CEMiSG 2017

4th International Workshop on Computational Energy Management in Smart Grids

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Scope

The sustainable usage of energy resources is actually an issue that humanity and technology have been seriously facing in the last decade, as a consequence of the increasing energy demand and the dependence on oil-based fuels. This shoved scientists and technicians worldwide to intensify their studies on renewable energy resources, especially in the Electrical Energy sector. At the same time, a remarkable increment in complexity of the electrical grid has been also registered, due to the need of integrating variegated and distributed generation and storage sites, resulting in strong engineering challenges in terms of energy distribution, management and system maintenance. Many sophisticated algorithms and systems aimed at introducing intelligence within the electrical energy grid have already appeared in the recent scientific literature, accompanied by some effective market products.

The different needs coming from heterogeneous grid customers, at diverse operating levels, and the different peculiarities of energy sources to be included in the grid itself, make the task challenging and multi-faceted. Moreover, a large variety of interventions can be applied into the grid to increase the inherent degree of automation, optimal functioning, security and reliability. All these aspects must be seen from the raising Energy Internet perspective, according to which advanced ICT solutions are employed to coordinate and optimize the complex interactions between producers and consumers on distributed energy networks.

In the light of this analysis, a multi-disciplinary coordinated action is required to the Electrical and Electronic Engineering, Computational Intelligence, Digital Signal Processing and Telecommunications scientific communities, taking the stringent environmental sustainability constraints into account. Focalizing to the interests of our scientific community, the organizers of this Workshop wants to explore the new frontiers and challenges within the Computational Intelligence research area, including Evolutionary Computation based solutions, for the optimal usage and management of energy resources in Smart Grid scenarios. Indeed, the adoption of distributed sensor networks in many grid contexts enabled the availability of data to be used to develop suitable expert systems with the aim of supporting the humans in dealing with the complex problems in grid management, as mentioned above.

Topics

Workshop topics include, but are not limited to:

- *Computational Intelligence for Smart Grids Applications*
- *Evolutionary Algorithms for Complex Energy Systems*
- *Soft Computing based Algorithms in Energy Applications*
- *Expert Systems for Smart Grid Optimization*
- *Computational methods for the Energy Internet*
- *Smart Grids and Big Data*
- *Automatic Fault Detection Algorithms in Smart Grid scenarios*
- *Learning-based Control of Renewable Energy Generators*
- *Smart Building Energy Management*
- *Deep Learning for Energy Efficiency*
- *Learning Systems for Smart AMIs*
- *Time Series Prediction in Smart Grids*
- *Non-Intrusive Load Monitoring*
- *Algorithms for Electric Vehicles Integration in the Smart Grid*

Sponsors

International Neural Network Society

IEEE Computational Intelligence Society

Submission Guidelines

Prospective authors are invited to submit papers according to the IEEE format. All submissions should be according to the specifications of IEEE CEC 2017. Accepted contributions will be part of the IEEE CEC 2017 conference proceedings.

Important Dates

- **30th January 2017**: Due date for paper submission
- **06th March 2017**: Notification to authors
- **17th March 2017**: Camera-ready deadline
- **07th June 2017**: Workshop Day *(tentative)*