Special Issue

Power System Security and Stability

Message from the Guest Editors

The electric grid is undergoing significant changes due to the integration of clean energy resources, such as solar and wind, in an attempt to address the impacts of climate change. Distributed energy resources (DERs), such as wind and solar energy, are replacing traditional energy generation. However, this also brings about various threats of instabilities and security concerns in the forms of cyberattacks, voltage instability, and power quality disturbances. For example, the risk of cyberattacks on DERs rises, with the potential for a broader impact, as more solar and DER devices are connected to the grid. In addition, the high penetration level, dispersed location, and intermittent output of renewable energy bring security and stability issues to the operation and control of power systems. Advanced metering infrastructure, the SCADA system, the distributed energy resource management system, and artificial intelligence are effective systems and tools that can be utilized to ensure a reliable, stable, and secure grid operation. Thus, the objective of this Special Issue is to address the security and stability issues of power systems' operation and control.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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