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Smart Grids and Flexible Energy Systems

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Message from the Guest Editors

Power systems are changing due to global drivers, and in many countries, traditional centralized power plants have been or will be shut down. Simultaneously distributed, renewable generation will be integrated in large scale and at all voltage levels. Large-scale integration of variable renewable generation increases the variations and peak situations in which electricity network capacity or voltage limits may become an issue. Therefore, in the future, the active and intelligent utilization of all the different flexible energy resource potentials at all voltage levels, for local and system-wide flexibility services and increased resiliency, will be required in order to maintain total system costs at a reasonable level. In addition, energy storage and integration of different energy networks/vectors and their simultaneous optimization from the point of view of both local and whole society will be needed. Future smart and flexible energy systems will also require totally new protection and control solutions, as well as operation and planning principles based on optimal and coordinated utilization of flexible energy resources at different voltage levels.



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Special Issue



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Message from the Editor-in-Chief

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