



Energy Storage in Electric Power Grids

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Summary

The storage of electrical energy is a long-standing issue that has been only very partially resolved to date, particularly from an economic perspective. The development of renewable energies and the need for means of transport with reduced CO₂ emissions have generated new interest in storage, which has become a key component of sustainable development. The aim of this book is to contribute to the better understanding of both existing storage

technologies and those that are under development, particularly with regard to their management and economic enhancement.

Across seven chapters, the authors highlight the importance of storing electrical energy in the context of sustainable development in "Smart Grids". They discuss the variety of services that storing electrical energy can provide and support.

Methodological tools are provided following a generic approach based on artificial intelligence, among other. They are presented throughout the book and discussed alongside concrete case studies to provide practical examples of their possible applications.

Content

1. Issues in Electrical Energy Storage.
2. Recent developments in energy storage
3. Applications and values of energy storage in electric grids.
4. Introduction to fuzzy logic and application to the management of kinetic energy storage in a Hybrid wind-diesel system.
5. Supervisor design methodology for a windpower source combined with storage.
6. Design of a hybrid multi-source/multi-storage supervisor.
7. Management and economic enhancement of adiabatic compressed-air storage incorporated into a power grid.

Authors

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