



The International Renewable and Sustainable Energy Conference IRSEC'13

March 7-9, 2013, Ouarzazate, Morocco

<http://www.med-space.org/irsec/>

Workshop proposal: ***Diagnosis, Control and Grid Integration of Wind Turbines***

Organized by **O. BENNOUNA*** and **S. EL AIMANI†**

The increasing demand in energy, the consequent depletion reserves of fossil fuels and the commitment of governments to reduce greenhouse gases effect required by peoples, encouraged the renewable energy development. Among the renewable energies, wind energy presents the highest growth in installed capacity and penetration in modern power systems. This is why reliability of wind turbines becomes an important topic in research and industry.

Wind turbines have highly non-linear dynamics with stochastic and uncontrollable variables, presenting an interesting challenge for modern control methods. In addition, the increasing degree of complexity of such systems needs a rigorous monitoring. Also if a fault happens in a critical part of the wind turbine, it can cause damages to the entire system. Thus, this surveillance must be able to detect an abnormal system operation, to localize it and to identify it in order to decide an action to undertake: making corrective maintenance, or changing the control strategy by Fault Tolerant Control (FTC).

In the same context, the integration of wind power units in distribution grid, mainly those above the megawatt, is a question that interest most network operators. The main impacts on electrical systems, for these transmission operators, are variations of the voltage and changes of the power flows due to, both stochastic nature of the wind turbine variables, and also to the grid components. That's why, it is very important, that the wind generators, participate actively in this large integration, i.e.: frequency and voltage control. Many papers attempt to write in this field. In this special session, we are looking forward, contributions that present solutions and research results, able to illustrate studies, related to almost technologies of wind turbines, their control strategy, monitoring, and classification of energy storage systems, either in normal operating mode of the grid, or under electrical faults, and in all its levels.

The workshop is an opportunity to present contributions in the following but not limited topics:

- Fault Detection and Isolation (FDI)
- Fault Tolerant Control (FTC)
- Active supervision
- Monitoring
- Modeling, control and optimization of wind energy systems
- Active control
- Power quality of wind energy
- Frequency and voltage control in wind turbines
- Energy storage systems

Presentations must submit an innovative aspect in theoretical researches accompanied with practical consideration. Submissions from students are strongly encouraged. Proceedings will be published in IEEE Xplore. Extended versions of selected papers will be published in special issues of international journals.

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IMPORTANT DATES

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|-------------------------------|-----------------------------|
| - Full Paper submission: | December 31st , 2012 |
| - Notification of Acceptance: | January 20 th, 2013 |
| - Final Paper Submission: | January 31st, 2013 |

All the instructions for paper submission are included at the conference website: <http://www.med-space.org/irsec/>

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