Call for Papers – IEEE Transactions on Power Delivery

Special Issue on

Resilience-Oriented Protection, Control, and Monitoring Systems for Power Grids

Existing protection and control systems have been developed based on the properties and requirements of the legacy power system. Meanwhile, the severity, frequency and diversity of large-scale disturbances that can disrupt normal operation of power grids have increased. For instance, the number of major climate disasters has risen substantially, and the grid has been exposed to cyber-attacks due to the expansion of a host of different communication-dependent features/elements. In the meantime, various emerging components of modern grids can potentially be a major asset to improve the grid resilience. For example, islanded microgrids can ensure the continuity of service during major disruptions in the transmission system. Wide-area measurement systems also can provide predictive data in the event of large-scale disturbances, thus expediting mitigative measures. These recent developments have led to renewed and intensified efforts to meet the demands for higher levels of grid resilience. Protection, monitoring, and control systems will play a major role in these efforts by either preventing large-scale disruptions or enabling the grid to cope with their consequences. This special issue aims to disseminate the latest advances in the protection, monitoring, and control technologies that can directly or indirectly improve the grid resilience. Survey papers also are welcome if they afford significant insight into complicated problems and state-of-the-art technologies. Topics of interest include, but are not limited to

- Resilience-oriented development of protective relays and schemes
- Protection and control tools for rapid service restoration and network self-healing
- Remedial action schemes based on faster than real-time analysis and other predictive concepts
- Mitigation of geomagnetic, earthquake and other natural disturbances on power system protection
- Detection and control of islands during major disturbances
- Coordinated protection and control of microgrids in grid-connected and islanded modes
- Effect of converter control technologies on fault properties of DG units and protection systems
- Protection-compatible converter control methods for inverter-based distributed energy resources
- Applications of 5G communication, Internet of Things, and other emerging communication and sensor technologies for power system protection and monitoring
- Cyber-security of protection, control, and monitoring systems
- Effect of communication and GPS failure on protection and control systems
- Application of big data and machine learning to improve grid monitoring and protection
Application of automated metering infrastructure, PMUs, and Advanced Distribution Management Systems (ADMSs) for fast fault detection, location, isolation including the prevention and detection of power line caused forest fires

Submission Guidelines
This Special Issue solicits original work that is not under consideration for publication in other venues. There is no need for the submission of an extended abstract. Please submit the full paper directly. Authors should refer to:
http://sites.ieee.org/tpwrd/
for information about requirements, formatting, and the submission website. When submitting, please select the submission type “Resilience-Oriented Protection, Control, and Monitoring Systems for the Power Grids”. Any changes on deadlines or other updates related to this Special Issue will be announced in the “Call for Paper & News” section of the above website.

Important Dates
• October 2019: Issue of call for paper
• May 1, 2020: Deadline for submission of full papers (early submission is highly recommended)
  The submission deadline has been extended to July 31, 2020.
• November 1, 2020: Notification of final decisions
• April 2021: Publication of Special Issue

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