Power Grid Considering Transient Stability
1028	Pa32-03	Xiaowei Su, Mi Zhou, Shengquan Zheng, Li Cai, Jianguo Wang, Yadong Fan	Damage Differences of Carbon Fiber Reinforced Polymer under Different Lightning Current Components
47	Pa32-04	Hua Yin, Yulong Miao, Shiling Zhang, Qiang Yao, Ni Qiu	Ultraviolet absorption spectroscopy measurement of gas mixture of SF ₆ decomposition components SO ₂ and CS ₂
1017	Pa32-05	Ran Ding, Hanyan Xiao, Ke Zhao, Yuan Liu, Hongtao Li, Xiaohan Li,	Influence of micro-water on decomposition characteristics of C ₄ F ₇ N/CO ₂ mixed gas
461	Pa32-06	Jingpeng Yue, Yuguo Li, Zhuoying Zhong, Ning Xie	A Strategy for Mode Transition of Renewable Power Converter

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 Phone Number: 18942916293

Paper Session 33: Nov. 1st, Sunday 15:45-17:45, Wuhan Hall

Paper Session 33: Power system analysis and simulation Chair(s): Tao Wang Associate Professor, Sun Yat-sen University Tianlu Gao

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Research Associate, Wuhan University Time & Place: Nov. 1st, Sunday 15:45-17:45, Wuhan Hall			
Paper Number	Oral Number	Author	Title
80	Pa33-01	Weihang Li, Runfeng Zhang	A Hybrid Forecasting Model for Wind Energy based on the Complementary Ensemble Empirical Mode Decomposition and Whale Optimized Back Propagation Neural Network
218	Pa33-02	Yayun Zhu, Zhijun Tang, Xinyu Junping, Chaoyang Zhu, Jingshan Chen, Liang Zhou, Siwei Miu	Research on Interchangeability of Intelligent Electronic Device Based on Plug and Play in Intelligent Substations
501	Pa33-03	Junhong Guo, Ling Li, Yajie Li, Jingya Su	Analysis on Market Potential of Generation-side Contract Electricity Transfer Transaction
724	Pa33-04	Cheng Xie, Yuli Wang, Xiang Sun, Jinhui Zhou, Mingzhen Li, Dejian Yang, Xinsong Zhang	Correlation Analysis of Aging Indicators for Distribution Network XLPE Cables
794	Pa33-05	Jie Ma, Lili Wang, Qiuyan Li, Haozheng Yu, Youbo Liu, Zao Tang	A data-driven approach for fast reliability calculation under a given investment strategy
940	Pa33-06	Tianru Shi, Xiaoqing Lin, Jianlan Yang, Danhui Hu	Modeling of Dynamic Behavior for Suspension Insulator String under Wind and Rain Loadings

Contact Person: Jun Zhang

Phone Number: 13971085061

Paper Session 34: Nov. 1st, Sunday 15:45-17:45, Xiangyang Hall

Paper Session 34: Numerical techniques for field analysis in simulating HVDC system Chair(s): Yuzheng Guo Professor, Wuhan University Xuebao Li Associate Professor, North China Electric Power University Time & Place: Nov. 1st, Sunday 15:45-17:45, Xiangyang Hall			
Paper Number	Oral Number	Author	Title

1024	Pa34-01	Zhonghuan Su, Yanpu Zhao	An Adaptive Multi-layer Magnetic Force Computation Method Using Parameterized Mesh Technique
1036	Pa34-02	Yanpu Zhao, Xuzhu Dong	An Adaptive Dual-order Finite-element Method for Efficient Transient Magnetic Field Analysis
94	Pa34-03	Lulu Wang, Ke Wan, Li Chen, Qingchun Qian, Jiarui Huang	Analysis about Potential Distribution of the Ur 780kV Metal-oxide Surge Arrester for 1000kV Substation
76	Pa34-04	Changchun Zhao, Wei Pang, Ke Han, Beimin Xie, Huaidong Guo	Study on The Characteristics of Reactor Core Vibration Acoustic Signal under Different Excitation
889	Pa34-05	Mingyu Jiang, Tian Lan, Yue Xia, Songhuai Du, Juan Su, Ying Chen	Implementation of Equivalent Circuit Model of Solid Oxide Fuel Cells for Multi-physics Transients Simulation Using Simulink/SimPowerSystems
519	Pa34-06	Hong Fan, Jiayang Lu, Shuqing Zhang	Electromagnetic transient model of multi-infeed DC system based on accurate modeling of converter valve

Contact Person: Yuzheng Guo
Phone Number: 16619861647

Paper Session 35: Nov. 1st, Sunday 15:45-17:45, Shiyuan Hall

Paper Session 35: Analysis and simulation of electric field of transmission line Chair(s): Siyang Liao Associate Professor, Wuhan University Cheng Pan Associate Professor, Wuhan University Time & Place: Nov. 1st, Sunday 15:45-17:45, Shiyuan Hall			
Paper Number	Oral Number	Author	Title
508	Pa35-01	Yue Chen, Hantao Tao, Shanqiang Gu, Yuhe Fang, Zhibo Jiang, Lei Zhang	Optimization of lightning warning effectiveness assessment method for atmospheric electric field
1023	Pa35-02	Li Cai	Lightning Strike Ablation Characteristics of Overhead Transmission Lines
1029	Pa35-03	Yongming Guo, Mi Zhou, Shengquan Zheng, Li Cai, Jianguo Wang, Yadong Fan	Study on the Induction Coupling Response Characteristics of Parallel Cables

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379	Pa35-04	Zenhua Wang, Haiyuan Xu, Weicai Zhou, Huikun Pei, Hao Hu, Zhixiong Liu	Locating Lightning Arrester Counters in UAV Inspection Video of Overhead Transmission Lines
575	Pa35-05	Xu Yang, Jing Zhang, Pengxian Song, Hao Wen, Yi Liu	Research on the Correlation between the Moisture Content and Insulation Performance of XLPE Cables
212	Pa35-06	Liu Bin, Deng Xiaopin, Wang Xiaozhou, Tong Yue, Wan Gang, Feng Xiangxiang	Research on the step response testing technology of DC measuring device in VSC-HVDC

Contact Person: Jiaxin Yuan

Phone Number: 18627755068

15. Poster session details

Poster Session 1: Oct. 31st, Saturday 13:30-15:30, Huilan Hall

Poster Session 1 Oct. 31st, Saturday 13:30-15:30, Huilan Hall			
Paper Number	Poster Number	Author	Title
973	Po1-01	Gong Zhen, Chengxi Liu, Da Silva Filipe	Analysis of Harmonic Spatial Distribution along AC Power Lines of Meshed Power Systems
51	Po1-02	Renchang Dai	Multilevel Dispatch and Control for Grid Interconnected Wind-CAES Hybrid Systems
87	Po1-03	Zhao Li, Zhang Yanzhe, Jiang Tong, Tang Qiang, Liu Haojun, Yuwen Bo, Yuan Zhao, Wenxiong Mo, Su Haibo, Gu Le, Xiu Shixin, Jia Shenli	Mechanical & Thermal Stress Analysis under Actual Condition and Test Design of 550kV High Coupled Split Reactor
115	Po1-04	Mingyang Zhang, Yikai Sun, Hanyan Huang, Jiting Gu, Ming Zhou, Gengyin Li	A Robust Two-stage Dispatching Model With Wind Power Correlation and Multiple Uncertainties
307	Po1-05	Zhilin Xiao, Xiaotian Zhang, Jiuyang Jin, Yaru He, Xu Yang	A DC Power Flow Controller for Multi-Terminal DC Grids
512	Po1-06	Song Ke, Lin Tao, Hui Du	A Novel Uncertainty Characterization Method for Source and Load in Renewable Power Grid
765	Po1-07	Wei Liu, Baifeng Ning, Gangfeng Yan, Keng Xu	Research on clustering algorithm of load decomposition considering harmonic characteristics in power safety monitoring
992	Po1-08	Rongrong Wu, Wei Zhang, Hong Chen, Jian Jiao	Indicator state recognition based on HSV feature transformation
633	Po1-09	Md Javed Hossain, Riadur Rabbi, Hemaith Uddin, Md Nazmul Huda, Mobiydul Islam Murad	Optimized Model of an Inset-Permanent Magnet Machine with Low-Cost Ferrite Magnet to Acquire Improve Electro-mechanical Performances

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1044	Po1-10	Jianguo Chen, Qi Wang, Cheng Shucan, Wenqiang Tao, Yanpu Zhao	Solving 3D Low-frequency Electromagnetic Field Problems Based on FreeFem++
1060	Po1-11	Pengfei Jia	Research on Internet of Things Convergence and Access Architecture of Intelligent Equipment
7	Po1-12	Xing He	Digital Twin for Power System Steady-state Modelling, Simulation, and Analysis
37	Po1-13	Yong Sun, Song Lin	Stability Analysis of Power Fluctuation Suppression Converter in Pulse Load Power System
146	Po1-14	Zhou Fang, Yongtao Shen, Kun Gao, Yufei Rao, Chenghao Li, Yingqing Rao	Effect of GIC's Frequency Variation On Transformer Bias
153	Po1-15	Tao Yang, Guoping Liu, Wenshan Hu	Seamless Transfer Control Strategy of Multi-Energy Complementary Microgrid
236	Po1-16	Huijing Li, Jinghong Zheng, Zonghang Han, Yuke Gui	Networking Scheme of Electric Energy Router for Dispersive End Consumers in Remote Distribution Networks
240	Po1-17	Ruanming Huang, Mingxing Guo, Shuai Shi, Mengyao Zhang, Aili Pang, Chen Fu	Small Signal Modeling Method for VSC-MTDC System with Wind Farms
266	Po1-18	Liangliang Chen, Fengkun Yang, Qiang Xing, Shengjun Wu, Ruisheng Wang, Jiachen Chen	Spatial-Temporal Distribution Prediction of Charging Load for Electric Vehicles Based on Dynamic Traffic Information
267	Po1-19	Kaikai Wang, Shifa Gao, Zhuopeng Shi, Lihua Liu, Aiping Ren, Yachen Wang, Liang Tian, Jin Gao	Research on Reactive Power Coordinated Control Strategy of Doubly-Fed Wind Farm Considering STATCOM
268	Po1-20	Jie Lu, Xiangxiang Liu, Ying Feng, Xiaoyu Lin	Simulation and analysis of community energy consumption based on multi-agent modeling
275	Po1-21	Zhenbo Xu, Wenlong Shi, Jianbin Wu, Huiwen Qi, Xiangyu Zhang, Jiawei Wang	Unit Commitment Strategy Considering Cooperated Dispatch of Electric Vehicle Based on Scheduling Capacity and Wind Power Generation

310	Po1-22	Xujiang Shi, Shan Gao, Yu Liu	Optimal dispatch of power electronic transformer embedded AC/DC hybrid distribution system
368	Po1-23	Shuaihu Li, Yuxi Zhou, Yi He, Yike Hu	A new reactive power optimization method for distribution network with high participation of renewable distributed generation
377	Po1-24	Junjun Zhang, Xiaolin Zhang, Guangxiu Yao, Wei Dong, Qingbin Yang, Meiyin Liu	Accuracy Evaluation Method for Electromechanical Transient Model of Dynamic Reactive Power Compensation Device Applied to Renewable Power Station
380	Po1-25	Tiankai Yang, Boru Song, Jiang Shan, Bing Wang	Steady-State Security Region-based Chance-Constrained Optimization for Integrated Energy Systems
382	Po1-26	Zhihan Li, Yueshuang Bao	Joint dispatching strategy of distributed generation and electric vehicle based on virtual power plant
393	Po1-27	Junru Shan, Chongru Liu	Real-time Rapid Simulation Model for Faults Near the DC Drop Point Based on Dynamic Phasor Theory
411	Po1-28	Xuan Zhou, Yukun Mei, Junwei Yan, Liequan Liang	A quantitative modeling method of occupant behavior of office building based on human dynamics
419	Po1-29	Qi Wang, Yanling Du, Wenchuan Wu, Jun Zhang, Wang Bin, Haitao Liu, Chenhui Lin, Guannan Wang	Transmission and Distribution Networks Coordinated Volt/VAr Control Method and Its Application in Jibei Grid
427	Po1-30	Ming Chai, Biao Xiao	Study on Modeling and Thermal Behavior of Spiral Wound Aluminum Electrolytic Capacitor
451	Po1-31	Shumin Miao, Jinlong Wang, Liang Wang, Gang Chen, Wei Wei, Yong He	Coordinated Operation of Multi-Line Power Transmission for Hydrodominated Power Grid
457	Po1-32	Mingyi Sun, Xinyi Li, Hong Tan, Xia Zhao	Probabilistic Optimal Power-Water Flow Analysis of Integrated Electricity-Water System Considering Uncertainties and Correlations
481	Po1-33	Leshu Sun, Yongji Cao	Design of Micro Dynamic Simulation System for Power System with Wind power and VSC-HVDC

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489	Po1-34	Shihao Zhao, Zhile Yang* Xiaodong Zhu, Wang Ying	A Novel Binary Social Learning Particle Swarm Optimizer for Power System Unit Commitment
498	Po1-35	Binbin Chen, Renpeng Yin, Guanxiong Yin, Lingxi Bu, Hongbin Sun	Decentralized Optimal Gas-Power Flow Calculation via Modified Generalized Benders Decomposition
570	Po1-36	Mang Jiang, Ruiqing Shan, Huaichang Ge, Zhenan Zhang, Qinglai Guo, Wei Cui, WANG BIN	Study on Power Flow Linearization Based on Error Correction of Voltage Profiles
616	Po1-37	Zhiyong Yu, Yongzheng Zhang, Xudong Li, Zhanfeng Deng, Guoliang Zhao	Analysis of Grid Interfaced Proton Exchange Membrane Fuel Cell Characteristics
617	Po1-38	Yuwei Cao, Ming Zeng, Xiaopeng Guo, Shigong Jiang, Weihong Yang, Pengjia Shi	A Short-term Electric Load Forecasting Method Based on Improved VMD-LSSVR Considering Comprehensive Energy Correlation
627	Po1-39	Xinglei Chen, Ning An, Yanhao Huang, Kaiyu Zhang, Yongjian Luo, Zifan Dong	Generation Method of Power System Test Examples Based on Complex Network Theory
659	Po1-40	Wenge Lu, Xuan Liu, Yufei Song	Piecewise Linear Ramp based Preventive Dispatch for Intra-Interval Power Insufficiency
663	Po1-41	Shuhao Guo, Libao Shi	Robust Optimal Dispatch of Power Grid Considering Wind/PV Power Uncertainties
705	Po1-42	Qi Wang, Ling-Kuan Wang	Research on Load Modeling Considering Distributed Photovoltaic Generation
715	Po1-43	Qi Li, Changhong Meng, Zheng Wang, Chunhui Li, Lei Xue, Wei Gao, Chao Wang, Jue Qiu, Jia Zhai	Analysis on the influence of multi source load connection on distribution network operation
756	Po1-44	Wei Chen, Jie Wang, Xiping Pei, Qingchun Ji, Jianrong Xu, Wenhua Yue	An optimal configuration method of APF applied to distributed grid of distributed poverty alleviation photovoltaic power supply with high penetration rate

761	Po1-45	Xianping Wu, Xueqian Fu	Multi-Energy System Planning for Low-Carbon Park Considering Supply and Demand Interaction
785	Po1-46	Yaohong Li, Jin Qiang, Li Hongjun, Jianhua Wang	A Piecewise Function based Equivalent Aggregation of Photovoltaic Array Considering Partial Shading Situation
824	Po1-47	Tao Jun	Modeling principle and parameter identification of double fed wind turbine for electromechanical transient simulation of power system
828	Po1-48	Yue Yang, Wenchuan Wu, Wang Bin	Adjustable Robust Economic Dispatch : Case Study on its Application and Evaluation in Power System
831	Po1-49	Pan Chen, Huang Zishuo	Simplified CCHP-HP system design method based on yearly operation analysis
833	Po1-50	Gaowa Saren, Zhebin Sun, Zhihai Yan, Tao Liang, Pengxuan Liu, Mingjuan Wang	A Bi-level Robust Planning Method of Active Distribution Networks With Uncertain Renewable Energy Sources

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**Poster Session 2: Oct. 31st, Saturday 13:30-15:30,
Walkway between Qingchuan Hall and Huanghe Hall**

Poster Session 2 Oct. 31st, Saturday 13:30-15:30, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title
843	Po2-01	Qin Ying, Junfang Zhang, Fengzhao Zhang, Xupeng Hao, Yuezhu Li, Zheng Yang	Credibility-based Risk Assessment of Load Loss in Active Distribution Network
844	Po2-02	Zheng Yang, Junfang Zhang, Zhukun Li, Weijie Cheng, Qin Ying, Wei Chen	Research on Identification Approach of Coherent Groups of Generators Based on Elbow Judgment
850	Po2-03	Huiying Wang, Yi Tan, Yijia Cao, Yong Li, Changfeng Liao	An N-1 Short-Term Security Constrained Dispatch for Hybrid AC/DC Power Systems: Chance Constrained Approach

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853	Po2-04	Huiying Wang, Yi Tan, Changfeng Liao, Yijia Cao, Yong Li	An Interval Programming based OPF Model Considering N-1 Security Criterion for Hybrid AC/DC Power Systems
856	Po2-05	Lin Zhu, Wenchuan Wu	Heat Pumps Optimal Scheduling Based on Equivalent State Space Thermal Model
898	Po2-06	Mao Lifan, Dongxu Chang, Liu Ruicai, Zhu Yihua, Guo Hengdao, Mingkang Wu	Research on Real-time Simulation of Wide Area Out-of-step System in CSG
900	Po2-07	Wei Chen, Junfang Zhang, Zuyi Ren, Zhang Rong, Zheng Yang, Yuezhu Li	Research on control strategy of energy storage system as black start power supply
926	Po2-08	Haseeb Ur Rehman, Xiangwu Yan, Mohamed Abdelkarim Abdelbaky, Mishkat Ullah Jan, Ahmed Rabee Sayed, Sayed Zaki, Sheeraz Iqbal	Frequency Regulation and Optimization of Microgrid System with Multi PV-VSG using Advanced Droop Controller
945	Po2-09	Shiqi Guan, Wenshan Hu, Hong Zhou, Guoping Liu	A Method of Remote Experiment for Complex Energy System: An Example for Process Control Experiment of Thermal Power Plants
959	Po2-10	Yingchun Feng, Tianyu Li, Ciwei Gao, Tao Chen, Xuesong Li, Yu Jiang	Optimal Trading Strategy of Coordinating Electricity purchase in Monthly Electricity Market and Day-ahead Market Based on CVaR
962	Po2-11	Ruikai Song, Yue Xia, Songhuai Du, Juan Su, Ying Chen	Dynamic Modeling of Natural Gas Pipeline Using Electric Circuit Equivalents
996	Po2-12	Yinan Wang, Xingtong Chen, Chen Rui	Key Technology Research of Integrated Energy System
1020	Po2-13	Tian Fang, Hua Li, Jiang Guo, Xiang Huang, Qing-Dong Zhu	Research on Temperature Distribution Calculation of UHV Shunt Capacitor Unit
1022	Po2-14	Jiaqi Chen, Wenyun Li, Wenchuan Wu, Tao Zhu, Zhenyi Wang, Chuan Zhao	Robust Data-driven Linearization for Distribution Three-phase Power Flow

1027	Po2-15	Ma Yanhong, Zhao Long, Zhang Yanqi, Zhou Qiang, Man Zhang, Shiyou Yang	Multi-objective Optimal Scheduling of Power Systems Based on Complementary Characteristics of Heterogeneous Energy Sources
1030	Po2-16	Zhou Qiang, Zhao Long, Ma Yanhong, Zhang Yanqi, Shiyou Yang*	The Impact of High-Speed Heavy Electric Railway Load on Wind Farms
1032	Po2-17	Bingquan Zhu, Qifeng Xu, Ang Xuan, Xinwei Shen, Zhenjie Wu, Jiabin Huang	A Multi-energy Virtual Power Plant Model Based on Distributed Energy Resource Aggregation
1041	Po2-18	Wanlin Guan, Boyang Li, Pupu Chao, Yanlong Liu, Shuang Rong, Xiaoguang Chen	Review on Modeling Methods of Large-Scale Wind Power Connected UHVDC Systems
3	Po2-19	Zhenlin Ni	Security and stability problems faced by the transformation of full clean energy in the power grid at the transmission end and Countermeasures
4	Po2-20	Xin Cheng, Tong Wu, Minjia Zheng, Chu Jin, Weijie Wu, Zhengmin Zuo	Comprehensive Evaluation Indices and Method for Power Supply Planning with Complex Power Structure
21	Po2-21	Jingyun Zhang, Yonghong Huang	Research on Low voltage ride through Control Technology Based on Dynamic Voltage Restorer
60	Po2-22	Wei Wang, Xiaofu Xiong, Chao Xiao, Hao Li, Bo Zhang	Integration of Mobile Energy Resources and Demand Response to Strengthen the Survivability of Isolated Distribution Systems
66	Po2-23	Botong Li, Lu Yin, Yu Wang, Yarong Ma	Robust Economic Optimal Dispatch Method of Wind Power System considering AC Power Flow Constraints
70	Po2-24	Chuanguang Fan, Yufu Lu, Xing Xian, Jian Xu, Qing Gong, Siyang Liao	Fine Planning Method of Power Grid Based on Principal Component Analysis and Index Correlation Degree
72	Po2-25	Yan Li, Xinshou Tian, Hu Jianzu, Chao Liu, Wang Cong, Yu Xiao	The Key Issue of Control Strategy For Large-scale Wind Power Grid Integration
81	Po2-26	Yu Wang, Ye Zhijun, Gou Julong, Tan	Effects of Iron Core Materials on a Single-phase Power Transformer during

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

		Kaijia, Cai Jinxing, Jiliang Luo	Out-of-Phase Synchronisation in Microgrid
95	Po2-27	Jiawei Wang, Zhihao Hua, Qifang Chen, Mingchao Xia, Wenxia Liu	Optimal Scheduling for Integrated Energy System Considering Shiftable Loads and Thermal Energy Storage of Building
97	Po2-28	Zhijie Zheng, Yimu Fu	Medium-long Term Load Forecasting of Power System Based on Interval Taylor Model Algorithm
102	Po2-29	Zhiyu Shang, Fei Peng	A random matrix theory based online systematic condition assessment method for integrated high-power PEMFC system
106	Po2-30	Xuekun Cheng, Hui Liu, Peng Song, Dawei Sun, Ruifang Zhang	Review on Transient Power Angle Stability of System with Doubly-fed Induction Generator Based on Virtual Synchronous Generator
117	Po2-31	Donglei Sun	Integrated Multi-Stage Coordination Planning of Transmission Network and Thermal Power Units' Flexibility Reformation
124	Po2-32	Xiaopeng Li, Shi Lin Feng, Xiangxi Duan, Runtao Zhang, Kai Liao, Siyu Xiong, Ling Fu	Dynamic Estimation Algorithm for Modulation Frequency under Off- nominal Frequency and Oscillations
127	Po2-33	Dongyun Wang, Xue Tai	Optimized Tie-line Planning of Distirbution Netwokrs with Explicit Reliability Constraints
134	Po2-34	Lei Ma, Xiaodong Zhang, Yingqing Rao, Zhou Fang, Yufei Rao, Jun Yang	A Robust Model Predictive Control for Multi- microgrids Frequency Control
135	Po2-35	Shuran Liu	Integrated Energy System Planning & Operation Evaluation Based on Multiple Economic Indexes
137	Po2-36	Yun Sha, Ming Zhou, Zhenglin Huan, Ruoyu Lei, Siwei Liu, Qingru Qi	Robust Economic Dispatching of High Renewable Energy Penetrated System with Concentrating Solar Power Providing Reserve Capacity
138	Po2-37	Ying Wang	Study on Main Factors of Dynamic Stability for Regional Interconnected Power System

140	Po2-38	Yuhui Ma, Jie Zhao, Chenyiyang Jia, Liping Ouyang, Libin Wen, Qi Liu	An Active Power Control Strategy for Multi-source System Considering Section Safety Constraints
150	Po2-39	Yuan Jie, Zhang Yanyan, Hui Bai, Na Li, Quancheng Pan	The Design of Substation Structure
168	Po2-40	Meng Wang, Fangjun He, He Liu, Xiaoyu Lin, Hang Yu, Chaoen Li	Multi-objective optimization of distributed energy systems under uncertainty
182	Po2-41	Lixiong Xu, Tingjian Liu, Gao Qiu, Cheng Yang, Yazhou Lv, Xinda He	Nonparametric Modeling Method for Correlation Analysis of Performance Indexes against the Load Loss Caused by Power System Cascading Failures
192	Po2-42	Guangli Liu, Dan Song, Jiajue Li	Economical optimal configuration of electric-heat hybrid energy storage system based on improving wind power consumption
202	Po2-43	Zhiyuan Wang, Zhanjun Gao, Maoran Zheng, Jiang Yu, Peng Zong	Protection in Active Distribution Network Against Short Circuit Fault and Broken line Fault
211	Po2-44	Meng Xiaofang	Distributed Generation Optimal Placing Approach Considering Low-voltage Control In Low-voltage Distribution Network
215	Po2-45	Chen Yu, Yan Huang, Kang Chang, Shaofeng Liu, Jun Guo	The Early Warning of Icing Flashover Fault of Transmission Line Based on Support Vector Machine and Partial Mutual Information Method
224	Po2-46	Jun Zhao, Lei Feng, Chang Xiao, Gao Le, Tan Wang, Jinhao Wang	Research on SVG correlation control strategy based on voltage slope detection
226	Po2-47	Xi Chen, Hui Hou, Yufeng Xie, Yongchao Liang, Huang Yong, Ruizeng Wei	Identification of Key Lines of Power Grid under Typhoon Disaster Based on Situation Awareness
233	Po2-48	Yongji Cao, Changgang Li	Event-Driven Fast Frequency Response for Large Active Power Disturbances
237	Po2-49	Yuwei Xiong	Multi-energy energy hub configuration method containing new energy consumption

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

238	Po2-50	Xue Lei, Shuying Li	Frequency Regulation Strategy of Wind Farm Considering Complex Wind Speed
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Poster Session 3: Oct. 31st, Saturday 15:45-17:45, Huilan Hall

Poster Session 3 Oct. 31st, Saturday 15:45-17:45, Huilan Hall			
Paper Number	Poster Number	Author	Title
241	Po3-01	Xue Lei, Shuying Li	Active Dispatch Method of Wind Farm with DFIGs Considering Reactive Power Regulation Capability
246	Po3-02	Ziqi Wang	Identification of Key Transmission Section in Energy Internet
258	Po3-03	Haiying Dong, Mei An, Dingmei Wang	Capacity Optimization Configuration Method of CSP-PV Power Generation System Considering Regulation Demand
262	Po3-04	Xianxu Huo, Xudong Wang, Xinhe Zhang, Guixiong He, Meng Wang, Zishuo Huang	Energy savings from the mutual operation of two interconnected energy stations, a case study
263	Po3-05	Zongchao Huang, Li Yinhong	A General Coordination Scheme for Zero-sequence Current Differential Protection on Series-compensated Multi-circuit Line
270	Po3-06	Chen Yu, Zhengang Wang, Fang Risheng, Huang Daoshan, Huang Ting, Zhang Weijun	Shutdown Risk Assessment of Small-Size Hydropower Station Under Typhoon Disaster
272	Po3-07	Shiming Tian, Kun Shi, Yuanfei Li, Jia Hu, Pengyu Wang, Yuhui Wu	Research on Planning Method of Park-level Integrated Energy System Considering Multi-objective Collaboration
285	Po3-08	Ling Dong, Zhencheng Sang, Pai Li, Qing Li, Jian Li, Chunlian Cao	Capacity Optimization and Economic Evaluation of Battery Energy Storage System for Qinghai Province based on Time Series Simulation Technology

288	Po3-09	Fangfang Shi, Yujie Geng, Yu-Dun Li, Ti Guan, Yi Tang	A method of fault diagnosis for secondary system based on multi-source fault information
290	Po3-10	Yan Zhang, Qingqing Zhang, Wang Huajia, Danwen Yu	Hierarchical Coordinated Voltage Correction Scheme for Active Distribution Network
294	Po3-11	Chang Ye, Xiaotong Luo, Bangpeng Xie, Chuye Hu, Chen Fang, Shaorong Wang	Prediction Method Based on Random Forest Regression for Sympathetic Inrush Peak
296	Po3-12	Wei Wang, Kejie Zhang, Aifang Zhang, Qibin Liu, Xin Xu	Design and Test of Lithium Battery Storage Power Station in Regional Grid
300	Po3-13	Zhang Kanjun, Zuowei Wang, Ting Wang, Zhen An Du, Fan Xiao, Huiyuan Yang, Aihong Tang	Optimal Connecting Nodes Planning Based on the Risk Assessment of Power Systems
319	Po3-14	Qianni Cao, Xuzhu Dong, Chen Shen, Mengshuo Jia	Detection of Abnormal Status of PV Modules at PV Stations with Complex Installation Conditions
342	Po3-15	Hongtao Li, Yinan Liu, Mingzhi Li, Shuangqing Zhang, Yinghua Dong, Li Yuan	Research on Outdoor Demonstration Test Technology of Photovoltaic Module
370	Po3-16	Ruogu Wang, Weikang Shan, Haipeng Xie	Impact Analysis of Renewable Energy Accommodation Considering Heat Pump in Peak Shaving
375	Po3-17	Juan Li, Chenqing Wang, Yang Li, Guobing Song, Lei Gao	A Protection Method for DC Distribution Network Based on High and Low Frequency Current Amplitude Ratio
376	Po3-18	Zhenglin Huan, Yun Sha, Ming Zhou, Yikai Sun, Yunxiang Wu, Xiang Yuan	Evaluating Transmission Network Flexibility considering Uncertainties
378	Po3-19	Jiaqi Liu	Fault Identification and Protection Technology Based on Multi-Source Information
381	Po3-20	Xiaodi Qin, Xiaolin Zhang, Xiaowei Ma, Haichao Xu	Research on fast frequency response technology and device development of photovoltaic power station

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

394	Po3-21	Wang Wenhuan, Limin Wang, Junxiong Li	Optimization of Maintenance Interval based on Equal Deterioration Rate Theory
395	Po3-22	Fengrui Cheng, Hui Hou, Xianqiang Li, Jufang Yu, Shaohua Zhu, Fenghui Yang	Overview of Power Grid Loss Prediction and Early Warning Under Typhoon Disaster
396	Po3-23	Wei Wang, Cheng Gong, Zhijian Zhang, Liyong Wang, Lihua Huang, Yudong Lin, Guili Liang, Dongying Zhang	Research on Waste-to-Energy Plant as Black Start-Up Power Source for Megacity Power Grid
398	Po3-24	Renjie Chen, Xiaotao Peng, Huaqu Li, Shouwen Liu, Jun Yang, Xuzhu Dong	Research on comprehensive evaluation for new energy big data service project based on prospect theory and TOPSIS
401	Po3-25	Jiayun Xie, Yuan Peng, Xuebin Wang, Yin hao Yang	Optimization on Combined Cooling, Heat and Power Microgrid System with Power-to-gas Devices
405	Po3-26	Peng Li, Xiangyu Liu, Zhiyong Yuan, Wei Chen, Li Yu, Quan Xu, Yuehuan Lin	Precise Fault Location Method of Traveling Wave in Distribution Grid Based on Multiple Measuring Point
407	Po3-27	Wen Xiong, Shuang Leng, Yi Rao, Li Wang, Zhiyong Yuan, Yongzhao Lao, Feiyang Xu, Quan Xu, Ancheng Xue	Research on the Impact of Crystal Oscillator Frequency Deviation on PMU Measurement under System Oscillation
410	Po3-28	Benli Wan	Research on the Damage Experiment Model Design and Metal Magnetic Memory Testing of Wind Turbine Tower in Service
413	Po3-29	Wanzhe Yang	The Shutdown Risk Assessment of Wind Farms under Typhoon Disaster
422	Po3-30	Xin Li, Yanping Liu, Yi Liang, Shunqi Zeng, Mingqi Li	Evaluation and Optimization of Electric Vehicle Load Acceptance Capacity of Distribution Network
424	Po3-31	Huamin Tong, Huangqiang Li, Jie Luo, Xinzhi Wang, Minghui Deng, Jinman Yu	Frequency Stability Control Strategy of The Receiving Power Grid Based on Multiple Resources

426	Po3-32	Jianfeng Wen, Cai Yan, Wei Yao, Lin Jiang	Coordinated Frequency Support and Multi-Band Oscillation Damping of Power System with Grid-Connected Wind Farms
428	Po3-33	Xinyu Liang, Zhigang Li, Jiehui Zheng, Qinghua Wu, Fan Hu, Wen Xiong, Li Wang, Shunqi Zeng	Decentralized Combined Heat and Power Dispatch Using the Communication-Censored ADMM
429	Po3-34	Deng Wei	Study on Stability of Low-voltage Multi-terminal DC System Under Electric Vehicle Integration
432	Po3-35	Wang Yan	Identification of weak links in distribution network based on random matrix theory
436	Po3-36	Lili Hao, Ji Jing, Ruijia Jiang, Chen Hao	Intra-day rolling dispatch considering large-scale wind power participation in primary frequency regulation and unit fast start-up capability
444	Po3-37	Yi Liu, Shengping Xie, Minghui Deng, Dong Wang, Jie Luo, Xinzhi Wang	Toughness Analysis and Enhancement Strategy Research of Distribution Network in Extreme environment
446	Po3-38	Cui Gao, Jian Sun	Dynamic State Estimation for Power System Based on M-UKF Algorithm
452	Po3-39	Ruoqi Lin	Threats and Countermeasures of Doubly-Fed Induction Generator High-Voltage Trip-Off under Short Circuit Fault
462	Po3-40	Yingying Hu, Mingrui Quan, Shifa Gao, Zhigang Wang, Di Wu, Ting Wang, Xin Zang	Research and Application on Renewable Energy Assessment Method of Absorptive Capacity Considering Adaptability of Power Grid
468	Po3-41	Xiao Chang, Huipeng Li, Shifeng Zhang, Le Gao, Xiaoyang Ma, Wei Pu	Harmonic resonance analyzing for wind farm based on eigenvalue decomposition
470	Po3-42	Wei Li, Dingjiang Fang, Wenbing Wu, Kai Ding, Xiaoyang Ma, Rui Xu	Study on the Power Frequency Distribution Characteristics for Half-Wavelength Transmission Lines Based on the Frequency-length Factor
476	Po3-43	Tongyan Zhang, Fei Tang, Fanghua Qin, Xiaoqing Wei, Yu Li	Analysis and Simulation of functional properties of large power grid

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

477	Po3-44	Dongsheng Yang, Xianyu Zhou, Zhile Yang	Unit commitment integrating wind and solar power using NSGA-III
483	Po3-45	Faqi Yan, Wei Xiong, Zhicheng Liu, Hao Xu, Yang Liu, Lei Chen	Delay Analysis and Improvement of Intraday Generation Schedule of an Actual Power Grid
491	Po3-46	Zheng Tao, Zemei Dai, Jing Zhao, Yao Jiahao, Ying Wang, Kaifeng Zhang	Economic dispatch strategy of multi-energy system considering N-1 security constraints
500	Po3-47	Luokai Yan	Conditional value-at-credibility model for wind power integrated stochastic optimal power flow under risk aversion
509	Po3-48	Xianbo Ke, Ping Wei, Chang Hai Jun, Chao Huo, Chao Wang, Shuanbao Niu, Sun Chenbin, Zhongqing Sun, Xueguang Jiang, Fusuo Liu	Research on Optimal Configuration of Synchronous Condenser for Transient Voltage Stability of Weak Sending-end Power System
515	Po3-49	Guobing Gao, Lei Wang, Yongning Chi, Xingdong Xu	A Novel Scenario Reduction Method for Static Voltage Stability
524	Po3-50	Zhidong Wang, Jun Shu, Siwei Liu, Wang Xiao, Hua Zheng	A nested genetic algorithm for generation planning in electricity market

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Poster Session 4: Oct. 31st, Saturday 15:45-17:45, Walkway between Qingchuan Hall and Huanghe Hall

Poster Session 4 Oct. 31st, Saturday 15:45-17:45, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title
530	Po4-01	Yumeng Zhang, Zhao Yuzhu, Xiangyu Zhao, Yaowu Wu, Xiang Lu He, Xing Chen, Chongtao Bai	Optimization of power source adapting to renewable energy collected by flexible DC

532	Po4-02	Qingtai Chen, Bo Li, Lei Han, Jianmin Zhang, Yufeng Zheng, Limei Zhao, Huang Jiang	Photovoltaic Fault Diagnosis Method for Grid-connected Households Based on Least-square Fitting Power Loss
533	Po4-03	Tao Zhu, Zhenyi Wang, Chuan Zhao, Shuwei Xu	Two-Stage Stochastic Dynamic Unit Commitment and Its Analytical Solution With Large Scale Wind Power Integration
535	Po4-04	Ananta Adhikari, Sumate Naetiladdanon, Anawach Sangswang, Samundra Gurung	Comparison of Voltage Stability Assessment using Different Machine Learning Algorithms
549	Po4-05	Shuyang Wang, Jing Li, Tianhua Li, Xingguo Wang, Rongqi Fan, Zhengguang Chen	An On-line Setting Self-adaptive Distance Protection Scheme for 110kV Transmission Line
553	Po4-06	Shengxiang He, Mingdong Wang	Grey Prediction PI Control of Direct Drive Permanent Magnet Synchronous Wind Turbine
557	Po4-07	Huaning Zhang, Qiannan Chen, Fan Lei, Ji Xiang, Feng Zhenyu	Relay Protection Service Support Platform to Meet Multiple Business Needs
564	Po4-08	Fang Liu, Jing Gou, Ting Li, Yunling Wang, Yunkai Lei, Youbo Liu, Fuyang Wang	Bi-level collaborative expansion planning for power grid and plants considering operational flexibility
565	Po4-09	Yufang Liu, Qian Ma, Chao Xu, Huichuan Liu, Wang Zeqi	Investment Optimization Model for Distribution Networks Projects with Risk and Efficiency Constraints
574	Po4-10	Zebing Shi, Jiang Yu, Ding Xiaobing, Hongshan Chen	Research on Coordination between Single Phase-to-Ground Fault Protection Equipment and Distribution Terminal Unit
582	Po4-11	Jiang Yu, Zebing Shi, Ding Xiaobing, Hongshan Chen, Boyu Chen, Kun Yu, Xiangjun Zeng, Shuxin Tan	Evaluation method for single-phase fault processing technology of distribution network based on safety protection
585	Po4-12	Yixue Li, Lei Huang, Qiong Cui, Jie Shu	A Bi-level Optimal Configuration of Combined Cooling, Heating, and Power

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			System Considering Demand Side Management
591	Po4-13	Wei Li, Dingjiang Fang, Wenbing Wu, Kai Ding, Xiaoyang Ma, Rui Xu	Location of multi-harmonic source based on FAJD method
605	Po4-14	Jing Hu, Hongkun Chen, Tong Ding, Zhaoyang Xiang	Optimal Allocation of Distributed Generations Considering Demand Response and Multi-agent Benefits
615	Po4-15	Wei Wang, Yongyan Zhou, Jie Zeng, Lei Huang, Yixue Li, Jie Shu	Optimal Planning of AC/DC Hybrid System Integrated with Distributed Renewable Energy Considering Economy and Safety
621	Po4-16	Yao Jiahao, Zheng Tao, Zemei Dai, Ying Wang, Wang Han, Kaifeng Zhang	Operation and Switching Strategy Optimization of Integrated Energy System
629	Po4-17	Zongjie Liu, Qiu Yu, Wei Chao, Yuan Bing	Design of Fault Line Selection Method for Distribution Network Based on Correlation of Characteristic Quantities
630	Po4-18	Xiaoping Chen, Kun Yu, Xiangjun Zeng, Hanjing Luo, Bin Tang, Chao Zhuo	Measurement Technology of Ground Parameters Based on Tap Adjustment of Grounding Transformer Winding for Distribution Networks
656	Po4-19	Luoyun Xu, Haiyu Li, Zhongping Zhang, Yuhao Zhou, Haizhou Huang, Yan Deng, Xiangning He,	Performance Testing and Analysis of Multi-vendor IEDs under PRP Configuration
657	Po4-20	Kaihui Feng, Bibin Huang, Jing Hu, Hu Yan, Bowen Hong, Haoran Ji, Sirui Chen	Quantified Flexibility of Energy Storage System to Improve Distributed Generator Penetration in Active Distribution Network
666	Po4-21	Fangfang Shi, Chao Yang, Meng Liu, Rongqi Fan	Research and Application on the Relay Protection Setting Comparison System Based on Fuzzy Matching
667	Po4-22	Hongjun Gao, Shuaijia He, Enmin Xiang, Zhenyu Liu, Renjun Wang, Xu Song, Yunman Li	Urban Distribution Systems Planning Considering Integrated Load Forecasting
672	Po4-23	Wei Li, Dingjiang Fang, Wenbing Wu, Kai Ding, Rui Xu	Inter-harmonic detection based on Blind Source Separation Algorithm

674	Po4-24	Hongjun Gao, Youbo Liu, Zhenyu Li, Xu Song, Renjun Wang, Enmin Xiang, Jie Yang, Mohan Qi, Yinbo Zhao, Hongjin Pan, Wang Ma	Optimal Planning of Distribution Network Based on K-means Clustering
675	Po4-25	Junxu Liu, Zhaojun Lu, Peiying Gan, Jun Wu, Jing Guo, Daipeng Jiang	Analysis and Assessment of Power System Source-Network-Load-Storage Intrinsic Safety Risk
684	Po4-26	Hu Liu, Xiangying Xie, Dong Wang, Xiaoguang Ma, Xin Luo	An intelligent fault diagnosis technology for distributed photovoltaic system based on ensemble voting fusion model
696	Po4-27	Yudong Lin, Dongying Zhang, Wei Wang, Liyong Wang, Tengfei Wang, Cheng Gong	Research on Multi Units Coordinated Phase Advance Based on Filled Function Particle Swarm Optimization Algorithm
702	Po4-28	Xiang Cai, Hongkun Chen, Tong Ding	A Network Partition-based Method for Voltage Control in Distribution Networks with Distributed PV
707	Po4-29	Yong Sun, Xiaoyu Yue, Min Wei, Zhuoyu Wang, Beichen Li	Joint Optimization Dispatching of Pumped Storage-Wind-Thermal Considering the Flexible Space of Pumped Storage and Deep Regulation of Thermal Power
708	Po4-30	Tao Wei, Wei Zhang, Mingxin Zhao, Wei Liu, Fengzhang Luo, Xin Yang	An analytical calculation model for power supply capability of distribution systems considering load transfer of network
709	Po4-31	Tianyu Zhang, Fengzhang Luo, Sijie Hu, Xin Yang	Evaluation model and method on life-cycle comprehensive low-carbon benefits of large-scale energy storage system from the distribution network planning perspective
710	Po4-32	Tianyu Zhang, Fengzhang Luo, Sijie Hu, Xin Yang	Research on Life-cycle Comprehensive Low-carbon Benefits of Wind Power Generation from Distribution Planning Perspective
713	Po4-33	Xin Bo Li, Zhen Cui	Identification of Voltage Sag Sources Based on Wavelet Transform Sample Entropy and Extreme Learning Machine

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

720	Po4-34	Li Peng, Yuan Zhiyong, Yu Li, Xu Quan, Lin Yuehuan, Yang Libin, Yu Kun, Zeng Xiangjun, Deng Feng	A Novel Traveling Wave Fault Location Algorithm for Distribution Network Based on Binary Tree Model and Multiple Time Information
721	Po4-35	Xiangyu Zhang, Jianbing Wu, Shuting Li, Huiwen Qi, He Huang, Huiqing Liu, Xiaojian Zhang, Qi Li, Hui Duan	Research on active distribution network structure planning for multi distributed generation access
722	Po4-36	Yuan Zhiyong, Li Peng, Yu Li, Xu Quan, Yang Libin, Yu Kun, Zeng Xiangjun, Deng Feng	Traveling wave time difference based multi-terminal transmission network fault location
726	Po4-37	Jiang Tao, Yuan Bing, Xu Lei, Wei Yajun	A Novel Protection Method of Wind Farm Collector Line Based on Clustering Algorithm
736	Po4-38	Andrii Kravchenko, Hao Li, Wei Zhong, Xiaojie Lin, Xingtao Tian	A Study on Operation of Heat Pump Cluster Based on Particle Swarm Optimization
737	Po4-39	Ziqiang Zou, Jinquan Zhao, Haijun Chang, Chao Wang, Fusuo Liu, Wei Li, Baomin Fang	Short-Term Voltage Stability Constrained Two-Stage Dynamic Optimal Reactive Power Flow
746	Po4-40	Runkai Guo, Jiajian Luo, Tai Tai Cheung, Zihang Qin, Shuisheng Lai, Dengmin Sun	Knowledge Mapping Analysis on the Research of Overhaul without Power Interruption in China
760	Po4-41	Xu Yang, Jing Zhang, Pengxian Song, Hao Wen, Yi Liu, Yi Jiang	Experimental Study on Thermal Aging Characters of Silicone Oil in Cable Terminal
778	Po4-42	Ruowen Li, Biyun Chen, Xiaoqing Bai	A Bi-Level Model For DG And ESS Integrated Planning In Distribution System
781	Po4-43	Shuhai Zhong, Daming Zhu, Yinghai An, Xuhua Qin, Jianjun Zhao, Yunfeng Bai,	Power Optimization Method for Interactive Operation of Integrated Energy Distribution System and Superior Power Grid

		Jiaying Xu, Fengzhang Luo	
792	Po4-44	Pengjia Shi, Yinan Li, Yi Du, Qiyuan Cai, Hao Chen	Distribution Network Planning Considering Uncertainty of Incremental Distribution Network Access
798	Po4-45	Xu Yang, Yuru Cai, Jing Zhang, Lin Cheng, Fenghua Wang	Periodic Narrow-Band Noise Denoising of Partial Discharge Signal through Time-Frequency Analysis
799	Po4-46	Xu Yang, Yuru Cai, Jing Zhang, Lin Cheng, Fenghua Wang	Denoising of Partial Discharge signal by Common Factor Methods and Wavelet Thresholding
811	Po4-47	Wang Lili, Qiuyan Li, Jie Ma, Xinzhi Guo, Tong Su, Youbo Liu	Deep Learning Driven Rolling Evaluation and Optimization Method of Distribution Network Asset Utilization Efficiency
818	Po4-48	Guo Xiaorui	Research on collaborative optimization decision method of Source-Grid-Load-Storage
837	Po4-49	Jingxian Yang	Optimization for Short-Term Operation of Hybrid Hydro-PV Power System Based on NSGA-II
840	Po4-50	Xu Qian, Lijun Zhang, Jianmin Zhang, Yikai Sun, Yanning Tian, Ting Li	Evaluation model and realization of battery energy storage power station with operational compound value mining

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Poster Session 5: Nov. 1st, Sunday 8:00-10:00, Huilan Hall

Poster Session 5 Nov. 1st, Sunday 8:00-10:00, Huilan Hall			
Paper Number	Poster Number	Author	Title
851	Po5-01	Libing Yang, Min Wu, Xiaohan Cong, Jiale Wang, Wang Beibei	Flexibility assessment considering the network dispatchability of flexible capacity
854	Po5-02	Minfang Liao, Chengxi Liu, Qing Zeng	A Recent Overview of Power-to-Gas Projects
864	Po5-03	Hongshan Zhuang, Yongguang Li, Xiaolei	Power Grid Fault Diagnosis Based on Immune RBF Neural Network

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

		Ma, Yanjun Zhang, Yuanyu Ge, Sen Wang	
882	Po5-04	Zheng Xu, Zhi Wu, Wei Gu	A Decentralized Robust Planning Approach For Smart Buildings Considering Bilateral Transactions With Fair Market Clearing Strategy
903	Po5-05	Meifang Wei, Fang Peng, Xuhua Zeng, Fangyuan Wang, Min Long, Zhewei Wang, Fudong Li	Short-term wind power prediction based on IPSO-GSA optimized neural network
929	Po5-06	Qi Wang	Research on The Influence of Photovoltaic Low Voltage Ride Through Characteristics on The Operation Characteristics of Weakly Connected Power Grid
960	Po5-07	Huang Haiyan, Gong Zhen, Hongchun Shu, Xincui Tian	Microgrid Fault Detection Method Based on Sequential Overlapping Differential Transform
988	Po5-08	Shuang Zhang, Long Jiao, Hui Zhang, Lin-Jun Shi, Huibiao Yang	A new control strategy of active participation in frequency regulation of photovoltaic system
989	Po5-09	Dechang Yang	Analysis of Renewable Energy Consumption Ability of Distribution Network
998	Po5-10	Zhiyuan Sun, Mosi Liu, Li Li, Yining Zhang, Wei Zhang	Research on The AC and DC Hybrid Power System Simulation Based on RTDS
1005	Po5-11	Gang Cao, Songlin Luo, Jiahe Zhu*	Research on automatic line selection method for single-phase ground fault in active distribution network
1006	Po5-12	Gang Cao, Songlin Luo, Jiahe Zhu	Single-phase grounding fault line selection method of active distribution network based on swept frequency injection signal
1009	Po5-13	Feng Dai, Chao Bian, Jun Chen, Qiang Gan, Xuan Chen, Zhengdong Zhang	Dual laser cantilever enhanced photoacoustic spectroscopy detection system for SF6 decomposition components
1010	Po5-14	Chao Bian, Feng Dai, Jun Chen, Jiagui Tao, Tingyue Tan, Yunfei Song	The research on infrared spectrum of C4F7N by combined experimental and theoretical study

1045	Po5-15	Zengli Yang, Kanjun Zhang, Yulong Wang, Qingchun Zhao, Fan Xiao, Ting Wang	A New Backup Protection for Transmission Lines Based on Substation-area Current Information
1052	Po5-16	Yu Gong, Hao Zhang, Xiong Dai, Mingxuan Yang	Condition Cleaning Maintenance Technology of Carbon Brush Slip Ring in Pumped Storage Power Units
1055	Po5-17	Zhang Kanjun, Zhen An Du, Fan Xiao, Ting Wang, Longen Zhang	Improved Sequential Monte Carlo Method approach to substation connection reliability assessment
1068	Po5-18	Xin Xu, Kai Sun	Generalized Equal Area Criterion for Stability Analysis of Nonlinear Oscillator System
71	Po5-19	Yan Li, Hongzhi Liu, Yiwen Fan, Xinshou Tian, Yu Xiao, Wang Cong	Research on the Technology Requirement of Distributed Renewable Energy AC/DC Output System and Network Voltage Coordinated Control
78	Po5-20	Xiangyu Jia, Xu Yang, Kai Zhang, Kunpeng Wei	Rub-impact Behavior Study of a Flywheel Rotor by Considering the Friction Coefficients Effect
99	Po5-21	Jingxi Yang, Hongjun Gao, Zihao Wu, Fan Zhang, Zhuyu Qing, Enmin Xiang	Interactive Trading and Profit Sharing among Multiple Micro-energy Grids
100	Po5-22	Zhuyu Qing, Hongjun Gao, Ruogu Wang, Fan Zhang, Jingxi Yang, Xu Song	Trading Model of Virtual Power Plant Considering Shapley Contribution Based Revenue Distribution
136	Po5-23	Shuran Liu	Economic Assessment of Power Link between Europe and China
139	Po5-24	Ruoyu Lei, Ming Zhou, Zhaoyuan Wu, Yun Sha, Yan Zhang, Xiaojuan Liu	The optimal operation and revenue allocation method of virtual power plant considering carbon trading
176	Po5-25	Qian Zhang, Qiaolin Ren, Shiteng Cai, Hujian Chen, Zhijun Li, Jichuan Ye	Development of Activated Liquid for Degraded Lead-Acid Batteries in Substations
183	Po5-26	Yanling Wang, Yunping Li, Jingya Su	An Optimal Congestion Scheduling Model of Intraday Market for Promoting the Consumption of Renewable Energy Sources
185	Po5-27	Ji Zhao, Lang Gao, Bibin Huang, Hu Yan,	Dynamic Monitoring of Voltage Difference Fault in Energy Storage

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		Mengqi He, Jun Jia, Huachi Xu	System Based on Adaptive Threshold Algorithm
220	Po5-28	Yuanxing Zhang, Taoyong Li, Xiaohong Diao, Linru Jiang, Zhang Jing, Li Kang	The Research on Temperature Control Load Modeling and Aggregate Simulation
225	Po5-29	Shaohua Zhu, Hui Hou, Yongchao Liang, Huang Yong, Ruizeng Wei	Review of Power Emergency Repair Strategy after Typhoon Disaster
250	Po5-30	Zhen Wei, Bo LIU, Bo Chen, WENLAN LI, Wang Zhuo, Shujuan LI	Research on Application of Demand Response in Power System of Smart Park
253	Po5-31	Junbo Fu	Research on Turn-on Delay Time t_{don} of the Multichip IGBT Module after Partial Chip Failure
257	Po5-32	Xia Tian	A Distributed Coordination Scheme for Periodic Loads for Demand Side Management
271	Po5-33	Xingang Yang, Peng Zhang, Yang Du, Aiqiang Pan, Qin Xu	Nonintrusive Load Monitoring and Analysis Based on Power Disturbance Data
297	Po5-34	Ning Yan, Dd Dd, Shuai Li, Ww Qq	Study on the Whole Life Cycle Energy Management Method of Energy Storage System with Risk Correction Control
316	Po5-35	Shengyong Ye, Jun Wei, Zihao Xu, Wentao Zhang, Xuna Liu, Changhua Zhang	LSTM-Based Rapid Identification of Dominant Low Frequency Oscillation Modal Features in Power System
328	Po5-36	Yi Du, Yinan Li, Qiyuan Cai, Yuanfei Li, Changyong Lin, Pengjia Shi	Research on Key Technologies of User Side Integrated Demand Response for Multi-Energy Coordination
359	Po5-37	Ning Xie, Ying Gao	Research on Active Current Suppression Control Strategy of Photovoltaic Generation System
374	Po5-38	Qiyue Zhang, Qing Wei	Optimized Configuration of Integrated Energy System Considering the Access and Operation of Renewable Energy
386	Po5-39	Haizhu Wang, Liu Jianing, Kaiwen Zeng,	Optimal Dispatch of A Multi-Energy Residential Microgrid with Dispatchable Multi-Energy Loads

		Yi You, Fei Liu, Sheng Wei Tang	
445	Po5-40	Ling Lin, Chen Fang, Ruirong Guo, Jing Kuang	Multi-objective optimal dispatch of microgrid combined cooling, heating, power and gas
453	Po5-41	Zhigang Wang, Shifa Gao, Changhong Meng, Zhi Zhang, Chao Xue, Siyi Yin, Jia Zhang, Tian Mao, Bingjie Zhao	A Fast Calculation Method Supporting Price Arbitrage for Energy Storage (ES)
466	Po5-42	Bei Li	Multi-energy supply microgrids to enhance the resilience of the electric/gas/heat utility grid systems under natural disasters
480	Po5-43	Xuekun Jin, Jinghong Zheng, Wenzhi Zhao, Zonghang Han, Yuke Gui	Research on the Optimal Operation of Integrated Energy Station Considering Auxiliary Equipment
490	Po5-44	Longzhou Luo, Gang Chen, Jiale Tian	A Novel Equalizer Based on Switched-Inductor and LC Converter for Lithium-Ion Battery Strings
531	Po5-45	Chunguang He, Yunpeng Ling, Pengfei Sun, Weiyu Li, Xiaolin Tan, Jiakun An, Xiaoguang Qi	Dynamic evaluation of controllable ability of building energy system
534	Po5-46	Wanting Li, Chuanzhi Zang, Ding Liu, Peng Zeng	Short-term load forecasting of longshort term neural network based on genetic algorithm
555	Po5-47	Dongmei Yang, Fu Jinzhou, Yong Sun, Haifeng Zhang, Baoju Li, Zhang Xiaochen	Research on Nodal Energy Price of Multi-energy Flow System Considering Heat Network Loss
560	Po5-48	Jia Liu, Pingliang Zeng, Hao Xing, Yalou Li, Qiuwei Wu	N-1 Security-Constrained Integration of Distributed Generators in Active Distribution Grids with Energy Storage Support
561	Po5-49	Zhu Ziqi, Ma Wenguang, Li Meiling, Zhang Wei	Multi-time scale collaborative optimal dispatching strategy for island microgrid with multi-distributed power generation

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606	Po5-50	Zhu Ziqi, Xiong Yiting, Li Xin, Zhang Shukai	A New Transmission Pricing Method of Large Scale Wind Power to Promote Wind Consumption
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Poster Session 6: Nov. 1st, Sunday 8:00-10:00, Walkway between Qingchuan Hall and Huanghe Hall

Poster Session 6			
Nov. 1st, Sunday 8:00-10:00, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title
608	Po6-01	Xiaoyang Liu, Yanyun Jin, Yan Feng, Kunyu Sun, Yuqin Xu	Optimal dispatch of integrated energy system in a small high-tech industrial park
609	Po6-02	Zhu Ziqi, Zhao Jianbo, Zhang Shukai, Li Xin	Research on Wind Power Capacity Evaluation Based on Risk Theory and Unit Commitment Under Multi-Scenarios
638	Po6-03	Yongpeng Shen, Jianbin Sun, Xiaoliang Yang, Pu Liu	Symlets Wavelet Transform based Power Management of Hybrid Energy Storage System
668	Po6-04	Junguang Lin, Lun Yang, Libin Yu, Zhaoguang Pan, Shenyi Zhao, Yinliang Xu	A Dynamic Convexification Approach for Optimal Power-Gas Flow
673	Po6-05	Jinping Zhang, Zhou Qiang, Jin Li, Zhao Long, Dingmei Wang, Lijuan Liu	Overview the Approaches for Maximum Power Point of Photovoltaic Arrays in partially Shaded Environment
687	Po6-06	Jianing Liu, Kaiwen Zeng, Haizhu Wang, Sheng Wei Tang, Bochuan Gu	Distributed Aggregation Control of Smart Buildings for Frequency Regulation Services
706	Po6-07	Qing Ma, Changhong Deng	Research of Doubly Fed Induction Machine's Optimal Reactive Power Limit Considering Junction Point's Voltage Fluctuation
723	Po6-08	Ke Sun, Chun Li, Ji Wu, Chengcheng Shao	Integrated Planning of Urban Electricity and Gas Distribution Systems Considering Demand Response

730	Po6-09	Dejian Yang, Mingzhen Li, Xinsong Zhang, Liang Hua	Frequency Support of a Wind Power Plant For Over-Frequency Disturbances
749	Po6-10	Yangjun Zhou, Shuo Liang	LSTM Based Quantile Regression Method for Holiday Load Forecasting
753	Po6-11	Jun Wang	Two-level Capacity Optimization Strategy for Generations in Multi-energy Gathering Center Considering the Flexibility
777	Po6-12	Haiyue Yu, Kang Xie, Hongxun Hui, Yi Ding	Review and Prospect of Flexible Loads for Participating in Frequency Regulation
802	Po6-13	Tao Haibo, Xiaofeng Yang, Zejie Li, Zixun Pan, Zhang Yanbin	Modular Multilevel Converter With Partial Energy Storage System for Frequency Support
803	Po6-14	Zhaoguang Pan, Yong Sun, Baoju Li, Hongbin Sun, Qinglai Guo, Yixun Xue	Integrated Operational Security of Multi-energy Systems Concepts, Features and Mechanism
816	Po6-15	Zheng Qiao, Xichao Zhou, Yi Du, Hongbin Sun, Qinglai Guo, Zhaoguang Pan	Interval Linear Energy Flow Model of Electricity and Natural Gas Coupling System Considering the Uncertainty of Wind Power
821	Po6-16	Kaiwen Zeng, Haizhu Wang, Liu Jianing, Bin Lin, Bin Du, Chunchao Hu	Multi-objective Temporal Coordination of A Multi-Energy Microgrid with Demand Response
825	Po6-17	Li Fuxing, Du Yang, Tang Lei, Zhu Jiawei, Zhao Wenbin	Performance Test Method of Condenser based on Virtual Power Dispatching Technology
827	Po6-18	Xuanyuan Wang, Hongbin Sun, Xuan Wei, Zhen Liu, Qinglai Guo, Bo Zeng	Capacity Value and Economic Evaluation of Electric Vehicle Parking Lots in Smart Distribution Grids
847	Po6-19	Yiting Wang, Zhao Yang, Ling Dong, Shaowei Huang, Wei Zhou	Energy Management of Integrated Energy System Based on Stackelberg Game and Deep Reinforcement Learning
855	Po6-20	Zhuo Chen, Junxingxu Chen, Xianyong Xu, Shuang Jian Peng, Jian Xiao, Hong Qiao	Non-Intrusive Load Monitoring based on feature extraction of change-point and XGBoost classifier
860	Po6-21	Xiaolong Wang, Yufu Lu, Yanming Ke, Jian	Black start process simulation of isolated power grid based on PSASP

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		Xu, Zilong Wang, Siyang Liao, Guanzhong Liu, Changqi Tan, Yawei Zhang, Boyu Xie	
866	Po6-22	Kai Yuan, Chongbo Sun, Yi Song, Hang Li	A multi-energy flow calculation method considering multiple energy coupling operation modes
879	Po6-23	Wei Tian, Jingying Wu, Zhaoli Leng, Yunfeng Cai, Kang Chen, Ciwei Gao, Tao Chen, Yang Cao	A Survey of Value-added Services for Electricity Transaction in China
886	Po6-24	Jing Ren, Xiaowei Ma, Xiaodong Zhang, Tingting Guo, Youbo Liu	Joint optimal deep peak regulation of renewable-rich power system with responsive load, heating storage enabled CHP and flexible thermal plants
887	Po6-25	Shen Zhuzheng, Wei Chun, Zhao Ermin, Xue Yuantian, Liang Congbin	An Improved Droop Control Strategy of Distributed Energy Storage Systems in Microgrids
888	Po6-26	Ende Hu, Shifa Gao, Xingping Jia, Lihua Liu, Zeyuan Shen, Aiping Ren, Qi LI, Yahong Xing, Shuai Wang	Research on capacity optimization of offshore wind power flow combined power generation system based on Homer
891	Po6-27	Decai Li, Meiyuan Cai, Yang Wei, Jihong Wang	Study of Doubly Fed Induction Generator Wind Turbines for Primary Frequency Control
915	Po6-28	Jingyan Li, Yiwu Yin, Yang Li, Feng Wu, Lan Ai	Day-head peak-shaving model for coordinated wind-photovoltaic-pumped- storage-hydropower generation systems
916	Po6-29	Qi Xuanwei	The Research and Engineering Practice on the Protection and Control Method of the DG System
921	Po6-30	Xiaolong Wang, Yufu Lu, Zilong Wang, Boyu Xie, Yanming Ke, Jian Xu, Guanzhong Liu, Changqi Tan, Yawei Zhang, Siyang Liao	Sequence optimization of auxiliary load in black start of isolated power grid

922	Po6-31	J Y, Bz W, Zhi Xiong, Zhu Chen, Hb F, Shuaishuai Feng	Research on Three-dimensional Comparison and Selection Strategy of Sequential Control transformation
934	Po6-32	Xiaoming Zheng, Chunhui Li, Jia Li, Liu Lihua, Zhao Chao, Peng Wang, Lixing Ma, Kai Han, Ma Yunfeng	Technical Structure and Operation Principle of Mechanical Elastic Energy Storage System
942	Po6-33	Baiyan Sun, Congzhe Gao, Zhen Chen, Shuoqi Cheng, Te Sun	A Capacitor-Isolated Balancing Circuit for Battery Modules Applied in Grid-Tied Battery Energy Storage System
947	Po6-34	Di Huifang, Bao Yu- Qing, Wang Beibei	Research on Distribution Network Reconfiguration Based on Deep Q- learning Network
953	Po6-35	Yiheng Zhou, Li Yanbao, Lv Qichao, Lv Dongyuan, Yang Yuanzhao, Jianyong Zheng	Investigation of a High Speed Permanent Magnet Synchronous Machine for Magnetic Suspended Flywheel Energy Storage System
956	Po6-36	Yan Zou, Zhaowei Li, Ting Zhou, Hui Huang, Kaiming Luo, Zhaohui Qie	Research on Application of Energy Storage System to Three Defense Lines of Frequency
961	Po6-37	Huang Di, Chenyu Zhang, Qiang Li, Han Huachun, Huang Dawen, Li Taotao, Wang Chen	Prediction of Solar Photovoltaic Power Generation Based on MLP and LSTM neural networks
974	Po6-38	Yahong Xing, Changhong Meng, Chunhui Li, Yang Bai, Zhiwen Zhang	Lean Operation and Maintenance Evaluation Technology of Power Grid Equipment Based on Improved Big Data Cleaning Method
977	Po6-39	Xiao Zhou, Kang Gong, Changdong Zhu, Jing Hua, Zhigao Xu	Optimal Energy Management Strategy Considering Forecast Uncertainty Based on LSTM-Quantile Regression
994	Po6-40	Bolin Zhang, Haotian Liu, Guofeng Zhuang, Linlin Liu, Wu Wenchuan	Data-Driven Wind Farm Volt/VAR Control Based on Deep Reinforcement Learning
1025	Po6-41	Zihang Huo, Peng Wang, Sijian Zhang,	A Two-Step Multi-objective Optimization Framework for Microgrid Scheduling

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		Die Wang, Zheng Min Kong	Problem Based on Cloud-edge Computing
1034	Po6-42	Yaozong Yin, Hu Wei, Shangzhi Pan, Jinwu Gong	DC-side Voltage Control Strategy of Dynamic Voltage Regulator Based on Nine-switch Conversion Circuit
1064	Po6-43	Olusola Bamisile, Sandra Obiora, Qi Huang, Yimen Nasser, Temur Madirimov, Oluwatoyosi Bamisile	A State-of-Art Review on Energy Internet and Internet of Energy Advancements
118	Po6-44	Zhong Liu, Peng Li, Tian Bing, Zhao Jiguang, Hu Yang, Sun Hongdi, Xu Yin, Zhiming Wang, Min Guo	Current and Voltage Measurement Method Based on Magnetic and Electric Field Sensors for Smart Grid Applications
178	Po6-45	Jun Guo, Tao Feng, Zelin Cai, Zeyuan Yu, Yican Gu, Tong Qian, Kecan Huang, Wenhui Tang	Security Risk Assessment of Power System Based on Latin Hypercube Sampling and Daily Peak Load Forecasting
200	Po6-46	Jianlong Guo, Weixia Feng, Tengfei Hao, Peng Wang, Shuang Xia, Huben Mao	Denoising of a multi-station point cloud and 3D modeling accuracy for substation equipment based on Statistical Outlier Removal
219	Po6-47	Yuanlong Liu, Xiangjun Meng, Zhigang Wu, Hengjie Liu, Gang Yao, Wei Wang	Design and Application of Intelligent Sensing Terminal for Distribution Transformer
229	Po6-48	Zhimeng Lv, Lingyan Que, Caishen Fang, Xingzhi Wang, Yuan He, Kun Huang	Design and Implementation of Lightweight Man-machine Terminal Screen Interactive Client
354	Po6-49	Yang Zhichun	Monitoring and Application of Low-voltage Distribution Network Leakage Protector Based on Internet of Things
661	Po6-50	Xuke Cheng, Feng Sun, Zhen Ye, Guanfeng Zhang	A Quantitative Analysis Method for the Influence of Three-phase Unevenness on Line Loss Based on K-Means Clustering

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**Poster Session 7: Nov. 1st, Sunday 10:15-12:15,
Huilan Hall**

Poster Session 7 Nov. 1st, Sunday 10:15-12:15, Huilan Hall			
Paper Number	Poster Number	Author	Title
751	Po7-01	Wei Hu, Qiuting Guo, Yajun Liu, Yue Liu, Xu Huang, Wang Weiheng	Intelligent Line Losses Management System for Secondary Power Distribution Network Based on SSM Framework
848	Po7-02	Kaiyu Wu, Shengwei Lu, Fucheng Li, Yuanzhang Sun, Jian Xu, Siyang Liao	Research on Accurate Investment Evaluation System for High-quality Development of Power Grid Based on Data Driven
980	Po7-03	Jinhe Yu, Wei Xing, Xiaoyue Cao, Fan Jiang, Jiajia Xu	Research on business risk control based on data analysis
110	Po7-04	Shuang Ma	Multi-objective optimization of electric vehicle scheduling based on behavior prediction
113	Po7-05	Zhengqi Tian, Zengkai Ouyang, Guofang Xia, Chao Zhou, Ning Zou, Xiaolei Zhu	Study on the Influence of Radio Anechoic Chamber Filter Circuit on the Smart Meter Error in Radio Frequency Immunity Test
147	Po7-06	Longen Zhang, Pangqi Ye, Kun Chen	Research on the Development and Current Status of DC Power Distribution
154	Po7-07	Kangli Xiang, Bojian Chen, Yi Du, Yinan Li, Qiyuan Cai, Changyong Lin, Yuanfei Li	An Electric Vehicle Charging Load Forecast Model Based on Probability Distribution
160	Po7-08	Yuanxing Zhang, Taoyong Li, Shuai Wang, Linru Jiang, Wenqi Han, Xiaohong Diao	Safety assessment of charging stations connected to the power grid considering distribution network constraints
206	Po7-09	Bo Yang, Jun Pan, Yishun Zhu, Xurui Huang, Chutong Wang, Chuangxin Guo, Yizong Guo	A Review of Energy Storage System Study
283	Po7-10	Mianhui Ruan, Zhe Tan, Jianfu Chen,	Fault Current Controller and Its Control Technology of DC Microgrid Based on Negative Pressure Source

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		Jianbiao Li, Kun Yang, Fang Guo	
438	Po7-11	Jiawei Liu, Li Changlong, Naxin Cui	A Multi-objective Optimization Charging Strategy for Lithium Ion Battery Based on Lithium-plating Inhibited Model
454	Po7-12	Shuai Han, Tian Mao, Xiaoxuan Guo, Wanlu Wu, Leping Sun, Tao Wang, Baorong Zhou, Wenmeng Zhao	Profit Evaluation for Virtual Power Plant in Power Load Response: from The Perspective of Power Grid
528	Po7-13	Manshang Wang, Jiayu Bai, Ziyang Zhang, Wei Wei, Tianwen Zheng	Assessment of Design Parameters Affecting Trigeration AA-CAES System Performance
581	Po7-14	Haizhu Wang, Kaiwen Zeng, Jianing Liu, Bin Du, Yufeng Tang	Power Flow Analysis of the Economic Dispatch Considering the Flexible EV Charging
694	Po7-15	Zhilong Hu, Zimeng Xu, Xiaoling Yu, Congwei Tong, Teng Zhang, Ben Wang, Xidong Huang, Weigong Qin	A multi-functional converter electrical tests system scheme and research in its digital simulation
699	Po7-16	Ding Xiaoyin, Zhang Yang, Wan Weijiang, Cai Jian, Linru Jiang	The Interoperability Test Study of Abnormal Charging State for DC Charger
735	Po7-17	Jing Zhang, Long Fangjia, Bai Ou, Taoyong Li, Wei Zeyu, Linru Jiang, Yu Qiang, Long Yi, Shirui Liu, Liu Yajing	Research on safety evaluation system of optical storage charging station based on Fuzzy Theory
773	Po7-18	Jingxuan He, Zhiye Du, Qianxi Guo, Zhang Xichen	Modeling and Optimization Design of a New Type of Electric Energy Actuator Based on Dielectric Barrier Discharge
786	Po7-19	Yabing Yan, Gang Li, Hui Li, Wenqi Mao, Hua Pan, Fan Ouyang	Analysis of Intelligent Linkage Technology for Smart Energy Station Monitoring System
894	Po7-20	Xiaolong Xiao, Wei Su, Jiahao Zhang, Jinggang Yang, Xinyao Si, Xiaorong Zhang* Jiahao Guo	Comparison of Grounding Modes of MMC-Based Flexible DC Distribution Network

899	Po7-21	Wei Zhao, Ning Xie, Bing Zhao, Zhiwen Xie, Jingpeng Yue, Wengang Xie	Finite Element Simulation Analysis of Three-phase Bridge Arm Reactor of Modular Multilevel Converter
905	Po7-22	Xuefeng Bai, Wei Xi, Hao Yao, Wei Chen	Service Restoration Strategy of Active Distribution Network Based on Power Router
906	Po7-23	Md Inzamamul Haq, Abdul Hadi Hanan, Abdul Qadeer, Behzod Salimov, Muhammad Ibrar Younas, Muhammad Talha Ikram	Design and Implementation of an Efficient Single Stage Three Phase AC- DC Buck Converter for Hybrid Vehicle Charging
969	Po7-24	Ma Weijing, Fan Wang, Jingyi Zhang, Jin Qiang	Overload Risk Evaluation of DNs with High Proportion EVs Based on Adaptive Net-based Fuzzy Inference System
1067	Po7-25	Zhao Yiqi, Yinliang Xu, Ye Guo, Qinglai Guo	Reinforcement Learning Based Optimal Operation Strategy for Electric Taxis
16	Po7-26	Zhang Xinhe, Kecheng Li, Dezhi Li, Ming Zhong, Wei Huang	Digital Twin in Energy Internet and Its Potential Applications
91	Po7-27	Bin Xiang, Zhixiong Liu, Kunyi Zhang, Hao Hu	Research on Intelligent Sampling Inspection Platform for Distribution Network Materials
109	Po7-28	Xiaozhu Li, Weiqing Wang	Research on large-scale multi-objective optimization algorithm with irregular frontier for operation dispatching of new generation energy system integration
320	Po7-29	Liu Yang, Zhao Ruifeng, Li Bo, Lu Jiangang, Li Shiming	Workload Analysis and Microservice Placement of Energy Management Application based on Power Internet of Things
338	Po7-30	Zhihong Huang, Jiannan Zhou, Wei Huang, Yun Liu, Guangming Zhu, Keren Zhang	Multiple Classifiers based Information Fusion for Power Transformer Fault Diagnosis
385	Po7-31	Shixiong Fan, Liu Xingwei	Ultra-Short-Term Bus Load Forecasting Method Based on Multi-source Data and Hybrid Neural Network
414	Po7-32	Lingyan Que, Liqiang Yang, Haifeng Qian, Jianqiang Shen, Lei	A Robust Line Parameter Identification Method Based on LSTM and Modified SCADA Data

		Zhang, Feiyang Xu, Jing Ma, Chao Chen, Ancheng Xue	
425	Po7-33	Xuanwen Ding, Xin Zhu, Xiaopeng Li, Chun Zhang	Research on power grid fault diagnosis method based on PMU data and convolutional neural network
488	Po7-34	Erjia Liu, Yuxuan Wang, Yongzhang Huang	Short-term Forecast of Multi-load of Electrical Heating and Cooling in Regional Integrated Energy System Based on Deep LSTM RNN
506	Po7-35	Zhibo Jiang, Hantao Tao, Yue Chen, Lei Zhang, Dawei Wu, Wang Li	Two Optical Image Fusion Model of Transmission Line Based on DCGAN
622	Po7-36	Zhongyi Wen, Yuping Zheng, Li Yun, Yu Yang	Virtual Power Plant Trading Strategy Based on Blockchain to Satisfy Clean Energy Partiality
634	Po7-37	Fang Wang, Qing Huai, Hu Zhijian	Judgment of Transformation Rate for Electric Energy Meter Based on BP Neural Network and Adaboost Algorithm
646	Po7-38	Yixin Jiang, Zhang Yunan, Aidong Xu, Xiaoyun Kuang, Meng Jiaxiao, Xue Shuai, Weiqiang Xin	Electric Energy Data Storage and Privacy Protection in Edge Computing Mode
653	Po7-39	Rongfu Sun, Yuhui Wu, Haibo Lan, Yulin Wang, Ran Ding, Jian Xu, Siyang Liao, Jia Hu, Yamin Sun	Research on Multi-source Heterogeneous Data Cleaning Technology based on Integrating Neural Network with Fuzzy Rules for Renewable Energy Accommodation
691	Po7-40	Yuxin Dai, Yilin Chen, Xiang Li, Shenghui Zhang, Qimei Chen, Siyang Liao, Zhang Jun	Automatic Generation of Power Grid Dispatching and Control Scheme Based on Heterogeneous Information Network
704	Po7-41	Wang Jia, Chen Liu, Jianquan Fang, Tai Bai, Junping Wang	Detection of Abnormal Data of Gateway Energy Meter Based on User Dynamic Behavior Mining
739	Po7-42	Tianyun Zhang, Tianlu Gao, Peidong Xu, Zhang Jun	A Review of AI and AI Intelligence Assessment
768	Po7-43	Yue Wang, Ye Guo, Hongbin Sun, Xu Zheng	Distribution System Anomaly Detection Based on AnoGAN Embedded with Cross-Stitch Units

832	Po7-44	Peng Zhou, Jinxing Li, Tianlu Gao, Hongxia Yuan, Yong Yang, Zhu Chen, Zhang Jun	Research on Mining of Transmission Grid Assets of Heterogeneous System Based on Digital Twin
871	Po7-45	Xiaolei Ma, Yongguang Li, Ran Liu, Yanjun Zhang, Liya Ma, Ziwen Gao	Frequent Itemsets Mining of SCADA Data Based on FP-Growth Algorithm
875	Po7-46	Jiajie Ling, Siwei Miao, Xiaojuan Zhang, Changyu Chen, Peng Cheng, Quanyuan Jiang	Refined Characterization of Internet of Things Applications in Power Systems
884	Po7-47	Kaiji He, Long Zhang	Automatic detection and mapping of solar photovoltaic arrays with deep convolutional neural networks in high resolution satellite images
902	Po7-48	Luocheng Shen, Hao Yao, Jun Su, Jiyuan Mu, Junhuan Yang, Yuan Tian	Data Model Design of Dispatching, Operation and Maintenance of Power Information System Based on CIM
936	Po7-49	Yadong Zhang, Fuhang Gan, Xin Chen	Motif Difference Field: An Effective Image-based Time Series Classification and Applications in Machine Malfunction Detection
955	Po7-50	Huang Di, Chenyu Zhang, Qiang Li, Han Huachun, Huang Dawen, Li Taotao, Wang Chen	Consortium Blockchain-based Decentralized Energy Trading Mechanism for Virtual Power Plant

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**Poster Session 8: Nov. 1st, Sunday 10:15-12:15,
Walkway between Qingchuan Hall and Huanghe Hall**

Poster Session 8 Nov. 1st, Sunday 10:15-12:15, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title
966	Po8-01	Yitong Chen, Qian Chen, Yuxiang Xie	A Methodology for high-efficient Federated-learning with Consortium Blockchain

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970	Po8-02	Hanyang Xie, Xiaoqi Hu, Zewu Peng, Jiang Jiang, Qiuyong Yang	Energy system time series data quality maintenance system based on data mining technology
1021	Po8-03	Xiaoping Zhang, Zheng Zeng, Peng Wang, Jing Song, Zheng Min Kong	A Hybrid Edge-Cloud Computing Method for Short-Term Electric Load Forecasting Based on Smart Metering Terminal
1033	Po8-04	Xianbo Ke, Yaqi Sun, Gang Zhang, Wenchuan Wu	Deep Reinforcement Learning based Wind Farm Cluster Reactive Power Optimization Considering Network Switching
1056	Po8-05	Lijuan Zhang, Zhiwei Guo, Qiaowen Hong, Jiao Wang, Hanmiao Cheng, Jintao Yu	Analysis of Large-scale Automatic Verification Data for Smart Meters in Non-reference Temperature
1062	Po8-06	Yahong Xing, Zhiwen Zhang, Jianbin Wu, Liu Zhiwei, Zeyuan Shen	Multi-node Cooperative Sensing Model of FBG Sensor Network in Smart Grid
1066	Po8-07	Tiancheng Zhao, He Liu, Hongda Dong, Zhihao XU, Gang Yuan, Kang Bing, Guili Ding, Lv Luo, Qunying Yu	Research of Overheat Defect Detection on the Infrared Thermal Image of Current Transformer
123	Po8-08	Zhi Li	A Security Defense Model for Ubiquitous Electric Internet of Things Based on Game Theory
251	Po8-09	Bo Yang, Hongxin Hu, Yunyun Xie	A Review on Cyber Security of Digital Electro-hydraulic Control System of Steam Turbine
838	Po8-10	Bin Deng, Yifan Ou	Optimal Defense Strategy Based on the Load Nodes' Importance against Dummy Data Attacks in Smart Grids
77	Po8-11	Shangyang Wu, Shanhong Tao	Correlation Analysis of Reactor Internal and External Vibration Based on Sum Squared Residual
83	Po8-12	Daojun Chen, Hu Guo, Ting Cui, Yongyan Liu, Jieyi Sun	Decoupling Analysis of Electromagnetic Loop Network Based on Optimal Comprehensive weighting Evaluation model
86	Po8-13	Yongling Lu, Chengbo Hu, Dikai Tian, Ziquan Liu, Yang Liu, Yufei Zhang, Richeng Luo	Experimental Analysis of Factors Affecting Photon Number of Ultraviolet Charge Detection in Power Equipment

90	Po8-14	Ting Wang, Kanjun Zhang, Kun Chen	Summary of key technologies for reliability evaluation of the HVDC protection systems
145	Po8-15	Kun Chen	Discussion on Reactive Power Coordination Control Technology of VSC/LCC HVDC Parallel Hybrid System
158	Po8-16	Yinhao Yang, Jianqin Liu, Yaowu Wu, Lin Yang, Zhengqi Chen, Yuan Wang, Chongtao Bai, Meng Zhang	Multi-energy power planning for the Sending-end of Hybrid Multi-terminal HVDC System
196	Po8-17	Xiangxian Zhou, Zhenguo Wang, Yan Liu, Shaohua Wang, Luyao Zhou, Hangwei Tong	Characteristics of Lightning Faults of 220 kV and above Overhead Transmission Lines in Zhejiang Province in last 15 years
231	Po8-18	Wang Xinyu	Study on Phase-leading Operation Characteristics of UHVDC sending-end synchronous condensers
308	Po8-19	Lu Xu, Shan Gao, Xin Zhao	Reliability Evaluation for a Grid Connected Offshore Wind Farm
327	Po8-20	Chen Zhengguang	Line protection scheme for multiple-receiving ends HVDC system
330	Po8-21	Qian Li	Topological Analysis and Parameter Calculation of Transfer Breakers in Multi-Terminal HVDC System
372	Po8-22	Chen Zhengguang	Research on AC Fault Ride-through Strategy of Receiving Terminal Hybrid DC Transmission System
408	Po8-23	Miao Liu, Shaoming Zheng, Feng Wang, Tianxiao Huang	Research and Application of Series Compensation Protection Automatic Testing Technology
416	Po8-24	Ding Wang, Ting Cui, Zhu Shao, Zhen Hu, Yang-Wu Shen	Effect of Synchronous Compensator in Leading-Phase Operation on Transient and Steady State of the Hunan Network
435	Po8-25	Jingzhuang Lv, Jihan Den, Jun Deng, Jinxiong Wang, Wen Wen, Xuelong Cui	Research and Characteristic Analysis of Flame Retardant Test Methods for Solid Insulation Materials of Converter Transformer
475	Po8-26	Shibin Bai, Yingjie Chen, Zhihao Tian, Xiaoxiang Sun, Wei Xu	Relevant Zone and Mode Type Identification Based on Electrical Distance for Low Frequency Oscillation

485	Po8-27	Rui Xue, Chong Niu, Meijuan Yang, Longzhen Zhu, Xianwei Wang, Jinlong Wu	Strategy of Voltage Stress Suppression and Dynamic Simulation Experiments of MMC Sub-Module on Hybrid Cascaded Multi-Terminal UHVDC Transmission System
502	Po8-28	Zhuohong Pan, Zongxi Liu	Calculation and Analysis of 220kV Cross-River Cable Carrying Capacity Considering Complex Environments, Part I --- Analysis of Thermal Problems for the Entry Section of Overhead Transmission Line to Underground Cable
517	Po8-29	Yuqiong Zhang, Yifan Zhang	Optimal Configuration Method of Dynamic Reactive Power Compensation Device Considering Reducing Commutation Failure Risk of Multi-infeed DC System
537	Po8-30	Zhicheng Pan, Jun Deng, Jinwei Chu, Zhanlong Zhang, Zijian Dong	Research on Correlation Analysis of Vibration Signals at Multiple Measuring Points and Black Box Model of Flexible-DC Transformer
551	Po8-31	Cui Han, Tang Yi, Qi Wang, Duan Fangwei, Yang Yingxuan	Fast prediction of cascading commutation failure in multi-infeed HVDC system by integrating data-driven method and model-driven method
556	Po8-32	Bangle He, Yunjie Zhou, Hai Li, Ting Ye, Shifeng Fan, Xiaodi Wang	Fault Identification of High-voltage Cable Sheath Grounding System based on Ground Current Analysis
559	Po8-33	Jinbo Huang, Ziyang Liang, Xiaolei Yang, Yiyang Tu, Ding Leiming, G C	Reliability Assessment of HVDC Receiving-end System Considering Wind Power Output Uncertainty
568	Po8-34	Li Hou, Xiaolei Li, Mingdong Wang	Grey-Fuzzy PI Optimal Control of MMC-HVDC System
588	Po8-35	Bing Zhao, Ping Wu, Dongmin Huang, Hao Chang, Shicong Ma, Jiang Yanhong	Research on Fault Intelligent Identification and Control System of Large AC/DC Hybrid Grid
600	Po8-36	Kun Chen*	Analysis on protection function of VSC-HVDC projects
635	Po8-37	Qiangqiang Wang, Liangzhong Yao, Wei	A frequency control method based on a coordinated active and reactive power

		Li, Ke Deping, Fusuo Liu, Chunmeng Chen	optimization adjustment for weak HVDC sending-end power grid
648	Po8-38	Zhuohong Pan, Xuan Zhang, Yalin Yan	Calculation and Analysis of 220kV Cross-River Cable Carrying Capacity Considering Complex Environments, Part II --- Thermal Analysis of Cable in the Utility Tunnel with Ventilation
664	Po8-39	Zhiyuan Li, Yongliang Li, Mo Chen, He Liu, Wei Zhou, Hui Yu, Yuqiu Lei	Development and Application of Leakage Current Monitoring Device of MOV in UHV/EHV Series Capacitors
690	Po8-40	Tianxiao Huang, Shaoming Zheng, Feng Wang, Rui Chen	Analysis on on-site artificial grounding fault test of MMC-HVDC grid
744	Po8-41	Hui Xu, Pengfei Zhang, Lin Cheng, Ninghua Wang, Dexin Nie, Mengqi Li	Design of UHV Long-distance GIL Fault Location System Based on Ultrasonic Method
784	Po8-42	Congcong Zhang, Ning Hu, Wei Yin, Yanwen Zhao, Ming Lu, Yongqiang Wang	A Miniaturized Planar Spiral Antenna for PD Detection in GIS
917	Po8-43	Qi Xuanwei	The Protection Scheme for the Novel Flexible Short Circuit Current Suppression Technology
919	Po8-44	Jiawei Fan, Zhaozhi Long, Wenting Li	Impulse current measurement device based on uniform spiral magnetic induction module
920	Po8-45	Jieshuai Ren, Yi Meng, Kong Jinjiao, WANG De You, Jinbin Li, Yi Kan	Development of operation support platform for Chongqing-Hubei flexible HVDC transmission project
928	Po8-46	Wenting Li, Zhaozhi Long, Jiawei Fan, Shijun Xie, Kangmin Hu	Development and Characteristic Test of a 500kV Wideband Highvoltage Divider
951	Po8-47	Lu Zheng, Ke Su, Xuan Liu, Jianli Zhao, Hongbing Guo, Hua Xun	Analysis of DC Magnetic Bias Influences on Transformers
954	Po8-48	Lin Liu, Hui Huang, Kaiming Luo, Zhaowei Li, Ting Zhou, Jianyu Luo	Research on Coordinated Control Strategy Considering stability risk of DC Sending and Receiving End Power Grids

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

972	Po8-49	Zhengyang Wu, Zhang Wen, Shenghe Wang, Liangzhong Yao, Xianyu Li, Fan Cheng	A Transmission Line Selection Method for Parameter Measurement Based on its Impacts on Power Flow Sensitivity and Static Voltage Stability
976	Po8-50	Bin Wang	Feasibility Analysis of Single-end Equivalent Modeling to LCC-HVDC Transmission System

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Poster Session 9: Nov. 1st, Sunday 13:30-15:30, Huilan Hall

Poster Session 9 Nov. 1st, Sunday 13:30-15:30, Huilan Hall			
Paper Number	Poster Number	Author	Title
990	Po9-01	Meiqin Mao, Dejian Cheng, Zhuang He, Hui Lu, Liuchen Chang	A Fault Detection Method for MMC-HVDC Grid Based on Transient Energy of DC Inductor and Submodule Capacitors
1004	Po9-02	Wang Wei	Aging Performance Evaluation of Composite Insulators for EHV Transmission Lines
1008	Po9-03	Zhang Pengcheng, Zhou Xiu, Tian Tian, Wang Yanqiu, Li Xiuguang, He Ninghui, Zhang Guozhi, Zhang Xiaoxing, Jun Sun	Method of Multi-Sample Maximum Correlation Wavelet High Energy Scale on Location Time Difference Calculation of Partial Discharge Source
1014	Po9-04	Zhang Lu, Zhuohong Pan	Simplified Risk Assessment of DC Bias for Ultra-High-Voltage Direct-Current Transmission
1015	Po9-05	Zongxi Liu	Research on Circuit Parameter Configuration of DC Superimposed Impulse Voltage Test on UHV DC Cable
1063	Po9-06	Patrick Nyaaba Ayambire, Qi Huang, Olusola Bamisile, Paul Oswald Kwasi Anane, Albert Kotawoke Awopone	A double-ended contactless current traveling waves scheme for fault location in overhead transmission lines
43	Po9-07	Yuting Mao, Wen Wu, Dan Wang,	Mechanism Analysis of the Circuit Breaker's Three-phase Inconsistent

		Chengliang Zhu, Zhu Yaoye, Yixiang Wu, Hengrui Ma	Protection Malfunction and Prevention Measures
50	Po9-08	Yuntao Ju, Yanling Du, Haitao Liu	Research Review of Flexible Load Aggregation Methods in Distribution Networks
107	Po9-09	Weixing Zhao, Qianwen Shao, Xiaokang Wu, Min Xie, Shujia Li, Binbin Huang	Microgrid Dynamic Economic dispatching Considering Wind -Solar Complementary Characteristics
194	Po9-10	Kaijie Fang, Yixuan Huang, Qifeng Huang, Shihai Yang, Zhixin Li, Hanmiao Cheng	An Event Detection Approach Based on Improved CUSUM Algorithm and Kalman Filter
341	Po9-11	Yu Zhang	Comparison of Insulated Tubular Busbars with Different Insulated Structure
418	Po9-12	Yixiang Wu, Yueqing Chen, Zhenxing Zhang, Lin Hu, Dan Wang, Chengliang Zhu, Hengrui Ma	Research on Image Deblurring Method of Transmission line for Unmanned Aerial Vehicle Inspection based on Scale Cyclic Network
494	Po9-13	Jian Fang, Hongbin Wang, Wenxiong Mo, Jiaying He, Yan Tian, Hang Zhang	Digital and Intelligent Emergency management Preplan of Urban Power Grid
521	Po9-14	Yang Si, Lajun Chen, Xuelin Zhang, Xiaotao Chen, Handing Dan, Shengwei Mei	Optimal capacity allocation of integrated agricultural energy network with enhanced geothermal system considering seasonal differences
552	Po9-15	Yang Bai, Changhong Meng, Qian Zhang, Yanbin Han, Guomei Yu, Xiangyu Zhang	A Novel Detection Method of Power System Sub-synchronous Oscillation Based on Sample Entropy
558	Po9-16	Wu Shuchen	Intelligent Control of Medium and Low Voltage Distribution Network based on Power Big Data Interconnection
567	Po9-17	Chonghang Li, Yang Hu, Mingzhe Hou, Yongzhen Wang, Wei Wang, Boyuan Wu	Comprehensive Sustainability Assessment of China's Electric Energy System Based on Emergy Analysis

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601	Po9-18	Yameng Cheng, Ming Li, Yue Li, Yulong Ma	Research on the Mode of Energy Distribution Network for Smart Low-carbon City
752	Po9-19	Wenting Wang, Xin Liu, Jianfei Chen, Qigui Nie, Lin Lin	Vulnerability Assessment Method of Electrical Cyber-Physical Interdependent Network Considering Node Heterogeneity
775	Po9-20	Biao Huang, Yang Yu, Jiao Zheng, Siqian Su, Zhizhong He, Hui Zhou	Delivery Route Optimization for Electric Logistics Vehicles based on Full Information Acquisition
857	Po9-21	Liting Tian	From Distributed Energy Resources to Virtual Power Plants: A Cyber-Physical System Solution for Integrating Demand-side in Smart Grid
867	Po9-22	Dan Liu, Yi Wang, Yimin Qian, Rui Liu	The "source-network-load" interactive system and application under the energy Internet
968	Po9-23	Zhang Zhi, Xiaoyang Dong	Research on Key Issues of Energy Internet Planning: A Review
9	Po9-24	Ziyong Zhang, Haozhe Lu	Research on Power Spot Market Comprehensive Index System and Evaluation Method
171	Po9-25	Xulu Fan, Shuyong Liu, Guochao Yang, Han Yan, Jianhua Wang	Customized High Reliability Power Supply Service Strategy for Smart Factories
312	Po9-26	Peiran Shi, Changming Jiang, Lei Guo, Zhe Zhang, Yong Zhang, Jun Shu, Jintao Li	Market Design and Optimal Dispatch of Energy Storage Systems in North China Grid
397	Po9-27	Yingchun Feng, Yunting Yao, Xuesong Li, Yu Jiang, Ciwei Gao, Tao Chen	Design of Green Certificate Trading Mechanism Based on Double Auction
403	Po9-28	Zhang Zhi	A provincial grid investment distribution method based on the evaluation of distribution network investment benefit and grid development demand
442	Po9-29	Guogang Liu, Man Chen, Peng Peng, Changhong Deng, Liwen Zhu, He Jun	Influence of Peak Shaving and Frequency Regulations earnings on the forecasting model of Electric Vehicle charging demand

469	Po9-30	Yao Wang, Shifa Gao, Mingrui Quan, Shuai Zhai, Shuting Liu, Ruihong Li, Zhang Zhi	Research and Demonstration of Planning and Decision-making Tools Based on Power Grid Full -Cost Chain
473	Po9-31	Zhaochun Luo, Ming Wen, Jingshu Yang, Jingbin Wu, Xiao Gao, Peipei You, Shupeng Zhou	Profit loss risk modeling and avoidance decision of power selling companies for medium and long-term electricity market
573	Po9-32	Zhang Xiangyu	Risk measurement model of investment strategy for incremental distribution planning considering multiple scenarios
593	Po9-33	Rui Yang	Analysis and Prospect of new energy utilization technology for ships
610	Po9-34	Yicheng Zhou, Fudong Li, Jinhua She, Chongqing Kang, Yosuke Nakanishi	Cost-Based Approach for Time of Use Pricing Decision
628	Po9-35	Pei Zhang, Shengyu Wu, Jiateng Li, Siqi Bu	Application of Emerging Information Technologies in Modern Energy Strategy Planning
679	Po9-36	Haitao Huang, Junji Zha, Xi Chen	Research on Simulation Modeling of C2C Business Model for Multiple Regional Integrated Energy System
700	Po9-37	Song Yufeng, Zhang Xuan, Shuangqing Xu, Xingliang Guo, Wang Lei, Xin Zheng, Wenrui Huang, He Yunhua, Liu Ronghai, Xing Yan, Ma Junhua	International Hydrogen Energy Policy Summary and Chinese Policy Analysis
763	Po9-38	Zhiyang Yao, Weidong Chen, Qingren Jin, Min Guo, Yubin Feng	Service Pattern for Premium Power Supply Based on Combination of Leasing and Property Transfer
767	Po9-39	Wei Zeng	Real time electricity price mechanism considering carbon cost
776	Po9-40	Yudong Tan, Ming Wen, Jing Liao, Canlin Wang, Ying Liu, Wenying Li	A Combinatorial Optimization Method of Time-Period and Electricity Price to Promote New Energy Consumption
783	Po9-41	Bohong Wang, Qinglai Guo* Tianyu Yang, Hongbin Sun	Evaluation of Information Value for Solar Power Plants in Market Environment

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

800	Po9-42	Xianlong Chen, Xiuli Wang, Jie Li, Kaiying Li, Jianhu Lv, Kejing Wang	Optimal Purchasing Strategy for Inter-provincial Renewable Energy Dealers under RPS Considering Electricity Purchasing Risk
826	Po9-43	Qian Ma, Jisong Zhu, Huang Di, Cheng Huang, Zhaoxia Jing, Chen Baike, Yuhui Song	Generation Plan Liberalization Scheme: A Method Based on Multi-objective and MPEC
845	Po9-44	Senyao Wang, Zesen Wang, Fang Liu, Xue Xia, Tianqi Zhao	Research on South Korean Electricity Market and Its Enlightenment to the Construction of Chinese Electricity Market
849	Po9-45	Xu Zheng, Ye Guo, Hongbin Sun, Yue Wang	Applying Multi-period Newsvendor Model to Load Serving Entity's Procurement Problem with DR/Batteries
878	Po9-46	Na Li, Jingcheng Chen, Jiabin Zhao, Guangchao Qian, Lingfeng Tan, Jialin Lin	Business model of energy big data service based on business canvas theory
923	Po9-47	Enhui An, Qiuye Sun, Jingwei Hu, Wang Rui	A Differential Game Approach to Distributed Energy Trading for Energy Internet
1043	Po9-48	Suxiu Li, Jianfei Lu	Business model innovation of China's New Energy Vehicle industry based on Social Network Analysis: Demonstration city cases
101	Po9-49	Tian Wei*	Transformer Capacity Selection Method for Transformers in Heavy Overload Area
450	Po9-50	Lingtao Zhang, Liang Zhang, Meng Liu, Guohui Tian, Yue Qi, Shanpeng Liang	Cloud Terminal for Bulk Power Grid Dispatching System

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Poster Session 10: Nov. 1st, Sunday 13:30-15:30, Walkway between Qingchuan Hall and Huanghe Hall

Poster Session 10 Nov. 1st, Sunday 13:30-15:30, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title

717	Po10-01	Qi Li, Shuting Li, Haibo Zhao, Xiaojun Song, Jue Qiu, Chao Xue, Wei Li, Ende Hu, Shuai Zhai	Research on the influence of stray current on grounding grid and corresponding protection
817	Po10-02	Jingpeng Yue, Subin Cai, Ning Xie, Ziyong Zhang	Research on Distribution Network Topology and Energy Management Considering Energy Router Port Interconnection
1016	Po10-03	Yalong Xia, Fan Liu, Yalong Li, Zhang Xiaoxing, Xie Shijun, Chengmeng Zhang, Ju Tang, Xiao Song	Study on the Thermal Decomposition Characteristics of C5F10O/N ₂ Gas Mixture
1018	Po10-04	Yalong Xia, Fan Liu, Zhuo Wei, Zhang Xiaoxing, Shuping Cao, Yu Zhang, Ju Tang, Xiao Song	Effect of O ₂ on the AC breakdown characteristics of C5F10O/CO ₂
1037	Po10-05	Zhiwei Chen, Junsong Li, Fan Chen	Design Parameters and Application of a 160kV Mechanical HVDC Circuit Breaker
1038	Po10-06	Junsong Li, Zhiwei Chen, Fan Chen	Principle and Design Parameters of a ± 160 kV Resistive DC Superconducting Current Limiter
1065	Po10-07	Chao Xing, Xinze Xi, Xin He, Mingqun Liu, Shengnan Li, Zhi Xu	Research on Voltage Command Optimization Strategy of Chain-Circuit STATCOM
28	Po10-08	Hong Liu, Jifeng Li, Shaoyun Ge, Xingtang He	Demand-side Energy Management Method for Building Clusters Based on Reinforcement Learning
38	Po10-09	Hongliang Zhang	Calculation Simulation and Experimental Verification of Current Rating Capacity for XLPE Insulated HVDC Cable
69	Po10-10	Shouxiang Wang, Haozhe Li, Qi Liu, Wei Su, Chenqing Wang	Research on the requirements for the break time of DC-RCD under different voltage levels and grounding modes in LVDC system
88	Po10-11	Jiang Tong, Zhao Li, Yuan Zhao, Wang Yong, Qiao Shenya, Junxiang Liu, Xiu Shixin, Jia Shenli	Numerical Simulation of Mechanical Stress & Thermal Stress Test of 550kV High Coupled Split Reactor

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

108	Po10-12	Yansong Wang, Dezhi Xuan, Qiang Li	Research on Breaking Power Flow Algorithm of Offshore Platform Power Grid Based on Parameter Sensitivity
143	Po10-13	Hanyang Xu, Chunlei Xu, Kun Ji, Shang Gao, Huihui Li, Sen Li, Yunbiao Xu, Xuechun Ji	Modified LSTM with Memory Layer for Power Grid Signal Classification
144	Po10-14	Yuan Gao, Jun Chen, Honghai Niu, Qinghui Lou	Simulation Study of Multi-platform Interconnection System Based on Electricity-gas Interaction
170	Po10-15	Jingliang Lv, Gangling Tian, Xinjian Jiang, Wencan Li, Xinzhen Zhang, Zhehui Niu, Jianyun Chai	Fault-tolerant control of twelve-phase PMSM based on motor model reconstruction in FESS
174	Po10-16	Dinglin Li; Guoxian Gong; Xinjian Jiang; Jingliang Lv; Rufe He	An overall control of doubly fed variable speed pumped storage unit in pumping mode
190	Po10-17	Mingshun Ma	Research on Wind- Photovoltaic output power aggregation method considering correlation
293	Po10-18	Baifeng Ning, Qiu Shi, Tao Zhao, Yanjie Li	Power IoT Attack Samples Generation and Detection Using Generative Adversarial Networks
302	Po10-19	Xinzi Chen, Hao Yao, Teng Dong, Yinlong Huo	Sampled value slow-release verification method in the design of power system specific processor
304	Po10-20	Xinyuan Hu, Yuan Zeng, Dezhuang Meng	Dominant Parameter Identification for Virtual Load Model Based on Incremental Learning
306	Po10-21	Dezhuang Meng, Yuan Zeng, Xinyuan Hu	Two-level Correction Method of Load Parameters Based on an Aggregation-identification Structure
334	Po10-22	Hong Li, Peng Lu	Intraday Operation Optimization Strategy of Multi-Energy Power System Based on Characteristic Parameter Identification
336	Po10-23	Dongxu Hu, Xingjian Dai, Zhehui Niu, Xu Yang, Haisheng Chen	Unbalance response analysis on the high speed flywheel motor supported by active magnetic bearings
356	Po10-24	Jing Yu, Chunlei Xu, Jinquan Zhao, Xue Xia	Electricity User Consumption Feature Selection and Behavior Portraying

358	Po10-25	Xing Wan, Zhikang Shuai	Coordinated Control for Power Balance Based on Per-Unit Voltage for Multivoltage-Level DC Microgrid
367	Po10-26	Dou Yuyu	Research on the transient characteristic for typical wind - thermal - bundled system
369	Po10-27	Jing Yu, Xuwei Shang, Lingtao Zhang, Yongguang Li, Zhihua Wang, Guohui Shen	Design of Panoramic Grid Map Incorporating Multi-source Information
434	Po10-28	Bo Hu, Ding Liu, Chuanzhi Zang, Yue Wang, Wanting Li, Yuqi Liu, Peng Zeng	Coordinate Dispatch of Combined Heat and Power System Based on Approximate Dynamic Programming
1035	Po10-29	Zuogang Guo, Min Xu, Zuxun Xiong, Jinyong Lei, Yingjie Tan, Xinwei Shen	A Corrective Control Method For Combined Heat and Power Integrated Energy System Considering the Heat Network
547	Po10-30	Zhendong Peng	Post-arc Transient Characteristics for DC Vacuum Circuit Breaker with Diode Connected in Series
614	Po10-31	Youbo Liu, Hang Yin, Qiang Li, Mingjuan Wang, Hongjun Gao, Junyong Liu	Distributed optimal operation of AC/DC hybrid distribution network considering wind power uncertainty
618	Po10-32	Wei Deng, Wei Liu, Yanjie Li, Tao Zhao	A Petri-net-based Framework for Microgrid Process Mining
669	Po10-33	Zhang Yanqi, Zhou Qiang, Zhao Long, Ma Yanhong, Lv Qingquan, Gao Pengfei	Dynamic Reactive Power Configuration of High Penetration Renewable Energy Grid Based on Transient Stability Probability Assessment
703	Po10-34	Rufei He, Hao Zhang, Fang Wang	Review on Technology of Seawater Variable Speed Pumped Storage Generator Unit
810	Po10-35	Wu Haitao, Zhongwei Qiao, Yuepeng Zhang, Xiaoyu Ji	Real-time Monitoring of Smart Grid Terminals based on Multi-dimensional Information Fusion
836	Po10-36	Ruochen Zhou, Zhiyun Wang, Xiaoyu Ji, Wenyan Xu	Anomaly Detection for PLC Based on Magnetic Side Channel
842	Po10-37	Dai Shanglin, Zhongwei Qiao, Yuehan Chi, Xiaoyu Ji	A Microgrid Controller Security Monitoring Model Based on Message Flow

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

904	Po10-38	Bingquan Zhu, Zheng Xiang, Shen Shaofei, Jiang Yicheng, Zhi Zhang, Huang Yixin, Tong Cunzhi, Su Yijing, Yang Li, Zhenzhi Lin	Development Path of Future Power Grid with High Proportion of Renewable Energy in the Context of Electricity Spot Market
943	Po10-39	Qi Yu, Yingying Sun, Liye Wang, Kedong Yang	Research on Coordinated Utilization of Regional Integrated Energy
950	Po10-40	Shuai Zhang, Junyong Liu, Jingxian Yang, Jichun Liu	Development and Application of Planning Software for Cascaded Hydro-Photovoltaic-Pumped Storage Hybrid Power Station
985	Po10-41	Ruiwen He, Xiaoyu Ji, Wenyuan Xu	Threat Assessment for Power Industrial Control System Based on Descriptive Vulnerability Text
987	Po10-42	Zhang Hong, Haifeng Huang, Haiwei Wu, Yang Cao, Xiaolu Li	Transparent Access Architecture for Intelligent Dispatching and Control System
1001	Po10-43	Zheng Yu, Zhou Wenjun	Experimental Study on Power Frequency Discharge of SF6 Mixture in Non-Uniform Electric Field
1047	Po10-44	Hao Zhang, Man Chen, Yumin Peng, Yanming Gao	Self-adaption Faster-than-real-time Temperature Prediction Technology of Pumped Storage Power Unit in Start-up State
1054	Po10-45	Zengtao Zhao, Hao Zhang, Yilong Yu	Method for Calculating Text Similarity of Cross-Weighted Products Applied To Power Grid Model Search
98	Po10-46	Lingming Kong, Wenxiong Mo, Simin Luo	The Modified Thermal Circuit Model for Three-phase Unbalanced Operation of Distribution Transformers
340	Po10-47	Rui Liu, Yu Zhang	Research on Insulation Problems of the Polymer Insulated Busbar with Tape Winding Insulation
389	Po10-48	Michael Xiao, Dongsheng Li, Wenju Guan	Research on Application of Current Splitting Device in Nonlinear Measurement
449	Po10-49	Dan Jin	Study on the Economic Operation of the Main Transformers
526	Po10-50	Yina Ren, Hui Liu; Lei Chen, Yong Min, Linlin Wu, Yunhong Li	Positive-Net-Damping Stability Criterion in Subsynchronous Oscillation

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**Poster Session 11: Nov. 1st, Sunday 15:45-17:45,
Huilan Hall**

Poster Session 11 Nov. 1st, Sunday 15:45-17:45, Huilan Hall			
Paper Number	Poster Number	Author	Title
806	Po11-01	Yuxin Zhao, Yunfei Xie, Haoming Liu	Loss Reduction Strategy for Low Voltage Three-phase Unbalance Distribution Network Considering Load Phase Adjustment
2	Po11-02	Junling Liu	Design of Multi-Channel Integrated Platform for Electric Power Marketing Based on Microsoft Service Architecture
48	Po11-03	Yongtao Chen, Shiling Zhang, Qiang Yao, Yulong Miao, Ni Qiu	Quantitative detection of SO ₂ , H ₂ S and CS ₂ based on Ultraviolet absorption spectrometry and least squares algorithm
61	Po11-04	Junli Huang, Hui Hou, Yubao Zhang, Xianqiang Li, Jianjian Wang, Ai-Hong Tang	An Optimal Strategy to Generate Optimal Electricity Plans via Big Data Technology
92	Po11-05	Julong Chen, Yu Zhang, Yi Xue, Qingming Zhao, Jian Wang	Motor-Generator Pair for Improving the Transient Stability of Grid-Connected Renewable Energy
197	Po11-06	Jianwei Bai, Li Yu, Weibin Wang, Dan Song, Xiufeng Han, Chun Liu	Research of the High Voltage Vacuum Circuit Breaker Motor Actuator Rotor
198	Po11-07	Jianwei Bai, Li Yu, Weibin Wang, Dan Song, Xiufeng Han, Liwei Sun	Research on Transient Hybrid Simulation of UHV AC/DC Power Transmission System
199	Po11-08	Li Yu, Jianwei Bai, Weibin Wang, Dan Song, Xiufeng Han, Leting Lin	Study on reliability evaluation technology for isolation switch operation in GIS
255	Po11-09	Yi Yang	Design of a Multi-sensor Ultrasonic Detection System for SF ₆ Gas Leak in Power System

284	Po11-10	Pei Du, Xiaoling Fang, Ying Wang, Yixuan Yang	Sensitive load identification method based on voltage sag monitoring data
289	Po11-11	Shuangshuang Wang, Haoou Ruan, Fangcheng Lv, Qing Xie, Zhibing Li, Yan Liu, Zhenyu Zhan, Chunbo Liu	Effect of fluorinated nano-composite coating on the flashover characteristics of epoxy insulators
295	Po11-12	Junxia Meng, Limin Jiang, Kai Ding, Wei Li, Ying Wang, Hang Yang	Fault mechanism analysis and ride-through strategy of adjustable speed drive to voltage sag
298	Po11-13	Mao Yingke, Ding Yang, Wu Jianmin, Chen Jia	Research on Partial Discharge Detection Technology for Power Transformers
325	Po11-14	Shuhao Liang, Qingpeng Tang, Suhua Lou, Farong Tang, Yongtao Li, Yuan Peng	Short-term day-to-day maximum load forecasting based on data mining and deep learning
355	Po11-15	Xiaodong Yu	The influence of Distributed Photovoltaic on the Voltage Profile in Distribution Network
439	Po11-16	Wenwen Fan, Siyuan Zhang, Yuqin Xu, Yongzhang Huang	Analysis of Electric Vehicle Load Storage Resource Potential Based on R-ANN Activity Behavior Model
456	Po11-17	Zengkai Ouyang, Jian Liu, Shuangshuang Zhao, Zhengqi Tian, Yue Wang, Yipeng Wu	Experimental Investigation of a Power Management Chip Applied in Wireless Sensor Devices
482	Po11-18	Liang Yingyu, Yaotong Huo	A Novel Similarity-Comparison-Based Directional Protection Scheme for Multi-Terminal HVDC Grid
504	Po11-19	Yuan Peng, Suhua Lou, Senlin Yang, Yaowu Wu, Xianglu He, Wangxi Zhang	Short-term photovoltaic power forecasting model based on improved BP neural network method
569	Po11-20	Nianchun Du	Research on the Impact of Integrated Wind Farm on Static Voltage Stability of Power System
598	Po11-21	Shaoqing Shi, Shangli Zhou, Leping Zhang	Application of Improved Coyote Optimization Algorithm in Optimal Configuration of Photovoltaic Intelligent Edge Terminal

613	Po11-22	Xue Xia, Huan Xie, Tianqi Zhao, Zesen Wang, Hao Liang, Rui Chen	Wind farm predictive coordination control strategy
662	Po11-23	Juan Su, Yuxuan Zhang, Chuankang Yang, Guangjin Xing, Songhuai Du	Price Demand Response Model Based on Consumer Psychology
683	Po11-24	Wei Yajun, Li Kaican, Tian Chongfeng, Zhang Xuan	Analysis and Correction Methods for Network Time-delay Error of IEEE 1588 Synchronization Clock
695	Po11-25	Tingting Lin, Guilian Wu, Jieyun Zheng, Hao Chen, Qianyun Song, Shiyuan Ni	A method for high-voltage distribution network structure planning based on the optimal division of power supply units
804	Po11-26	Yanpu Zhao, Chen Zhang, Peng Changzhi, Xuzhu Dong	Fast Inductance Extraction for Sweeping Coil Positions Based on Nonconforming Finite Element Method and Dual Formulations
841	Po11-27	Zhang Zhi	Cooperative Planning Method of Distribution Network and DGs Considering Operation of Energy Storage Systems
872	Po11-28	Weijian Chen, Zhejiang Bao, Wenjun Yan	Identification of abnormal PV output power based on kernel density estimation and consistency method
881	Po11-29	Minxuan Shen, Zhe An, Tongxun Wang, Shengjun Zhou, Shun Tao	Supraharmonics detection algorithm based on bimodal spectral line interpolation algorithm
893	Po11-30	Xiaowei Huang, Qiang Guo, Chi Cai, Yikang Chen, Xianpeng Ou, Caihao He, Guang Ji	Fault Diagnosis and Location for Long Submarine Cable Based on Frequency Domain Refection
895	Po11-31	Cong Lin, Zhaolei He, Jing Zhao, Fuyong Cheng, Jixiong Xiao, Jun Sun	Research on Error properties and Influence Factors of Three-phase Combined Instrument Transformers under Different operating Conditions
924	Po11-32	Wanli Yang	Operation Control Strategy of Soft Open Point Based on Unified Virtual Electric Machinery Technology
1003	Po11-33	Wang Wei	Experimental Investigation of Breakdown Characteristics of Rod- Plate-Rod Gap Under Impulse Voltage

Connecting the Grids towards a Low-Carbon High-Efficiency Energy System

1013	Po11-34	Peng Li, Mingyi Zhang, Wenbin Cao, Li Wang, Changjun Shi, Chao Xue	Failure Probability Analysis of Lightning Strike Transmission Line Based on Data Mining
1061	Po11-35	Cheng Shucan, Wenqiang Tao, Yanpu Zhao	Research on bearing fault identification of wind turbine based on deep belief network
112	Po11-36	Huan Liu, Hongwu Wang, Lin Lin, Lingling Yao, Weiyu He, Yaqun Zhou	Prediction of Photovoltaic Power based on Entropy Weight Combination Forecasting Method
148	Po11-37	Jian Geng, Yonghua Chen, Zhong Liu, Dongmei Yang, Wei Du, Gang Liu, Hui Chen	Application of Improved Hybrid Particle Swarm Optimization Algorithm in Model Identification of Micro Gas Turbine
247	Po11-38	Ying Zhang, Yu Ji, Ming Wu, Baodi Ding, Hui Yu, Lingfeng Kou	Optimal Dispatching of Regional Integrated Energy System based on SMPC
431	Po11-39	Wenbo Mao	The Designation and Development of Automatic Power Control System with Energy Storage Resources
437	Po11-40	Rufei He, Fang Wang, Hao Zhang	Analysis and Improvement of Electrical Lifetime of Generator Circuit Breaker of Pumped Storage Unit
823	Po11-41	Xuebao Wang, Chengxi Liu, Qiupin Lai	Harmonic Management for Wind Power Plant Using Embedded Filter Control in Wind Turbine
142	Po11-42	Siwei Liu, Shangrun Yao, Hongji Yang, Ming Zhou, Changyu Deng, Xiao Wang	Operation Optimization of Concentrating Solar Power- Wind - Photovoltaic Combined Power Generation System
244	Po11-43	He Huang, Yaming Lv	Short-term tie line power prediction based on CNN-LSTM
245	Po11-44	He Huang, Yaming Lv	Bus Reactive Load Prediction Based on Random Forests
276	Po11-45	Zhou Jinhui	Improving Operational Efficiency and Benefits of the Distribution Network with Advanced Distribution Management System
350	Po11-46	Yang Zhichun	Optimal planning of distribution network considering photovoltaic energy consumption

852	Po11-47	Xin Sun, Tingting Li, Linlin Xing	The Application Of Unified Power Flow Controller In Smepec
862	Po11-48	Linbo Wang, Yuanfeng Wang, Xi Zeng, Mian Wang, Jinduo Yang, Zhirui Wang, Fengzhang Luo	Power Distribution Equipment Maintenance Strategy Optimization Considering Maintenance-risk & Failure-risk
870	Po11-49	Yarong Guo, Xingguo Wang, Liu Huanzhang, Dan Liu, Shuyang Wang, Cheng Qi	Magnetizing Inrush Current Blocking Method for Shunt Reactor with Auxiliary Winding System
873	Po11-50	Aiqun Zhang, Feng Bian, Weiran Niu, Dongjun Wang, Shanshan Wei, Shuo Wang, Yan Li, Yidan Zhang, Yaobang Chen, Yuetao Shi, Jie Shi	Short term power load forecasting of large buildings based on Multi-view ConvLSTM Neural Network

Contact Person: Shangzhi Pan

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**Poster Session 12: Nov. 1st, Sunday 15:45-17:45,
Walkway between Qingchuan Hall and Huanghe Hall**

Poster Session 12 Nov. 1st, Sunday 15:45-17:45, Walkway between Qingchuan Hall and Huanghe Hall			
Paper Number	Poster Number	Author	Title
914	Po12-01	Shiyuan Ni, Linyao Zhang	A Bi-Level Optimal Allocation and Dispatching Method of Active Distribution Network Considering Electric Vehicles
925	Po12-02	Zhang Zhi	Research on capacity of distributed photovoltaic connected to distribution network considering voltage constraint
31	Po12-03	Man Chen, Yongqi Li, Hao Zhang, Peng Peng, Zhen Kai Hu, Yuxuan Li	Cooperative Fire Extinguishing Technology of Battery Energy Storage Device in Cluster
85	Po12-04	Zhang Yanyan, Yuan Jie, Na Li, Hui Bai, Quancheng Pan	Application of flywheel energy storage equipment in vital places

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536	Po12-05	Zeyang Tang, Yu Shen, Lei Wan, Hongyan Zhou, Fei Yu, Dan Qiu, Wenshuo Wang, Xian Cao, Tao Li	Study of Over-Sampling Methods Used in Distribution Transformer Connectivity Verification
822	Po12-06	Zheng Nie, Yi Han, Jianmin Zhang, Junteng Luo, Yaojun Chen, Ruijin Dai, Huanlei Yu	Incoming Line Phase Identification of the Meter Box Bus of Low Voltage Distribution Network Using Circuit Terminal Unit
1051	Po12-07	Yu Gong, Mingliang Yao, Hao Zhang	Prevention and Maintenance Technology for Equipment Family Defects Based on Account Data Map
839	Po12-08	Tian Xia, Ming Lei, Dongyue Ming, Shangpeng Wang, Xin Zheng, Cencen Liu	Dynamic Frame Slotted ALOHA Algorithm based on BP Neural Network
34	Po12-09	Hao Zhang, Jianwei Zhou	Self-adaption Technology for Abnormal Operation of Pumped Storage Power Station
40	Po12-10	Ke Qiao, Hong Yan, Xi Jiang, Xuesong Dong, Yunfeng Zou, Yang Yu	Research and Design of Robot Application System Security Protection in Electric Power Business Hall based on Artificial Intelligence
149	Po12-11	Yanyan Yu, Yubo Wang, Yi Hu, Song Cheng, Yinzi Tu, Xiaobo Hu, Pengcheng Du, Bin Wei	Blockchain-based PKI system and its application in Internet of things
189	Po12-12	Meng Yang, Hongkun Bai, Shuo Yin, Yao Lu, Xingwu Guo, Zhibo Jin, Huaqiang Li	Comprehensive evaluation index system and method for county power supply companies based on data mining
234	Po12-13	Mengdi Wang, SHANG LI, Jun Jia, Shuguang Qi	Strategic Study of Safety Monitoring and Control of Low-voltage Power Distributive Devices based on Artificial Intelligence
235	Po12-14	Chong Zhang	Online status assessment of distribution network transformer based on random matrix theory

239	Po12-15	Defu Cai, Yuze Rao, Ying Wang, Bingke Yan, Haiguang Liu, Kan Cao, Wenna Wang, Chu Zhou, Daobo Yan, Lei Wan, Fei Yu	Research On Signature Verification of Two-Tickets Based on Siamese Convolutional Neural Networks
248	Po12-16	Chunshen Hong	Particle Swarm Optimization towards Data Collection in the Internet of Things with a Mobile Sink
433	Po12-17	Xiaoxuan Guo, Shuai Han, Leping Sun, Wanlu Wu, Lei Yan	Study on Data Cleaning Based on Improved K-Means Clustering and Error Analysis
576	Po12-18	Yu Kunshi, Yuhe Fang, Wang Zhao, Bingjie Bai, Yuangen Xu, Ma Zhiqing	Design and Implementation of Discharge Monitoring System of Parallel Gap Device Based on LoRa Technology
590	Po12-19	Jianbin Wu, Zhihong Gu, Wei Wen	New Energy Power Performance Evaluation Research Based on ITMD-FM Model
631	Po12-20	Yanling Zhang, Zhiyu Chen, Qing Yang, Zhixiong Yuan, Yunrui He, Taohua Wang	Research on Low-latency Power Communication Technology
645	Po12-21	Chao Chen, Shengwen Shu, Bin Chen, Gonglin Zhang, Zhenyu Zhang, Jian Wang	Low Voltage Risk Prediction Method of Distribution Station Area Based on Principal Component Analysis and Support Vector Machine
651	Po12-22	Tao Wen, Yongpan Hu, Bin Zhang, Zhiqiang Long	Research on LEACH routing algorithm based on fuzzy logic
655	Po12-23	Kewen Yang, Shu Zhang, Ye Li, Yingyun Sun	Edge-Cloud Collaboration Architecture of Virtual Power Plant for Large-scale EV Integration
676	Po12-24	Zhou Zhou, Wang Wei	Research on optical internet-of-things for informalization development of modern power grids
688	Po12-25	Zhicheng Zhang, Jin Lv, Lei Yu, Qiwei Peng, Jianghong Shi, Gang Li	A Risk Situation Estimation Method for Power Information Communication Network

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693	Po12-26	Fangliao Yang, Xiaohui Chen, Yao Zeng, Yongwei Chen, Peng Liao, Yizhe Jiang	Ad Hoc Network Communication Based on Edge Computing In the Construction Site of Power Transmission Tower
716	Po12-27	Shuting Li, Shifa Gao, Jianbin Wu, Dongsheng Xie, Guoping Xi, Yaqin Zhao, Zhuowen Zuo, He Huang, Qi Li	Research on Topology Identification of distribution Network under the background of big data
718	Po12-28	Shuting Li, Qi Li, Zhuopeng Shi, Liang Tian, Huiqing Liu, Xiangmin Kong, Xiaoxia Xing, Hongli Liu	Power Prediction Based on Drosophila Optimized Similar Day Method and Random Forest Method
758	Po12-29	Dawei Wu, Hantao Tao, Yuhe Fang, Lei Zhang, Zhibo Jiang, Yue Chen	Research on 72-hour Thunderstorm Prediction Method for UHV Transmission Line Based on BPNN
796	Po12-30	Hantao Tao, Peiyao Yan, Bingjie Bai, Bo Zhang, Yuhe Fang, Yuangen Xu, Yang Chen, Yu Kunshi, Wang Li	Research of Insulator Fault Identification Method based on Atlas Intelligent Computing Platform
797	Po12-31	Lei Xie, Zhiyu Chen, Bing Zhang, Longchuan Yan, Jiaoli Liu, Zhang Yanling	Visual Intelligent Monitoring Technology of Data Center based on SSD Algorithm
877	Po12-32	Shigong Jiang, Weihong Yang, He Yang, Lihu Jia, Chongyang Zhang, Sicong Zhang, Wei Liu	Big Data Processing Method for Multi-dimensional Power Supply Reliability of Terminal Users
907	Po12-33	Wenshuo Wang, Zeyang Tang, Yu Shen, Fan Yang, Wei Hu, Tao Li, Xian Cao	A Data Repair Method for Missing Voltage Data of Smart Meter Users
908	Po12-34	Jun Su, Luocheng Shen, Junhuan Yang, Jiyuan Mu, Wenrui Jia, Yuan Tian, Hao Yao, Liu Jiayu, Li Wang	A Compact SRR Loaded Triple Band Notched Antenna for UWB Application

1059	Po12-35	Tiancheng Zhao, He Liu, Jieyuan Chen, Kang Bing, Shiquan Zheng, Zhihao XU, Zongyao Wang, Gang Yuan, Lv Luo	Thermal Image Skeleton Extraction and Intelligent Recognition of Power Equipmen
278	Po12-36	Xianxu Li, Wei Hu, Tao Shang, Junchen Liu, Da Li, Ming Wang, Jing Li, Jianwei Liu	Security Analysis of Power System Network based on Complex Network
589	Po12-37	Bin Zhang, Zhenzi Wang, Wei Wang, Zhe Wang, Haolan Liang, Dongqi Liu	Security Assessment of Intelligent Distribution Transformer Terminal Unit Based on RBF-SVM
643	Po12-38	Xingming Chen, Shanshan Huang, Houming Jiang, Jun Wang	Data interactive access gateway for internal and external networks in dual network isolation environment
644	Po12-39	Aidong Xu, Yixin Jiang, Zhang Yunan, Xiaoyun Kuang, Meng Jiaxiao, Han Wenlong	Secure Access Authentication of Power Terminal Based on Multi-Channel Frequency Intensity
311	Po12-40	Qin Xu, Chen Fang, Shanshan Shi, Jiayan Yuan, Haojing Wang, Zhipeng Liu	Research on the Development Path of Urban Energy Internet
910	Po12-41	Wei Lin, Yongzhen Wang, Chonghang Li, Mingzhe Hou, Wei Wang	Comprehensive Evaluation of Urban Energy Transformation Based on ISM and AHP
346	Po12-42	Ww Qq, Yi Cai, Ning Yan, Shuai Li	Research on optimal allocation method of energy storage considering supply and demand flexibility and new energy consumption
939	Po12-43	Limin Shi, Qing Yin, Jianli Zhao, Jiankun Zhao, Yongping Zheng, Yisheng Zhang	Failure Analysis of Overhead Conductors Damaged by Preformed Helical Stockbridge Damper
1049	Po12-44	Yumin Peng, Zhiqiang Wang, Hao Zhang	Adaptive Maintenance Technology for Abnormal Operation of Equipment / Working Condition

Contact Person: Qijun Deng

Phone Number: 18971636308

16. Special thanks to sponsors



China Electrotechnical Society, CES

Founded in 1981, China Electrotechnical Society (CES) is the leading academic, non-profitable national society of Electrical Engineering. With over 50,000 individual members including 2,100 senior members, more than 1500 group members, 8 working committees, 56 technical divisions and 17 provinces and municipality's sections, CES has set up a high-end academic exchange platform for Scientific researchers, experts, technicians, enterprise managers who are engaged in the field of Electrical Engineering. It is headquartered in Beijing.



Chinese Association of Automation, CAA

Chinese Association of Automation (CAA) is a National corporate social organization formed by individuals and units nationwide engaged in scientific research, teaching, development, production and application of automation and related technologies voluntary. This association was registered and established according to law, and has the characteristics of technicality, public welfare and science popularization. It is an integral part of the Chinese Association for Science and Technology and an important social force for the development of China's automation technology.



China Power Supply Society, CPSS

Founded in 1983, the China Power Supply Society (CPSS) is a non-profit and national first-class society in China. CPSS is dedicated to achieving scientific and technological progress of Chinese power supply and the development of the power supply industry. CPSS have 5000+ individual members and 400+ enterprise members. CPSS consists of 12 professional committees and 10 working committees. It also involves 9 local related Power Supply Societies.



IEEE Power Electronics Society, PELS

The IEEE Power Electronics Society was founded in 1988. The Power Electronics Society (PELS) is one of the fastest growing technical societies of the Institute of Electrical and Electronics Engineers (IEEE). For over 30 years, PELS has facilitated

and guided the development and innovation in power electronics technology. This technology encompasses the effective use of electronic components, the application of circuit theory and design techniques, and the development of analytical tools toward efficient conversion, control, and condition of electric power.



Energy Internet Research Institute (EIRI), Tsinghua University

The Energy Internet Research Institute was established in December 2014, which will develop the comprehensive advantage of electric, materials, thermal energy, nuclear energy, water conservancy, information, environment and architecture in Tsinghua. It is committed to make the EIRI the communal and intersectional platform with scientific research, technology transformation and key application, forming a series of major strategic achievements and producing enormous social and economic benefits through mechanism innovation, achievement transformation and wide demonstration.



IEEE Power & Energy Society (PES), CHINA

The Power & Energy Society (PES) provides the world's largest forum for sharing the latest in technological developments in the electric power industry, for developing standards that guide the development and construction of equipment and systems, and for educating members of the industry and the general public. Members of the Power & Energy Society are leaders in this field, and they — and their employers — derive substantial benefits from involvement with this unique and outstanding association.



Tsinghua-Berkeley Shenzhen Institute

TBSI (Tsinghua-Berkeley Shenzhen Institute) is jointly established in 2014 by the University of California, Berkeley (UC Berkeley) and the Tsinghua University, on the initiative of promoting research collaboration and graduate student education. Through 3 multi-disciplinary research centers and 17 labs, TBSI is working to address the major challenges facing advances in the following areas: Environment Science and New Energy Technology, Information Technology and Data science, Precision Medicine and Healthcare.



Dongfang Electronics Co., Ltd. is a listed company on the Shenzhen Stock Exchange, a key state-supported enterprise, a key high-tech enterprise in the Torch Plan, and a key enterprise in Shandong Province. As a supplier of Olympic power equipment and national smart grid equipment, Dongfang Electronics is a large-scale high-tech enterprise integrating scientific research and development, production and operation, technical services, and system integration. It is one of the main suppliers of energy management system solutions in China. Participated in the formulation of IEC international standards and is a major member of EMCA.



"Huadian Technology" was founded in 1979. It is a national-level outstanding journal of electric power, administrated by China Huadian Corporation Limited and jointly sponsored by China Huadian Engineering Company Limited and Huadian Zhengzhou Mechanical Design Institute Company Limited. It is a source journal of Chinese Core Journal Database, Wanfang Data, Ulrich's Periodicals Directory (UPD) and other domestic and foreign databases.

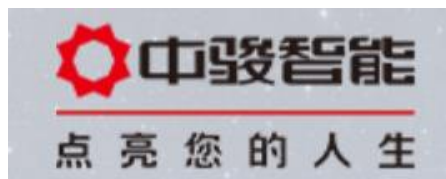
"Huadian Technology" has formulated advanced development plan, and is vigorously improving the academic level. Experts and scholars are very welcome to serve as editorial board members, reviewers and special editors or recommend contributions. We are aiming to co-construct a high-level open academic exchange platform for integrated energy and energy internet.



Beijing Sifang Automation Co., Ltd. (stock code: 601126) is a leading enterprise in China's energy and industrial automation industry. The founder is professor Yang Qixun, the first academician of the Chinese Academy of Engineering and "Father of China's Microcomputer Relay Protection". SIFANG focuses on the research and development of product & software, and overall system solutions in energy internet, smart grid, new energy, intelligent transport and other related fields, and is oriented to energy, coal, metallurgy, petrochemical, transportation and other industries. Sifang has set up R&D and production base in Beijing, Wuhan, Baoding, Nanjing and Huzhou, and subsidiaries in India, Philippines, Kenya, and offices in Thailand, Indonesia, Pakistan, Algeria and Congo. The products have been spread more than 60 countries overseas.



Founded in 1997 in Shenzhen and listed in stock since 2011 (Code: SZ 300207). After 20 years of development, it has become a world leader in Lithium-Ion battery industry. It has formed six major industrial clusters including 3C consumer battery, smart hardware, electric vehicle battery and powertrain, energy service, automation and smart manufacturing, and testing service. Also, Sunwoda is committed to providing environment-friendly, fast and efficient new energy integration solution services. Sunwoda Energy Solution Co., Ltd. (Sunwoda Energy) is a subsidiary of Sunwoda Electronic Co., Ltd. As a National High-tech Enterprise, Sunwoda Energy provides all-round multi-energy solutions. Based in Shenzhen, Sunwoda Energy devotes to utility energy storage solution, C&I energy storage solution, residential energy storage solution, IDC backup power solution and integrated energy service. Projects implemented cover various applications including power plant, grid, user side, data center, communication base stations and integrated parks, etc.



South China Electric Development Limited, a wholly foreign-owned enterprise of South China Group, established in 1992 with a registered capital of RMB 200 million and annual production value of RMB 1 billion, is engaged in manufacturing of power equipments including transformers, switchgears, compact substations, ring main unit and vacuum circuit breakers etc. With the headquarter in Xiamen and two large manufacturing bases in Xiamen and Quanzhou, SCE has acquired ISO9001, ISO14001 and OHSAS18001 certificates, became a recommending enterprise for national urban and rural network reconstruction, an important supplier for State Grid and China Southern Power Grid, a reliable partner of ABB and SIEMENS. It's awarded as National High-Tech Enterprise, Fujian Famous Brand, and Fujian Famous Product etc.



Hubei Tianrui Electronics Co., Ltd. was established in 1998. It is a high-tech enterprise specializing in R&D and manufacturing of power sensor products. The solutions provided in the fields of electromagnetic, gas, and magnetoresistive applications have been widely used in power, communications, and industry. Automation and other industries, have provided stable and reliable products and services to more than 1,000 equipment manufacturers domestic and abroad.



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17. Dinning, award ceremony and banquet

Time	Contents	Place
12:00-13:00 Oct. 31st	Buffet Lunch	长江厅 Changjiang Hall
18:00-20:00 Oct. 31st	Gala Dinner	长江厅 Changjiang Hall
12:15-13:15 Nov. 1st	Buffet Lunch	长江厅 Changjiang Hall
18:00 Nov. 1st	Buffet Dinner	长江厅 Changjiang Hall

18. Miscellaneous

18.1 Delegate name badge

Delegates shall wear IEEE EI² 2020 badge to participate all the activities of the conference, and please keep it properly.

18.2 Duplication, fax and telephone service

The hotel business center will provide paid duplication and fax service.

Attached Figure 1: Map for the Conference Center - Wuhan East Lake Hotel

Attached Figure 2: Map & Transportation for Conference Venue

Hotel fax: 027-68882658

18.3 Medical consultation

The Committee provide simple and urgent medical consultation and health care at the registration desk (1st Floor, Lobby of Wuhan East Lake Hotel Conference Center).

Service line: 027-68882658

18.4 Virtual session access

Because of COVID-19, virtual sessions will be provided for international participants and domestic participants only in high-risk areas.

Scan the following QR code to access the virtual sessions.



19. Important notice

Because of the COVID-19

Only participants with Green Health Code and normal body temperature will be allowed to enter the conference meeting rooms. Participants should register for “Hubei Health Code” ahead of the meeting.

Scan the following QR code of Hubei Health Code for registration:



International travelers should scan following QR code of Health International Code for registration:



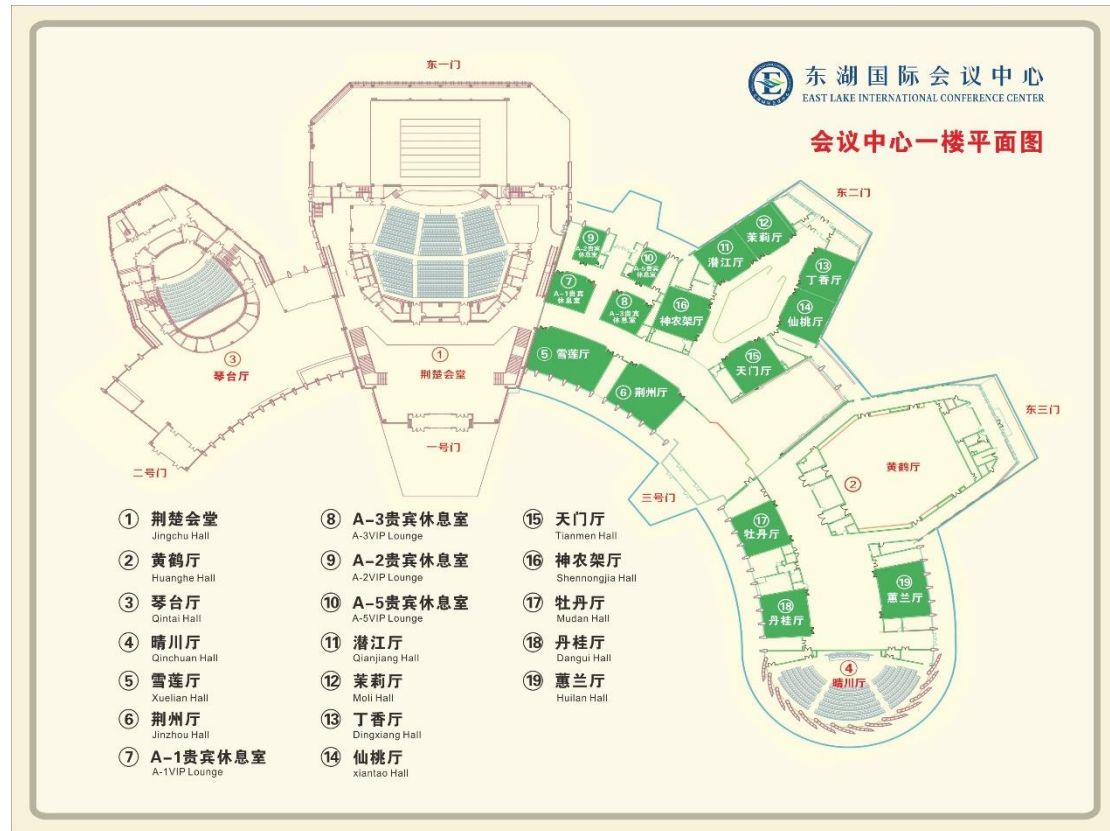
Scan the following QR code to access the Conference Agenda.



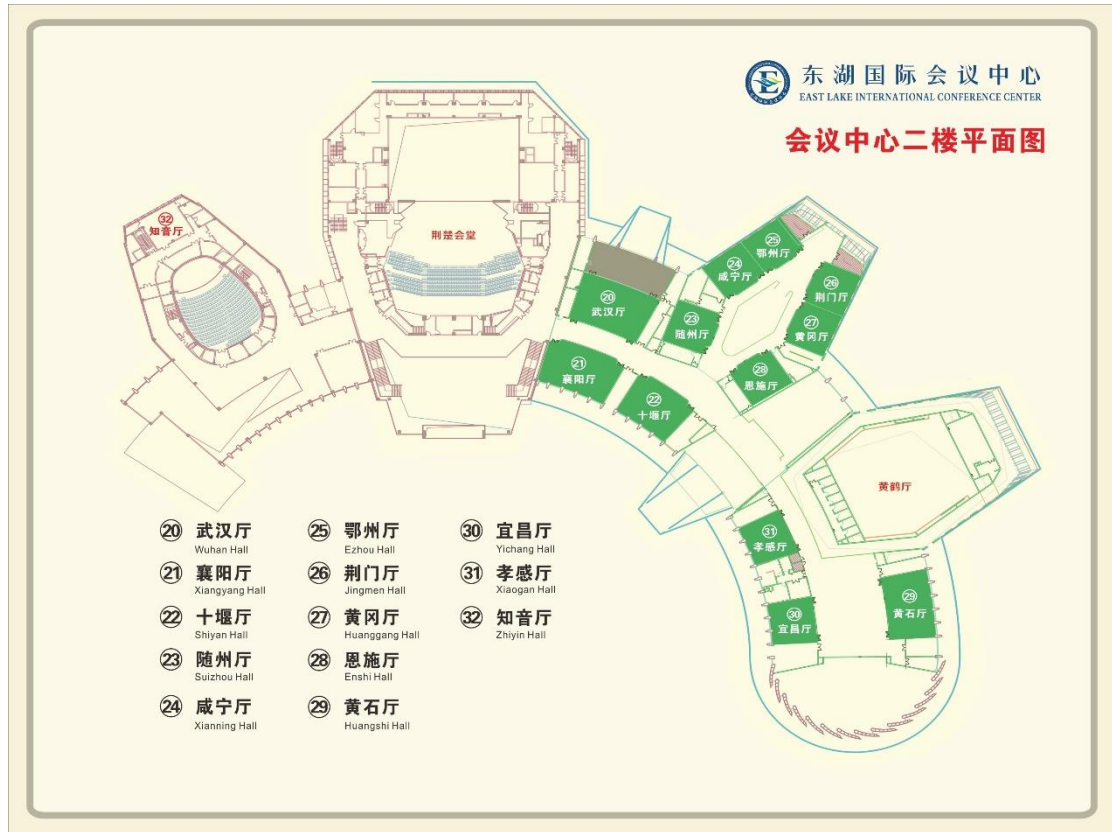
Attached Figure 1: Map for the Conference Center - Wuhan East Lake Hotel



The general map of Wuhan East Lake Hotel



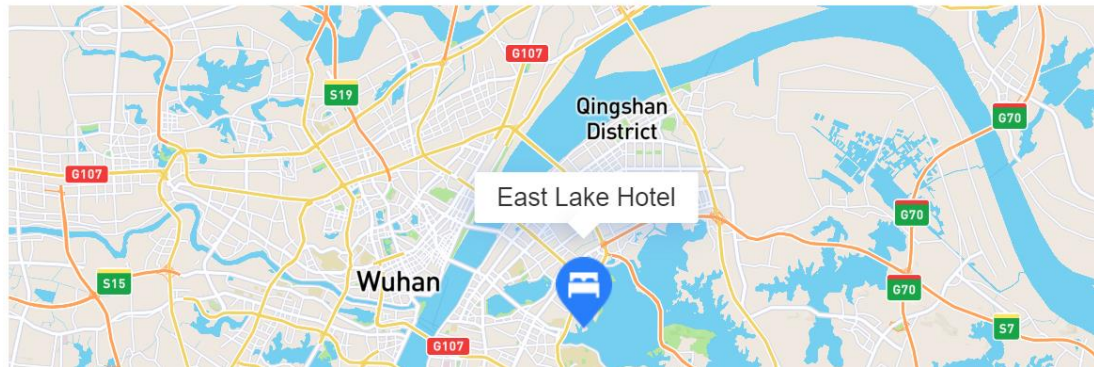
The floor plan of the first floor of Wuhan East Lake Hotel Conference Center



The floor plan of the second floor of Wuhan East Lake Hotel Conference Center

Attached Figure 2: Map & Transportation for Conference Venue

Wuhan East Lake Hotel



Address: No.142, Donghu Road, Wuchang District, Wuhan City, Hubei Province

Telephone: +86 27 6888 1888

1、 Wuhan Tianhe International Airport to Wuhan East Lake Hotel (Conference Center)

Wuhan Tianhe International Airport is located in Huangpu District, about 40 km from Wuhan East Lake Hotel (conference center).

A. Subway

Ticket Price: RMB 50

Time: 2 hours and 30 minutes

Step 1: Take the Subway Line 2 (Exit B) to Hongshan Plaza Station (Exit B2).

Step 2: Take Bus No. 701 from Hongshan Road Hongshan Plaza Station to Huanhu Road East Lake Station.

B. Taxi

It takes 60 minutes and costs RMB 120 (taking the taximeter as standard) from the

Wuhan Tianhe International Airport to Wuhan East Lake Hotel.

2. Wuhan Railway Station to Wuhan East Lake Hotel (Conference Center)

The distance is around 13 km.

A. Taxi

It takes about 30 minutes and costs RMB 35 (Taking the taximeter as standard) from Wuhan Railway Station to Wuhan East Lake Hotel.

B. Public traffic

Ticket Price: RMB 6

Time: 30 minutes

Step 1: Take the Subway Line 4 from Wuhan Railway Station to Hongshan Plaza Station.

Step 2: Take the Bus No. 701 from Hongshan Plaza Station to Huanhu Road East Lake Station.

3. Wuchang Railway Station to Wuhan East Lake Hotel (Conference Center)

The distance is around 8.6 km.

A. Taxi

It should take about 35 mins and costs RMB 30 (Taking the taximeter as standard) from the Wuchang Railway Station to Wuhan East Lake Hotel.

B. Public traffic

Ticket Price: RMB 3

Time: 35 minutes

Step 1: Take the Subway Line 4 from Wuchang Railway Station to Hongshan Plaza Station.

Step 2: Take the Bus No. 701 from Hongshan Plaza Station to Huanhu Road East Lake Station.

4. Hankou Railway Station to Wuhan East Lake Hotel (Conference Center)

The distance is around 21 km.

A. Taxi

It takes about 45 mins and costs RMB 60 (Taking the taximeter as standard) from the Wuchang Railway Station to Wuhan East Lake Hotel.

B. Public traffic

Ticket Price: RMB 6

Time: 1 hour and 20 minutes

Step 1: Take the Subway Line 2 from Hankou Railway Station to Hongshan Plaza Station.

Step 2: Take the Bus No. 701 from Hongshan Plaza Station to Huanhu Road East Lake Station.

