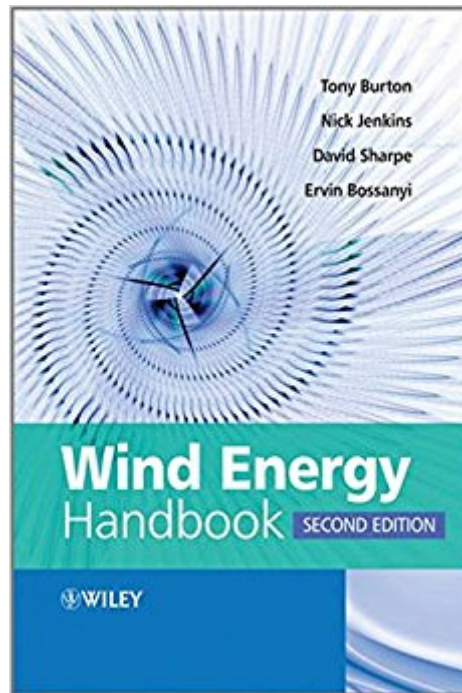




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# Wind Energy Handbook



## Synopsis

Named as one of Choice's Outstanding Academic Titles of 2012 Every year, Choice subject editors recognise the most significant print and electronic works reviewed in Choice during the previous calendar year. Appearing annually in Choice's January issue, this prestigious list of publications reflects the best in scholarly titles and attracts extraordinary attention from the academic library community. The authoritative reference on wind energy, now fully revised and updated to include offshore wind power A decade on from its first release, the Wind Energy Handbook, Second Edition, reflects the advances in technology underpinning the continued expansion of the global wind power sector. Harnessing their collective industrial and academic expertise, the authors provide a comprehensive introduction to wind turbine design and wind farm planning for onshore and offshore wind-powered electricity generation. The major change since the first edition is the addition of a new chapter on offshore wind turbines and offshore wind farm development. Opening with a survey of the present state of offshore wind farm development, the chapter goes on to consider resource assessment and array losses. Then wave loading on support structures is examined in depth, including wind and wave load combinations and descriptions of applicable wave theories. After sections covering optimum machine size and offshore turbine reliability, the different types of support structure deployed to date are described in turn, with emphasis on monopiles, including fatigue analysis in the frequency domain. Final sections examine the assessment of environmental impacts and the design of the power collection and transmission cable network. New coverage features: turbulence models updated to reflect the latest design standards, including an introduction to the Mann turbulence model extended treatment of horizontal axis wind turbines aerodynamics, now including a survey of wind turbine aerofoils, dynamic stall and computational fluid dynamics developments in turbine design codes techniques for extrapolating extreme loads from simulation results an introduction to the NREL cost model comparison of options for variable speed operation in-depth treatment of individual blade pitch control grid code requirements and the principles governing the connection of large wind farms to transmission networks four pages of full-colour pictures that illustrate blade manufacture, turbine construction and offshore support structure installation Firmly established as an essential reference, Wind Energy Handbook, Second Edition will prove a real asset to engineers, turbine designers and wind energy consultants both in industry and research. Advanced engineering students and new entrants to the wind energy sector will also find it an invaluable resource.

## Book Information

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## Customer Reviews

"I highly recommend the classic and definitive reference book *Wind Energy Handbook, Second Edition* by Tony Burton, Nick Jenkins, David Sharpe, and Ervin Bossanyi, to any engineering students in undergraduate or graduate studies, teaching academics, practicing engineers, business leaders in technology or electrical utilities, and government policy makers seeking a complete and authoritative overview of design, manufacturing, and installation of horizontal axis wind turbines.

This book offers a complete survey of the field, and contains an important section on wind farms as well. Overall, this is a very important and essential addition to any study or practice in the field."

(Blog Business World, 19 February 2012) "If libraries wish to acquire just one book on wind energy, this title is a very good candidate. Summing Up: Highly recommended. Upper-division undergraduates, graduate students, two-year technical program students, researchers/faculty, technicians/professionals, and informed general readers." (Choice, 1 December 2011) ^

The authoritative reference on wind energy, now fully revised and updated to include offshore wind power A decade on from its first release, the *Wind Energy Handbook, Second Edition*, reflects the advances in technology underpinning the continued expansion of the global wind power sector.

Harnessing their collective industrial and academic expertise, the authors provide a comprehensive introduction to wind turbine design and wind farm planning for onshore and offshore wind-powered electricity generation. An all-important new chapter on offshore wind power covers: resource assessment and array losses, optimal machine size and offshore turbine reliability wave loading on

support structure, including wind and wave load combinations and descriptions of applicable wave theories the different types of support structure deployed to date, with emphasis on monopoles, including fatigue analysis in the frequency domain the assessment of environmental impacts and the design of the power collection and transmission cable network Other new coverage features: turbulence models updated to reflect the latest design standards, including an introduction to the Mann turbulence model extended treatment of horizontal axis wind turbines aerodynamics, now including a survey of wind turbine aerofoils, dynamic stall and computational fluid dynamics developments in turbine design codes, comparison of options for variable speed operation, and in-depth treatment of individual blade pitch control techniques for extrapolating extreme loads from simulation results an introduction to the NREL cost model grid code requirements and the principles governing the connection of large wind farms to transmission networks four pages of full-colour pictures that illustrate blade manufacture, turbine construction and offshore support structure installation Firmly established as an essential reference, Wind Energy Handbook, Second Edition will prove a real asset to engineers, turbine designers and wind energy consultants both in industry and research. Advanced engineering students and new entrants to the wind energy sector will also find it an invaluable resource.

Very very very difficult to understand. Only buy if you understand design of wind turbines already or if you are a genius.

This book offers an indepth analysis of all aspects relevant to wind turbines. I bought the book especially for the aerodynamics section, which gives a great insight regarding the flow around wind turbines. This book is most suited for students and professionals, since some sections require extensive knowledge about engineering and wind turbines.

I am reading the book yet. It looks good in the first chapters at least.

The wind bible- got as a gift for a friend taking a new job. It was very well received - both as a gag gift (it is a truly impressively hefty text book) but also as a remarkably informative reference tool. Invaluable resource for anyone who needs/wants information on wind.

thank you

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