

ICSCGE 2026

The 6th International Conference on
Smart City and Green Energy

Brisbane, Australia | August 6-9, 2026

Special Session 01

Next-Generation Computational Engines for Power System Applications: Quantum Computing, AI, and Beyond

Modern power systems are becoming increasingly complex due to the rapid growth of renewable energy integration, distributed energy resources, electrified transportation, and sector coupling. These developments are transforming the scale, uncertainty, temporal dynamics, and cyber-physical interactions of power systems, thereby imposing unprecedented requirements on system modeling, optimization, control, security assessment, and market operation. Conventional computational approaches, while still essential, are facing growing challenges in coping with the scale, nonlinearity, uncertainty, and real-time requirements of emerging power system applications.

Against this background, next-generation computational engines are attracting increasing attention as promising enablers for future power system analysis and operation. These engines include, but are not limited to, quantum computing, quantum-inspired optimization, artificial intelligence, large language model, and other advanced computational paradigms. They offer new opportunities to improve computational efficiency, decision quality, adaptability, and scalability in a wide range of power system problems.

This special session aims to provide a dedicated platform for researchers, academics, and industry practitioners to exchange the latest advances in next-generation computational methods for power system applications. It seeks to promote interdisciplinary interaction between the power and energy community and researchers in advanced computing, data science, and intelligent systems. Contributions are welcome on topics including, but not limited to, quantum and quantum-inspired optimization for grid operation, Learning-enhanced power system modeling and control, AI-based stability and security assessment, computational intelligence for renewable integration, next-generation computing for electricity markets and planning, edge intelligence for distributed energy management, trustworthy and explainable computational methods, and benchmark studies for advanced computational engines in energy systems. Both methodological innovations and application-oriented studies are encouraged to support the development of more capable, efficient, and resilient future power systems.

Special Session Chairs



Assoc. Prof. Yateendra Mishra

Queensland University of Technology, Australia



Dr. Yuchen Zhang

Queensland University of Technology, Australia



Dr. Robert Marlin

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Paper Submission & Publication

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Important Dates

Submission Deadline	June 8, 2026
Notification Deadline	July 8, 2026
Camera-ready Deadline	July 24, 2026
Conference Dates	August 6-9, 2026

Publication



Submissions will be reviewed by the conference technical committees, and accepted papers will be published in **ICSCGE 2026 International Conference Proceedings**, which will be submitted for inclusion in the IEEE Xplore Digital Library, and submitted for indexing by **El Compendex** and **Scopus**.

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