

## Preface

This book contains the proceedings of the first International Workshop on Information Technology for Energy Applications (IT4ENERGY) held in September 6th and 7th 2012 in Lisbon, Portugal. The goal of this workshop is to establish itself as an impacting discussion forum on the topic of Information Technology for Energy Applications and be the first of a series of events on the subject.

Information technology for energy applications is growing in relevance as we assist to an upsurge of interest in energy management systems within homes, in buildings as well as in commercial and industrial facilities. These systems will have the ability to *(i)* coordinate production with consumption in scenarios of demand variability, *(ii)* integrating data from multiple sources and *(iii)* assisting users in the decision-making process as well as *(iv)* intelligently managing equipment and devices on behalf of the user.

Developing IT-based energy applications is a challenging multidisciplinary effort that often requires bringing together distinct engineering disciplines (e.g., Mechanical, Electric and Computer Engineering). We believe that Computer Science will play a critical role as catalyst toward creating a homogeneous body of knowledge regarding information technology for Energy Management. Therefore, this workshop brings together specialists from academia with different backgrounds spanning Mechanical, Electrical Engineering as well as Computer Science; Industry experts active in the fields of Energy, IT, Building Automation and Facilities Management.

Several topics were discussed in this event, namely: Software for energy applications; Data mining and decision support techniques for energy data; Models and techniques for energy consumption forecasting; Descriptions and characterizations of energy consumption patterns; Integration of energy data; Energy data visualization; Sensor networks, metering and energy data acquisition; Interoperability solutions including middleware and protocols for energy applications; Demand-side management; Home and building automation applications to energy; Energy-efficient control techniques; and Intelligent load control.

This event also aims at establishing linking bonds between industry and academia to disseminate know-how and generate economic value regarding this highly relevant subject. Therefore, in this event researchers have an opportunity to present their work and engage in stimulation discussions with peers from different backgrounds, while industry practitioners have the opportunity to discuss relevant issues with specialists. Moreover, students have an opportunity to collect positive and constructive feed-back from a diversified panel.

The first IT4Energy workshop is organized by Professional Association Ordem dos Engenheiros. Being the first of a series of annual events, we were honoured with the presence of Prof. G. Kumar Venayagamoorthy as keynote speaker, a world renowned specialist in Smart Grids with a talk entitled: *“Intelligent Scalable Monitoring and Control Technologies for Smart Micro-Grids and Grids”*. The event was organized and promoted by Ordem dos Engenheiros, CITI research center at FCT/UNL and INESC-ID research center at IST/UTL.

The event counted with the attendance of the successful rounded figure of 70 participants, 9 high quality full papers (out of 20 submissions) and 9 short papers. The first day of the event was dedicated to 8 tutorial sessions and on its second day to research papers organized into 4 presentation sessions on the subjects of Smart Grids, Energy Consumption Profiling, Energy Data Management and Intelligent Load Control.

This workshop would not have been possible without the help of many dedicated people. We would like firstly to thank the authors for choosing to submit to this workshop. Secondly, we wish to acknowledge our Programme Committee and the additional reviewers for their diligence. Thirdly, we would like to thank the organizing institutions whose support by several means has been crucial for the success of this event. Our final word of thanks IEEE Student Section for their enthusiastic support in developing the web site and the event logo.

September, 2012  
Lisbon

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