The National Politics of Nuclear Power

Economics, security, and governance

Benjamin K. Sovacool and Scott Victor Valentine



Contents

	List of figures	X
	List of tables	xi
	Acknowledgments ·	xiv
	List of acronyms and abbreviations	. xv
1	Introduction	1
	Why nuclear power? 2	
	Contribution to nuclear scholarship 4	
	Methods and key concepts 5	
	Case selection 9	
	Introducing a theory of nuclear socio-political economy 12	
	National security and secrecy 12	
	Technocratic ideology 16	
	Economic interventionism 17	
	Centrally coordinated energy stakeholder network 19	
	Subordination of opposition to political authority 22	
	Social peripheralization 22	
	Up ahead 24	
_		
2	An introduction to nuclear power technology	25
	Industry overview 25	
	Nuclear reactor types 26	
	Nuclear reactor generations 28	
	The basics of the nuclear lifecycle 32	
	Uranium mining and milling 32	
	Plant construction and operation 37	
	Interim and permanent waste storage 38	
	Used fuel reprocessing and disposal 40	
	Decommissioning 42	
	Nuclear technology and the socio-political economy 43	
	Nuclear technology and the political realm 44	
	-	

	Nuclear technology and the economics of electricity generation	46
	Nuclear technology and society 50	
3	United States	54
	Background 54	
	National security and secrecy 64	
	Technocratic ideology 67	
	Economic interventionism 71	
	Centrally coordinated energy stakeholder network 74	
	Subordination of opposition to political authority 75	
	Social peripheralization 75	
	Looking to the future 7.8	
4	France	83
	Background 83	
	National security and secrecy 89	
	Technocratic ideology 91	
	Economic interventionism 92	
	Centrally coordinated energy stakeholder network 93	
	Subordination of opposition to political authority 94	
	Social peripheralization 95	
	Looking to the future 97	
5	Japan	101
	Background 101	
	National security and secrecy 110	
	Technocratic ideology 113	
	Economic interventionism 116	
	Centrally coordinated energy stakeholder network 117	
	Subordination of opposition to political authority 118	
	Social peripheralization 121	
	Looking to the future 123	2
6	Russia and the former Soviet Union	132
	Background 132	
	National security and secrecy 135	
	Technocratic ideology 137	
	Economic interventionism 139	
	Centrally coordinated energy stakeholder network 140	
	Subordination of opposition to political authority 141	
	Social peripheralization 142	
	Looking to the future 143	

Contents

151

	Background 151		
	National security and secrecy 153		
	Technocratic ideology 157		
	Economic interventionism 158		
	Centrally coordinated energy stakeholder network	159	
	Subordination of opposition to political authority	159	
	Social peripheralization 160		
	Looking to the future 162		
8	Canada		169
	Background 169		
	National security and secrecy 175		
	Technocratic ideology .177		
	Economic interventionism 179		
	Centrally coordinated energy stakeholder network	179	
	Subordination of opposition to political authority		
	Social peripheralization 184		
	Looking to the future 185		
9	China		190
	Background 190		
	National security and secrecy 194		
	Technocratic ideology 197		
	Economic interventionism 198		
	Centrally coordinated energy stakeholder network	200	
	Subordination of opposition to political authority		
	Social peripheralization 201		
	Looking to the future 202		
			000
10	India		209
	Background 209		
	National security and secrecy 210		
	Technocratic ideology 215		
	Economic interventionism 218	010	
	Centrally coordinated energy stakeholder network		
	Subordination of opposition to political authority	219	
	Social peripheralization 220		
	Looking to the future 221		

7 South Korea

11	Conclusion				
	Insight 1: the commonalities of nuclear power development appear universal 230 Insight 2: the socio-political economy of nuclear power is a complex adaptive system 234 Insight 3: the six drivers must exist simultaneously to induce uninterrupted development 235 Insight 4: national security plays a central role in nuclear power development 237				
	Insight 5: climate change enhances nuclear power development prospects 239				
	Insight 6: the impact of the Fukushima disaster on long-term development is unclear 239				
	Insight 7: deterministic accounts do not fully explain nuclear development 241 Insight 8: nuclear power requires undemocratic conditions to thrive 242 Need for further insight 248				
	Appendix: major accidents and incidents at nuclear power facilities from 1952 to 2011	25			
	Notes	26			
	Index	29			