

Special Session on

**“Advance Trends in renewable integration, electric vehicles and demand
response in future smart grids”**

Organized by

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Call for Papers

Due to environment concerns, energy security risks, and fossil fuel problems, many countries around the world decided to increase the penetration level of renewable energy resources (RERs) in their energy networks. Beside this, many countries are moving toward implementation of smart grid concept including electric transportation systems, microgrid and deregulation in their power systems to achieve reliable and secure operation of their energy systems with high penetration level of renewable energy resources. In future smart grids, keeping the operation in stable modes requires new techniques and technologies for better controlling and security assessment in such systems. Likewise, the stability and security which are the main issues in smart grids should be well studied and analysed. Moreover, new protection schemes are in demand in order to face any unexpected operation problems and contingencies in smart grid environment.

In order to cope with ever-increasing operation and control complexity and security in modern and future smart grids, new architectures, concepts, algorithms, and procedures are essential. This Special Session aims at encouraging researchers to address the technical issues and research gaps in the interface of renewable energy sources and transportation systems with the future smart grid and microgrid systems. Likewise, new techniques on the implementation of demand response and the required electronic devices are essential to be investigated and developed for future smart grids.

Topics of interest include, but are not limited to:

- Smart grids and microgrids and their industrial electronic requirements;
- The design, modeling, and management of smart grids and microgrids;
- Smart grid and microgrid reliability, sustainability, flexibility, and resiliency;
- Demand response for system dynamics, stability, protection and security;

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- Methodologies and applications for the operation and control of smart grids;
- Intelligent systems, solving methods, optimization, and advanced heuristics;
- The modelling, planning, and operating of renewable energy resources;
- Business models for different electricity market players;
- Demand side management and demand response;
- The sizing, placement, and operation of storage systems and electric vehicles;
- Smart homes and building energy management;
- The modeling, forecasting, and management of uncertainty in smart grids;
- Microgrids and islanded networks;
- Smart cities, smart energy, and IoT;
- Modern power systems and renewable energy resources.