

LEGAL DESIGN OF CARBON CAPTURE AND STORAGE

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**LEGAL DESIGN OF CARBON
CAPTURE AND STORAGE**

**Developments in the Netherlands
from an International and
EU Perspective**

Edited by
**MARTHA M. ROGGENKAMP
EDWIN WOERDMAN**



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Legal Design of Carbon Capture and Storage – Developments in the Netherlands from an International and EU Perspective

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LIST OF ABBREVIATIONS

AAU	Assigned Amount Units
AIE	Accredited Independent Entities
AGRE	Act on General Rules for the Environment
AHPL	Act on Hindrances of Private Law
AIE	Accredited Independent Entities
AMW	Act on Management of Water Facilities (<i>Wet Beheer Rijkswaterstaatswerken</i>)
APS	Act on Protection of the Soil
Awb	Algemene Wet Bestuursrecht (<i>General Administrative Law Act</i>)
Amvb	Algemene Maatregel van Bestuur (<i>Order in Council</i>)
BAT	Best Available Techniques
BNB	Beslissingen in belastingzaken/Nederlandse Belastingrecht-spraak (<i>Journal of Dutch tax law jurisprudence</i>)
BREF	Best Techniques Reference Documents
BuZa	Nederlands Ministerie van Buitenlandse Zaken (<i>Ministry of Foreign Affairs in the Netherlands</i>)
BV	Besloten Vennootschap (<i>Limited Liability Company</i>)
BW	Burgerlijk Wetboek (<i>Civil Code</i>)
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CHP	Combined Heat and Power
CIT	Corporate Income Tax
CITA	Corporate Income Tax Act
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
COP	Conference of the Parties to the United Nations Framework Convention on Climate Change
DNA	Designated National Authority
DOE	Designated Operational Entity
DONG	Dansk Olie og Naturgas (<i>Danish Oil and Natural Gas Company</i>)
EBN	Energie Beheer Nederland (<i>Dutch State participant in the upstream oil and gas sector</i>)

EC	European Commission
ECBM(R)	Enhanced Coal Bed Methane Recovery
ECE	Economic Commission for Europe
ECLR	European Competition Law Review
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EFTA	European Free Trade Association
EGR	Enhanced Gas Recovery
EHR	Enhanced Hydrocarbon Recovery
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EOR	Enhanced Oil Recovery
EPC	European Policy Centre
ERU	Emission Reduction Unit
ETS	Emissions Trading Scheme
EU	European Union
EUA	EU Emission Allowance
EZ	Nederlands Ministerie van Economische Zaken (<i>Ministry of Economic Affairs in the Netherlands</i>)
EZH	Elektriciteitsbedrijf Zuid Holland (<i>Electricity production company South Holland</i>)
FEEM	Fondazione Eni Enrico Mattei (<i>Italian Research Institute in the field of Sustainable Development</i>)
GALA	General Administrative Law Act (<i>Algemene Wet Bestuursrecht</i>)
GATT	General Agreement on Tariffs and Trade
GBER	General Block Exemption Regulation
GDF	Gaz de France
GDP	Governmental Decree on Pipelines
GHG	Greenhouse Gas
HR	Hoge Raad (<i>Supreme Court</i>)
H ₂	Hydrogen
H ₂ O	Water
ICC	International Chamber of Commerce
ICCS	Institute of Communication and Computer Systems
IEA	International Energy Agency
ILC	International Law Commission
ILM	International Legal Materials
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
ITA	Income Tax Act
JI	Joint Implementation

KLIC	Kabels en Leidingen Informatie Centrum (<i>Centre for Information on Cables and Pipelines</i>)
KPI	Kyoto Protocol Implementation
LAP	Landelijk Afvalbeheer Plan (<i>Dutch National Waste Management Plan</i>)
ICER	Longterm Certified Emission Reduction
LCP	Large Combustion Plants
LPG	Liquefied Petroleum Gas
MA	Memorie van antwoord
NEa	Nederlandse Emisatieautoriteit (<i>Dutch Emissions Authority</i>)
NJ	Nederlandse Jurisprudentie (<i>Dutch Case Law</i>)
NMa	Nederlandse Mededingingsautoriteit (<i>Dutch Competition Authority</i>)
NO _x	Nitrogen Oxide
NPM	Nederlandse Petroleum Maatschappij (<i>Dutch Petroleum Company</i>)
NTE	Nederlands Tijdschrift voor Energierecht (<i>Dutch Journal of Energy Law</i>)
Numby	Not Under My Backyard
O ₂	Oxygen
OCAP	Organic Carbon Dioxide for Assimilation of Plants
OECD	Organisation for Economic Cooperation and Development
OJ	Official Journal
OSPAR	Oslo Parish Convention for the Protection of the Marine Environment of the North East Atlantic
OUP	Oxford University Press
PDD	Project Design Development
PSS	Pipeline Structure Scheme
PSV	Pipeline Structure Vision
R&D	Research and Development
RFF	Resources for the Future
RMU	Removal Unit
RvdW	Rechtspraak van de Week (<i>weekly overview of jurisprudence</i>)
SEA	Strategic Environmental Assessment
SME	Small and Medium sized Enterprises
SO ₂	Sulphur Dioxide
SPA	Spatial Planning Act
Stb	Staatsblad (<i>Dutch Official Journal</i>)
Stcrt	Staatscourant (<i>Dutch Official Gazette</i>)
tCER	Temporary Certified Emission Reduction
TK	Tweede Kamer (<i>Lower House of Parliament</i>)

TM	Toelichting Meijers (<i>Memorandum to the draft Civil Code</i>)
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNCLOS	United Nations Convention on the Law of the Sea
US/USA	United States / United States of America
VAT	Value Added Tax
VROM	Nederlands Ministerie van Ruimtelijke Ordening en Milieu (<i>Ministry of Spatial Planning and Environment in the Netherlands</i>)
Wabo	Wet Algemene Bepalingen Omgevingsrecht (<i>The Act on General Planning Provisions</i>)
WFR	Weekblad voor Fiscaal Recht
Wms	Wet Milieugevaarlijke Stoffen (<i>Hazardous Substances Act</i>)
Wro	Wet Ruimtelijke Ordening (<i>Spatial Planning Act</i>)
ZEP	Zero Emission Fossil Fuel Power

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FOREWORD

It is a pleasure for me to write a Foreword for a book on the legal design for CO₂ Capture and Storage (CCS). The backbone of this book is the threat of climate change and the need to reduce the level of CO₂ emissions, especially in the EU. Whilst the wide deployment of renewable energy sources and improvement of energy efficiency are important policy targets to achieve the desired long-term emission reductions, they cannot result in the phase out of fossil fuel use in the short-term. Even with all the will in the world, radically changing the fuel mix will be a matter of decades rather than years, and during this period of change we will continue to require secure provision of energy.

Within this framework CCS is considered as a bridging technology, which enables the continued use of fossil fuels on the one hand, whilst reducing CO₂ emissions on the other. CCS has the potential to positively impact a wide range of market players. Next to major emitters, such as electricity generators and refineries, pipeline and storage operators will be involved in developing this technology, the importance of which is illustrated by its prominence in the European Commission's Energy and Climate Package of January 2008.

Nevertheless, we are well aware that CCS is still a new phenomenon that not only faces several technical, social and economic challenges, but also several legal challenges. On 23 April 2009, Directive 2009/31/EC on the geological storage of carbon dioxide entered into force. Although this Directive provides a robust legal framework for implementing CCS in the EU, it is up to the Member States to translate it into national law. This could result in different national solutions across the EU and raises legal issues and questions that need to be addressed.

This book focuses on legal issues concerning the development of CCS in the EU, and the Netherlands in particular. Sixteen authors from the Groningen Centre of Energy Law of the University of Groningen in the Netherlands have combined their knowledge and expertise to present an in-depth overview of the legal issues relating to the CCS value chain. The strength of the book is in its breadth, which covers the relevant pipeline and storage legislation, international law, and also EU competition and environmental law.

The end result is an interesting collection of ideas, suggestions and puzzles that will help lawyers and policymakers to further strengthen and improve the legal framework for CCS.

Legal Design of Carbon Capture and Storage is a comprehensive, scientific analysis of the recently adopted legal framework for CCS, including Directive 2009/31/EC on the geological storage of carbon dioxide. The case study on the Netherlands provides an interesting discussion of the legal issues that can be encountered when implementing the Directive into national law. I would like to congratulate the editors and authors for preparing this very useful publication.

Andris Piebalgs
Energy Commissioner
European Commission

Brussels, 6 October 2009

INTRODUCTION

MARTHA M. ROGGENKAMP and EDWIN WOERDMAN

Legal Design of Carbon Capture and Storage is the result of the first comprehensive research project initiated by the Groningen Centre of Energy Law, which is part of the Faculty of Law at the University of Groningen in the Netherlands. This research project was carried out between late 2007 and summer 2009, involving 16 researchers active in the Centre with complementary legal and interdisciplinary backgrounds. Part of this research has been presented earlier at the Energy Delta Convention organized in Groningen in November 2008.

1. THE GRONINGEN CENTRE OF ENERGY LAW

The University of Groningen has a special connection with the energy sector. Not only is it situated on top of the Groningen gas field, but it also has close ties with the market parties developing this field. Currently, the University and companies like Gasunie are co-operating in several energy-related organisations such as the Energy Delta Institute and the Energy Valley. Moreover, the Board of the University of Groningen has explicitly chosen “energy” as one of the key areas for its research and education.

The Groningen Centre of Energy Law was established in 2007 by Martha Roggenkamp, following her appointment as the first Dutch professor of energy law at the University of Groningen, and Edwin Woerdman, associate professor of law and economics and a specialist in emissions trading at the same university. The Groningen Centre of Energy Law involves some 25 researchers and co-ordinates all research within the Faculty of Law involving the energy sector, ‘from well head to burner pit’. It includes all legislation and regulation applying to the production, transmission and supply of energy, the promotion of renewable energy sources, the need to secure energy supply, as well as issues concerning climate change and environmental protection. Parties active in the energy sector are increasingly confronted with constantly changing legal issues. The Groningen Centre of Energy Law has the knowledge and expertise to explain and assess these complex questions.

Since its foundation in 2007, the Groningen Centre of Energy Law has participated in several other research institutions. It is, for example, part of the Energy Delta Research Centre, which co-ordinates all energy research within the University of Groningen as a whole. In addition, the Groningen Centre of Energy Law takes part in the newly established Groningen Centre for Law and Governance. The latter Centre focuses on the interaction between public and private law and the function of law in the regulatory state. Energy law is, as explained above, a typical example of such interaction.

2. THE RELEVANCE OF CARBON CAPTURE AND STORAGE

Carbon Capture and Storage (CCS) is a new combination of technologies that may become available to firms that emit CO₂ in the European Union (EU). The aim of this new technique is to capture CO₂ emissions and store it underground in order to avoid their emission in the air and to combat climate change in general. Why did the Groningen Centre of Energy Law choose CCS as its first research topic? There are basically two reasons.

First, CCS will be an essential part of climate policy in the EU. This policy aims at substantial CO₂ emission reductions: a 20% reduction in 2030, and, if a successor to Kyoto can be negotiated, an even higher target, i.e. 30% in 2020 and 60 to 80% in 2050. Various authors predict that CCS will take up about 15% of the greenhouse gas reduction efforts that the EU needs to achieve under the Kyoto Protocol.

Secondly, both the city of Groningen and the Province of Groningen are likely to play a significant role in the development of CCS in the North of the Netherlands. Not only can CO₂ be stored in empty gas fields in and around the Province of Groningen, but CCS demonstration projects are also likely to emerge in the Eemshaven, a major harbour in the North of the Netherlands, where RWE and Nuon will build new (partly) coal-fired power plants.

3. LEGAL RESEARCH ON CARBON CAPTURE AND STORAGE

Directive 2009/31/EC on the geological storage of carbon dioxide, adopted on 23 April 2009, provides a legal framework for developing CCS in the EU. Although

some reports¹ and individual chapters² have been written on legal issues involving CCS, to our knowledge, no monographs taking a complete legal perspective to CCS have been written so far and certainly not on the ‘CCS Directive’ in the EU. Our book fills that gap in the literature.

When starting our research project, we aimed at examining the legal issues connected to each phase in the CCS chain, i.e. legal issues concerning the capture of CO₂, the transportation of CO₂, the permanent storage of CO₂ and any long-term liability connected to it. In addition, we wished to assess the position of CCS in the international climate change regime and the EU emissions trading regime. Some of these issues are also dealt with in the CCS Directive itself. Legal issues and policy questions we have addressed include, for example:

- Do coastal states have an exclusive right to regulate carbon storage in their continental shelf and/or exclusive economic zone?
- Is CO₂ waste and subject to the EU Waste Directive?
- Are the general provisions for third party access sufficient to prevent possible foreclosure arising from vertical integration in the market for CCS?
- Who decides whether a potential reservoir is used for either gas or CO₂ storage: the licensee, the operator or the competent authority?
- Who is liable for any long-term damage arising from CO₂ storage? And does the transfer of liability to the state remove the (former) storage operator of all liability under national law?
- How do we make sure that the emissions trading regime applies to CO₂ leakages from pipelines and storage facilities?
- Is the CCS market prone to opportunistic political intervention in such a way that it requires a regulating authority with rule making powers independent of political control?

Legal Design of Carbon Capture and Storage raises many of such issues and questions. The authors provide analyses or sketch tentative ideas for addressing them. The end result is a collection of conclusions, advices, suggestions and sometimes paradoxes that will hopefully help lawyers and policy makers to further strengthen and improve the legal framework for CCS. We hope that the book will also inspire other scientists and observers to raise legal questions we

1 E.g. *Legal Aspects of Storing CO₂: Update and Recommendations*, 2007, Paris: International Energy Agency (IEA).

2 E.g. Ray Purdy, “Geological Carbon Dioxide Storage in the Law”, in: Simon Shackley, Clair Gough, *Carbon Capture and Its Storage*, Ashgate, 2006; Nigel Bankes and Martha Roggenkamp, “Legal Framework for CCS” in: D. Zillman et al, *Beyond the Carbon Economy*, Oxford University Press, 2008.

forgot to ask or to come up with legal solutions we did not foresee. Only this will bring further both the law and legal science.

The monograph provides a comprehensive, scientific and interdisciplinary assessment of the legal framework for CCS, including Directive 2009/31/EC on the geological storage of carbon dioxide. The legal perspective dominates, dealing with issues that vary from international to national law and from public to private law. Taking into account the fact that the earlier mentioned EU Directive needs to be implemented in national law, we have taken the legal developments in the Netherlands as a case study for any issues which will be raised during such process of implementation. Next to legal discussions, the book also pays attention to technical aspects and economic incentives for CCS. We do not claim to be complete, but we do believe that this aspect makes our book even more relevant to policy makers and also more fascinating to read for scholars interested in, for instance, law and economics or the law and society tradition.

4. OUTLINE OF THE BOOK

The book is organised as follows. It is divided into four parts: (i) General, (ii) International and EU law, (iii) CCS in the Netherlands and (iv) Conclusion.

Part I is of a general nature and deals with the technical aspects and safety risks of the entire CCS chain. We have included a specific chapter covering these issues because we consider such basic information to be helpful, also for lawyers, to understand CCS as a new combination of existing technologies (Chapter 1 by Grevers and Luten).

Part II focuses on both international and EU law. First, the status of CCS is considered, for instance, under various United Nations Conventions (such as the UNFCCC, UNCLOS and OSPAR) (Chapter 2 by Brus). Thereafter we turn more specifically to the Kyoto Protocol as this Treaty is the international background against which the development of CCS should be seen. Therefore, CCS is studied in relation to Joint Implementation (JI) and the Clean Development Mechanism (CDM) under the Kyoto Protocol (Chapter 3 by Boute). We then descend to the EU level and more particularly to Directive 2009/31/EC which forms the backbone of the legal framework for CCS in the EU. First, we consider the incentives for CCS in the context of the EU emissions trading scheme (Chapter 4 by Woerdman and Couwenberg) and thereafter we turn to the impact of EU competition law to CCS (Chapter 5 by Vedder). Finally, the role of EU environmental law in CCS is

taken into account as well as its impact on national law, i.e. the Netherlands (Chapter 6 by Jans and De Graaf).

Part III examines in more detail the development of CCS in the Netherlands. As Directive 2009/31/EC must be transposed into national law by 25 June 2011, we consider this part as a case study on legal issues which may arise while implementing the Directive. Following the analysis in the previous part on environmental law, which to a large extent deals with issues related to capture, we begin this part with an analysis of the legal framework applying to existing and new pipelines for CO₂ transportation, both from a public and private law perspective (Chapter 7 by Lubach). Then, the regulation is studied for underground storage of CO₂ (Chapter 8 by Roggenkamp). After that, attention is paid to post-injection liability for onshore CO₂ storage (Chapter 9 by Wissink). We continue by analysing the application of the concept of third party access to CCS (Chapter 10 by Roggenkamp). Also the role of the competent authority in regulating CCS receives ample attention (Chapter 11 by De Ridder and Haan). Finally, the question is posed whether tax law will act as a barrier or as a tool for promoting CCS (Chapter 12 by Bouwman and Burgers).

In Part IV, some general conclusions are drawn based on the findings in the previous chapters. The editors do not only sketch a number of legal uncertainties that still exist for CCS, but also try to look beyond them by considering the outlines of some remedies which may be necessary in order to obtain an even stronger and more predictable legal framework for CCS (Chapter 13 by Roggenkamp and Woerdman).

5. ACKNOWLEDGEMENTS

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Last but not least, we hope that this book will be the beginning of more, in-depth research at the Groningen Centre of Energy Law on issues related to CCS and other legal developments concerning the energy sector.