8th Global Power, Energy and Communication Conference

Naples/ITALY

June 3-5, 2026

Special Session on
IoT-Driven Edge Intelligence and Secure Cyber–Physical Operation for Smart Distribution Networks

The rapid digitalization of power distribution networks has shifted research focus from conventional smart grid architectures toward IoT-driven, edge-intelligent, and cyber–physical energy systems. While the main tracks of GPECOM 2026 broadly address power, energy, and communication systems, this special session specifically concentrates on how IoT sensing, edge intelligence, and secure communication frameworks enable real-time, decentralized decision-making in modern distribution networks.

This special session emphasizes application-specific IoT solutions for distribution grids, microgrids, EV charging ecosystems, and energy storage systems, with particular attention to edge computing, federated intelligence, cyber-resilience, and interoperability. The goal is to explore deployable, scalable, and secure IoT frameworks that move beyond centralized monitoring toward autonomous and resilient grid operation.

The session will bring together researchers and practitioners working on edge-enabled IoT analytics, cyber–physical security, and real-time control strategies, highlighting practical implementations, testbeds, and field-deployed solutions that are not typically covered in general conference tracks.

Topics of interest include, but are not limited to:

- Edge-computing-based IoT architectures for real-time distribution grid intelligence
- Federated learning and decentralized AI for IoT-enabled energy systems
- Event-driven IoT sensing for fault detection and self-healing in distribution networks
- Cyber–physical security frameworks for IoT-based power system control
- Blockchain-assisted IoT solutions for secure energy transactions and data integrity
- Interoperability challenges in heterogeneous IoT-enabled energy infrastructures
- Digital twin implementation using real-time IoT data streams
- IoT-based predictive maintenance of distribution assets and power electronics
- Secure IoT coordination of EV charging clusters and V2G systems
- Edge–cloud collaboration strategies for latency-critical grid applications
- Resilient IoT communication under grid disturbances and cyber-attacks
- Field demonstrations and pilot projects of IoT-enabled smart distribution systems

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Deadlines of the special session:

Full paper submission (maximum 6 pages):	**March 15, 2026**
Notification of acceptance:	**April 12, 2026**
Final submissions due:	**April 26, 2026**

All the instructions for paper submission are included at the conference website.
https://gpecom.org/2026/guidelines/