Contents

Jörg Böttcher
1 Introduction —— 1

Part 1: **Overview**

Tibor Fischer
2 Investments and Regulation – What Needs to be Done Now: A Systemic Investment Policy for the Further Expansion of Renewable Energies —— 13

Heinz-J. Bontrup
3 Socio-Economic Framework Conditions – The Macroeconomic Effects of the Energy Transition and the Resulting Political Challenges —— 33

Jane O'Sullivan
4 Population – The Emissions Multiplier —— 57

Jennifer Kowallik and Alexandra Oboda
5 A Road to Sustainability for Economy and Society —— 99

Andreas Gabler
6 The Political Will – The European Path to a Sustainable Future —— 125

Sebastian Helgenberger and Roman Buss
7 Social and Economic Co-Benefits on Our Way to Carbon-Free Societies and Economies —— 171

Farid Mohamadi
8 CO_2 Reduction Measures in Colombia: Seizing Economic Reactivation Opportunities to Overcome Climate Change Challenges —— 187

Kwesi Annan-Takyi
9 Ghana's Example of De-Carbonization —— 231

Part 2: **Sector Specific Approach**

Jelto Lange, Michael Schulthoff and Martin Kaltschmitt
10 Status of Renewable Energies and the Way Forward —— 243

Bibliografische Informationen
http://d-nb.info/1345580533

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

Oliver Opel, Jörg Böttcher, Darius Bonk, Jim Lukas Armbruster and Marlies Wiegand
11 Heat Pumps — 281

Jörg Böttcher
12 Use of Geothermal Energy — 305

Attakan Janpidok
13 Indonesia's Deep Geothermal Drilling Program: Background and Experiences — 335

Jens Kühne
14 Solar Thermal Systems Within a District Heating Concept — 361

Jochen Weilepp
15 Levelized Cost of Electricity – Understanding the Concept and Setting the Right Priorities — 377

Jörg Böttcher
16 Project Finance – The Finance Method for Established Technologies — 397

Kathrin Langewald
17 The Strategic Role of Green Hydrogen in Germany's International Energy Policy: A South African Case Study — 429

Thies Goldner, Christoph Torwegge, Felix Jaeger
18 Supportive Systems in a Decarbonized World With Fluctuating Renewable Resources: What Has to be Done? — 463

Part 3: **General Toolbox**

Andreas Luczak
19 The Role of Hydrogen – Technology, Integration and Economics — 511

Nicolai Herrmann
20 Pricing and Trading CO_2: Concepts, Assessment and Impacts on Competition — 535

Jasmine Ramsebner
21 The Concept of Sector Coupling: Where is the Business Model? — 555

Tomas Haug, Philipp Hiemann, Lorenz Wieshammer
22 Improvement of Grid Infrastructure — 607

Torsten Cziesla, Alexander Stuckenholz, Jens Thorn
23 Digitalization and Climate Change – Business Models and Services — 641

Jan Lüken
24 Towards a Circular Economy – Business Rationale and Steps Forward — 673

Stefan Wenzel, Adrien Pagano, Clemens Weiß
25 Nuclear Power — 733

Part 4: **Industry Specific Solutions**

Jörg Böttcher
26 Market Failure and Consequences for the Financing of the Energy Transition — 763

Jörg Böttcher
27 Markets and Markets Behaviour – Some Practical Aspects — 783

List of Figures — 805

List of Tables — 811

List of Contributors — 813

Index — 821