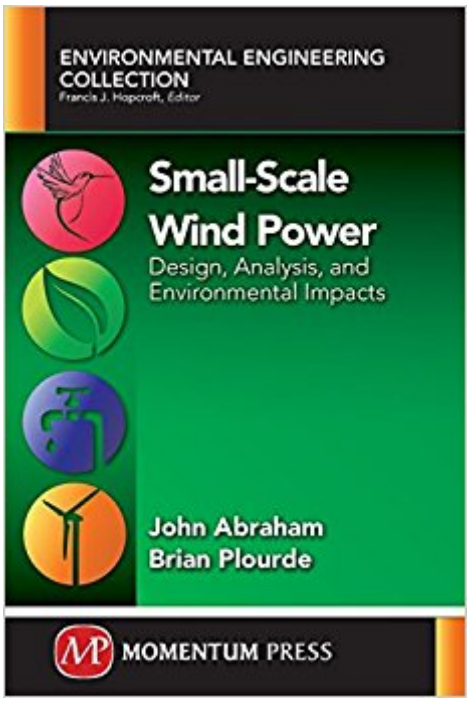
Small-Scale Wind Power: Design, Analysis, And Environmental Impacts (Environmental Engineering Collection)



Synopsis

In today's world, clean and robust energy sources are being sought to provide power to residences, commercial operations, and manufacturing enterprises. Among the most appealing energy sources is wind power--with its high reliability and low environmental impact. Wind power's rapid penetration into markets throughout the world has taken many forms, and this book discusses the types of wind power, as well as the appropriate decisions that need to be made regarding wind power design, testing, installation, and analysis. Inside, the authors detail the design of various small-wind systems including horizontal-axis wind turbines (HAWTs) and vertical-axis wind turbines (VAWTs). The design of wind turbines takes advantage of many avenues of investigation, all of which are included in the book. Analytical methods that have been developed over the past few decades are major methods used for design. Alternatively, experimentation (typically using scaled models in wind tunnels) and numerical simulation (using modern computational fluid dynamic software) are also used and will be dealt with in depth. In addition to the analysis of wind turbine performance, it is important for users to assess the economic benefits of using wind power. An entire chapter of this book is devoted to this topic, as well as case studies that help elucidate the issues that you'll need to consider, from siting and mechanical complications, to performance and maintenance.

Book Information

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Customer Reviews

Dr. John Abraham is a Professor at the University of St. Thomas in Minnesota. Over the past 20

years, he has completed many research projects in the thermal sciences. His work is both computational and experimental and covers both fundamentals as well as applications. He has produced approximately 200 journal papers, books, book chapters, patents, and conference presentations.

Up to date, this book provides information on alternative options for setting up small scale wind power machines. There are more options available than most people realize. Very well illustrated and full of useful data. This book will help you figure out the financial benefits of a wind turbine, to select the right approach, and to have a more successful outcome than you might otherwise have.I highly recommend it.

to Small and Micro Wind Systems