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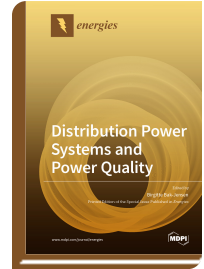
Distribution Power Systems and Power Quality

www.mdpi.com/books/reprint/2376

Edited by
Birgitte Bak-Jensen

ISBN 978-3-03936-250-9 (Softback)

ISBN 978-3-03936-251-6 (PDF)



High penetration of fluctuating renewable power units, such as wind turbines and photovoltaic systems, and new heavy loads, such as electrical vehicles and heat pumps, which so far might not be controlled according to the actual distribution grid condition, but rather according to actual consumption of the devices, influences the distribution grid in several ways, and it may lead to voltage disturbances, frequency deviations and harmonic content beyond limits. Over voltages might be generated at power production which is too high, whereas under voltage might occur at heavy load situations; both phenomena might be seen at the same distribution radial, where harmonic injections can also come from the devices, if equipped with power converters. This has led to the main target object for this book being power quality in distribution grids. This book offers 10 papers regarding power quality issues at distribution grids. It looks into hosting capacity issues, stability analysis, reliability assessment, mitigation of voltage rise using reactor installation, power quality assessments, harmonic analysis and damping, frequency control in weak and isolated power systems, and the focus is therefore broad within the overall topic of power quality.



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