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Closures on Electricity Markets and Remaining Challenges -- 6 Renewable Energy Sources as the Cornerstone of the German Energiewende -- 7 Energy Efficiency: A Key Challenge of the Energiewende -- 8 The Role of Electricity Transmission Infrastructure -- 9 Sector Coupling for an Integrated Low Carbon Energy Transformation - A Techno-Economic Introduction and Application to Germany -- 10 The Electricity Mix in the European Low Carbon Transformation: Coal, Nuclear, and Renewables -- 11 Energy Infrastructures for the Low Carbon Transformation in Europe,- Part III: The German Energiewende in the Context of the Europe Low Carbon Transformation -- 12 Cross-Border Cooperation in the European Context: Evidence from Regional Cooperation Initiatives -- 13 Modeling the Low Carbon Transformation in Europe and Germany: Developing Paths for the European Energy System until 2050 -- Part IV: Assessment, Perspectives, and Conclusions -- 14 General Conclusions: Fifteen Lessons from the First Phase of the Energiewende.

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Sommario/riassunto

This book provides an in-depth analysis of the energy transformation process ongoing in Germany, now commonly referred to as energiewende, in the European context, with a focus on the electricity sector. It presents an expert look at the origins of the German energiewende, its concrete implementation, its impacts within the European context as well as medium and long-term perspectives. The authors, internationally recognized energy, electricity, and climate economists at the German Institute for Economic Research (DIW Berlin) and Berlin University of Technology, conclude that the first years of the energiewende have successfully laid the foundation for a renewables-based electricity system in Germany, but that challenges remain in relation to decarbonizing the electricity system and phasing out nuclear energy. The authors also provide ground-breaking insights to inform energy policy in other countries and at the European level. In the outlook, the authors explore upcoming issues, such as coupling between the electricity and other sectors, and behavioral changes of industry and households. The book addresses readers in the energy industry, energy and climate policymakers, regulators, and others interested in the low carbon energy system transformation in Germany, Europe, and worldwide. The question of how to move to lower carbon energy systems is generating broad interest and intense debate in both developed and developing nations alike. This book provides a comprehensive account of how technology, management, and policy decisions are shaping this transformation in Germany, and offers lessons for other countries. Valerie J. Karplus, Professor of Global Economics and Management, Sloan School of Management, Massachusetts Institute of Technology (MIT), Cambridge, MA This book offers unique perspective on the energiewende, a new paradigm in energy and climate policy. It is a must-read for anyone interested in Germany as well as those interested in the European Union because the German energy and climate policy needs Europe, and Europe must learn from the German experience, both positive and negative. This comprehensive book brings together leading academics and experts to consider the various aspects of this fascinating green revolution. François Lévêque, Professor of Industrial Economics, Ecole des Mines-ParisTech, Paris, France This book on the energiewende comes at the right time, as the low-carbon energy transformation in Germany is moving from an electricity focus to an energy system wide approach. The group of authors is well positioned, as academics and policy advisors, to offer lessons from a decade of analysis. They report on success but also on challenges of an important policy experiment. Daniela Setton, Senior Research Associate, Transdisciplinary Panel on

