The Economics of Energy Policy

THOMAS G. WEYMAN-JONES

Loughborough University of Technology

Gower

Contents

Preface ·		1
1	THE ENERGY BALANCE	
	Introduction	3
	The UK energy balance	4
	Plan of the book	7
	Economic science and political economy	9
2	THE DEMAND FOR ENERGY	
	Introduction	11
	Energy in particular markets	12
	Consumer choice models	14
	Production models	19
	Case studies of energy demand	24
	Case studies of fuel use	29
	Case study conclusions	37
3	PRICING POLICY FOR EFFICIENT RESOURCE	
	ALLOCATION	
	Modelling public enterprises in the economy	38
	Marginal cost pricing	47
	Second-best pricing in the public sector	50
	Conclusion	70
4	MARGINAL COSTS IN PRACTICE	
	Short-run versus long-run marginal cost	72
	Marginal cost with fixed capacity equipment	76
	Marginal cost with differing demands: peak loading	79
	Two plant-two period peak loading	83
	Peak load pricing with variable running cost	92
	Peak loading with feasible storage	96
	Discounting for time in marginal cost analysis	101
	Price guidelines for the energy industries	103

5	OF ELECTRICITY	
	Antroduction	106
•	Optimal plant mix in electricity generation	107
	The discount factor in NEC calculations	113
	The CEGB analysis of nuclear generated electricity	115
	Overall demand forecast	117
	The planning margin for supply failure	120
	Cost-benefit analysis of the security margin	124
	Cost assumptions in the nuclear case	131
	Broader issues in nuclear cost-benefit analysis	135
	Conclusions	136
6	ELECTRICITY AND GAS PRICES IN PRACTICE	
	Introduction	137
	Time of use (tou) studies	138
	The design of tou tariffs for electricity and gas supply	144
	UK electricity and gas tariffs	153
	Bulk supply tariff of the CEGB	154
	Retail tariffs of area electricity boards	159
	Gas prices	163
7	NORTH SEA OIL AND THE UK ECONOMY	
	Introduction	172
	Depletion economics	173
	North Sea oil	184
	Macroeconomic effects of North Sea oil	187
8	ISSUES IN POLICY-MAKING	
	Introduction	203
	Energy conservation	204
	Privatisation in energy supply	209
	Security of supply	220
	Sectoral guidance policy and the supply of coal	226
R	References	
Name Index		243
Subject Index		245