CALL FOR PAPERS

Since the last decades of 1970s, there have been wide ranges of changes and progress in different parts of the power system and components, most of which are caused by the rising electricity demand during the economic growth in the industrial countries. In addition, the integration of new sources of electrical energy such as renewable energy sources has changed the electric power system as a whole and the main assets and components as small parts to being managed. These changes have resulted in high complexity and uncertainty in the power system demand and generation profile that created new challenges in the optimal planning, operation, and management of the electric grid. In this way, the theory of fuzzy sets and systems can play a remarkable and vital role in handling a significant part of this high uncertainty and nonlinearity though providing new solutions for more efficient and reliable operation of the electric power grids. A high number of methods and techniques are also developed that have combined fuzzy concepts with other available intelligent fields of knowledge to better understanding of the problems and solutions.

This special issue aims to address the recent challenges and opportunities in the application of fuzzy sets and systems for modeling and management of the smart electric grids including new technologies such as renewable energy sources and electric vehicles as well as new methods and techniques to improve the electric grid reliability, security, quality, operation, planning, and efficiency. In addition, this special issue brings together the state-of-the-art technologies and advances in the area of fuzzy applications in smart power grids. Through a careful peer review process, research papers representing diverse topics on handling the high uncertainty and complexities of smart electric grids are included in this special section. Based on the various aspects of contributions, these papers are categorized.

Potential topics include, but are not limited to:

- ▶ Power system security, quality, markets, reliability operation, planning, generation, and management
- ▶ Modeling uncertainty of electric grid, equipment, faults, error metering, and electric consumers behavior
- ▶ Modeling renewable power plants such as wind turbine photovoltaics panels and hydroplants
- ▶ Prediction of interruptions and outages in the electric network, electric vehicles state of charge, charge/discharge schemes, and moving habits inside/outside of network

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