

Index

Introductory Note: References such as '178–9' indicate (not necessarily continuous) discussion of a topic across a range of pages. Wherever possible in the case of topics with many references, these have either been divided into sub-topics or only the most significant discussions of the topic are listed. Because the entire work is about 'electricity markets', the use of this term (and certain others which occur constantly throughout the book) as an entry point has been restricted. Information will be found under the corresponding detailed topics.

- abuse of dominance 16, 33, 34, 36,
38–9, 52, 66–7, 71, 78, 91, 97–8,
130–3, 131, 135–6
- ACER (Agency for the Cooperation of
Energy Regulators) 47, 57, 60–6,
111, 144–5, 163–8
- Agency for the Cooperation of Energy
Regulators, *see* ACER
- allocation of capacities, *see* capacity,
allocation
- allocation of regulatory powers, *see*
regulatory powers, allocation of
- already existing and amortized
interconnectors 135, 153
- amended congestion management
guidelines 111, 117, 122, 172
- anti-competitive effects 1, 3, 81–3,
87–90, 96–8, 105–7, 171–3
 - balancing with efficiency gains 87–9
 - likelihood of creation 81–7
 - negotiating remedies 90–4
 - in new market context 75–87
- antitrust authorities 2–4, 6, 22, 33–4, 67,
71, 73–4, 81–2, 85, 102, 123–4,
126, 170
 - European 74, 85, 89, 96, 109, 159,
167–8
 - national 5, 71, 77, 79–80, 130
- antitrust enforcement 2–4, 6, 47, 69,
73–4, 76, 78, 92, 95–6, 106
- antitrust laws/rules 3–4, 66–7, 121–2,
125, 127–9, 134–5, 166–7; *see*
also EU, competition law
modernization 4–6, 73
- antitrust policy 2–3, 5, 27, 37, 73–5, 78,
85–6, 90, 125–6, 136, 144, 153
- antitrust powers 5, 66, 126, 146, 163,
166, 168
- antitrust strategy, EU Commission 6,
71, 73–108, 169
- auctioning/auctions 92, 114–17, 122,
133, 135, 152
- Australia 21, 28, 35, 142
- Austria 143, 150–1
- bargaining 103–4, 107–8, 167, 172
power 39, 104, 108
- base load capacities 23–4, 35
- base load technologies 8, 34, 36, 159
- behavioural remedies 90, 136
- bidding zones 70
- blacklisted clauses 81, 97, 106
- Brazil 21, 23, 30
- buyers 16, 19, 31, 37–9, 84–5, 88–9,
100
 - single 15, 119
- buying schemes 33, 98–100
- California 6, 8–9, 20, 22, 25–7, 42, 170
- capacity 113–15, 117, 122, 132–7,
151–5, 163–5, 167

- allocation 51–2, 62, 64, 110–17, 165, 171–2
 - cross-border 59, 111–13, 115–16, 172
 - and guidelines 113–16
- base load 23–4, 35
- generation 8, 29, 36, 76, 112, 167
- hoarding 69, 136
- interconnector 7, 46–7, 60, 63, 71, 110–11, 173
- optimal 109, 157–8
- reservation rights 117, 131, 133
- secondary capacity trading 116, 165–6
- transmission 64, 70, 109, 115–16, 155, 163, 166–7
- transport 69, 114, 116, 129, 136
- unused 134, 167
- virtual divestiture of 49, 91, 101
- Carbon Capture and Storage (CCS) 23, 108, 174
- CCGT, *see* combined-cycle gas turbine
- CCS, *see* Carbon Capture and Storage
- certainty, legal, *see* legal certainty; legal uncertainty
- Chicago School 37–8
- coal 23–4, 35–6, 54, 98, 159
- codes, network 62–3, 111, 115–16, 118, 138
- collective dominance 80, 84, 128, 131
- collusion 38–9, 80, 84, 164, 167, 170
 - tacit 38–9, 41, 84
- combined-cycle gas turbine (CCGT) 35–6, 78, 91, 159
- Commission 2–6, 57–71, 117–21, 127–33, 143–6, 149–57, 165–74
 - antitrust strategy 6, 71, 73–108, 169
- commitment procedure 67, 69–70, 103, 105, 128, 170, 172
- commitments 67–8, 75, 86, 92–5, 103–4, 108, 119
 - negotiation 68, 104, 107
 - retail 26, 48
 - unilateral 67, 69
- competition 1–2, 4–6, 14–16, 47, 124–8, 146–8, 160–2
 - analysis 52, 71–2, 80–1, 104–6, 150–1, 170, 173–4
 - dynamics 74, 95, 107, 148, 170
 - effective 1, 62, 123–4, 128
 - effects 2, 48–9, 52, 71, 99, 106, 170–1
 - law, EU, *see* EU competition law
 - models 1, 10, 32, 42, 47, 170–1
 - pipe-to-pipe 129, 160
 - problems 99, 122, 138, 151, 162–4
 - retail, *see* retail competition
- competitive markets 9, 27, 35, 108, 127, 133, 137
- competitive pressure 15, 18, 52, 71, 91, 110
- competitive procurement models 15–16, 19
- competitive reforms 3, 5, 7, 9–10, 13–14, 20–1, 169–70
- competitive retail models 10, 18–21, 43, 45, 47
- competitive structure 91, 104, 108, 128
- competitive wholesale models 16–18
- competitors 32, 66, 69, 80, 95, 123–7, 132–3
 - potential 15, 80, 82–3
- complementarities 168, 174
- concentrated market structures 33, 49, 57, 79, 101
- conflicts of interest 155–6
- congestion 14, 17–18, 22, 52, 64, 70–1, 158
 - amended congestion management guidelines 111, 117, 122, 172
- contractual 51–2, 79, 110, 132, 138, 171
 - management 17–18, 21, 57, 111, 113, 117, 122
 - physical 52, 71, 110, 171
 - rent 64, 114, 141, 145, 155, 173
- constructive refusal to deal 132
- consumers 17, 19, 23, 31, 49, 70, 76
 - final 18, 32, 68, 88–9, 99, 136, 150
 - industrial 49, 76, 90
 - welfare 27, 73, 126–7
- contract clauses 39–42, 76, 94, 98, 170; *see also* individual clause types (e.g. English clauses)
- contract durations 41, 50, 86, 93–4, 96, 98, 102
 - average 49–50

- contracts 1–2, 31–4, 37–40, 49–51, 81–2, 84–90, 93–7
 - long-term, *see* long-term contracts
- contractual congestion 51–2, 79, 110, 132, 138, 171
- coordination 13–14, 60, 62, 89, 115
 - economic 13–14, 16, 19
 - technical 13–14, 17
- cost efficiencies 99–100
- costs 11–13, 19, 25, 28, 43, 100, 158–9
 - fixed 35, 49, 159, 174
 - generation 44, 158, 174
 - marginal 13, 24, 127, 157
 - production 11, 13, 38, 41, 51
 - regulatory 3–4, 107, 171
 - restructuring 15, 19
 - stranded 76–7, 119
 - transaction 30–1, 39, 43, 81, 85, 104, 114–16
- coupling, market 47, 115, 139
- critical customers 84, 110
- cross-border capacity allocation 59, 111–13, 115–16, 122, 134, 154, 161
- cross-border exchanges 46, 59, 64, 112, 120, 144, 165
- cross-border infrastructure 64, 136, 141, 143, 149
- cross-border long-term contracts 52, 109–11, 123, 139, 171–3
- cross-border trade 46, 51–2, 59, 80, 110–11, 115, 172
- cross-border transmission markets 154, 166, 168
- cross-border transmission networks 7, 109, 130, 140, 173
- cumulative foreclosure effects 51, 80, 83, 89, 93–4
- customer foreclosure 3, 41, 49–50, 78, 109, 159, 168
- customers 15, 18, 77–8, 84, 86, 93, 156
 - critical 84, 110
 - household 25, 76, 79
 - industrial 4, 25, 28, 32–3, 45, 49, 76–8
 - most favoured 39, 85
- de-integrated markets 8, 25, 35, 44, 47
- de-integrated retailers 170
- de-integration
 - full 4, 8, 10, 27, 52
 - horizontal 15–16
- decentralized electricity markets 2–3, 5, 11–13, 15–17, 21–3, 27–9, 43–4
 - competitive reform models 13–19
 - long-term contracts problem 8–44
 - natural monopoly to competitive reforms 10–13
 - new competition model 10–27
- demand, market 83–4, 100
- destination clauses 39–40, 76, 91
- destination markets 109–10, 157, 162–3, 167
- Directives 45–7, 57, 60, 90, 111, 118–21, 145–6
- discretion 24, 68, 96, 102–3, 105, 107, 170–1
- discrimination 77, 113, 116, 131, 133, 138, 156
 - price 39, 41, 81, 89, 100
- divestiture 20, 25, 34, 49, 68–9, 101, 137
- domestic long-term contracts 73, 75, 77, 79, 81, 83, 85
- domestic markets 48, 80, 83, 91, 110, 138, 159
- dominance 50, 78, 83, 111, 122, 129, 166–8
 - abuses of 16, 36, 66, 78, 91
 - collective 80, 84, 128, 131
- dominant firms 34, 39, 49–50, 81–2, 85–8, 101, 109–10, 128, 153, 163
 - special responsibility of 136–7
- dominant generators 4, 7, 142–3, 158–9, 161–4, 166–8, 174
- deterrence of anti-competitive use of merchant transmission
 - investment by 163–8
 - as merchant transmission investors 150–3
 - possible market abuse through merchant transmission investment 161–2

- sundry benefits of merchant transmission investment built by 158–61
- dominant incumbents 81, 138, 153
- dominant position 82–3, 111, 122, 127, 130–1, 133, 151–3
- dominant suppliers 38, 83–4, 88, 91, 99, 141
- duration 28, 39–40, 74, 80–2, 86–9, 116–17, 148
 - indefinite 86, 135
 - long 39, 87–8, 99, 135
- economic analysis 2–4, 28, 41, 71, 73, 101, 107–8
 - and predictability 95–7
- economic coordination 13–14, 16, 19
- economic models 5, 9, 172
- economic principles 77, 91, 96–7, 102
- economic theory 2, 4, 6, 8–9, 27, 37–8, 170
- effective competition 1, 62, 123–4, 128
- efficiencies 8, 12, 89, 101–2, 107, 150, 164
 - cost 99–100
 - for individual market players and society 33–7
 - limits of current approach and consequences for legal certainty 97–101
 - price 88–9
 - productive 11–13
- efficiency criteria, long-term 2–3, 9, 40–1, 71, 107, 126
- efficiency gains 27, 33, 40, 71, 87–90, 93, 109
 - and merchant transmission investment as TSO business 154–7
 - potential 87, 161
- efficiency losses 40
- electricity flows 8, 13–14, 116, 155
- electricity interconnectors, *see* interconnectors
- electricity market liberalization 8–10
 - and long-term contracts 19–27
 - main lessons learned 20–5
- energy, *see* *Introductory Note and detailed entries*
- energy economics 36, 95, 107, 143, 170
- energy intensive users 4, 32, 51, 76, 89, 98–9
- Energy Sector Inquiry, *see* Sector Inquiry
- enforcement 3, 5–6, 58, 69, 81, 95–6, 105–7
 - antitrust 2–4, 6, 47, 69, 76, 96, 106
 - competition 73–4, 78, 92, 95–6
 - predictability of 3, 5, 97
- English clauses 85–6
- entry 1–3, 28, 36–8, 41, 49, 82–4, 101–2
 - competitive 18, 109
 - efficient 98, 104, 107
 - retail 24, 32, 44
- ENTSOs, *see* European Network of Transmission System Operators
- equilibrium 13–14, 82, 101–2
- essential facilities 13, 52, 68–9, 71, 121–9, 131–4, 136–9
 - and long-term priority access rights 121–38
- EU
 - Commission, *see* Commission
 - competition law 5, 39, 48, 57, 73, 128, 138
 - supporting role 66–70
 - Courts 66, 78, 104, 108, 112, 117, 127
- European competition authorities 74, 85, 89, 96, 109, 159, 167–8
- European Network of Transmission System Operators (ENTSOs) 62–3
- European Parliament 45–7, 58, 60–1, 63, 90, 120, 147
- excessive pricing 39, 41, 81, 133, 167
- exclusion 38–9, 89, 91, 167
- exclusivity 39, 41–2, 81, 84–5, 96, 98, 174
- exemptions 64–5, 80, 89, 99, 135, 145–54, 166
 - applications 147, 151
 - process 150, 153
 - test 148
 - TPA 149–50
- explicit auctioning/auctions 114–16

- externalities 14, 58, 155–6, 167
 - buyer-to-buyer 38
 - environmental 56
 - negative 148, 155
- final consumers 18, 32, 68, 88–9, 99, 136, 150
- Financial Transmission Rights (FTR) 141–2
- fixed costs 35, 49, 159, 174
- flexibility 31, 36, 85, 93, 98, 102, 104
- Florence process, *see* forum process
- foreclosure 27, 49, 51, 69, 76–7, 80–1, 170–1
 - customer 3, 41, 49–50, 78, 109, 159, 168
 - effects 49, 75, 84–5, 91, 109
 - cumulative 51, 80, 83, 89, 93–4
 - input 37, 92
 - network 136, 142
 - risk 37, 50, 79
- forum process 57–60, 112
- forward markets 8, 16, 25, 28–9, 33, 35, 41–2
- framework guidelines 62–3, 111, 115, 138
- France 4, 48–50, 54, 69, 79, 98–100, 120–1
- fringe firms 122, 130
- FTR, *see* Financial Transmission Rights
- full de-integration 4, 8, 10, 27, 52
- gas 62, 76, 78, 85, 146–9, 152–3, 165
 - markets 45, 77, 91, 105
 - storage 129–30
 - transmission networks 128
- generation 17–18, 25–6, 49, 101, 142–3, 155–6, 158–60
 - adequacy 8, 20, 23–4, 27, 34–5, 41, 90
 - capacities 8, 29, 36, 76, 112, 167
 - costs 44, 158, 174
 - investment 26, 35, 159, 170
 - markets 16, 25, 174
- generators 18, 24, 26, 32, 142–4, 150–1, 156–61
 - dominant, *see* dominant generators
 - incumbent 152–3
 - merchant 28–9
 - v TSOs as merchant transmission investors 154–62
- geographic markets 78–9
- Germany 46, 49–50, 77, 83, 86, 92, 124
- grandfathering rights 75, 110, 112, 117, 120, 122, 132
- guidelines 63, 65, 77–8, 95–6, 99, 111–16, 165
 - framework 62–3, 111, 115, 138
 - non-binding 108, 173
- hard-core restraints 80–1
- harmonization 1, 63, 113
- high fixed cost technologies 11, 23, 36, 41–2, 108, 159, 173
- horizontal de-integration 15–16
- household customers 25, 76, 79
- hybrid remedies 49, 101
- implicit auctioning/auctions 114–16
- import 22, 48, 59, 115, 157
- incentives 7, 11, 26, 31, 34, 153–5, 157–8
 - investment 3, 22
- incomplete transition 45, 48, 53–7, 169, 171
- incumbent transmission system
 - operators 141, 151, 154–6, 160, 173
- incumbents 1, 3, 15–16, 27, 33, 37–9, 90–1
 - dominant 81, 138, 153
 - former 104, 107, 110, 119, 172
 - vertically integrated 29, 36, 52
- indefinite duration 86, 135
- industrial customers 4, 25, 28, 32–3, 45, 49, 76–8
- infra-day markets 17, 115
- infrastructure
 - cross-border 64, 136, 141, 143, 149
 - institutional 169
 - investment 90, 126, 135, 160
 - new 64, 143, 146, 152
- input foreclosure 37, 92
- insurance devices 28–9

- integrated firms 12, 43, 110, 134, 171
- integration, *see also* de-integration;
 - re-integration
 - market 5, 54, 80–1, 85, 97, 106
 - single market 6, 45–7, 49, 51, 53, 55, 71
 - vertical 25, 28–30, 40–1, 43–4, 48–52, 54, 82
- interconnections 53, 56–8, 71, 99, 119–20, 155–6, 159
- interconnectors 51–2, 70–1, 109–13, 121–3, 130–2, 136–9, 171–4
 - already existing and amortized 135, 153
 - capacities 7, 46–7, 60, 63, 71, 110–11, 173
 - priority access rights to, *see* priority access rights to interconnectors
 - strategy for development 141–68
- internal market 45–6, 48, 59–60, 108, 120, 146–7, 165
- investment 23, 26–30, 33–6, 40–4, 107–10, 134–6, 157–63
 - decisions 23, 162, 164
 - defensive 162–3
 - incentives 3, 22
 - infrastructure 90, 126, 135, 160
 - interconnection 160, 168
 - merchant transmission, *see* merchant transmission investment
 - new 18, 29, 51, 88–9, 91, 93, 136–7
 - transmission 23, 143, 151, 154–5, 158, 160, 162
- investors 42, 146, 159
 - merchant transmission 142, 144–5, 147–8, 150, 154–5, 161–2
- Italy 46, 69, 76, 143, 150–1, 156
- joint-ventures 56, 91
- judicial review 2–3, 108, 170
- legal certainty 149–50
- legal uncertainty 105, 125, 145–50, 171
- legitimacy, political 169–70, 172
- legitimate expectations 118, 120
- liberalization 1, 8, 12–13, 53–4, 74–6, 106–7, 169–70
 - Directives 46–7, 57, 60, 67, 70, 118–21, 128–9
 - of network industries 69, 107, 128
 - politics of 5, 103–5, 139, 169
 - process 42, 67, 71, 89, 95, 136
 - third package 47, 57, 59–62, 64–5, 68, 103, 152
- liquidity 29, 41, 47–50, 97–8, 101, 110
- long-term contracts 1–6, 8–11, 25–44, 48–52, 74–9, 81–93, 168–71
 - antitrust perspective 27–42
 - and California crisis 25–7
 - competition analysis 6, 52, 71, 105, 170, 173
 - competition effects of 2, 48, 50, 81, 91, 106
 - cross-border 52, 109–11, 123, 139, 171–3
 - domestic 73, 75, 77, 79, 81, 83, 85
 - negative effects 9, 40, 48, 52
 - portfolios of 82–3, 87
 - potential vicious circle 37–9
 - priority access rights to
 - interconnectors 109–40, 171
 - role in light of electricity market
 - liberalization 19–27
 - and Sector Inquiry 48–53
 - and transaction costs 28–33
- long-term efficiency criteria 2–3, 9, 40–1, 71, 107, 126
- long-term generation adequacy 8, 20, 23, 34–5, 41, 90, 102
- long-term priority access rights 6, 52, 110, 112, 116–18, 139, 171–4
 - and essential facilities doctrine 121–38
- long-term supply contracts, *see* long-term contracts
- loop flows 156
- losses 37, 40, 56, 66, 76
- management 13, 17, 19, 110, 115
 - congestion 17–18, 21, 57, 111, 113, 117, 122
 - risk 31, 42–3, 76
- marginal costs 13, 24, 127, 157

- market characteristics 42, 48, 82, 95, 170
- market coupling 47, 115, 139
- market demand 83–4, 100
- market designs 1, 8, 14, 16–18, 26–7, 116, 142–3
- market integration 5–6, 45–7, 51, 53–5, 71, 80–1, 97
- Market Monitoring Units 142, 165
- market players 24–7, 32–3, 40–1, 43, 52–3, 111–12, 114–16
- market position 33, 40, 52, 89, 162
- market power 16, 20–2, 34, 38–9, 43, 96–8, 157–8
 - mitigation 8, 22, 34, 170
- market shares 25, 38, 42, 78, 80–1, 83–4, 93–5
 - thresholds 78, 80–1, 106
- market structures 29, 33, 37, 50, 67, 69, 127
- markets 15–22, 37–44, 48–9, 92–4, 98–101, 115–16, 127–8
 - competitive 9, 27, 35, 108, 127, 133, 137
 - de-integrated 8, 25, 35, 44, 47
 - destination 109–10, 157, 162–3, 167
 - domestic 48, 80, 83, 91, 110, 138, 159
 - downstream 39, 129
 - forward 8, 16, 25, 28–9, 33, 35, 41–2
 - generation 16, 25, 174
 - geographic 78–9
 - infra-day 17, 115
 - internal 45–6, 48, 59–60, 108, 120, 146–7, 165
 - relevant 78–9, 82, 90, 99, 101, 129–31, 134
 - retail 1–2, 18, 24, 46, 60, 66
 - secondary 114, 122, 132, 135, 137, 160, 165–6
 - spot 16–17, 28–9, 33–4, 38, 40–2, 48–51, 97–8
 - trading 114, 116, 122, 132, 137
 - transmission 70, 130, 135, 165
 - transport 134, 139, 144, 172, 174
- merchant generators 28–9
- merchant transmission investment 7, 135, 141–68, 173–4
 - deterrence of anti-competitive use by dominant generators 163–8
 - possible abuse by dominant generators 161–2
 - regulation 144, 151, 154–5, 168
 - sundry benefits where built by dominant generators 158–61
 - undersizing of investment built by generators 157–8
- merchant transmission investors 142, 144–5, 147–8, 154–5, 161–2
 - bias against dominant generators as 150–3
- methodology 59, 119, 149, 171, 174
 - for examination of TPA exemption applications 147–8
 - new 73–108
- monitoring 22, 47, 62, 102, 142–4, 147, 164–5
 - powers 70, 163
 - transparency 164, 167–8
- monopolization 52, 71, 110, 122, 139, 142, 171
- national competition authorities 5, 71, 77, 79–80, 130
- national regulatory authorities (NRAs) 58–61, 63–6, 114–15, 117–18, 145, 148–50, 164–5
- national transmission system operators 61–2, 111, 115
- natural gas, *see* gas
- negative effects 27, 37, 40–1, 49, 89, 97, 156
- net back clauses 39
- Netherlands 5, 50, 101, 118–19, 143, 151, 162
- network codes 62–3, 111, 115–16, 118, 138
- network congestion, *see* congestion
- network foreclosure 136, 142
- network industries 2, 5, 10, 12, 25, 57, 123
 - deregulated 74, 102
- networks 15–17, 21–3, 46, 68–70, 141–2, 159–61, 172–4

- new competition model, decentralized
 - electricity markets 10–27
- new entrant transmission system
 - operators 151, 153–4, 160–1
- new entrants 34, 36–7, 39, 49, 51, 83, 150–1
- new infrastructures 64, 143, 146, 152
- new market context 3–4, 9, 75, 79, 106, 134, 170
- new methodology 73–108
 - more economic or not 94–102
- non-binding guidelines 108, 173
- NRAs, *see* national regulatory authorities
- objective justifications 124, 133–4, 137, 139, 165
- open seasons 152–3, 159, 161
- optimal capacity 109, 157–8
- ownership unbundling 67–8, 157, 172
- path dependency 54, 96
- peak hours 24
- peaking units 24, 26
- performance 11–12, 23, 29–30, 54, 59, 119, 127
- physical capacity of interconnection 7, 111, 173
- physical congestions 52, 71, 110, 171
- pipe-to-pipe competition 129, 160
- Poland 5, 49–50, 76, 143
- political legitimacy 169–70, 172
- politics of liberalization 5, 103–5, 139, 169
- positive effects 8, 33–4, 40–1, 51, 102, 159, 171
- power purchase agreements 49, 76–7
- pre-emptive investment 161
- predictability 3, 6, 74, 78, 100–2, 106–8, 173
 - and economic analysis 95–7
 - of regulation 146, 150
- price differentials 113, 115, 141, 162, 164, 166
- price discrimination 39, 41, 81, 89, 100
- price efficiencies 88–9
- price risks 2, 18, 28, 30, 32, 35, 42–3
- price spikes 29, 143
- price squeeze, risk of 33, 51, 96–7
- price volatility 35, 48, 97
- prices 24, 30–2, 34–9, 43–5, 64, 66, 166–7
 - excessive 39, 41, 81, 133, 167
 - forward 29
 - spot 32, 34, 51, 76, 141, 162
 - supra-competitive 126–7
- priority access rights to interconnectors
 - 109–40, 171
 - and essential facilities doctrine 121–38
 - long-term priority access rights and EU electricity law 112–21
 - VEMW case* 117–21
- privatization 20, 55
- pro-entry bias 104–5, 107, 133, 169, 172
- procurement 14–16, 19, 26, 91
- production 24, 38, 49, 90, 92, 101–2
 - capacities 47, 99
 - costs 11, 13, 38, 41, 51
- productive efficiency 11–13
- property rights 5, 53–5, 70, 103, 158
- proportionality 68, 89, 91, 102, 118, 134
- public service obligations 70, 88, 118–19, 121, 134
- purchase agreements 49, 76–7
- quantity 31–2, 35, 44, 84–5, 166
- risks 2, 28, 30, 35, 40, 43, 159
- re-integration, vertical 43, 50
- reduction clauses 31, 39, 85
- reform 12, 14, 21, 23–4, 53–6, 70, 103
 - competitive reform models 4, 7, 9–10, 13–19, 26, 43, 169–70
 - outcomes 53–4, 70
 - top-down 1, 45
- refusal to deal 119, 124, 129, 131–4, 137, 145, 167
- regional market designs 142
- regulation 3, 11–13, 139, 144, 149–51, 154–5, 167–8
- regulatory authorities 61, 64, 122, 126, 164

- national 58–61, 63–6, 114–15, 117–18, 145, 148–50, 164–5
- regulatory cooperation 57–8
- regulatory costs 3–4, 107, 171
 - limiting to concentrate on most harmful infringements 78–81
- regulatory framework 2, 46, 57, 103, 107, 163–4, 168–9
- regulatory powers 6, 58, 66, 71, 103
 - allocation of 58, 103, 125, 138, 144, 146, 148
 - and legal certainty 149–50
 - new 164–8
- regulatory practice 4, 57, 59, 67, 147, 169
- regulatory regimes 3, 10, 67, 144, 146, 169
- regulatory uncertainty for development of merchant lines 145–50
- relevant markets 78–9, 82, 90, 99, 101, 129–31, 134
- reliability 17, 22–3, 27, 115–16
- remedies
 - behavioural 90, 136
 - classical 90
 - hybrid 49, 101
 - negotiation 90–4
 - uncertain economic effects 101–2
- renegotiation 31
- resellers 31, 49, 76, 78, 86–7, 93, 96
- responsibility 55, 66, 122, 125–6, 128
- restraints 77, 80, 94
 - hard-core 80–1
 - vertical 37, 78, 83
- restructuring costs 15, 19
- retail 15, 33, 37, 49, 51, 86, 101–2
 - commitments 26, 48
 - competition 19–20, 24–6, 42–3
 - intensity 40, 42, 49, 97
 - competitive retail models 10, 18–21, 43, 45, 47
 - entry 24, 32, 44
 - markets 1–2, 18, 24, 46, 60, 66
 - designs 24, 26
 - supply 10, 17–18, 78
- retailers 1, 18–19, 25, 30, 32, 38, 43
- review, judicial 2–3, 108, 170
- rights
 - capacity reservation 117, 131, 133
 - financial transmission 141–2
 - grandfathering 75, 110, 112, 117, 120, 122, 132
 - priority access, *see* priority access rights to interconnectors
 - property 5, 53–5, 70, 103, 158
 - termination 39, 42, 81, 93, 99
 - transmission 116, 141, 160, 166
- risk management 31, 42–3, 76
- risk profiles 30, 42, 148
- risks 32–3, 36, 38–9, 43, 125, 147–50, 159–63
 - of private law suits before national courts 104, 108
- secondary capacity trading 116, 165–6
- secondary markets 114, 122, 132, 135, 137, 160, 165–6
- Sector Inquiry 1, 3, 5, 29, 44, 113–14, 122
 - and long-term contracts 48–53
- security of supply 3, 11, 17, 23–4, 90–1, 152, 159–60
- single market 21, 66, 100, 106, 139
 - integration 6, 45–71, 171
- social welfare 2, 27, 34, 37–8, 114–15, 154–5, 158
- spot markets 16–17, 28–9, 33–4, 38, 40–2, 48–51, 97–8
- spot prices 32, 34, 51, 76, 141, 162
- State Aid 5, 76–7, 99–100
- stranded costs 76–7, 119
- subsidiarity 57–8, 71
- suppliers 18–19, 21, 80, 82–6, 93–4, 99–100, 143
 - dominant 38, 83–4, 88, 91, 99, 141
 - efficient 37, 86
- supply
 - contracts, long term, *see* long-term contracts
 - security of 3, 11, 17, 23–4, 90–1, 152, 159–60
- supra-competitive prices 126–7
- Sweden 70

- system operators, *see* transmission system operators (TSOs)
- tacit collusion 38–9, 41, 84
- tacit renewal clauses 31, 39, 41, 81, 86, 94–5, 98
- take-or-pay clauses 31
- tariffs 24, 57, 59, 112, 129, 133
- technical coordination 13–14, 17
- technology 9, 11, 30–1, 35–7, 42, 51, 54–5
 - base load 8, 34, 36, 159
 - high fixed cost 11, 23, 36, 41–2, 108, 159, 173
- termination rights 39, 42, 81, 93, 99
- textbook models 3, 7–8, 20, 35, 56, 113, 116
- third parties 37, 121, 136, 143
- third party access (TPA) 13, 15, 64, 129, 135, 138, 145–6
 - exemptions 149–50
 - methodology, for examination of applications 147–8
- thresholds, market share 78, 80–1, 106
- time horizons 42, 49, 91, 116, 163
- top-down reform 1, 45
- TPA, *see* third party access
- trading markets 114, 116, 122, 132, 137
- transaction costs 39, 43, 81, 85, 104, 114–16, 122
 - and long-term contracts 28–33
 - savings 98, 104
- transition 6, 13, 24, 37, 57, 60, 67
 - incomplete 45, 48, 53, 169, 171
- transmission 13, 23, 109, 129–30, 146–7, 152–3, 166
 - capacity 64, 70, 109, 115–16, 155, 163, 166–7
 - investment 23, 143, 151, 154–5, 158, 160, 162
 - merchant, *see* merchant transmission investment
- markets 70, 130, 135, 165
 - cross-border 154, 166, 168
- networks, *see* networks
- rights 116, 141, 160, 166
- subsidiaries 17, 118
- transmission system operators (TSOs) 17, 118, 147
 - incumbent 141, 151, 173
 - national 61–2, 111, 115
 - new entrant 151, 153–4, 160–1
 - unbundled 139, 144, 161
 - v generators as merchant transmission investors 154–62
- transparency 38, 41, 45, 47, 111–12, 137, 165–6
 - monitoring 164, 167–8
 - requirements 115, 138, 164
- transport 15, 64, 113, 115, 121, 138–9, 171–2
 - capacity 69, 114, 116, 129, 136
 - markets 134, 139, 144, 172, 174
- TSOs, *see* transmission system operators
- UIOLI, *see* use-it-or-lose-it (UIOLI) mechanism/principle
- unbundled transmission system operators 139, 144, 161
- unbundling 17, 30, 46, 60, 68, 129, 145
 - ownership 67–8, 157, 172
- uncertainties 26, 29, 66, 100, 114, 116, 146–7
 - legal/regulatory 105, 125, 145–50, 171
- under-sizing 154, 157–8, 161
- unilateral commitments 67, 69
- Union Courts 66, 78, 104, 108, 112, 117, 127
- United Kingdom 8, 12, 19, 22, 25, 49–50, 143
- United States 15, 21, 23, 25–6, 29, 42, 123
- use-it-or-lose-it (UIOLI) mechanism/principle 116, 118, 135, 137, 150, 163–5, 167–8
- vertical de-integration 5–6, 45–71, 170–1
- vertical integration 25, 28–30, 40–1, 43–4, 48–52, 54, 82
- vertical re-integration 43, 50
- vertical restraints 37, 78, 83

- virtual divestiture of capacity 49, 91, 101
- Virtual Power Plants, *see* VPPs
- VPPs (Virtual Power Plants) 48–9, 91–2, 101–2, 104, 173
- welfare 28, 34, 38, 52, 58, 153–4
- consumer 27, 73, 126–7
- social 2, 27, 34, 37–8, 114–15, 154–5, 158

