Contents

List of contributors vii
Introduction x
Joanne Evans and Lester C. Hunt

1 A brief history of energy
   Roger Fouquet 1

2 The theory of energy economics: an overview
   Thomas Weyman-Jones 20

3 The economics of energy supply
   Kenneth B. Medlock III 51

4 The theory and practice of energy policy
   Richard L. Gordon 73

5 Energy demand theory
   Kenneth B. Medlock III 89

6 Empirical modelling of energy demand
   David L. Ryan and André Plourde 112

7 Economics of energy efficiency
   Grant Allan, Michelle Gilmartin, Peter McGregor,
   J. Kim Swales and Karen Turner 144

8 Theoretical foundations of the rebound effect
   Harry Saunders 164

9 The rebound effect: definition and estimation
   Steve Sorrell 199

10 Modelling energy savings and environmental benefits from
    energy policies and new technologies
    David L. Ryan and Denise Young 234

11 Bottom-up models of energy: across the spectrum
    Lorna A. Greening and Chris Bataille 257

12 The structure and use of the UK MARKAL model
    Ramachandran Kannan, Paul Ekins and Neil Strachan 285

13 Combining top down and bottom up in energy economy models
    Mark Jaccard 311

14 Computable general equilibrium models for the analysis of energy and
    climate policies
    Ian Sue Wing 332

15 Energy–economy–environment modelling: a survey
    Claudia Kemfert and Truong Truong 367

16 The oil security problem
    Hillard G. Huntington 383

17 Petroleum taxation
    Carole Nakhle 401
International handbook on the economics of energy

18 The behavior of petroleum markets: fundamentals and psychologicals in price discovery and formation 420
Dalton Garis

19 The prospects for coal in the twenty-first century 441
Richard L. Gordon

20 Natural gas and electricity markets 456
W.D. Walls

21 Incentive regulation of energy networks 471
Thomas Weyman-Jones

22 The economics and regulation of power transmission and distribution: the developed world case 499
Lullit Getachew and Mark N. Lowry

23 The market structure of the power transmission and distribution industry in the developed world 541
Lullit Getachew

24 Mechanisms for the optimal expansion of electricity transmission networks 582
Juan Rosellón

25 Efficiency measurement in the electricity and gas distribution sectors 598
Mehdi Farsi and Massimo Filippini

26 Wholesale electricity markets and generators’ incentives: an international review 624
Dmitri Perekhodtsev and Seth Blumsack

27 Security of supply in large hydropower systems: the Brazilian case 650
Luciano Losekann, Adilson de Oliveira and Getúlio Borges da Silveira

28 Electricity retail competition and pricing: an international review 663
Seth Blumsack and Dmitri Perekhodtsev

29 Emissions trading and the convergence of electricity and transport markets in Australia 685
Luke J. Reedman and Paul W. Graham

30 International energy derivatives markets 705
Ronald D. Ripple

31 The economics of energy in developing countries 740
Reinhard Madlener

32 Energy visions to address energy security and climate change 759
Christoph W. Frei

33 Current issues in the design of energy policy 770
Thomas Weyman-Jones

Index 791