

THE 28TH
IEEE INTERNATIONAL SYMPOSIUM ON
INDUSTRIAL ELECTRONICS
IEEE-ISIE 2019

12-15 JUNE 2019, VANCOUVER, CANADA

Special Session on

“Socio-cyber-physical energy systems”

organized by

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Call for Papers

Our society is busy solving its inherent energy problem, especially reducing carbon-dioxide emission and promoting renewable energy. Smart grid, smart community, smart city, and other new approaches have been proposed to contribute to these goals. These attempts aim to integrate smart infrastructure, such as smart grid, smart transportation, smart agriculture, smart government, smart water system, and even smart medical systems. Energy management and control technologies are the keys of these approaches. Additionally, interdisciplinary alliances are required to solve urbanization problems, and among them, information technology shows a tremendous potential for improving the function and the efficiency of smart infrastructures. Solving our energy problems will require utilizing the unused synergies between different energy carriers, urban processes, socio-economic mechanisms, infrastructure, and the human factor. Data acquisition, distributed controls, and a transparent use of information can lead to fair, efficient and sustainable on-line energy trading, balancing or emergency operations.

This special session aims to promote a discussion of the newest trends for providing a ground-breaking initiative for power and energy systems, information technology, and their application as smart cities and smart communities by gathering experts and exchanging valuable experience and knowledge in energy and information technology.

Topics of interest include, but are not limited to:

- Interoperability of Energy Technology and Information Technology
- Demand response
- New power and energy markets
- New energy services
- Smart city infrastructure and smart city services
- Integration, control, and management of distributed energy resources
- Microgrids / Smart grids / Smart infrastructures
- Energy transport, distribution and management
- Wide area automation technology in smart city and smart grid
- Integration of smart city infrastructures
- Data interaction between smart city infrastructures
- Quality of services in smart city and smart grid
- Management and application of data captured by energy system
- Simulation, evaluation, and optimization of energy systems
- Energy end-use and smart loads
- Community data privacy and security
- Data science in Smart community and Smart grid
- Cyber-physical aspects of energy systems