



IET *Smart Grid* Call for Papers

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SPECIAL ISSUE ON: Definition, Quantification, Analysis and Enhancement of Grid Resilience

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Resilience against extreme events, such as natural disasters and deliberate attacks, is considered as a most essential feature of the future smart grid. Although resilience is becoming a hot topic in the electric power academy and industry, we still do not have a well-accepted definition for it. The difference and relation between resilience and other related concepts, such as reliability, security and robustness, are not clear. A set of metrics for quantification of grid resilience is also needed. Since extreme events affect not only the electric power facilities but also other critical infrastructures, including natural gas, communications, water and transportation, the analysis of resilience must consider the interdependency among these infrastructures. The modeling, simulation, analysis and management of the mutual dependency will be a challenging task. Resilience can be improved for both transmission and distribution systems by design, planning, preparedness, mitigation, operation, restoration and recovery approaches. Latest techniques, such as artificial intelligence and internet of things, may also help enhance resilience. Therefore, in this Special Issue, we invite original and unpublished submissions on definition, quantification, analysis and enhancement of grid resilience.

Topics of interest include, but are not limited to:

- Framework for defining grid resilience and developing resilience metrics
- Methods for quantification and analysis of grid resilience
- Modeling and analysis of the impacts of extreme events on power grids
- Awareness of situation in power systems after extreme events
- Modeling, simulation and analysis of interdependency among critical infrastructures
- System design and planning considering resilience
- Preparedness and mitigation measures for resilience enhancement
- Using microgrids and networked microgrids to improve grid resilience
- Fast restoration and recovery of power grids after extreme events
- Management of interdependency among critical infrastructures for resilience enhancement
- Artificial intelligence (AI) and machine learning techniques for resilience evaluation and enhancement
- The application of internet of things (IoT) for resilience of power systems

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