Special Issue

Grid Stability Assessment under High Renewable Penetration and Virtual Inertia Control Topologies

Message from the Guest Editor

The increasing integration of inverter/converter interfaced power sources has posed new challenges to power systems. The reduction of system inertia is the significant ability to maintain power system stability and resiliency. Power system operation, stability, and resiliency will be critically affected, causing frequency/voltage oscillations, instability, and cascading failures. One of the solutions toward stabilizing such power systems with massive renewable energy sources (RESs) and distributed generators (DGs) penetration is by synthesizing additional inertia and damping properties virtually. This new concept—virtual inertia control, has opened up new possibilities to monitor and control such a challenge. Control techniques provide a key for maintaining a high share of RESs/DGs in future power systems without compromising system stability and resiliency. This Special Issue deals with the design, operation, and control of interfaced systems between RESs/DGs and power grids to guarantee the secure stability of systems. This issue will be served to stimulate further research and to offer practical solutions to real-world power system stability and control problems.

Guest Editor

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