

ENERGY IN INTERNATIONAL TRADE LAW

Against the backdrop of energy markets that have radically changed in recent decades, this book offers an in-depth study of energy regulation in international trade law. The author seeks to clarify what we define as ‘energy’ in the context of the applicable international trade rules, and gives the reader a thorough analysis of the concepts, history and law of the various legal frameworks underpinning international energy trade. In addition, several case studies address the ongoing quest for energy security and show how the existing rules relate to some of the vast challenges that energy markets face today, notably the decentralization and decarbonization of energy markets.

ANNA-ALEXANDRA MARHOLD is Assistant Professor at the Grotius Centre for International Legal Studies at Leiden University Law School, where she researches and teaches in the area of international law, including international economic law. Her specialization is international trade law at the intersection of energy and environmental regulation.

CAMBRIDGE INTERNATIONAL TRADE AND ECONOMIC LAW

Series editors

Dr Lorand Bartels
University of Cambridge
Professor Thomas Cottier
University of Berne
Professor Tomer Broude
Hebrew University of Jerusalem
Professor Andrea K. Bjorklund
McGill University, Montréal

Processes of economic regionalization and globalization have intensified over the last decades, accompanied by increases in the regulation of international trade and economics at the levels of international, regional and national laws. At the same time, significant challenges have arisen with respect to economic liberalization, rule-based systems of trade and investment, and their political and social impacts. The subject matter of this series is international economic law in this contemporary context. Its core is the regulation of international trade, investment, finance and cognate areas such as intellectual property and competition policy. The series publishes books on related regulatory areas, in particular human rights, labour, environment and culture, as well as sustainable development. These areas are horizontally interconnected and vertically linked at the international, regional and national levels. The series also includes works on governance, dealing with the structure and operation of international organizations related to the field of international economic law, and the way they interact with other subjects of international and national law. The series aims to include excellent legal doctrinal treatises, as well as cutting-edge interdisciplinary works that engage law and the social sciences and humanities.

*Books in the series**Essential Interoperability Standards*

Simon Brinsmead

Shareholders' Claims for Reflective Loss in International Investment Law

Lukas Vanhonnaeker

Transparency in the WTO SPS and TBT Agreements: The Real Jewel in the Crown

Marianna B. Karttunen

Emerging Powers in International Economic Law

Sonia E. Rolland and David M. Trubek

Commitments and Flexibilities in the WTO Agreement on Subsidies and Countervailing Measures

Jose Guilherme Moreno Caiado

The Return of the Home State to Investor-State Disputes: Bringing Back Diplomatic Protection?

Rodrigo Polanco

The Public International Law of Trade in Legal Services

David Collins

Industrial Policy and the World Trade Organization: Between Legal Constraints and Flexibilities

Sherzod Shadikhodjaev

The Prudential Carve-Out for Financial Services: Rationale and Practice in the GATS and Preferential Trade Agreements

Carlo Maria Cantore

Judicial Acts and Investment Treaty Arbitration

Berk Demirkol

Distributive Justice and World Trade Law: A Political Theory of International Trade Regulation

Oisín Suttle

Freedom of Transit and Access to Gas Pipeline Networks under WTO Law

Vitaliy Pogoretsky

Reclaiming Development in the World Trading System, 2nd edition

Yong-Shik Lee

Developing Countries and Preferential Services Trade

Charlotte Sieber-Gasser

WTO Dispute Settlement and the TRIPS Agreement: Applying Intellectual Property Standards in a Trade Law Framework

Matthew Kennedy

Establishing Judicial Authority in International Economic Law

Edited by Joanna Jemielniak, Laura Nielsen and Henrik Palmer Olsen

Trade, Investment, Innovation and Their Impact on Access to Medicines: An Asian Perspective

Locknie Hsu

The Law, Economics and Politics of International Standardisation

Panagiotis Delimatsis

The WTO and International Investment Law: Converging Systems

Jürgen Kurtz

Export Restrictions on Critical Minerals and Metals: Testing the Adequacy of WTO Disciplines

Ilaria Espa

Optimal Regulation and the Law of International Trade: The Interface between the Right to Regulate and WTO Law

Boris Rigod

The Social Foundations of World Trade: Norms, Community and Constitution

Sungjoon Cho

Public Participation and Legitimacy in the WTO

Yves Bonzon

The Challenge of Safeguards in the WTO

Fernando Piérولا

General Interests of Host States in International Investment Law

Edited by Giorgio Sacerdoti, with Pia Acconci, Mara Valenti and Anna De Luca

The Law of Development Cooperation: A Comparative Analysis of the World Bank, the EU and Germany

Philipp Dann

WTO Disciplines on Subsidies and Countervailing Measures: Balancing Policy Space and Legal Constraints

Dominic Coppens

Domestic Judicial Review of Trade Remedies: Experiences of the Most Active WTO Members

Edited by Müslüm Yilmaz

The Relevant Market in International Economic Law: A Comparative Antitrust and GATT Analysis

Christian A. Melischek

International Organizations in WTO Dispute Settlement: How Much Institutional Sensitivity?

Marina Foltea

Public Services and International Trade Liberalization: Human Rights and Gender Implications

Barnali Choudhury

The Law and Politics of WTO Waivers: Stability and Flexibility in Public International Law

Isabel Feichtner

African Regional Trade Agreements as Legal Regimes

James Thuo Gathii

Liberalizing International Trade after Doha: Multilateral, Plurilateral, Regional, and Unilateral Initiatives

David A. Gantz

Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals

Christiane R. Conrad

Non-Discrimination in International Trade in Services: 'Likeness' in WTO/ GATS

Nicolas F. Diebold

Cambridge University Press & Assessment
978-1-108-44591-7 — Energy in International Trade Law
Anna-Alexandra Marhold
Frontmatter
[More Information](#)

The Law, Economics and Politics of Retaliation in WTO Dispute Settlement

Edited by Chad P. Bown and Joost Pauwelyn

The Multilateralization of International Investment Law

Stephan W. Schill

Trade Policy Flexibility and Enforcement in the WTO: A Law and Economics Analysis

Simon A.B. Schropp

ENERGY IN
INTERNATIONAL
TRADE LAW

Concepts, Regulation and Changing Markets

ANNA - ALEXANDRA MARHOLD
Leiden University



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press & Assessment
978-1-108-44591-7 — Energy in International Trade Law
Anna-Alexandra Marhold
Frontmatter
[More Information](#)



CAMBRIDGE
UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment,
a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of
education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781108445917

DOI: 10.1017/9781108551526

© Anna-Alexandra Marhold 2021

This publication is in copyright. Subject to statutory exception and to the provisions
of relevant collective licensing agreements, no reproduction of any part may take
place without the written permission of Cambridge University Press & Assessment.

First published 2021

First paperback edition 2023

A catalogue record for this publication is available from the British Library

Library of Congress Cataloging-in-Publication data

Names: Marhold, Anna-Alexandra, 1983– author.

Title: Energy in international trade law : concepts, regulation and changing markets / Anna-Alexandra Marhold, Leiden University.

Description: Cambridge, United Kingdom ; New York, NY : Cambridge University Press, 2021. | Series: Cambridge international trade and economic law | Based on author's thesis (doctoral - European University Institute, 2016) issued under title: Energy in international trade law from GATT to TTIP. | Includes bibliographical references and index.

Identifiers: LCCN 2021008912 | ISBN 9781108427227 (hardback) | ISBN 9781108445917 (paperback) | ISBN 9781108551526 (ebook)

Subjects: LCSH: Power resources – Law and legislation. | Foreign trade regulation.

Classification: LCC K3981 .M358 2021 | DDC 343.08/7533379–dc23

LC record available at <https://lcn.loc.gov/2021008912>

ISBN 978-1-108-42722-7 Hardback

ISBN 978-1-108-44591-7 Paperback

Cambridge University Press & Assessment has no responsibility for the persistence
or accuracy of URLs for external or third-party internet websites referred to in this
publication and does not guarantee that any content on such websites is, or will
remain, accurate or appropriate.

To my mother Eduarda, my husband Vasyl
and our son Arthur Samuel

CONTENTS

<i>List of Tables</i>	page xvii
<i>Foreword</i>	xix
<i>Acknowledgements</i>	xxiii
<i>Tables of Cases</i>	xxvi
<i>List of Acronyms and Abbreviations</i>	xxxv
Introduction and Objectives	1
PART I Energy in International Trade Law: Concepts, History and Legal Framework	
1 Energy in the Context of International Trade Law: Concepts and Changing Markets	7
1.1 Introduction	7
1.2 Framing Energy: Defining an Evolving Concept	7
1.2.1 Natural Resources and Raw Materials	10
1.2.2 Primary and Secondary Energy Commodities	14
1.2.3 Non-Renewable, Renewable and Clean Energy	15
1.3 The Relevance of International Trade Rules for Energy	17
1.3.1 The World Trade Organization, Energy Charter Treaty and Preferential Trade Agreements	17
1.3.2 The Legal Classification of Energy Resources in International Trade Law	21
1.3.3 When Do International Trade Rules Kick In?	23
1.4 The Challenge of Changing Energy Markets: Decentralization, Decarbonization and Energy Security	27

1.4.1	Decentralization: Opening-Up a Vertically Integrated Sector	28
1.4.2	Decarbonization: Understanding the Shift from Fossil Fuels to Clean Energy	31
1.4.3	Changing Markets and the Eternal Quest for Energy Security	32
1.5	Conclusion	34
2	Energy's Place in International Trade Law History	35
2.1	Introduction	35
2.2	From GATT 1947 to the Tokyo Round: Energy In or Out?	35
2.2.1	GATT's Early Years: Energy on the Back Burner	35
2.2.2	Tariffs on Petrol Taken Up in Members' Schedules since GATT 1947	39
2.3	From Tokyo to Uruguay: Fuelling Concerns about Energy	43
2.3.1	Tokyo Round (1973–79): OPEC and the Oil Crises	43
2.3.2	Uruguay Round (1986–94): Natural Resource-Based Products and Important Energy Accessions	46
2.4	From Uruguay to Doha: Energy Accessions and Disputes Entering a New Era	50
2.4.1	Energy Issues after the Establishment of the WTO: Doha and Beyond	50
2.4.2	Energy in Post-1995 WTO Accession Protocols (1996–2015)	51
2.4.3	Energy Disputes on the Rise	62
2.5	Conclusion	64
3	The Current WTO Legal Framework Relevant to Energy	66
3.1	Introduction	66
3.2	Multilateral Agreements on Trade in Goods	67
3.2.1	General Agreement on Tariffs and Trade	67
3.2.2	Agreement on Agriculture	80

CONTENTS

xiii

3.2.3	Agreement on Technical Barriers to Trade	81
3.2.4	Agreement on Trade-Related Investment Measures	82
3.2.5	Anti-Dumping Agreement	83
3.2.6	Agreement on Subsidies and Countervailing Measures	85
3.3	General Agreement on Trade in Services	88
3.3.1	The Goods/Services Divide in Energy	88
3.3.2	GATS Coverage and Exceptions	92
3.3.3	Energy Services as a Separate Sector?	97
3.4	Trade-Related Aspects of Intellectual Property Rights	99
3.5	Plurilateral Trade Agreements: Government Procurement	100
3.6	Summary Table of WTO Energy-Related Disputes	101
3.7	Conclusion	109
4	Beyond the WTO: The Energy Charter Treaty and Preferential Trade Agreements	110
4.1	Introduction	110
4.2	The Nexus between the WTO and the Energy Charter Treaty	110
4.2.1	Overview	110
4.2.2	WTO and ECT: Overlaps and Changes in Membership	114
4.2.3	WTO and ECT Membership: Changes and Overlaps 1998–2020	115
4.2.4	Subject-Matter Overlaps between the WTO and the ECT	121
4.2.5	Procedural Overlaps: Dispute Settlement in the WTO vs the ECT	127
4.2.6	The WTO-ECT Relationship Twenty-Five Years On: Unresolved Issues and ECT Modernization	131
4.3	Energy in Selected Preferential Trade Agreements	141
4.3.1	NAFTA and USMCA	142

4.3.2	EU Free Trade Agreements: Singapore, Ukraine and Mexico	146
4.3.3	Trends in Preferential Trade Agreement Energy Chapters	153
4.4	Conclusion	154
PART II	International Trade Law and Changing Energy Markets: Decentralization, Decarbonization and Energy Security	
5	Decentralizing Energy Markets in the Light of International Trade Law: OPEC and the EU Internal Energy Market	159
5.1	Introduction	159
5.2	Global Energy Cartels: OPEC's Restrictive Practices in the Context of WTO Law	160
5.2.1	GATT Rationale, Restrictive Practices and Quotas	160
5.2.2	Understanding the OPEC Cartel and Its Anti-Competitive Effects	166
5.2.3	OPEC in the WTO Context	171
5.2.4	Avenues for Tackling OPEC Production Quotas under WTO Law	174
5.2.5	Production Quotas as Quantitative Restrictions: Article XX(g) GATT Defences?	180
5.3	Decentralizing the European Internal Energy Market in the Light of WTO Law	188
5.3.1	Rationale of EU Unbundling and the Third Energy Package	188
5.3.2	<i>EU – Energy Package</i> : Russia Challenging EU Decentralization Policies	195
5.3.3	WTO Rules Facilitating EU Energy Market Decentralization Policies	198
5.3.4	WTO Rules Constraining EU Energy Market Decentralization Policies	203
5.4	Conclusion	209

CONTENTS

xv

6	Decarbonizing Energy Markets: Constraining Dual Pricing and Options for Fossil Fuel Subsidy Reform in the WTO	211
6.1	Introduction	211
6.2	Dual Pricing as an Environmentally Harmful Fossil Fuel Subsidy	213
6.3	Understanding Dual Pricing in the GATT/WTO Context	216
6.4	Options for Constraining Dual Pricing in the WTO under Existing Rules	220
6.4.1	General Agreement on Tariffs and Trade (GATT): Articles XI and XVII	221
6.4.2	Agreement on Subsidies and Countervailing Measures: Dual Pricing as a Prohibited or Actionable Subsidy	225
6.4.3	Anti-Dumping Agreement: Countering Dual Pricing by Adjusting the Dumping Margin	229
6.5	Beyond Existing Rules: How Can the WTO Curb Dual Pricing and Promote Fossil Fuel Subsidy Reform?	230
6.5.1	Amending the SCM Agreement: Inspiration from TTIP Negotiations and the EU-Ukraine DCFTA	231
6.5.2	Including Fossil Fuel Subsidy Reform on the WTO Agenda	235
6.6	Conclusion	238
7	The Emerging Concept of Energy Security in International Trade Law	240
7.1	Introduction	240
7.2	The Concept of Energy Security and Its Role in International Law	241
7.2.1	Energy Security as a Concept in International Relations	241
7.2.2	The Role of Energy Security in Public International Law	244
7.2.3	Energy Security in Energy-Specific Treaties	246
7.2.4	Energy Security in International Trade Law: WTO and PTAs	250

7.3	Energy Security as an Emerging Concept in WTO Dispute Settlement: Lessons from <i>India – Solar Cells</i> and <i>EU – Energy Package</i>	252
7.3.1	<i>India – Solar Cells</i> : Long-Term Energy Security as a Justification for Domestic Content Requirements?	253
7.3.2	<i>EU – Energy Package</i> : Energy Security as an Exception under GATS or GATT?	257
7.4	Conclusion	263
8	General Conclusion and Recommendations	265
8.1	International Trade Law, Energy and the Challenges of Changing Markets	265
8.2	Enhanced Global Energy Governance: Is the WTO the Right Forum?	266
8.2.1	Arguments in Favour of More Proactive Energy Regulation in the WTO	267
8.2.2	Obstacles to More Proactive Energy Regulation in the WTO	273
8.2.3	A Plurilateral Framework on Energy in the WTO?	275
8.3	WTO-ECT Synergy: Scenarios of Competition, Integration and Complementarity	277
8.3.1	Unproductive Scenario: Competition	277
8.3.2	Productive Scenario 1: (Partial) Integration	278
8.3.3	Productive Scenario 2: Complementarity in Global Energy Governance	280
8.4	Alternative Route: Innovating Energy Regulation through PTAs	282
8.5	Conclusion	282
	<i>Bibliography</i>	284
	<i>Index</i>	304

TABLES

1.1	Natural resources, including raw materials	<i>page</i> 14
1.2	Primary and secondary energy products	16
3.1	Energy-related disputes in the World Trade Organization	102
4.1	WTO/ECT membership status and overlaps (1998)	116
4.2	WTO/ECT membership status and overlaps (2020)	118
4.3	Resolution of conflicts, issue-areas and procedural overlaps – A comparison between the WTO and the ECT	136

FOREWORD

Dr Marhold's work serves as a comprehensive and rigorous introduction to the norms of the international trading order as they apply to and affect energy markets. As such, it serves admirably as a text or treatise for students, practitioners and scholars who need to grasp international trade law's regulation of this crucial field of economic activity. But the book offers much more than this; it contains in-depth examinations of some of the most difficult legal and political questions entangled with contemporary controversies over energy, including government policies to promote renewables, the impact of the unbundling of energy production and supply on trade, the issue of fossil fuel subsidies, allegedly anti-competitive practices such as dual pricing and cartel-like behaviour, and what promises to be the overarching or meta-issue in the new world of what Anthea Roberts and her colleagues call 'geoeconomics' – namely, energy security.

One should begin by asking why it has taken this long to produce scholarship on international trade law and energy of this quality and ambition. As Dr Marhold points out, energy was long regarded as a non-issue for GATT and the World Trade Organization. One reason may be that many of the world's leading energy producers, Russia and most of the Gulf states, only recently became members of the multilateral trading regime. Another may be the considerable uncertainty as to how trade rules might or might not apply to some of the most pertinent, and contested, features of global energy markets, in particular the OPEC price and supply cartel. In the face of such uncertainty, and perhaps for other (geopolitical?) reasons, other forums emerged as choices for responding to these realities, above all the International Energy Agency (IEA) and, as Dr Marhold discusses, the Energy Charter Treaty (which, however, as she deftly analyses, overlaps in some areas with important norms of the WTO, especially on the issue of energy transit). Moreover, as Marhold reminds us, competition or anti-trust rules are largely excluded from the WTO legal order (even if some may exist in regional

agreements), leading to an impression of the WTO's limited relevance in tackling a range of arguably significant anti-competitive practices, especially those of enterprises whose conduct could not be unproblematically attributed to the state(s) concerned (whether under special rules for state enterprises or more general attribution norms in the law of state responsibility). Acknowledging this, Marhold nevertheless shows that WTO norms have more to say about some such practices than is typically appreciated.

When I began writing about trade, climate change and renewable energy nearly two decades ago (and eventually in collaboration with Antonia Eliason), the reaction from the 'old hands' in the WTO and trade policy worlds was that, while an interesting intellectual exercise, such scholarly inquiry had little practical importance – there would never, for instance, be a WTO dispute about renewable energy. Now, of course, there have been a number of such disputes, including the high-profile *Canada – Renewables* case, as well as the *India – Solar Cells* dispute. These cases raise squarely the issue of the policy space that states have under WTO rules to incentivize the emergence of domestic renewable energy markets, enabling a shift to energy sources with low or lower carbon emissions. The context is a world where fossil fuel energy was cheaper than renewable alternatives – that is, as long as the carbon externalities generated by fossil fuels were not internalised into the prices (this context has now changed, especially in the case of solar energy). In *Canada – Renewables* the WTO's Appellate Body (whose operation, as Marhold explains, has now been suspended due to a blockage on new appointments by the United States) found that the benchmark against which government intervention was to be judged under the WTO subsidies rules must take into account the government's policy choice to create a renewables market. Government pricing mechanisms and other incentives to establish a renewables market do not necessarily constitute an anti-competitive benefit for renewables just because they do not apply to fossil fuel producers. They constitute part of a separate market structure determined by public policy. This was a doctrinally imaginative move, which arguably signals considerable deference to governments that create comprehensive schemes establishing renewables markets on a significant scale.

But the limit to policy space that states continue to push against in the WTO is non-discrimination. As Marhold discusses, in the *India – Solar Cells* dispute India attempted to make an 'energy security'-type argument for favouring domestic inputs in the production of solar energy. India

invoked, in particular, Article XX(j) of GATT, which refers to situations of shortages in supply, claiming that, given the ambition and needs of the country's renewables programme, incentives were needed to ensure the country was not entirely dependent upon foreign sources of supply. On the evidence, the Appellate Body rejected India's argument, upholding the panel's finding that the domestic content requirements violated GATT. Another instance where a WTO adjudicator rejected an Article XX(j) energy security defence was the EU-Russia natural gas dispute. In that case the EU had sought to justify certain aspects of the restructuring of the EU natural gas market that allowed discrimination against non-EU operators. Again, the panel found that discrimination against non-EU actors could not be justified as necessary for reasons of security of supply.

I believe Marhold is entirely right to imply that these 'energy-security' (and, in some sense, geopolitical energy sovereignty) claims are not going to go away. After decades of avoiding activating what could be seen as a huge loophole in WTO obligations, some WTO members have now been bringing into play the broad and at least partly self-judging general security exception in Article XXI of GATT (and the equivalent in other WTO agreements). Panels have decided two cases so far under Article XXI, the Russia-Ukraine transit dispute and an intellectual property rights dispute between Saudi Arabia and Qatar. The panel rulings make it clear that Article XXI is far from a limitless carve-out or fully self-judging. But these cases come in the context of a non-functioning Appellate Body, and if more tailored exceptions such as XX(j) continue to prove unavailing with respect to energy security arguments, eventually Article XXI is likely to be invoked, one would imagine.

The IMF and others have documented the significant impact of fossil fuel subsidies on climate change. As Marhold discusses, there is quite limited momentum in the WTO to work towards effective disciplines on such subsidies. She also notes that there has been reluctance to use dispute settlement under the existing subsidies rules to attack fossil fuel subsidies, as opposed to renewable energy incentives. From a climate mitigation perspective that, of course, seems entirely perverse. It seems entirely possible to make good arguments that some of the fossil fuel measures are illegal under the existing rules (even if efforts to explicitly outlaw them have stalled): Marhold shows this with respect to dual pricing, where her analysis is to my mind entirely convincing. She refers not only to the WTO subsidies rules, but also to the possibility that dual pricing (establishing a lower energy price for domestic consumers than for export) may in fact be an export restriction within the meaning of

Article XI of GATT, and therefore prohibited (though, as she says, this would depend on the actual design and operation of the particular dual-pricing scheme being challenged). Since upstream and downstream subsidies are challengeable under WTO rules, dual-pricing schemes that, for example, disproportionately benefit industries that are large consumers of fossil fuel energy as production inputs might well be attacked as specific and actionable under WTO dispute settlement.

Marhold's enterprise is animated by a spirit of hopefulness about the possibility of evolving better international cooperation on trade and energy, including more adequate legal norms to address the controversies and policy imperatives of the present and future. But she is at the same time rightly cautious about grandiose approaches that seem oblivious to institutional and geopolitical constraints – such as the idea of negotiating a comprehensive agreement on trade and energy at the WTO. Much more plausible is the evolution of norms through dispute settlement, geopolitical conflict and self-interested bargaining among states and perhaps other stakeholders. Marhold's book is indispensable guidance for all those who might be engaged in, or by, such developments.

Robert Howse

Lloyd C Nelson Professor of International Law
New York University School of Law
New York, August 2020

ACKNOWLEDGEMENTS

Keep reading books, but remember that a book's only a book, and you should learn to think for yourself.

Maxim Gorky

Anyone who takes himself too seriously always runs the risk of looking ridiculous; anyone who can consistently laugh at himself does not.

Václav Havel

We live in a globalized world. The very realization of this book reflects that. My interest in the topic was developed during studies in Amsterdam. The application to undertake a PhD at the European University Institute (EUI) on the topic was made from Yerevan. I started working on the thesis, the basis for this book, in Florence and continued in New York. With many writing stops in between (including in Prague and Kyiv), the thesis was completed in Geneva – and it is no coincidence that the city is home to one of the institutions at the centre of my dissertation, the World Trade Organization. More time was then needed to rework the thesis into a monograph, and it was interrupted by the arrival of our wonderful son. The book was finalized in Rotterdam, Europe's largest seaport, at the time of the corona pandemic.

The conceptualization of this book has benefited from many helpful hands along the way. First and foremost, I extend my gratitude to my supervisor Petros C. Mavroidis. His encouragement, sharp mind, positive outlook, sense of humour and flexibility were what made this project possible in the first place. I also wish to thank Catherine Redgwell, Bernard Hoekman and Robert Howse for serving on my PhD defence committee.

My time at the EUI was inspiring, unique and both great fun and highly challenging. I particularly wish to thank Dennis Patterson for his support. On a personal level, I had the privilege of becoming acquainted with some wonderful colleagues at the EUI. These include, but are not limited to, Johanna Jacobsson, Emma Linklater, Jacobien van Dorp,

Diana Natermann, Marijn van der Sluijs, Sanna Salo, Yuting Hua, Jan Zglinksi, Alexandra Ortolja-Baird, Marion Guerrero and Marianna Karttunen-Saint Bris.

I should, however, go back to my pre-PhD days and thank those who introduced me to international law and legal academia in the first place: my former colleagues at the University of Amsterdam. Without them, I would not be where I am now. They are André Nollkaemper, Catherine Brolmann, Janne Nijman, Yvonne Donders, Hege Elisabeth Kjos, James Mathis, Pieter Jan Kuijper and Isabelle Swerissen.

Further away from home, the generous contribution of the EU-US Fulbright-Schuman Program enabled me to work on my book as a visiting scholar at New York University. I am grateful to the kind people of the NYU Law JSD Program, especially Karen Loevy, for including me in their meetings and giving me the opportunity to present my work. I am also greatly indebted to Robert Howse, who so caringly welcomed me. Both he and Alan Sykes took time to read and comment extensively on my draft.

In Geneva, I had the opportunity to be part of the Marie Curie DISSETTLE project at the Graduate Institute, which gave me a deeper insight into the world of law and economics, from which this book has undoubtedly benefited. I had the pleasure of working in a stimulating environment with motivating people such as Joost Pauwelyn, Damien Neven and Theresa Carpenter. I was honoured to become acquainted with Gabrielle Marceau, who is always an inspiration and has been very generous to our family. In addition, I thoroughly enjoyed working with my colleagues and friends, both lawyers and economists, at the Centre for Trade and Economic Integration and beyond, including Stela Rubínová, Viktor Kümmritz, Yuan Zi, Aksel Erbahar, Andrea Barrios Vidal, Weiwei Zhang, Chuck Wu, Klara Polackova-Van der Ploeg, Katrin Fernekess and Vitaliy Pogoretskyy.

The supportive environment at the Grotius Centre of Leiden Law School truly enabled me to finalize and publish the monograph. Thank you to Eric de Brabandère for taking me on board, and to a team of passionate, hard-working colleagues, who are dearly missed in times of working from home. Special thanks go out to my colleague and office mate Daniëlla Dam-de Jong, who shared valuable insights into the regulation of natural resources that have been incorporated into this monograph.

On the personal front, my family were there long before I started the book and I am not sure I can even express my gratitude and what they

ACKNOWLEDGEMENTS

XXV

mean to me in words. What I can say is that I am grateful for my mother's resilience, perseverance, optimism, curiosity, depth and thoughtfulness, which I hope I have inherited somewhat. I owe a lot to her tireless encouragement. My father's unconventional thinking, on the other hand, has always forced me out of my comfort zone – indispensable when undertaking a PhD, as I discovered. My brother Nathan and Aunt Viki have also always cheered me on.

Then there is, of course, my husband Vasyl. Aside from everything else, he was an enormous support during all the ups and downs inherent in realizing this book. Vasyl was always ready to carefully debate any issue with keen and supportive interest. This is rare luxury and one that has to be treasured. The book has certainly benefited from his expertise.

* * *

This book is based on an EUI PhD and has been published with a financial subsidy from the EUI.

All errors in this monograph are mine alone and the views expressed in this study should not be attributed to any of the institutions with which I have been affiliated.

TABLES OF CASES

World Trade Organization

Short Form	Full Citation
Argentina – Hides and Leather	Panel Report, Argentina – Measures Affecting the Export of Bovine Hides and the Import of Finished Leather, WT/DS155/R and Corr 1, adopted 16 February 2001, DSR 2001:V, p 1779
Australia – Automotive Leather II	Panel Report, Australia – Subsidies Provided to Producers and Exporters of Automotive Leather, WT/DS126/R, adopted 16 June 1999, DSR 1999:III, p 951
Australia – Automotive Leather II (Article 21.5 – US)	Panel Report, Australia – Subsidies Provided to Producers and Exporters of Automotive Leather – Recourse to Article 21.5 of the DSU by the United States, WT/DS126/RW and Corr 1, adopted 11 February 2000, DSR 2000:III, p 1189
Brazil – Retreaded Tyres	Appellate Body Report, Brazil – Measures Affecting Imports of Retreaded Tyres, WT/DS332/AB/R, adopted 17 December 2007, DSR 2007:IV, p 1527
Canada – Renewable Energy / Canada – Feed-In Tariff Program	Appellate Body Reports, Canada – Certain Measures Affecting the Renewable Energy Generation Sector / Canada – Measures Relating to the Feed-In Tariff Program, WT/DS412/AB/R, WT/DS426/AB/R, adopted 24 May 2013, DSR 2013:I, p 7
Canada – Renewable Energy / Canada – Feed-In Tariff Program	Panel Reports, Canada – Certain Measures Affecting the Renewable Energy Generation Sector / Canada – Measures Relating to the Feed-In Tariff Program, WT/DS412/R and Add 1, WT/DS426/R and Add 1, adopted 24 May 2013, as modified by Appellate Body Reports WT/DS412/AB/R, WT/DS426/AB/R, DSR 2013:I, p 237

(cont.)

Short Form	Full Citation
China – Broiler Products	Panel Report, China – Anti-Dumping and Countervailing Duty Measures on Broiler Products from the United States, WT/DS427/R and Add 1, adopted 25 September 2013, DSR 2013:IV, p 1041
China – Broiler Products (Article 21.5 – US)	Panel Report, China – Anti-Dumping and Countervailing Duty Measures on Broiler Products from the United States – Recourse to Article 21.5 of the DSU by the United States, WT/DS427/RW and Add 1, adopted 28 February 2018, DSR 2018:II, p 839
China – Electronic Payment Services	Panel Report, China – Certain Measures Affecting Electronic Payment Services, WT/DS413/R and Add 1, adopted 31 August 2012, DSR 2012:X, p 5305
China – Rare Earths	Appellate Body Reports, China – Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum, WT/DS431/AB/R, WT/DS432/AB/R, WT/DS433/AB/R, adopted 29 August 2014, DSR 2014:III, p 805
China – Rare Earths	Panel Reports, China – Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum, WT/DS431/R and Add 1, WT/DS432/R and Add 1, WT/DS433/R and Add 1, adopted 29 August 2014, upheld by Appellate Body Reports WT/DS431/AB/R, WT/DS432/AB/R, WT/DS433/AB/R, DSR 2014:IV, p 1127
China – Raw Materials	Appellate Body Reports, China – Measures Related to the Exportation of Various Raw Materials, WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R, adopted 22 February 2012, DSR 2012:VII, p 3295
China – Raw Materials	Panel Reports, China – Measures Related to the Exportation of Various Raw Materials, WT/DS394/R, Add 1 and Corr 1 / WT/DS395/R, Add 1 and Corr 1 / WT/DS398/R, Add 1 and Corr 1, adopted 22 February 2012, as modified by Appellate Body Reports WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R, DSR 2012:VII, p 3501

(*cont.*)

Short Form	Full Citation
Colombia – Ports of Entry	Panel Report, Colombia – Indicative Prices and Restrictions on Ports of Entry, WT/DS366/R and Corr 1, adopted 20 May 2009, DSR 2009:VI, p 2535
Colombia – Textiles	Appellate Body Report, Colombia – Measures Relating to the Importation of Textiles, Apparel and Footwear, WT/DS461/AB/R and Add 1, adopted 22 June 2016, DSR 2016:III, p 1131
EC – Asbestos	Appellate Body Report, European Communities – Measures Affecting Asbestos and Asbestos-Containing Products, WT/DS135/AB/R, adopted 5 April 2001, DSR 2001:VII, p 3243
EC – Bananas III	Appellate Body Report, European Communities – Regime for the Importation, Sale and Distribution of Bananas, WT/DS27/AB/R, adopted 25 September 1997, DSR 1997:II, p 591
EC – Bananas III	Panel Reports, European Communities – Regime for the Importation, Sale and Distribution of Bananas, WT/DS27/R/ECU (Ecuador), WT/DS27/R/GTM, WT/DS27/R/HND (Guatemala and Honduras), WT/DS27/R/MEX (Mexico), WT/DS27/R/USA (US), adopted 25 September 1997, as modified by Appellate Body Report WT/DS27/AB/R, DSR 1997:II, p 695 to DSR 1997:III, p 1085
EC – Seal Products	Appellate Body Reports, European Communities – Measures Prohibiting the Importation and Marketing of Seal Products, WT/DS400/AB/R, WT/DS401/AB/R, adopted 18 June 2014, DSR 2014:I, p 7
EU – Biodiesel (Argentina)	Appellate Body Report, European Union – Anti-Dumping Measures on Biodiesel from Argentina, WT/DS473/AB/R and Add 1, adopted 26 October 2016, DSR 2016:VI, p 2871
EU – Biodiesel (Argentina)	Panel Report, European Union – Anti-Dumping Measures on Biodiesel from Argentina, WT/DS473/R and Add 1, adopted 26 October 2016, as modified by Appellate Body Report WT/DS473/AB/R, DSR 2016:VI, p 3077

(cont.)

Short Form	Full Citation
EU – Biodiesel (Indonesia)	Panel Report, European Union – Anti-Dumping Measures on Biodiesel from Indonesia, WT/DS480/R and Add 1, adopted 28 February 2018, DSR 2018:II, p 605
EU – Cost Adjustment Methodologies II (Russia)	Panel Report, European Union – Cost Adjustment Methodologies and Certain Anti-Dumping Measures on Imports from Russia (Second Complaint), WT/DS494/R and Add 1, circulated to WTO members 24 July 2020 [adoption/appeal pending]
EU – Energy Package	Panel Report, European Union and Its Member States – Certain Measures Relating to the Energy Sector, WT/DS476/R and Add 1, circulated to WTO members 10 August 2018 [appealed by EU 21 September 2018; the division suspended its work on 10 December 2019]
India – Autos	Panel Report, India – Measures Affecting the Automotive Sector, WT/DS146/R, WT/DS175/R, and Corr 1, adopted 5 April 2002, DSR 2002:V, p 1827
India – Quantitative Restrictions	Panel Report, India – Quantitative Restrictions on Imports of Agricultural, Textile and Industrial Products, WT/DS90/R, adopted 22 September 1999, upheld by Appellate Body Report WT/DS90/AB/R, DSR 1999:V, p 1799
India – Solar Cells	Appellate Body Report, India – Certain Measures Relating to Solar Cells and Solar Modules, WT/DS456/AB/R and Add 1, adopted 14 October 2016, DSR 2016:IV, p 1827
India – Solar Cells	Panel Report, India – Certain Measures Relating to Solar Cells and Solar Modules, WT/DS456/R and Add.1, adopted 14 October 2016, as modified by Appellate Body Report WT/DS456/AB/R, DSR 2016:IV, p 1941
Japan – Alcoholic Beverages II	Appellate Body Report, Japan – Taxes on Alcoholic Beverages, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R, adopted 1 November 1996, DSR 1996:I, p 97

xxx		TABLES OF CASES	
(cont.)			
Short Form		Full Citation	
Japan – Film		Panel Report, Japan – Measures Affecting Consumer Photographic Film and Paper, WT/DS44/R, adopted 22 April 1998, DSR 1998:IV, p 1179	
US – Countervailing and Anti-Dumping Measures (China)		Appellate Body Report, United States – Countervailing and Anti-Dumping Measures on Certain Products from China, WT/DS449/AB/R and Corr 1, adopted 22 July 2014, DSR 2014:VIII, p 3027	
US – Countervailing and Anti-Dumping Measures (China)		Panel Report, United States – Countervailing and Anti-Dumping Measures on Certain Products from China, WT/DS449/R and Add 1, adopted 22 July 2014, as modified by Appellate Body Report WT/DS449/AB/R, DSR 2014:VIII, p 3175	
US – FSC		Panel Report, United States – Tax Treatment for ‘Foreign Sales Corporations’, WT/DS108/R, adopted 20 March 2000, as modified by Appellate Body Report WT/DS108/AB/R, DSR 2000:IV, p 1675	
US – Gambling		Appellate Body Report, United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services, WT/DS285/AB/R, adopted 20 April 2005, DSR 2005:XII, p 5663 (and Corr 1, DSR 2006:XII, p 5475)	
US – Gasoline		Appellate Body Report, United States – Standards for Reformulated and Conventional Gasoline, WT/DS2/AB/R, adopted 20 May 1996, DSR 1996:I, p 3	
US – Gasoline		Panel Report, United States – Standards for Reformulated and Conventional Gasoline, WT/DS2/R, adopted 20 May 1996, as modified by Appellate Body Report WT/DS2/AB/R, DSR 1996:I, p 29	
US – Poultry (China)		Panel Report, United States – Certain Measures Affecting Imports of Poultry from China, WT/DS392/R, adopted 25 October 2010, DSR 2010:V, p 1909	
US – Renewable Energy		Panel Report, United States – Certain Measures Relating to the Renewable Energy Sector, WT/DS510/R and Add 1, circulated to WTO members 27 June 2019 [appealed by US 15 August 2019; the division suspended its work on 10 December 2019]	

(cont.)

Short Form	Full Citation
US – Shrimp	Appellate Body Report, United States – Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58/AB/R, adopted 6 November 1998, DSR 1998:VII, p 2755
US – Shrimp	Panel Report, United States – Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58/R and Corr 1, adopted 6 November 1998, as modified by Appellate Body Report WT/DS58/AB/R, DSR 1998:VII, p 2821
US – Softwood Lumber IV	Appellate Body Report, United States – Final Countervailing Duty Determination with Respect to Certain Softwood Lumber from Canada, WT/DS257/AB/R, adopted 17 February 2004, DSR 2004:II, p 571
US – Softwood Lumber V	Appellate Body Report, United States – Final Dumping Determination on Softwood Lumber from Canada, WT/DS264/AB/R, adopted 31 August 2004, DSR 2004:V, p 1875
US – Softwood Lumber VI	Panel Report, United States – Investigation of the International Trade Commission in Softwood Lumber from Canada, WT/DS277/R, adopted 26 April 2004, DSR 2004:VI, p 2485

WTO Requests for Consultations/Ongoing Cases

Case No	Title	Complainant	Date	Status
DS593	European Union – Certain Measures Concerning Palm Oil and Oil Palm Crop-Based Biofuels	Indonesia	9 December 2019	Panel established 29 July 2020.
DS592	Indonesia – Measures Relating to Raw Materials	European Union	22 November 2019	Consultations

(cont.)

Case No	Title	Complainant	Date	Status
DS575	Colombia – Measures Concerning the Distribution of Liquid Fuels	Venezuela	9 January 2019	Consultations
DS572	Peru – Anti-Dumping and Countervailing Measures on Biodiesel from Argentina	Argentina	29 November 2018	Consultations
DS562	United States – Safeguard Measures on PV Products	China	14 August 2018	Panel composed 24 October 2020. Panel process ongoing.
DS563	United States – Certain Measures Related to Renewable Energy	China	14 August 2018	Consultations
DS545	United States – Safeguard Measures on PV Products	Korea	14 May 2018	Panel established 26 September 2018, but not yet composed.
DS521	EU – Anti-Dumping Measures on Certain Cold-Rolled Flat Steel Products from Russia	Russia	27 January 2017	Panel established 16 March 2020.
DS519	China – Subsidies to Producers of Primary Aluminium	United States	12 January 2017	Consultations
DS508	China – Export Duties on Raw Materials	United States	13 July 2016	Panel established 8 November 2016.
DS459	European Union and Certain Member States – Certain Measures on the	Argentina	15 May 2013	Consultations

(cont.)

Case No	Title	Complainant	Date	Status
DS452	Importation and Marketing of Biodiesel and Measures Supporting the Biodiesel Industry European Union and Certain Member States – Certain Measures Affecting the Renewable Energy Generation Sector	China	5 November 2012	Consultations
DS443	European Union and a Member State – Certain Measures Concerning the Importation of Biodiesels	Argentina	17 August 2012	Establishment of panel requested by Argentina 6 December 2012 deferred by DSB 17 December 2012.
DS419	China – Measures Concerning Wind Power Equipment	United States	22 December 2010	Consultations

General Agreement on Tariffs and Trade

Short Form	Full Citation
Canada – Herring	Canada – Measures Affecting Exports of Unprocessed Herring and Salmon (L/6268 – 35S/98) (panel report adopted 22 March 1988)
Japan – Semiconductors	Japan – Trade in Semiconductors (L/6309 – 35S/116) (panel report adopted 4 May 1988)
Spain – Soybean Oil	GATT dispute (1981) L/5142 Spain – Measures Concerning Domestic Sale of Soyabean Oil –

(cont.)

Short Form	Full Citation
	Recourse to Article XXIII:2 by the United States (L/5142) (panel report not adopted)
US – Sugar	US – Imports of Sugar from Nicaragua (L/5607 – 31S/67) (panel report adopted 13 March 1984)
US – Superfund	US – Taxes on Petroleum and Certain Imported Substances (L/6175 – 34S/136) (panel report adopted 17 June 1987)
US – Taxes on Automobiles	US – Taxes on Automobiles (DS 31/R) (11 October 1994, panel report not adopted)
US – Tuna	US – Prohibition of Imports of Tuna and Tuna Products from Canada (L/5198 – 29S/91) (panel report adopted 22 February 1982)
US – Trade Measures	US – Trade Measures Affecting Nicaragua (L/6053) (13 October 1986, panel report not adopted)

International Court of Justice

Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda) [2005] ICJ Rep 168
Anglo-Iranian Oil Co Case (UK v Iran) [1952] ICJ Rep 93

Permanent Court of Arbitration

Texaco Overseas Petroleum Co v Government of the Libyan Arab Republic (Award of 19 January 1977) (1978) 17 ILM
Hulley Enterprises Limited v Russian Federation (PCA Case No AA226), Yukos Universal Limited v Russian Federation (PCA Case No AA227) and Veteran Petroleum Limited v Russian Federation (PCA Case No AA228), Interim Awards on Jurisdiction and Admissibility (30 November 2009)
Hulley Enterprises Limited v Russian Federation (PCA Case No AA226), Yukos Universal Limited v Russian Federation (PCA Case No AA227) and Veteran Petroleum Limited v the Russian Federation (PCA Case No AA228), Final Awards (18 July 2014)

Court of Justice of the European Union

Case C-393/92 Almelo v Energiebedrijf IJsselmij [1994] ECR I-1477
Case C-158/94 Commission v Italy [1997] ECR I-5789
Case C-439/06 Citiworks AG (22 May 2008)

ACRONYMS AND ABBREVIATIONS

AB	Appellate Body
ADA	Anti-Dumping Agreement
AoA	Agreement on Agriculture
ASEAN	Association of Southeast Asian Nations
BIT	bilateral investment treaty
CPC	Central Product Classification
CVD	countervailing duty
DCFTA	Deep and Comprehensive Free Trade Agreement
DCR	domestic content requirement
DDA	Doha Development Agenda
DSB	Dispute Settlement Body
DSU	Dispute Settlement Understanding
EC	European Community/European Communities
ECS	Energy Charter Secretariat
ECT	Energy Charter Treaty
EEZ	Exclusive Economic Zone
EGA	Environmental Goods Agreement
EU	European Union
Euratom	Treaty Establishing the European Atomic Energy Community
FFS	fossil fuel subsidies
FIT	feed-in tariff
FTA	free trade agreement
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GECF	Gas Exporting Countries Forum
GHG	greenhouse gas
GPA	Agreement on Government Procurement
HS Convention	Harmonized System Convention
IAEA	International Atomic Energy Agency
ICCPR	International Covenant on Civil and Political Rights
ICJ	International Court of Justice
IEA	International Energy Agency

IEC	International Energy Charter
IEM	internal energy market
IGO	intergovernmental organization
IMF	International Monetary Fund
ISDS	investor-state dispute settlement
ISO	independent system operator
ITO	International Trade Organization
ITO	independent transmission operator
JNNSM	Jawaharlal Nehru National Solar Mission
LNG	liquefied natural gas
MFN	most favoured nation
NAFTA	North American Free Trade Agreement
NDC	nationally determined contribution
NT	national treatment
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
OS	observer status
OU	ownership unbundling
PCA	Permanent Court of Arbitration
PCI	project of common interest
PEEREA	Protocol on Energy Efficiency and Related Environmental Aspects
PSNR	permanent sovereignty over natural resources
PTA	preferential trade agreement
QR	quantitative restriction
SCM Agreement	Agreement on Subsidies and Countervailing Measures
SITC	Standard International Trade Classification
STE	state trading enterprise
TBT	technical barriers to trade
TEN-E Regulation	Trans-European Networks for Energy Regulation
TEP	Third Energy Package
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
TPA	third-party access
TPRM	Trade Policy Review Mechanism
TRIMs Agreement	Trade-Related Investment Measures Agreement
TRIPs Agreement	Trade-Related Intellectual Property Rights Agreement
TSO	transmission system operator
TTIP	Transatlantic Trade and Investment Partnership
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme

LIST OF ACRONYMS AND ABBREVIATIONS xxxvii

UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNSD	United Nations Statistics Division
UN SDGs	United Nations Sustainable Development Goals
US	United States
USMCA	United States-Mexico-Canada Agreement
VCLT	Vienna Convention on the Law of Treaties
VIU	vertically integrated undertaking
WCO	World Customs Organization
WTO	World Trade Organization