# CALL FOR PAPERS

# IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS

## Special Issue on
## Energy Management and Infrastructure Planning For Sustainable Data Centre in the Digital Era (EISD)

Data centers have emerged as critical infrastructure in the digital era, driven by the explosive growth in artificial intelligence, cloud computing, big data, and IoT services. However, the rapid global expansion of the data center industry has raised significant environmental concerns due to its increasing energy consumption and carbon footprint. To address those environmental and economic challenges, data centers need to integrate sustainable technologies across their planning, operation, and control processes. This requires innovative interdisciplinary approaches that combine energy management and IT operations. Therefore, the objective of this special issue is to identify, address, and disseminate state-of-the-art research works that advance the sustainable practices in data center planning, operation and control. We invite original research articles, reviews, and industrial case demonstrations that showcase the cutting-edge developments for sustainable data centers. Topics of interest include but are not limited to:

- Energy-efficient and environmentally sustainable architecture design for data centers
- Data center sizing and siting considering low-carbon generation sources and resource sharing.
- Integration of renewable energy and energy storage in data center operation
- Advanced power demand management and optimization strategies for data centers
- Innovative cooling and thermal management technologies to enhance data center energy efficiency
- Energy-aware computing workload scheduling and IT resource management for data centers
- Power demand and flexibility modeling for different types of data centers (e.g. AI, enterprise, colocation, cloud computing, scientific)
- Smart grid interaction and demand response mechanism leveraging data center flexibility
- Life cycle carbon footprint and environmental impact assessment of data centers
- Regulatory framework, policy design, cybersecurity, and business models for sustainable data centers
- Real world industrial practice and demonstration of sustainable data center solutions
- Power Quality Issues in data center solutions

**Submission Guidelines**

Authors who wish to submit a paper for consideration must submit an extended abstract (2 page with name, email address of corresponding author, PDF version) to the contact guest editor Zhaohao Ding (zhaohao.ding@ncepu.edu.cn). Authors who submit an accepted abstract will receive a formal invitation with detailed instructions for submission of the complete manuscript to the IAS ScholarOne Manuscripts site. Refer to http://www.ias.org for general information about electronic submission through ScholarOne Manuscripts. Manuscripts submitted for this Special Issue will be reviewed separately and will be handled by a Guest Editorial Board.

**Important Dates**

- February 1, 2025: Call for papers announcement.
- April 15, 2025: Deadline for extended abstract submission.
- June 1, 2025: Decision notification for inviting full paper submissions.
- August 1, 2025: Deadline for full paper submission for review in S1M.
- April 1, 2026: Notification of final decisions.
- June 15, 2026: Due date for submission of final files.
- August 15, 2026: Due date for submission of Guest Editorial.
- November/December 2026: Publication Date

**Guest Editorial Board**

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