DESCRIPTION

This popular reference describes the integration of wind-generated power into electrical power systems and, with the use of advanced control systems, illustrates how wind farms can be made to operate like conventional power plants.

Fully revised, the third edition provides up-to-date coverage on new generator developments for wind turbines, recent technical developments in electrical power conversion systems, control design and essential operating conditions. With expanded coverage of offshore technologies, this edition looks at the characteristics and static and dynamic behaviour of offshore wind farms and their connection to the mainland grid.

Brand new material includes:

- comprehensive treatment of onshore and offshore grid integration
- updated legislative guidelines for the design, construction and installation of wind power plants
- the fundamental characteristics and theoretical tools of electrical and mechanical components and their interactions
- new and future types of generators, converters, power electronics and controller designs
- improved use of grid capacities and grid support for fixed- and variable-speed controlled wind power plants
- options for grid control and power reserve provision in wind power plants and wind farms
This resource is an excellent guide for researchers and practitioners involved in the planning, installation and grid integration of wind turbines and power plants. It is also highly beneficial to university students studying wind power technology, renewable energy and power systems, and to practitioners in wind engineering, turbine design and manufacture and electrical power engineering.

ABOUT THE AUTHOR

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Siegfried Heier is currently the Head of the Wind Engineering department at Kassel University, Germany. He has been a Professor at the university since 1979. He is the initiator and head of many research projects in the field of wind engineering and he has published more than 70 articles about generator systems, and control and grid integration of wind energy converters. Professor Heier has also written books in the area, such as Windkraftanlagen (B.G. Teubner), now in its 5th Edition. Siegfried currently holds two patents.

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