

Emerging Informatics for Risk Hedging and Decision Making in Smart Grids

The Theme: In the new era of smart grids, power system operation and control are facing unprecedented challenges due to increased penetration of many new technologies of diversified properties. On the one hand, system operators and other participants have to deal with increased uncertainties and risks involved in their daily operation and planning activities. On the other hand, applications of many new metering and measurement devices, capable of closely monitoring and sensing grid operation in real time, could greatly facilitate risk hedging and decision making by the operators in practice. To make such applications possible, advanced informatics are needed to enable various technologies to work together to solve complex problems that may occur in the planning, operation and control of smart grids. This special section aims to report the latest advancements in informatics methods and techniques for decision making and risk hedging problems in power system operation, planning and control under the smart grid environment. The scope of interests includes but not limited to the following topics:

- Modelling and prognosis of emerging uncertainties in smart grid operation, control and planning (e.g. modelling and prognosis of renewable generation or market price);
- Risk management and market power mitigation in a competitive environment of smart grids;
- Information gap and risk involved system commitment and dispatch paradigms for smart grids with renewable energies and electric vehicles;
- New paradigms for optimal portfolio management by GenCos considering market uncertainties and risks;
- System reliability and vulnerability analysis through advanced knowledge discovery and high performance computation;
- Optimal planning and control of transmission and distribution grids leveraging AMI and WAMs data;
- Intelligent data mining and visualization for control room applications;
- Smart system restoration and reconfiguration approaches considering operational uncertainties and renewable energies;
- Advanced heuristic computing methods for risk hedging and decision makings in smart grids; and
- Robust control strategies for smart microgrids systems through online learning and optimization

Please note papers discussing emerging informatics paradigms for uncertainties analysis and risk management in smart grids are particularly welcome. All contributions must be explicitly focused on the Smart Grids applications.

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://tii.ieee-ies.org/>. Please submit your manuscript in electronic form through Manuscript Central web site: <http://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: **SS on Emerging Informatics for Risk Hedging and Decision Making in Smart Grids.**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Extended versions of papers previously published in conference proceedings may be eligible for consideration if conditions listed in <http://tii.ieee-ies.org/o/PC.pdf> are fulfilled. Before submitting manuscript check the review criteria (<http://tii.ieee-ies.org/o/RC.pdf>) and other information (<http://tii.ieee-ies.org/o/DI.pdf>)

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

Timetable:

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Expected publication date (tentative)

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