SPECIAL ISSUE ON:
Cyber-Physical Security Issues in Smart Grids

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The smart grid (SG), as a typical cyber-physical system (CPS), fully upgrades the traditional power grid aiming at improved efficiency, security, reliability and environmental friendliness. These new capabilities are made possible by integrating cyber components such as information and communications technologies (ICT) and computer processing into physical components. Cyber threats, e.g., Denial-of-Service (DoS), data integrity attacks and replay attacks, have emerged and influence physical infrastructures. The tight coupling between cyber and physical components introduces new concerns over cyber-physical security in smart grids. Aimed at improving the grid’s reliability and resilience, grid planners and operators may implement robust defences for attack detection and mitigation. Meanwhile, the increasing sensing abilities of smart grids may also raise privacy concerns that must be addressed. The main objective of this Special Issue dedicated to cyber-physical security issues in smart grids is to highlight the latest advances in this field.

Topics of interest include, but are not limited to:

• SCADA and industrial control system (ICS) security
• Cyber-physical security of V2G systems
• Cyber-physical security of home energy management systems (HEMS)
• Cyber-physical security of micro-grids/nano-grids and AC/DC grids
• Cyber-physical security of Internet of Energy (IoE)
• Cyber-physical security of wide-area power systems
• Security and privacy issues in smart grids

• Cyber-physical emergency and security control/management
• Cyber-physical attacks and countermeasures
• Game theory, big data and machine learning approaches for cyber-physical security
• User authentication, key management and access control
• Economics and incentives for cyber-physical security
• Dependability, fault tolerance, survivability and resilience of smart grids

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