The second edition of the highly acclaimed *Wind Power in Power Systems* has been thoroughly revised and expanded to reflect the latest challenges associated with increasing wind power penetration levels. Since its first release, practical experiences with high wind power penetration levels have significantly increased. This book presents an overview of the lessons learned in integrating wind power into power systems and provides an outlook of the relevant issues and solutions to allow even higher wind power penetration levels. This includes the development of standard wind turbine simulation models. This extensive update has 23 brand new chapters in cutting-edge areas including offshore wind farms and storage options, performance validation and certification for grid codes, and the provision of reactive power and voltage control from wind power plants.

**Key features:**

- Offers an international perspective on integrating a high penetration of wind power into the power system, from basic network interconnection to industry deregulation;

- Outlines the methodology and results of European and North American large-scale grid integration studies;

- Extensive practical experience from wind power and power system experts and transmission systems operators in Germany, Denmark, Spain, UK, Ireland, USA, China and New Zealand;

- Presents various wind turbine designs from the electrical perspective and models for their simulation, and discusses industry standards and world-wide grid codes, along with power quality issues;
• Considers concepts to increase penetration of wind power in power systems, from wind turbine, power plant and power system redesign to smart grid and storage solutions.

Carefully edited for a highly coherent structure, this work remains an essential reference for power system engineers, transmission and distribution network operator and planner, wind turbine designers, wind project developers and wind energy consultants dealing with the integration of wind power into the distribution or transmission network. Up-to-date and comprehensive, it is also useful for graduate students, researchers, regulation authorities, and policy makers who work in the area of wind power and need to understand the relevant power system integration issues.

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Thomas Ackermann is CEO of wind and renewable energies consulting company, Energynautics, which specialises in network integration and power markets. He gained his PhD at KTH (Royal University of Technology), Stockholm, Sweden, where he continues to do wind power freelance lecturing at the Department of Electrical Engineering. He is also involved in education at the University of Zagreb, Croatia, via the EU TEMPUS program. Dr Ackermann's main interests are wind power, distributed power generation, and the impact of market regulations on the development of distributed generation in deregulated markets. Thomas Ackermann is an Editor of Wind Energy Journal (Wiley).

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