

Cambridge University Press
978-1-108-42244-4 – Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern, Carl Dalhammar, Hans Christian Bugge
Frontmatter
[More Information](#)

‘This book is a welcome contribution to our understanding of product policy. It provides a systematic analysis of key elements of product policy – law, regulation, trade issues – and sophisticated exploration of the challenges to this approach to environmental policy. While product policy is most advanced in Europe, the integration of life-cycle thinking is growing worldwide. This book will be very useful to researchers, policy makers, and activists grappling with the many dimensions of product policy including eco-design, extended producer responsibility, chemicals in products, and eco-labels, and their many intersections.’

– **Reid Lifset**, Editor of *Journal of Industrial Ecology*,
School of Forestry & Environmental Studies, Yale University

‘The anthology contains a number of insightful analyses that provide new and refreshing perspectives on issues ranging from how to reduce the impact from different types of products, to the need for regulations due to market failures, and the vulnerability of markets to violations by powerful suppliers. All in all, the book brings the reader up-to-date on the complex issues related to environmental regulations for products and provides a unique overview of the area. Time well spent!’

– **Mats Larsson**, IUC Syd, author of *Circular Business Models* and
The Business of Global Energy Transformation

‘Every environmental lawyer needs this book. Too little attention goes to pollution from products. Yet from cars to plastics, making, using and disposing of products create some of today’s biggest pollution problems. This book provides the most comprehensive discussion of these issues to date. The authors are leading experts and bring rigour and clarity to their work. If you use law to protect the planet, or simply want to understand the Herculean tasks we face, order your copy.’

– **James Thornton**, environmental lawyer and founding
CEO of ClientEarth

‘This book makes a compelling case for strengthening product design in order to minimise environmental impacts through the life cycle. From energy efficiency requirements to durability, reparability and recyclability standards, it explains how product-oriented environmental laws can help solve some of the most pressing issues of our time.’

– **Jeremy Wates**, Secretary General of the European
Environmental Bureau

‘This edited volume truly engages the reader with its thoughtful treatment of environmental product policies. The book skilfully interweaves topical legal and policy considerations in its exploration of major themes and cases in this field, which the circular economy discourse has brought (back) to the forefront of developments.’

– **Harri Kalimo**, Jean Monnet Professor, Institute for
European Studies, Vrije Universiteit Brussel

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern , Carl Dalhammar , Hans Christian Bugge
Frontmatter
[More Information](#)

PREVENTING ENVIRONMENTAL DAMAGE FROM PRODUCTS

How to tackle environmental damage from the throwaway society is one of the defining questions of the twenty-first century. We must encourage and support sustainable production and consumption, notably through the establishment of a circular economy. These essays by an international group of leading scholars from a range of disciplines analyse policies and legal instruments and challenge mainstream assumptions, from the choice of a policy mix to the actual effect of imposing standards on the market, and from corporate objectives and priorities to the use of precaution in assessing particularly harmful substances. Each chapter contributes to a better understanding of the current policy and regulatory framework in Europe and identifies the challenges and opportunities ahead. The book breaks new ground by examining how product policies can contribute to important objectives and visions. It is a must-read for researchers as well as for policymakers and practitioners.

ELÉONORE MAITRE-EKERN is a PhD candidate in the Department of Public and International Law, University of Oslo, Norway.

CARL DALHAMMAR is Associate Professor in the International Institute for Industrial Environmental Economics, Lund University, Sweden.

HANS CHRISTIAN BUGGE is Professor Emeritus in Environmental Law, Department of Public and International Law, University of Oslo, Norway.

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern , Carl Dalhammar , Hans Christian Bugge
Frontmatter
[More Information](#)

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern , Carl Dalhammar , Hans Christian Bugge
Frontmatter
[More Information](#)

PREVENTING
ENVIRONMENTAL DAMAGE
FROM PRODUCTS

An Analysis of the Policy and
Regulatory Framework in Europe

Edited by

ELÉONORE MAITRE-EKERN

University of Oslo

CARL DALHAMMAR

Lund University

HANS CHRISTIAN BUGGE

University of Oslo



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern, Carl Dalhammar, Hans Christian Bugge
Frontmatter
[More Information](#)

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, 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
79 Anson Road, #06-04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781108422444

DOI: 10.1017/9781108500128

© Cambridge University Press 2018

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.

First published 2018

Printed in the United Kingdom by Clays, St Ives plc

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

Library of Congress Cataloging-in-Publication Data

Names: Maitre, Eleonore, editor. | Dalhammar, Carl, editor. | Bugge, Hans Christian, editor.

Title: Preventing environmental damage from products : an analysis of the policy and regulatory framework in Europe / Edited by Eleonore Maitre-Ekern, University of Oslo, Carl Dalhammar, Lunds Universitet, Sweden, Hans Christian Bugge, University of Oslo.

Description: New York, NY : Cambridge University Press, 2018. | Includes index.

Identifiers: LCCN 2017058262 | ISBN 9781108422444

Subjects: LCSH: Environmental law – European Union countries. | Products liability – European Union countries. | Hazardous substances – Law and legislation – European Union countries.

Classification: LCC KJE6245 .P74 2018 | DDC 344.2404/6 – dc23

LC record available at <https://lccn.loc.gov/2017058262>

ISBN 978-1-108-42244-4 Hardback

Cambridge University Press 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.

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern , Carl Dalhammar , Hans Christian Bugge
Frontmatter
[More Information](#)

Environmental pollution is an incurable disease. It can only be prevented.

Barry Commoner

Cambridge University Press
978-1-108-42244-4 — Preventing Environmental Damage from Products
Edited by Eléonore Maitre-Ekern , Carl Dalhammar , Hans Christian Bugge
Frontmatter
[More Information](#)

CONTENTS

<i>List of Figures</i>	page xi
<i>List of Tables</i>	xii
<i>List of Contributors</i>	xiii
<i>Acknowledgements</i>	xix
<i>List of Abbreviations</i>	xx

- 1 Developing Legislation to Prevent Environmental Damage from Products: A Herculean but Necessary Task 1

HANS CHRISTIAN BUGGE, CARL DALHAMMAR AND ELÉONORE MAITRE-EKERN

PART I Structural Issues Associated with Regulating the Life Cycle of Products

- 2 Exploring the Spaceship Earth: A Circular Economy for Products 23
 ELÉONORE MAITRE-EKERN
- 3 Principles for the Design of a Policy Framework to Address Product Life Cycle Impacts 57
 MICHAEL G. FAURE AND CARL DALHAMMAR
- 4 The Harm of Products and the Need of Information on Inputs, Production, Use and Disposal 87
 ERLING EIDE
- 5 Redefining Agency Theory to Internalize Environmental Product Externalities: A Tentative Proposal Based on Life Cycle Thinking 101
 BEATE SJÅFJELL
- 6 Environmental Measures as an Obstacle to Free Movement of Goods in the Internal Market 125
 NICOLAS DE SADELEER

**PART II Challenges Related to the Application of
 European Product Law**

- 7 Dieselgate and the Protection of the Environment by Public
 Authorities 153
 LUDWIG KRÄMER
- 8 Energy Efficiency Regulations, Market and Behavioural Failures
 and Standardization 176
 CARL DALHAMMAR, JESSIKA LUTH RICHTER, AND ERIKA
 MACHACEK
- 9 Regulating Recyclability under the Ecodesign Directive: How
 Can We Achieve Synergies between Waste and Product Policies
 for Electric and Electronic Equipment to Promote
 Recycling? 229
 SAHRA SVENSSON AND CARL DALHAMMAR
- 10 Material Recycling without Hazardous Substances: Interplay of
 two Policy Streams and Impacts on Industry 253
 NAOKO TOJO AND ÅKE THIDELL
- 11 Complexities and Conflicts in Controlling Dangerous
 Chemicals: The Case of Regulating Endocrine Disruptors in EU
 Law 276
 NERTILA KURAJ
- 12 Long-Term Market Effects of Green Public
 Procurement 303
 CHARLOTTE LEIRE AND CARL DALHAMMAR
- PART III Conclusion by the Editors**
- 13 Present and Future Challenges for Europe's Environmental
 Product Policy 337
 ELÉONORE MAITRE-EKERN, HANS CHRISTIAN BUGGE AND CARL
 DALHAMMAR
- Index* 350

FIGURES

2.1 The linear economic model	<i>page</i> 25
2.2 The cycle of technical products	32
3.1 Interactions of policies for product energy efficiency	79
4.1 Optimal emission levels	89
4.2 Optimal level of emissions with green tax	93
4.3 Negative external effects of inputs	96
4.4 Negative external effects of use and disposal	97
8.1 Interactions of policies for product energy efficiency	197
9.1 ‘Virtuous circle’ illustrating the synergy between product policies and waste policies	232
12.1 Possible and actual short- and long-term effects of GPP	321

TABLES

2.1 Schools of thought on the CE, a chronological breakdown	<i>page</i> 36
3.1 Examples of product policies at the EU and member state levels	62
6.1 Non-tariff barriers to the free movement of goods	135
8.1 Typologies of global standards	183
8.2 Types of standards and their economic functions	187
8.3 Factors suggesting the energy efficiency gap is overestimated	189
8.4 Market and behavioural failures relevant for explaining the energy efficiency gap	191
8.5 Transaction costs and other costs related to energy efficiency investments and MEPS and labelling programmes	194
8.6 Expected savings under the first twelve implementing measures adopted under the Ecodesign Directive in combination with energy labelling	206
8.7 Reasons for the energy efficiency gap and how they can be mitigated through MEPS and energy labelling	217
8.8 Impact of MEPS and labels on costs	225
12.1 Public procurement for environmentally friendly innovation	305
12.2 Examples of terms used to describe possible effects as compared to the policy goal	313
12.3 Reported long-term effects of GPP in the case of furniture	323
12.4 Reported long-term effects of GPP in the case of IT products	326
12.5 Reported long-term effects of GPP in the case of health care products	330

CONTRIBUTORS

HANS CHRISTIAN BUGGE is Professor Emeritus of Environmental Law at the Department of Public and International Law, University of Oslo. He holds a doctorate in regional planning from the University of Paris II (Doctorat de spécialité) (1972) and a Juris Doctor degree from the University of Oslo, his thesis focusing on responsibility for pollution in Norwegian law (1998). Before beginning his career at the University of Oslo, he held various senior positions as a civil servant in Norway's Ministry of the Environment. He has also worked extensively on development issues and served as State Secretary (Deputy Minister) of Development Cooperation and was personal adviser to Prime Minister Gro Harlem Brundtland in her work as chair of the World Commission on Environment and Development. He has written several books and numerous articles in the field of environmental law and sustainable development.

CARL DALHAMMAR is Associate Professor at International Institute of Industrial Environmental Economics (IIIEE), Lund University. His research interests include law and innovation, government–industry interactions, technology transfer and product-oriented environmental policy. He has been involved in several research projects sponsored by, among others, the Swedish Environmental Protection Agency, industry associations, the Nordic Council of Ministers, the Swedish Energy Agency, the Swedish Government Commission on Public Procurement and the European Environmental Bureau. His research projects have analysed a number of product-oriented environmental policies, including laws, eco-labels and government procurement. Carl currently teaches environmental law and politics in seven European master's programmes and several undergraduate programmes and has supervised more than fifty master's theses. He was invited to be a member of the panel at the seminar 'Energy Savings in Practice: The Role of the European Union Ecodesign Directive', held at the European Parliament, Brussels, in April 2011. Carl is a member of the Council for Research Issues at the Swedish Competition Authority.

NICOLAS DE SADELEER is Professor of Law at Saint Louis University, Brussels, and guest professor at University College London. Being based in Brussels, he is an active participant in debates on EU legal and institutional issues. He is the author of *Environmental Principles* (2002) and *EU Environmental Law and the Internal Market* (2014) and held, from 2004 to 2005, an EU Marie Curie Chair on risk assessment and risk management at the Faculty of Law at the University of Oslo. He was awarded a Jean Monnet Chair in 2010, focusing on the trade and environment conflict under the Jean Monnet Action Scheme of the European Commission, a programme that promotes European knowledge and competence at higher education institutions worldwide.

ERLING EIDE is Professor Emeritus of Economics at the Faculty of Law, University of Oslo, and has been an assistant professor at the Department of Economics. He has been Visiting Fellow at Clare Hall (Cambridge), at Maison des Sciences de l'Homme (Paris), and at the International Centre for Economic Research (Torino). His publications include books and articles on economics of crime, tax evasion, engineering production studies, behavioural economics, the uncertainty of evidence and various topics in law and economics.

MICHAEL G. FAURE became Academic Director of the Maastricht European Institute for Transnational Legal Research (METRO) and Professor of Comparative and International Environmental Law at the Faculty of Law at Maastricht University in September 1991. He holds both positions to this day. He is also Academic Director of the Ius Commune Research School and member of the board of directors of Ectil. From February 2008, he has been half-time Professor of Comparative Private Law and Economics at the Rotterdam Institute of Law and Economics at the Erasmus University in Rotterdam and Academic Director of the European Doctorate in Law and Economics programme. He has been attorney at the Antwerp Bar since 1982. He publishes in the areas of environmental (criminal) law as well as tort, insurance and economic analysis of (accident) law.

LUDWIG KRÄMER is widely regarded as one of the leading experts on environmental law and policy in the European Union (EU). A German judge from 1969 to 2004, he was head of the Legal Unit of DG Environment, European Commission between 1987 and 1994, before moving to head the Waste Management Unit. In 2001, Dr Krämer became head of the unit

LIST OF CONTRIBUTORS

xv

on Environmental Governance, retiring from the Commission 2004. He has written more than 200 articles on EU environmental law and authored twenty books, including a classic treatise and casebook on the subject. He has lectured on the subject of environmental rights and law at more than fifty universities in Europe and North America. Dr Krämer is currently Senior Counsel to ClientEarth.

NERTILA KURAJ holds a PhD in law from the University of Oslo. Her thesis is titled 'REACHing an Environmental Regulation for Nanotechnology: An Analysis of REACH as an Instrument for Preventing and Reducing the Environmental Impacts of Nanomaterials'. She holds a bachelor's degree in law from the University of Pisa, Italy, and a master's (with honours) in international and European law from the same university. Before starting her PhD, she worked on agricultural and food law at INRA, the French National Institute for Agricultural Research, in Paris, as part of the HolyRisk Project, a comparative study into how scientific uncertainty in risk assessment shapes decision-making concerning food safety in both the European Union and US. In 2014, Nertila was a visiting scholar at the University of California, Berkeley and the Sant'Anna School of Advanced Studies, Pisa, Italy.

CHARLOTTE LEIRE is Lecturer at the International Institute for Industrial Environmental Economics at Lund University, Sweden. Her focal areas include sustainable procurement and environmental product information, and she has been engaged in national as well as international efforts (under the lead of the United Nations Environment Programme) to study the implementation of ecolabelling and green public procurement. Besides research, Charlotte is engaged in onsite and online teaching with a special focus on environmental economics and industry. She is one of the people behind the development of the open online courses at Lund University on topics related to green economy.

JESSIKA LUTH RICHTER is a PhD candidate and research associate at the International Institute for Industrial Environmental Economics (IIIEE) at Lund University. Jessika's research focuses on policies enabling a resource-efficient, low-carbon economy, including ecodesign policies, extended producer responsibility, green procurement and life cycle assessments. In particular, she has focused on energy-efficient lighting and how questions related to energy efficiency, lifetimes, design, disposal, collection, labels, procurement and value in closing material loops can be addressed in a

synergistic way through a policy mix. She has also studied environmental economic instruments such as emissions trading schemes and green stimulus packages. She has been awarded her licentiate degree in engineering and is working on completing her PhD at Lund University. Jessika is also involved in teaching master's courses and open online courses at the IIIIEE.

ERIKA MACHACEK is an economic geographer and researcher at the Centre for Minerals and Materials (MiMa) at the Geological Survey of Denmark and Greenland (GEUS). Her research interests include governance structures that determine how resources (including information, labour and materials) flow in global value chains. Empirically, she explores transactions of these resources in the extractive industries and in urban mining. In her PhD research, she has been tracing rare Earth elements through the segments of exploration, mining, intermediate processing and manufacturing of components to end-user industries and through a closed material loop with urban mining.

ELÉONORE MAITRE-EKERN is a doctoral research fellow at the Department of Public and International Law, University of Oslo. Her PhD project focuses on the prevention of environmental effects of products through the implementation of a Circular Economy. She graduated in law from the University of Geneva (2005) and holds a master's in European law from the College of Europe (2007) as well as a specialized master's degree in energy and environmental law from the University of Leuven (2009). Eléonore has worked at the European Union (EU) Court of Justice of the EU and European Free Trade Association (EFTA) Secretariat. Before joining the University of Oslo, she worked at ClientEarth, an environmental lawyers' organization based in Brussels, where she had the opportunity to work on issues such as waste, access to environmental information, sustainable public procurement and energy efficiency.

BEATE SJÅFJELL is Professor Dr Juris at the University of Oslo, Faculty of Law. Beate heads the faculty's Research Group Companies, Markets, Society and the Environment and the international network Sustainable Market Actors. She is coordinator of the international research projects 'Sustainable Companies' (2010–14) and 'Sustainable Market Actors for Responsible Trade' (SMART, commenced in 2016). Beate's publications include *Towards a Sustainable European Company Law* (2009) and the edited volumes *The Greening of European Business under EU Law: Taking Article 11 TFEU Seriously* (2015, co-editor Anja Wiesbrock), *Company*

LIST OF CONTRIBUTORS

xvii

Law and Sustainability: Legal Barriers and Opportunities (Cambridge University Press, 2015, co-editor Benjamin Richardson) and *Sustainable Public Procurement under EU Law: New Perspectives on the State as Stakeholder* (Cambridge University Press, 2016, co-editor Anja Wiesbrock). Many of Beate's papers are available at <http://ssrn.com/author=375947>.

SAHRA SVENSSON holds a master's degree in law from the University of Gothenburg and a BBA from Blekinge Institute of Technology. She recently conducted field studies in China in collaboration with IVL Swedish Environmental Research Institute on Swedish corporations' experiences of supply chain compliance with product contents information requirements. Sahra has previously worked as Intern Reports Officer at the United Nations' World Food Programme's Country Office in Cameroon, Africa. Currently, Sahra is Director of Member Engagement at Connecticut Sustainable Business Council in Bethel, in the US, whose mission is to educate and engage businesses in building a sustainable economy. She is also Project Lead in an energy efficiency certification process at the University of Connecticut, Storrs, also in the US. In addition, she works as Business Development Adviser for SolerCool Ltd, a US licensor and developer of solar-powered cold storage technology for storing food and medicine in rural, equatorial areas of the world.

ÅKE THIDELL has an MSc degree in chemical engineering from Lund Institute of Technology, Sweden, and has wide-ranging work experience in preventive environmental strategies in industries in Sweden and abroad. His area of research, however, is environmental product policy with a focus on ecolabelling. He defended his PhD in 2009. The Nordic Council of Ministers, chemicals and environmental protection agencies in different countries, United Nations Environment Programme (UNEP), and the Global Ecolabelling Network have typically funded these studies. Åke Thidell works as teacher and researcher at the International Institute for Industrial Environmental Economics at Lund University and is Assistant Professor in programmes related to cleaner production.

NAOKO TOJO is currently Associate Professor in Product-Oriented Environmental Law and Policy at the International Institute for Industrial Environmental Economics at Lund University. She holds a BA in law from Keio University, Japan (1994), an MSc in environmental management and policy (1999) and a PhD in industrial environmental economics (2004)

from Lund University. One of the key policy areas to attract her attention in the past fifteen years is based on the concept of extended producer responsibility (EPR). Her research has been commissioned/funded by various levels of government – Organisation for Economic Co-operation and Development, European Union, Nordic Council of Ministers, Sweden – as well as by prominent environmental non-governmental organizations and industries.

ACKNOWLEDGEMENTS

This book is the result of a conference entitled ‘A Law-and-Economics Approach to Product-Related Environmental Damages’, held at the Faculty of Law at the University of Oslo, 14 and 15 January 2016. Most of the contributions to the volume were presented as papers at the conference and updated following discussions there and to take into account developments since. We would like to express our warmest thanks to each and every one of our contributors for generously giving his or her time and expertise to produce a book that, we hope, will inspire further research in this important but complex field of environmental law.

We wish to thank the Research Council of Norway (Norges forskningsråd) for funding the conference and the research presented in this book under its research programme ‘Preventing Environmental Effects of Products through Producer Responsibility’, part of the wider Miljø (Environment) 2015 programme. Our gratitude also goes to the Natural Research Group of the University of Oslo for their support in organizing the conference and to the team at Cambridge University Press for their support. Special thanks go to Chris Saunders for his excellent work on copy-editing the entire manuscript.

The research presented in this book was also supported by the Swedish Energy Agency (Energimyndigheten) through the project ‘Promoting Ecodesign for the Advancement of Innovation, Competitiveness and Environmental Improvements’ (grant 36936-1) and by the MISTRA REES (Resource Efficient and Effective Solutions) programme, funded by MISTRA (Swedish Foundation for Strategic Environmental Research).

ABBREVIATIONS

APRSCP	Asia Pacific Roundtable on Sustainable Consumption and Production
BEUC	Bureau Européen des Unions de Consommateurs (European Consumer Association)
BPA	Bisphenol-A
BPR	Biocidal Product Regulation
CARB	Californian Air Resources Board
CC	Consumer Code
CCS	Carbon Capture and Storage
CE	Circular Economy
CECED	European Committee of Domestic Equipment Manufacturers
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CETA	Comprehensive Economic and Trade Agreement
CJEU	Court of Justice of the European Union
CMR	Carcinogenic, Mutagenic, Toxic for Reproduction
CO ₂	Carbon Dioxide
CoRAP	Community Rolling Action Plan
CSR	Chemical Safety Report
DDT	Dichlorodiphenyltrichloroethane
DG	Directorate General
DOE	Department of Energy (US)
EC	European Community
ECHA	European Chemicals Agency
EDCs	Endocrine Disruptive Chemicals
EDs	Endocrine Disrupters
EEA	European Environment Agency
EEE	Electrical and Electronic Equipment
EESC	European Economic and Social Committee
EFTA	European Free Trade Association
EoL	End-of-Life
EPA	Environmental Protection Agency (US)
EPD	Environmental Product Declarations

LIST OF ABBREVIATIONS

xxi

EPR	Extended Producer Responsibility
ES	Endocrine Society
ESOs	European Standardization Organizations
EU	European Union
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GMOs	Genetically Modified Organisms
GPP	Green Public Procurement
ICT	Information and Communications Technology
IEA	International Energy Agency
IIIEE	International Institute for Industrial Environmental Economics (Lund University)
IMCO	Committee on Internal Market and Consumer Protection of the European Parliament
IMs	Implementing Measures
IPP	Integrated Product Policy
ISO	International Standards Organization
IT	Information Technology
JRC	Joint Research Centre of the European Commission
KBA	Kraftfahrbundesamt (German Federal Motor Transport Authority)
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LLCC	Least Life Cycle Costs
MEEQR	Measure Having Equivalent Effect to Quantitative Restrictions
MEErP	Methodology for the Ecodesign of Energy-Related Products
MEPS	Mandatory Minimum Energy Performance Standards
NGOs	Non-governmental Organizations
NO _x	Nitrogen Oxide
OECD	Organization for Economic Cooperation and Development
PBB	Polybrominated Biphenyls
PBDE	Polybrominated Diphenyl Ethers
PBT	Persistent, Bioaccumulative and Toxic
POPs	Persistent Organic Pollutants
PP	Public Procurement
PPI	Public Procurement for Innovation
PPMs	Processing and Production Methods
PPPR	Plant Protection Products Regulation
PSS	Product–Service Systems
PVC	Polyvinyl Chloride

R&D	Research and Development
RA	Risk Assessment
RDE	Real Driving Emissions
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of the Use of Certain Hazardous Substances
RPM	Revolutions per Minute
RSL	Restricted Substance List
RT	Regulatory Toxicology
SDGs	UN Sustainable Development Goals
SPP	Sustainable Public Procurement
SVHC	Substance of Very High Concern
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
TTIP	Transatlantic Trade and Investment Partnership
UN	United Nations
UNEP	United Nations Environment Programme
vPvB	Very Persistent and Very Bioaccumulative
VW	Volkswagen
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WHO	World Health Organization
WHO/IPCS	International Programme on Chemical Safety (WHO)
WTO	World Trade Organization