
Call for Papers

Energy Internet, as a new and advanced paradigm of smart grids, has been put forward by the strong integration of energy and information network infrastructure involving traditional centralized generations, distributed energy resources, automated control systems, advanced communication technologies, smart metering, intelligent computing, smart management systems, and so on. This emerging Energy Internet provides a new and long-term vision that enables the fundamental reconstruction of grids to harness leading-edge technology revolutions and undertake new thinking about energy network architectures based on the lessons learned from the Internet, which is changing and will shape the society from various aspects such as energy exploration, transportation and utilization. While Energy Internet brings a promising solution with high efficiency, strong flexibility, great scalability and improved reliability to accommodate the new shift from traditional power networks, it inevitably poses some technical and theoretical challenges in architecture design, control operation and energy management. These challenges primarily include upgrade and configuration of power and communication infrastructure, design and implementation of advanced artificial intelligence based control and optimization algorithms, security protection of shared information against various attacks from communication networks and data-driven management of energy markets. In order to address these challenges, it is essential for Energy Internet to develop new methods by taking into account underlying and advanced techniques such as multi-agent systems, artificial intelligence-based control, big data cloud computing and management, and so on.

This special issue on “New trends in Energy Internet: Artificial Intelligence-Based Control, Network Security and Management” is focused on seeking state-of-art advances and original contributions in design and implementation of advanced control and optimization algorithms, network security defense mechanisms and energy management for Energy Internet.

Topics of interest: Specific topics for this special issue include but are not limited to:

- New architecture design of Energy Internet
- Cyber-energy integration modelling for Energy Internet
• Artificial intelligence-based control schemes in Energy Internet
• Security control of smart grids subject to cyber attacks
• Multi-agent systems-based coordination control of smart grids
• Distributed control and optimization in islanded microgrids
• Event-triggered network communication mechanisms of smart grids
• The effects of Communication constraints on stability of smart grids/microgrids
• Data-driven energy management in smart grids: power dispatch and demand response
• Cyber-attack detection and identification in Energy Internet
• Artificial intelligence-based security threat identification, assessment and measurement of Energy Internet
• Artificial intelligence-based fault diagnosis of Energy Internet
• Artificial intelligence-based safety prediction of Energy Internet
• Intelligent frameworks for privacy protection
• Experimental prototypes, test-laboratories and field trial experiences of artificial intelligence techniques in Energy Internet security

Important Dates:
Manuscript Due: October 15, 2018
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