

## **IJCNN 2009 - Special Session**

### **Session Title: Computational Intelligence for Electric Power and Energy Systems**

#### **Brief description**

The new constraints placed by the environmental and economic factors and by the availability of energy resources will bring critical challenges to electric energy security, reliability and sustainability. These challenges require innovative solutions. This special session will focus on the applications of computational intelligence (CI) for planning, operation, control, and optimization of electric power and energy systems, in order to provide better electric energy security, reliability and sustainability. The CI techniques include neural networks, fuzzy logic, swarm intelligence, approximate dynamic programming, multivariate polynomial model, machine learning, adaptive signal processing, pattern recognition, data mining, on-chip learning, biologically inspired computing, multi-agent systems, etc.

The objective of this special session is to bring together the researchers in the fields of computational intelligence and electric power and energy systems from all around the world and to present the latest technology improvement. The special session invites contributions in the areas including, but not limited to, the following:

- Renewable energy systems: wind energy, solar energy, fuel cells, etc.
- Distributed generation
- Energy efficiency and energy storage
- Grid connection and protection
- Modeling, simulation, and analysis of electric power and energy systems
- New control strategies for electric power and energy systems
- FACTS devices
- Load/price forecasting and power market
- Power quality
- Condition monitoring and fault diagnostics
- Power system planning
- Power system reliability

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