

Smart grid proactively uses state-of-the-art information technologies in communications, computing, and control to improve efficiency, sustainability, stability, and security of the electrical grid. It is a complex and mission-critical network where real-time intelligence enhances performance in aspects encompassing power generation, transmission, distribution, and consumption. Integration of advanced communications and control into the physical grid, unfortunately, may create vulnerabilities that can be readily exploited by adversaries to compromise the grid's safety, through attacks such as data manipulation and false data injection. It is therefore imperative to understand the fundamentals and engineering aspects of cyber-physical mechanisms that can lead to critical failures. Based on this understanding, system designers and operators may implement robust defenses for attack detection, mitigation, and forensics to improve the grid's reliability and resilience. At the same time, real-time and fine-grained sensing of information raises privacy concerns that must be addressed. We plan this special section to address the critical areas of cyber-physical security and privacy for smart grid. We welcome important research advances in both basic science and applied engineering. Survey papers on important topics that unify or significantly improve our understanding of complex and seemingly disparate nodes of knowledge, as well as real-world case studies and field experience of major practical value, are also welcome.

Topics of interest include, but are not limited to:

- Methodologies for modeling and assessment of smart grid cyber-physical security and privacy
- Privacy protection and trust management
- Intrusion detection and system integrity
- Sensing and control for attack detection and mitigation
- Secure and trustworthy demand-response management
- SCADA and industrial control system (ICS) system security
- Cyber-physical security of vehicle-to-grid systems
- Cyber-physical security of energy storage and management systems
- Cyber-physical security of distributed energy resources (DER) systems
- Cyber-physical security of renewable energy systems (e.g., large-scale PV and wind farms)
- Cyber-physical security of micro-grids and DC grids
- Cyber-physical emergency and security control/management
- Game theoretic, big data, and machine learning approaches for smart grid security
- Economics and incentives for smart grid security and privacy
- Authentication, key management, and access control

This special issue solicits original work that is not under consideration for publication in other venues. Short papers of up to four pages are requested for the first round of reviews. Authors of selected short papers will be invited to submit full papers, of up to eight pages, in a second round of reviews. Prospective authors should refer to <http://www.ieee-pes.org/publications/information-for-authors> for guidelines on content and formatting of submissions. Please submit a PDF version of the short paper, including a cover letter with the authors' contact information, via e-mail to yanzhang@ieee.org by the deadline. Full papers should be submitted to: <https://mc.manuscriptcentral.com/tsg-pes>

Important Dates

- Feb 28th, 2016 Deadline for submission of short papers
- Mar 30th, 2016 Completion of first-round of reviews
- Aug 31st, 2016 Deadline for submission of full papers
- Mar 31st, 2017 Notification of final decisions
- Apr 15th, 2017 Publication materials are due

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