Contents

List of	editors and contributors	xii
	ord to the Encyclopedia Benidickson and Yves Le Bouthillier	xviii
	ord to Volume IX el Faure	xix
List of	abbreviations	xxi
	uction to Volume IX a M Roggenkamp, Kars J de Graaf and Ruven C Fleming	1
PART	1 GENERAL CONCEPTS	
IX.1	Sovereignty and jurisdiction over energy resources Catherine Redgwell	9
IX.2	Regulating the energy chain Martha M Roggenkamp	20
IX.3	The energy trilemma Ruven C Fleming	31
IX.4	Sustainable development, principles of environmental law and the energy sector Kars J de Graaf and Lorenzo Squintani	41
PART	2 INTERNATIONAL DEVELOPMENTS	
Interna	ational energy cooperation and trade	
IX.5	The International Atomic Energy Agency Jennifer Campion	57
IX.6	International cooperation in oil and gas: current and evolving roles of OPEC and GECF Damilola S Olawuyi	68

vi En	acyclopedia of environmental law: volume IX	
IX.7	The International Energy Agency John Paterson and Ruven C Fleming	79
IX.8	The Energy Charter Treaty Cees Verburg	88
IX.9	The International Renewable Energy Agency Thijs Van de Graaf	99
Region	nal energy cooperation and trade	
IX.10	The development of energy cooperation and trade in the European Union Íñigo del Guayo	111
IX.11	Energy cooperation in North America: from CUSFTA to USMCA José Juan González Márquez, Alastair Lucas and Diego Almeida	122
IX.12	Energy cooperation in South America: the case of MERCOSUR Lila Barrera-Hernández and Thomas Andrew O'Keefe	134
IX.13	Energy cooperation in Asia: the case of ASEAN Sufian Jusoh	145
IX.14	Energy cooperation in Africa: the African Union vs Regional Economic Communities Taciana Peão Lopes and Cheri-Leigh Young	156
PART	3 REGULATING ENERGY MARKETS	
IX.15	Governance of the energy market in the European Union Silke Goldberg and Anne Eckenroth	169
IX.16	Governance of the energy markets in Canada Alastair Lucas and Diego Almeida	180
IX.17	Governance of the energy market in the United States Richard Ottinger, Aaron Rudyan and Bahar Hashemolhosseini	193
IX.18	Governance of the energy market in Australia Lee Godden and Anne Kallies	204
IX.19	Governance of the energy market in Russia Sergey Seliverstov and Ivan Gudkov	216
IX.20	Governance of the energy market in China Wang Mingyuan and Gao Lailong	227

	Contents	V11
IX.21	Frameworks for energy governance and regulation in Africa Hanri Mostert, Hugo Meyer van den Berg and Bernard Kengni	238
PART	4 REGULATING THE OIL AND GAS SECTOR	
Explor	ation and production of oil and gas	
IX.22	Overview of legal regimes governing exploration and production of petroleum Hugo Meyer van den Berg	257
IX.23	Protecting health, safety and the environment offshore John Paterson	267
IX.24	Decommissioning of (abandoned or disused) offshore installations Constantinos Yiallourides and Greg W Gordon	277
New de	evelopments	
IX.25	Reuse of offshore oil and gas infrastructure: a case study on CCS Dinand Drankier and Joris Gazendam	291
IX.26	Regulating oil and gas exploration and production in the Arctic <i>Tina Soliman Hunter</i>	302
IX.27	Regulating the production of shale gas and fracking Leonie Reins and Allan Ingelson	313
IX.28	Alternatives to natural gas: the legal framework on synthetic natural gas and biomethane Daisy G Tempelman	326
PART	5 REGULATING THE ELECTRICITY PRODUCTION SECTOR	
Genera	1	
IX.29	Electricity production and emission standards Kars J de Graaf and Lolke S Braaksma	341
IX.30	Electricity production and greenhouse gas emissions trading Edwin Woerdman and Yingying Zeng	352
IX.31	Environmental considerations in regulating nuclear energy Anthony Wetherall	363

Renewable resources

IX.32	Renewable energy sources and the impact on security of supply and dispatching Fokke Elskamp	377		
IX.33	Regulating the promotion of renewable electricity consumption and production: a European Union case study <i>Olivia Woolley</i>	388		
IX.34	Regulating the promotion of non-conventional renewable energy sources in Latin America Milton Fernando Montoya Pardo and María Alejandra Garzón Albornoz	399		
Hydro	power			
IX.35	Regulation of hydropower in the European Union Henrik Bjørnebye	413		
IX.36	Regulation of hydropower in South America Milton Fernando Montoya Pardo and Daniela Aguilar Abaunza	424		
Wind energy				
IX.37	Regulation of wind energy in the European Union Romain Mauger	439		
IX.38	Regulation of wind power in China Wang Mingyuan and Gao Lailong	450		
Solar energy				
IX.39	Regulating solar energy in the European Union Michel Chatelin and Louis-Narito Harada	463		
IX.40	Regulating solar energy in Mexico José Juan González Márquez	474		
Biomas	Biomass			
IX.41	Wood-based biomass and electricity in the United States: a case study in scientific and policy uncertainty Blake Hudson	487		
IX.42	Promoting sustainable energy in Brazil: the role of biomass Rômulo Sampaio and Patricia Sampaio	498		

Geothe	rmal	
IX.43	Regulation of electricity from geothermal heat in Iceland Hilmar Gunnlaugsson	511
IX.44	Regulation of geothermal resources for energy in New Zealand <i>Phoebe Parson</i>	522
New de	evelopments	
IX.45	Regulating offshore wind energy Ceciel T Nieuwenhout	535
IX.46	Regulating wave, tidal and ocean thermal energy Theodore Nsoe Adimazoya and Meinhard Doelle	546
PART	6 REGULATING ENERGY TRANSPORT	
Genera	ıl	
IX.47	Energy networks, natural monopolies and tariff regulation Machiel Mulder and Edwin Woerdman	563
IX.48	Maritime transport and the environment: energy transport by sea Beatriz Martinez Romera and Catalin Gabriel Stanescu	573
IX.49	Greening the transport sector: promoting 'zero emissions vehicles' in the EU and US Gijs Kreeft and Dirk Kuiken	584
Networ	rk-bound energy	
IX.50	Regulating the use of energy networks in liberalised markets Anne Kallies	599
IX.51	Regulating electricity network reliability Dirk Kuiken	611
IX.52	Regulating high voltage power lines: electromagnetic fields and safety Catherine Banet and Astrid Skjønborg Brunt	621
IX.53	Regulating pipeline safety Mehdi Piri	633

x Encyclopedia of environmental law:	volume .	IX
--------------------------------------	----------	----

LeRoy Paddock

New de	evelopments	
IX.54	A legal framework for smart grids Lea Diestelmeier	645
IX.55	The regulation of microgrids Donna M Attanasio	656
IX.56	Developing an offshore electricity grid: European and US approaches Ceciel T Nieuwenhout and Hannah K Müller	668
IX.57	Developing a regulatory framework for electricity storage Gijs Kreeft and Romain Mauger	679
PART	7 REGULATING ACCESS TO ENERGY AND PROTECTING ENERGY CONSUMERS	
Energy	supply and consumption	
IX.58	Energy poverty and household access to energy services in international, regional and national law Marlies Hesselman	695
IX.59	Protecting energy consumers from the bankruptcies of energy supply companies René van 't Hoft	707
IX.60	Protecting energy consumers via tariff regulation James M Van Nostrand	717
New de	evelopments	
IX.61	Regulating residential prosumers Lea Diestelmeier	729
PART	8 REGULATING ENERGY EFFICIENCY AND ENERGY SAVINGS	S
IX.62	Regulating energy efficiency in the European Union Martha M Roggenkamp	741
IX.63	Energy efficiency at energy production level: promoting combined heat and power <i>Maciej M Sokołowski</i>	753
IX.64	The role of demand-response mechanisms in promoting energy efficiency	764

		Contents	X
IX.65	Energy efficiency at the consumer level in the United States LeRoy Paddock and Deepti Bansal		776
Index		*	789