Special Issue

A Step toward Sustainable Energy Management in Modern Electrical Power Systems Operation and Planning

Message from the Guest Editors

Depletion of fossil fuels and global warming awareness are among the most important motivations for upgrading electrical power systems. Thus, current power systems need to be modified by implementing renewable energy distributed generation units (e.g., wind power and photovoltaic) to reduce supply infrastructure stress, power transmission loss, pollutant emissions, and energy costs. In this regard, smart grids (SGs) are recently introduced as a new platform. This new platform should address the two following challenges: the non-dispatchable nature of renewable energy in DG units and the rapid growth of residential customers in the electricity distribution systems. The topics of interest include but are not limited to the following:

- Enhancing the performance of power grids in different stages
- Providing promising operational schemes to maximize the insertion of renewable DG sources
- Analyzing the behaivior of SGs targeted by different types of cyberaatacks
- Improving the accuracy of detection mechanisms against cyberattacks targeting power networks
- Distribution expansion planning considering DGs and storage systems

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