Contents

1 Carbon Capture and Utilization as an Option for Climate Change Mitigation: Integrated Technology Assessment ......... 1
   Wilhelm Kuckshinrichs

Part I Technologies: Status and R&D Prospects

2 Carbon Capture Technologies ........................................ 13
   Peter Markewitz and Richard Bongartz

3 CO₂ Transportation .................................................. 47
   Richard Bongartz, Jochen Linssen, and Peter Markewitz

4 Opportunities for Utilizing and Recycling CO₂ ................. 67
   Thomas E. Müller, Walter Leitner, Peter Markewitz,
   and Wilhelm Kuckshinrichs

5 Environmental Aspects of CCS .................................... 101
   Andrea Schreiber, Petra Zapp, and Josefine Marx

6 Safe Operation of Geological CO₂ Storage Using the Example
   of the Pilot Site in Ketzin ........................................ 127
   Michael Kühn, Axel Liebscher, Sonja Martens, Fabian Möller,
   Thomas Kempka, and Martin Streibel

Part II Economic and Social Perspectives

7 Economic Analysis of Carbon Capture in the Energy Sector ........................................ 147
   Wilhelm Kuckshinrichs and Stefan Vögele

8 Cost Analysis for CCS in Selected Carbon-Intensive Industries ........................................ 173
   Johannes Fleer and Wilhelm Kuckshinrichs
9 CCS Transportation Infrastructures: Technologies, Costs, and Regulation ........................................... 183 Joachim Geske

10 The System Value of CCS Technologies in the Context of CO₂ Mitigation Scenarios for Germany ......................... 201 Dag Martinsen, Heidi Heinrichs, Peter Markewitz, and Wilhelm Kuckshinrichs

11 Public Acceptance ................................................................. 221 Diana Schumann

Part III Framework for Energy and Climate Policy

12 No CCS in Germany Despite the CCS Act? ...................... 255 Wolfgang Fischer

13 CCS Policy in the EU: Will It Pay Off or Do We Have to Go Back to Square One? ................................. 287 Olga Schenk and Jürgen-Friedrich Hake

14 International Cooperation in Support of CCS .................. 311 Jürgen-Friedrich Hake and Olga Schenk

Part IV Conclusion

15 Evaluation Index of Carbon Capture and Utilization: A German Perspective and Beyond .......................... 331 Wilhelm Kuckshinrichs and Peter Markewitz
Carbon Capture, Storage and Use
Technical, Economic, Environmental and Societal Perspectives
Kuckshinrichs, W.; Hake, J.-F. (Eds.)
2015, XVII, 347 p. 71 illus., 1 illus. in color., Hardcover
ISBN: 978-3-319-11942-7