

Contents

Foreword	V
Preface and acknowledgements.....	VII
Introduction	1
<i>Ralf Antes, Bernd Hansjürgens, Peter Letmathe</i>	
Part A - Institutional design, decision making and innovation	
Abatement costs vs. compliance costs in multi-period emissions trading – the firms’ perspective	11
<i>Sven Bode</i>	
1 Introduction.....	12
2 Emissions trading and allocation of allowances	13
3 The model	16
4 Numerical analysis.....	20
5 Conclusion	23
Generous allocation and a ban on banking – implications of a simulation game for EU emissions trading	27
<i>Joachim Schleich, Karl-Martin Ehrhart, Christian Hoppe, Stefan Seifert</i>	
1 Introduction.....	28
2 Banking in the EU ETS	29
3 The emissions trading simulation SET UP	30
4 Results of SET UP	33
5 Conclusions.....	36
Emissions trading and innovation in the German electricity industry – impact of possible design options for an emissions trading scheme on innovation strategies in the German electricity industry	39
<i>Martin Cames, Anke Weidlich</i>	
1 Introduction.....	40
2 Innovation and windows of opportunity	40

3 Time windows in the German electricity market.....	41
4 Innovation incentives of different allocation methods.....	45
5 Conclusions	49

**A dynamic game of technology diffusion under emissions trading:
an experiment 53**

Ivana Capozza

1 Introduction	54
2 The model.....	55
3 The game	58
4 The experiment.....	65
5 Concluding remarks.....	69

Sustainability entrepreneurship in the context of emissions trading..... 73

Anne Gerlach

1 Introduction	74
2 Conceptual framework.....	74
3 Sustainability intra- and entrepreneurship in the context of emissions trading.....	80
4 Conclusions	84

**Part B - Investment and management strategies under emissions
trading**

Optimal strategies for emissions trading in a Putty-Clay Vintage Model..... 91

Peter Letmathe, Sandra Wagner

1 Introduction	92
2 Emissions trading from the firm's perspective	92
3 Short-term production planning.....	94
4 Long-term production planning with the Vintage Production Functions and the Putty-Clay Model.....	97
5 Integrated investment and production planning.....	100
6 Conclusions	102

**Strategic production management of companies participating in
the European greenhouse gas emission allowance trading scheme..... 105**

Wolf Fichtner

1 Introduction	106
2 Characterisation of the new production factor emission allowances	106
3 A model for investment and production planning within electric utilities considering the framework of the European CO ₂ emission allowance trading	107

4 Long term planning of energy supply concepts in energy-intensive production companies.....	112
5 A model to analyse the efficiency of international cooperation in mitigating climate change.....	115
6 Summary.....	116
Decision making in the emissions-market under uncertainty.....	119
<i>Gorden Spangardt, Michael Lucht, Christian Wolf, Christian Horn</i>	
1 Background.....	120
2 Modelling the decision process.....	120
3 Modelling the stochastic variables.....	122
4 Optimization model.....	124
5 Exemplary results.....	127
6 Summary and outlook.....	131
The impact of climate policy on heat and power capacity investment decisions.....	133
<i>Harri Laurikka</i>	
1 Introduction.....	134
2 Investment decision process.....	135
3 Quantitative investment appraisal.....	138
4 Discussion and conclusions.....	145
Implications of the European emissions trading scheme for strategic energy management in small and medium enterprises.....	151
<i>Anja Paukstat, Martin Kruska</i>	
1 Introduction.....	152
2 Relevance of the European emissions trading scheme for small and medium enterprises.....	152
3 Implications of the community scheme for small and medium enterprises.....	154
4 Scenario analysis involving dependence on the emissions allowance price.....	159
5 Conclusion.....	163
Management and optimization of environmental data within emissions trading markets – VEREGISTER and TEMPI.....	165
<i>Bernhard Grimm, Stefan Pickl, Alan Reed</i>	
1 Introduction.....	166
2 Management of greenhouse gas emissions.....	166
3 Forecasting and econo-mathematics.....	169
4 Emissions trading market.....	173
5 Conclusion.....	176

Emissions trading with changing future commitments	
– some initial thoughts	177
<i>Marcus Stronzik</i>	

1 Introduction	178
2 Application of the discounted cash flow approach	179
3 Emissions trading and real options	181
4 Conclusions	185

Part C - Emissions trading and business administration

Emission Trading North – important findings from	
a business perspective	189
<i>Katja Barzantny</i>	

1 Introduction	190
2 The pilot project.....	190
3 Results	192
4 Final remarks	196

Corporate greenhouse gas management in the context	
of emissions trading regimes	199
<i>Ralf Antes</i>	

1 Introduction	200
2 How GHGs affect companies	200
3 Emerging organizational fields of GHG management.....	205
4 Internal effects of GHG emissions trading regimes on companies	208

Accounting for emission rights.....	219
<i>Edeltraud Günther</i>	

1 Introduction	220
2 Evolution of the climate policy up until the introduction of the scheme for greenhouse gas emission allowance trading.....	221
3 Greenhouse gas emission reporting	223
4 Treatment of emission rights in the annual accounts	229
5 Evolution of accounting at the international level	235
6 Possible development of the recognition of environmental issues in annual accounts.....	237
7 Summary.....	239

The role of stakeholder driven corporate governance –	
the example of BP’s climate change strategy	241
<i>Thomas Langrock</i>	

1 Introduction	242
2 Background: evaluation research and policy network analysis	243

3 Evaluation and assessment of the GHG commitment.....	244
4 The policy network approach applied to the BP plc. policy making process.....	248
5 Conclusions from the case study.....	252

Emissions trading and effects on financial markets 257

Timo Busch

1 Introduction.....	258
2 Interactions of financial markets and sustainability.....	258
3 Emissions trading and effects at a company level.....	259
4 New business opportunities in financial markets.....	262
5 Current developments and a framework for pro-active involvement.....	266
6 Conclusions.....	270

Part D - Effects of emissions trading schemes existing and being implemented

The EU emissions trading scheme and its competitiveness effects upon European business – results from the CGE model DART..... 275

Sonja Peterson

1 Introduction.....	276
2 Emissions trading and competitiveness in a globalizing world.....	277
3 Simulation of competitiveness effects of the EU emissions trading scheme.....	278
4 Simulation results.....	282
5 Summary and conclusions.....	287

Implementing the EU emissions trading directive in Spain: a comparative study of corporate concerns and strategies in different industrial sectors... 293

Pablo del Río González

1 Introduction: aim, scope and methodology.....	294
2 The theoretical approach: public choice and climate policy.....	295
3 Firms, emissions trading and allocation: the views and strategies of the sectors covered by the EU ETS.....	296
4 Concluding remarks.....	311

UK's climate change levy and emissions trading scheme: implications for businesses' productivity and economic efficiency..... 313

Adarsh Varma

1 Introduction.....	313
2 Overview of UK's climate change levy (CCL) and emissions trading scheme (ETS).....	314
3 The stochastic translog frontier cost function model.....	316

4 Dynamics of the model	319
5 The experience so far	320
6 Conclusion	323
The sources of emission reductions: evidence from U.S. SO₂ emissions from 1985 through 2002.....	327
<i>A. Denny Ellerman, Florence Dubroeuca</i>	
1 Introduction	328
2 Data and methodology	330
3 Decomposition results	334
4 Conclusion	340
Policy-business interaction in emissions trading between multiple regions	353
<i>Jürgen Scheffran, Marian Leimbach</i>	
1 Emissions trading on multiple levels	354
2 Links between economic growth, emission reductions and mitigation costs	357
3 Choice between technical options.....	360
4 Non-linear ratios	361
5 Model-based data and computations for the world's regions and selected cases	364
The changing role of the project mechanisms in emissions trading.....	369
<i>Katherine G. Begg</i>	
1 Introduction	370
2 Development of the project mechanisms	370
3 What can be done to reduce costs in the CDM and where is progress being made?	377
4 Conclusions	383
Prevailing technologies and locations of CDM projects: the current situation compared with expectations	387
<i>Jobert Winkel</i>	
1 Introduction	388
2 Overview of CDM projects at present	388
3 Determinants of the IRR of a landfill project	395
4 Conclusions	399

<http://www.springer.com/978-3-7908-1747-8>

Emissions Trading and Business

Antes, R.; Hansjürgens, B.; Letmathe, P. (Eds.)

2006, XIV, 400 p., Hardcover

ISBN: 978-3-7908-1747-8

A product of Physica-Verlag Heidelberg