

Data Driven Reliable and Resilient Energy System Against Disasters

Theme: Disasters such as hurricanes, earthquakes, wildfires, etc. are felt most acutely at local and regional levels. These events have exposed weaknesses in how well-prepared agencies are to operate their services and provide resilient responses. Outage and service disruptions are largely due to the inability of the affected city infrastructure (i.e., power grids) to cope with random and dynamic disruptions, translating into resilience deficiencies. A significant challenge is the lack of data availability, sharing, and analysis for emergency planning, and restoration. This special section in TII aims to address the data driven approaches for power system and infrastructure reliability and resilience during small- and large-scale extreme weather events or natural disasters. The specific aim is to utilize the advancements in data mining and data processing to minimize catastrophic conditions that affect the quality of critical-infrastructure operations, quality of life, and economic activities. The TII special section focus is not solely on the power system or any other infrastructure, but also on how power system interfaces citizens, community, and other infrastructures such as roadways, environment, and governmental bodies.

This special section will focus on (but not limited to) the following topics:

- **Computational and data-enabled science and engineering for resilient energy systems:**
 - a) Machine Learning, Reinforcement Learning, and Artificial Intelligence applications in Infrastructure Reliability and Resilience
 - b) Estimation, control, and forecasting methodologies along with distributed energy resources technologies to provide the energy needs of critical infrastructure facilities during emergency conditions
 - c) Infrastructure resilience characterization, quantization, and measurements in steady-state and dynamic conditions in various scales
- **Implementation of infrastructure and community resilience against disasters:**
 - a) Feasibility assessment and validation of methodologies and technologies for infrastructure preparedness, security, and resilience considering practical issues
 - b) Interdependency and interoperability between the power grid and other infrastructure such as roadways as part of disaster resilience
 - c) Impact of disaster-induced power system failures on the society and environment
 - d) Scenarios to investigate the use of and demonstrate the effectiveness of renewable distributed energy generation in disasters
- **Practical issues and industry view toward infrastructure and community resilience against disasters:**
 - a) Industry and government experiences and lessons learned regarding activities on grid resilience management, planning, and operation
 - b) Success stories for creating resilient communities and infrastructure around the globe

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics>. Please submit your manuscript in electronic form through Manuscript Central web site: <https://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: SS on **Data Driven Reliable and Resilient Energy System Against Disasters**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

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:	Deadline for manuscript submissions	November 30, 2020
	Expected publication date (tentative)	July 2021

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