

## KEY MESSAGES

### **Carbon dioxide (CO<sub>2</sub>) storage demonstration projects must rapidly expand to guide future legal developments.**

- To achieve a variety of legal and policy goals related to increasing the use of CO<sub>2</sub> storage – including developing CO<sub>2</sub> monitoring frameworks, increasing public acceptance and levelling the playing field for CO<sub>2</sub> capture and storage (CCS) relative to other greenhouse gas (GHG) mitigation options – effective CO<sub>2</sub> storage needs to be demonstrated rapidly at a wider variety of sites. Additional demonstration is essential to better understand and validate CO<sub>2</sub> storage retention in different geologic formations and to develop criteria to select and rank appropriate sites. Expanded demonstration will provide critical data to enable the development of guidance for CO<sub>2</sub> storage monitoring and verification practices. That, in turn, will accelerate the deployment of CCS, and allow it to move from the current level to the one required for stabilized emissions levels.

### **A number of national legal and regulatory issues merit attention; however, the near-term priority should be spurring additional demonstration projects.**

- The development of an effective regulatory system – without overlap and confusion among and between different organisations – is a key first step toward developing industry and community confidence in CO<sub>2</sub> storage activities. Projects should be subject to scrutiny based on the relative risk posed to the environment and community. CO<sub>2</sub> storage project investors require rules that establish clear rights and responsibilities relating to access to the property and that clarify their responsibilities pre- and post-closure. Finally, intellectual property rights do not appear to present significant issues. Future work should focus on outreach and capacity-building efforts to enhance intellectual property regimes in developing regions.

### **Additional guidance is needed to advance CO<sub>2</sub> storage incentives, including participation in emissions trading schemes.**

- While important work is underway to establish methods for including CO<sub>2</sub> capture and storage in the United Nations Framework Convention on Climate Change additional work may be helpful to advance CO<sub>2</sub> capture and storage in the Kyoto Protocol context as well as in national and regional emissions trading systems. Work is needed to develop baselines, monitoring, reporting and verification guidelines, and to address leakage. Additionally, governments should explore “fast-track” regulations and a variety of other research, development and demonstration incentives to advance near-term projects.

**Rapid progress has been made in the past three years to address CO<sub>2</sub> storage; harmonised international guidance is required for further progress.**

- International marine environment protection instruments are taking important steps to guide the advancement of CO<sub>2</sub> storage. For example, the recent amendment to the London Convention now provides a basis in international environmental law to regulate CO<sub>2</sub> storage in sub-seabed geologic formations, subject to licensing by governments. The next step is to provide governments and CO<sub>2</sub> storage project proponents with internationally agreed-upon guidance for monitoring and verification that will demonstrate the integrity of a proposed storage site with monitoring and mitigation safeguards in place.

## INTRODUCTION

In 2004, the International Energy Agency (IEA) Working Party on Fossil Fuel jointly organised a workshop with the Carbon Sequestration Leadership Forum (CSLF) on the legal aspects of CO<sub>2</sub> storage. This workshop, held in Paris, was the first international event to systematically examine the legal issues affecting the storage of carbon dioxide (CO<sub>2</sub>) as a greenhouse gas (GHG) mitigation strategy. The workshop concluded by highlighting the urgent need for appropriate regulatory and legal frameworks to facilitate the successful uptake of CO<sub>2</sub> storage, with a particular emphasis on the need to facilitate large-scale demonstration projects.

The subsequent IEA publication, *Legal Aspects of Storing CO<sub>2</sub>* (IEA, 2005), provided an overview of the main legal and regulatory issues. The publication noted **five important areas that merited further work and analysis. The five areas were:**

- **Increase the number of CO<sub>2</sub> storage demonstration projects**, including CO<sub>2</sub> enhanced oil recovery (EOR), focusing on long-term storage and monitoring aspects in order to establish criteria for optimal siting, verifying the results and assessing the environmental impact of carbon storage, establish monitoring benchmarks and risk management practices. Increase public-private partnerships to achieve these goals, and explore contractual rights and responsibilities related to CO<sub>2</sub> storage projects including intellectual property rights.
- In the short-term, **governments should ensure that there is an appropriate national legal and regulatory framework for storage demonstration projects**. In the interest of time, and given the diversity of institutional setups and policy processes between States, working at the national and/or provincial/state level using existing legal frameworks might be the preferred route. Longer term national frameworks should be formulated on the basis of adequate empirical knowledge about the conditions and risks of long-term storage.
- Contracting parties to international instruments should **take a proactive approach to clarifying the legal status of carbon storage in the marine environment protection instruments**, taking into consideration not only their marine environment protection objectives, but also their objectives regarding climate change mitigation, energy security, sustainable economic development and poverty reduction.
- Governments should **create a level-playing field for CO<sub>2</sub> storage with other climate change mitigation technologies** in the various climate change mitigation instruments, including market-oriented emission trading schemes.
- Both the public and private sectors should **increase public awareness and work on gaining public acceptance of CO<sub>2</sub> storage** by increasing the transparency of their activities and making information about on-going projects available to the public.

In October 2006, the IEA and the CSLF revisited these themes at a follow-on workshop, the 2<sup>nd</sup> IEA Workshop on *Legal Aspects for Storing CO<sub>2</sub>* in Paris, France. Legal developments in the carbon capture and storage arena had proceeded at a rapid pace between the two workshops, and participants came together to share case studies and highlights of policies and regulations in these and other areas. As a way to stimulate discussion, participants prepared a background paper highlighting these developments, along with relevant national and international case studies.

The second workshop explored the five issue areas in greater detail, asking whether these five areas merited further international attention. Workshop participants also examined additional gaps and barriers to the deployment of CO<sub>2</sub> capture, and identified recommendations to guide

further development of appropriate legal and regulatory frameworks. The workshop benefited from the participation of over 120 government, industry and non-governmental legal practitioners that offered insights and experiences gained from developing legal systems to govern CO<sub>2</sub> storage.

## Structure of this report

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This publication summarises the discussions and developments related to the IEA/CSLF October 2006 workshop, and reorganises issue areas to reflect changed priorities. It also includes recommendations for priorities for future work in this critical area. Each chapter is designed to provide an overview of key legal aspects of CO<sub>2</sub> storage, and include relevant case studies where appropriate. The chapters are arranged as follows.

### **Background information**

This chapter provides an overview of carbon capture and storage (CCS) components and the associated technologies, including CO<sub>2</sub> storage in the context of climate change; an explanation of the stages of a CO<sub>2</sub> storage project; costs and the potential for cost reductions in the future; challenges for future deployment; and international experiences and cooperation.

### **National legal and regulatory frameworks**

This chapter is a key area for legal developments related to CO<sub>2</sub> storage. It highlights the issues that are typically covered under national regulations or policies, including:

- The goals of regulation and jurisdictional issues;
- Property rights issues, including ownership and liability at storage sites and intellectual property rights;
- Monitoring and verification requirements;
- Incentive programs to advance CO<sub>2</sub> storage, including emissions trading schemes; and
- Ensuring stakeholder participation in review of proposed CO<sub>2</sub> storage sites.

### **International marine environment protection instruments**

This chapter provides an inventory of existing international marine protection instruments and their current and planned treatment of CO<sub>2</sub> storage activities. Two frameworks – the London Convention and the OSPAR Convention – have had considerable legal developments related to CO<sub>2</sub> storage in the past two years.

### **Recommendations for further work**

This section concludes the publication with recommendations for further work.

### **Annexes**

The Annexes include background information on technology costs, demonstration projects, intellectual property rights, case studies of CO<sub>2</sub> storage public awareness efforts, and background information (including relevant treaty provisions) from international marine environment protection and climate change instruments.