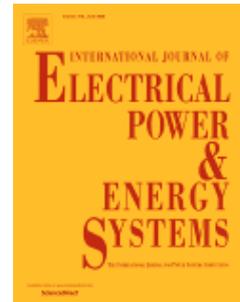




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DESCRIPTION

Scope:

The scope of JEPE is focused on electrical power generation, transmission, distribution and utilization, from the viewpoints of individual power system elements and their integration, interaction and technological advancement. The scope covers modelling of power system elements, their design, analysis of their performance and their implementation in specific aspects typical for modern electrical power and energy systems of various size and complexity. Research focused on new technologies changing power systems and determining their performance and operation is of particular interest. The following list of topics is not intended to be exhaustive, but rather to indicate topics that fall within the journal purview:

I. Modern Substations

- 1) Instrumentation and novel sensor technology for advanced monitoring of power systems
- 2) Primary and secondary plant in modern EHV/HV/MV/LV substations
- 3) Substation automation and control
- 4) Power plants automation and control
- 5) Electromagnetic compatibility

II. Traditional Power System Disciplines

- 1) Power system metering
- 2) Power system protection
- 3) Power quality
- 4) Power system dynamic performance (system stability analysis and controls)
- 5) Power System Operations, Planning & Economics
- 6) Energy conversion and Electric machines

III. Integration of AC and DC grids

- 1) Flexible AC Transmission Systems (FACTS)
- 2) High Voltage DC Transmission and Low Voltage DC Distribution networks
- 3) Mixed AC-DC transmission networks, their interaction (from "micro" to "mega") and technologies for their optimal operation
- 4) DC and AC traction distribution systems for railways

IV. Green Power and Energy Technologies and Systems

- 1) Renewable Energy Technologies (e.g., wind, biomass, solar, hydro), clean fossil fuel technologies (e.g., carbon capture) and their integration in modern power systems
- 2) Energy storage technologies and system operation and planning
- 3) Interaction and integration of electricity with other energy vectors and sectors (heat, cooling, gas, hydrogen, or transport)
- 4) Technologies to enhance flexibility in future energy systems

V. Smart Transmission Grids

- 1) Wide area monitoring, protection and control (WAMPAC); basic WAMPAC building blocks, including PMUs, communication infrastructure, Data Concentrator solutions, management and processing of big data, knowledge extraction from big data, cyber security
- 2) System Integrity Protection Schemes (SIPS) - Special Protection Schemes; Remedial Action Schemes
- 3) Design of modern Energy Management Systems (EMS) and Distribution Management Systems (DMS), their applications and links between them
- 4) Technologies for real-time dynamic security assessment, situational awareness, prevention of power system blackouts and approaches for power system restoration
- 5) New concepts of robust, secure, reliable, self-healing and resilient power systems
- 6) Technologies and new solutions for ancillary services support in power systems

VI. Power System Transients and Testing

- 1) Transient processes in power systems (slow, fast and very fast transients); electro-magnetic transients (EMT); electro-mechanical transients
- 2) Simulation of power systems transients and power electronics: off-line and real-time simulators, hybrid simulation (stability and EMT) of large scale systems, Co-simulation of power systems and telecommunication infrastructures
- 3) Methodologies and technologies for testing power system components, as well as complex protection and control schemes, including Information and Communication Technology (ICT) testing; hardware in the loop testing
- 4) Harmonics and power quality; solution methods, algorithms and parameter identification.
- 5) Advanced modelling of power system components

VII. Smart Distributed and Autonomous Energy Systems

- 6) Nanogrids, Microgrids, DC Microgrids, Autonomous, islanded and remote networks
- 7) Smart buildings, district and cities
- 8) Integration of Consumer-Side Resource Systems and Prosumer Resource Systems
- 9) Automated demand response technologies
- 10) Smart distribution networks, active network management and advanced monitoring, control and automation schemes
- 11) AC microgrids and DC microgrids
- 12) Future Power distributions systems in ships and aircrafts
- 13) Electric vehicles and charging networks
- 14) Distributed energy storage systems and DER (Distributed Energy Resources)

VIII. Information and Communication infrastructure for future power systems

- 1) Communication technology and communication protocols
- 2) Cyber-security technologies for robust solutions
- 3) Cyber-physical systems modelling and simulation
- 4) Home Area Network (HAN) / Home Energy Management Systems (HEMS)
- 5) AMI Metering System

IX. Standardisation and new energy policies in using novel technologies for future power systems

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