

UK's perspective on the regulatory framework for CO₂ storage

John Roberts

**Department for Environment, Food and Rural Affairs
United Kingdom**

I'm very pleased to have been invited to speak at this important conference.

My responsibilities are for the UK's policies for the sustainable development and conservation of marine resources. I want to address the relationship between proposals for the storage of CO₂ in geological structures under the seabed and the framework for the protection of the oceans and seas against pollution.

This is potentially a difficult area, and it is important that there is a good dialogue between those who work on energy policy and on the technical issues around reducing carbon emissions on the one hand, and the scientists and policy experts dealing with marine protection issues on the other.

In this talk, I am addressing the storage of CO₂ in geological structures under the seabed, rather than storage under land. For the United Kingdom, the focus of attention is on geological structures under the North Sea. I know that in some other countries the focus is on storage under land, but that gives rise to different considerations, and I am not qualified to talk about them.

It may help if I briefly set the context for the international regime for the protection of the seas. The first point is that, as for climate change, there is a strong international dimension. Because pollution is mobile, and because – globally – more than half of the area of the oceans is beyond the jurisdiction of any one state, most of the rules have been agreed in international fora.

Secondly, the first conventions specifically to address marine pollution were agreed in the early 1970s. The impetus was the need to respond to the increased practice of dumping hazardous chemicals at sea. (In those days the oceans were viewed as being sufficiently deep, or vast, or at least sufficiently far away, to serve as a place for dumping waste. There was a widespread practice of using the oceans as place for disposing of chemicals, radioactive waste, chemical munitions and nerve gases, and sewage sludge.

In response, States have agreed international rules which considerably restrict the scope for dumping at sea, and have accepted responsibilities for preventing future marine pollution and for the protection of marine ecosystems. Indeed dumping of waste at sea is now allowed in only a small number of strictly limited circumstances.

These rules have developed over the last thirty years. However, as they were put in place before technologies such as carbon capture and storage were thought of, it isn't always clear how the rules should apply. And in those cases where it is clear, the result is not always sensible – at least in my opinion.

The other general point I would make is this. The oceans and seas are greatly at risk from the impact of anthropogenic CO₂ emissions. In UK waters we are already seeing evidence of significant shifts in the distribution of species as a result of the seas becoming warmer. It may be that temperature rises are affecting the fertility and future viability of North Sea cod. We just don't know enough yet to assess what the damage will be to ecosystems, but it is potentially very serious.

Furthermore, increased CO₂ levels will make the seas more acidic. There is already evidence of this starting to happen. If the seas do become more acidic, there will be major changes to ocean chemistry with negative effects on the marine environment. For example, organisms which build carbonate shells or body structures will not longer be able to do so – most notably this will affect coral reefs, as well organisms such as oysters.

So those of us concerned about protecting marine ecosystems should welcome any safe technology which will contribute to reduction in carbon which will be necessary to halt global warming.

In this part of Europe, there are two international conventions which are relevant:

- the OSPAR Convention for the protection of the North East Atlantic. This is a broad convention, covering a wide range of activities in relation to a single region.
- The London Convention and Protocol. This is a global convention, dealing with the specific issue of dumping at sea. The Protocol, adopted in 1996, updates and tightens up the Convention, and will eventually replace it.

There has been or is a debate in each of these bodies on the issues raised by carbon capture and storage.

One general point is that neither convention prohibits the operational use of CO₂ in the marine environment for enhanced oil recovery. That is a legitimate activity.

The Parties to OSPAR considered the legal position in 2004¹. Their views are too complex to summarise in few sentences - the details can be found on the OSPAR website.

In summary, what is allowed or not allowed depends on the route by which CO₂ is delivered, rather than where it is delivered to (it does not distinguish between geological storage and ocean injections) and the environmental impact of the activity. The “purpose” for which the CO₂ is injected may be relevant too: some purposes may be legitimate, others may not. But

delivery of CO₂ through a pipeline to a platform for injection into a geological structure is allowed – provide the platform is not a gas or oil rig.

However, even where an activity is allowed, that is not the end of the story: there is still a requirement for states to regulate it to ensure that no damage is caused to the marine environment.

OSPAR is now considering the environmental issues associated with CO₂ storage.

The debate in the London Convention has only just started in earnest. The UK has coordinated a group to review what the legal position is, and the Scientific Group is looking at environmental benefits and risks. Both aspects will be discussed at the annual meeting of the Parties in October. Again, the means by which the CO₂ is delivered is a significant factor: the Convention and Protocol do not apply for example to disposal from a land based source via a pipeline.

The legal issues are complex. There a number of issues which will need to be addressed. Do the Convention and Protocol cover geological structures under the seabed? Is the placement of CO₂ in a geological structure “dumping” within the terms of the convention? If so, do any of the exemptions apply? What is the significance of the prohibition on the export of waste materials which are to be dumped at sea?

From the responses I have seen, I suspect that there will be a wide range of views expressed when the contracting parties meet in October.

Where do we go from here?

The most important thing is for the marine conventions and those working on policies to reduce carbon dioxide emissions to work closely together. It may

¹ See Annex 14 to the Summary Record of the 2004 meeting of the OSPAR Commission.

be that the conventions can accommodate carbon capture and storage. But it may be we need to consider whether some amendment is needed to allow us to exploit the opportunities which CCS can offer, whilst ensuring that such activities are properly regulated and monitored

I can't of course speak for other states, but so far as the UK is concerned if some amendment is necessary to clarify the position, I think we would be prepared to support that – indeed, we would argue for it – provided that it is clear that we are not taking risks with the marine environment.

But whether we can achieve that will of course depend on whether there is an international will to do so. It is important that there should be a dialogue between energy and marine or environment Ministries to make sure that we approach the issue in a coherent way.

I have spoken about the international marine conventions and their relevance to carbon capture and storage. It's also important for those of us who are part of the European Union to consider whether any EU rules are relevant.

For example, before going ahead with a new CCS project, it would be necessary to ensure that, as with any major project, the procedures on environmental impact are followed, which will normally require that an environmental impact statement to be prepared.

The Commission are considering whether to propose a Marine Framework Directive – we need to make sure that this measure is compatible with CCS. Other directives such as those on environmental impact, waste disposal or the protection of ground water will also have to be considered, though some will probably not apply – at least in certain circumstances.

On a national level, in the UK we are currently drafting marine legislation to provide a better framework for regulating marine activities. We will need to ensure that it takes account of new activities such as CCS..

Our aim will be to make sure that we have the correct regulatory system in place, to give industry confidence that when they are ready to come forward with proposals we as regulators will be able to respond. Although it may be a few years before this technology is used as part of our response to the challenge of climate change, it is important that we give clarity about what can and cannot be done. This will ensure that developers have the confidence to make the investment knowing there is a secure basis to do so, and the public can have confidence that projects have been properly considered and assessed.

I hope that it is helpful to explain some of the issues which regulators face. There is a debate going on with the international environmental conventions, and it is important that those working on CCS are aware of and indeed take part in that debate.

Thank you for your attention.