Key enabling intelligent control and optimization methods for shaping low-carbon future

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Special Session Proposal

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Organized by

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Motivation and Scope

With the further development of the Internet of Things and artificial intelligence technology, many problems in the field of production and life have new solutions. Automation involves the vast majority of low-carbon scenarios, and artificial intelligence approaches are powerful tools to solve automation problems. New approaches, including deep learning, evolutionary optimization, digital twinning, and blockchain, provide powerful tools to solve automation problems and solve low-carbon problems in intelligent ways.

This special session aims to bring together smart low-carbon solutions that have addressed automation issues that are emerging on a large scale along the global low-carbon and zero-carbon path. The recommendations focus on smart grids, renewable energy, plug-in electric vehicles, automated low-carbon manufacturing and low-carbon buildings, and other smart low-carbon topics.

A brief list of potential submission topic is shown below:

•   Smart buildings in low-carbon energy systems.

- Intelligent low-carbon theory exploration and key technologies.

- Smart low-carbon agricultural technologies.

- Optimization or control methods for low-carbon electrical grid.

- Intelligent electric vehicle management and forecasting methods.

- Low carbon intelligent logistics control, scheduling and optimization methods.

- Low-carbon smart medicine and decarbonization of the medical sector.

- Artificial intelligence, Machine Learning, Internet of things and Digital twin based decarbonisation technologies.

- Carbon emission treatment, measurement, and analysis technologies in energy systems.

- Low carbon transformation technology and method for energy enterprises.

- Planning and operation of resilient integrated energy systems.

Short Biography of organizers:

Dr. Zhile Yang obtained BSc and MSc degrees both at Shanghai University, China, and received Ph.D. degree at Queen's University Belfast, UK. He is currently an associate professor at Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China. His research interests focus on evolutionary computation, neural network methods and their applications on smart grid, renewable energy, electric vehicles and various energy systems. He is the author or co-author of more than 150 articles in peer reviewed international journals and conferences. He has been served as publication chairs/special session chair/secretary general/IPC members for over 20 international conferences and an active reviewer for over 30 peer reviewed international journals.

Prof. Dongsheng Yang received the B.S. degree in testing technology and instrumentation, the M.S. degree in power electronics and electric drives, and the Ph.D. degree in control theory and control engineering from Northeastern University, Shenyang, China, in 1999, 2004, and 2007, respectively. He was with Northeastern University as a Lecturer for one year and an Associate Professor for three years, where he is currently a professor. His research interests include magnetic bearings, electromechanical equipment, control engineering, fault diagnosis, and multi-energy power systems. He is the General Secretary of IEEE PES China Transformers Satellite Committee-China. He is also the Director of the Energy Interconnection Equipment and Technology Committee of China Machinery Federation.

A list of potential contributors

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