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Nota di contenuto	Chapter 1 Introduction; Daniela Thrän -- Chapter 2 Demand for the flexible provision of bioenergy carriers – an overview of the different energy sectors in Germany; Martin Dotzauer, Karin Naumann, Eric Billig, Daniela Thrän -- Chapter 3 Biomass resources and sustainability issues for a flexible bioenergy provision; Stefan Majer, Daniela Thrän -- Chapter 4 Flexible power generation from solid biofuels; Andreas Ortwein, Volker Lenz -- Chapter 5 Flexible power generation from biogas; Jan Liebetrau, Jaqueline Daniel-Gromke, Fabian Jacobi -- Chapter 6 Flexible Heat Provision from biomass; Volker Lenz, Daniela Thrän -- Chapter 7 Liquid and gaseous biofuels for the transport sector; Franziska Müller-Langer, Marco Klemm -- Chapter 8 Intermediate biofuels to support a flexible application of biomass; Eric Billig, Janet Witt, Marco Klemm, Claudia Kirsten, Jan Khalsa, Daniela Thrän -- Chapter 9 The potential of flexible power generation from biomass - a case study for a German region; Philip Tafarte, Subhashree Das, Marcus Eichhorn, Martin Dotzauer, Daniela Thrän -- Chapter 10

Sommario/riassunto

Biomass is a vital source of renewable energy, because it offers a wide range of established and potential methods for energy generation. It is also an important facet of the progression toward a sustainable energy future. The need for further development in the provision of bioenergy is underlined by challenges affecting the biomass resource base, including rising demand for biomass for food, feed, materials and fuel. This is underlined by significant concerns over factors relating to land, such as soil, nutrients and biodiversity. This book examines and analyzes Germany's decade-long initiative toward implementation of an active policy for the transition of the energy system to make greater use of renewable energy sources, which has resulted in a significant increase in the amount of biomass used for electricity, heat and transport fuel. The book begins with a review of market and resource base issues, and moves on to analyze the technical options for a more integrated bioenergy use. The analysis spans the entire bioenergy provision chain including solid, liquid and gaseous biofuels. A case study offers a detailed model of the effects of smart biomass energy on the German energy system. The book closes with a view of the most promising fields and an appraisal of needed elements for a successful transition.
