



IEAGHG Information Paper 2014-19: Report on London Convention meeting LC-36 and LP-9

Very slow progress on Export of CO₂ for CCS

It was the 36th meeting of the London Convention and the 9th meeting of the London Protocol 3rd - 7th November 2015. All of the detailed work on CCS was completed last year (see IP26), but outstanding is the ratification of the CO₂ export amendment (which is a barrier to transboundary projects offshore) and there is a routine request for information and experiences with offshore CCS.

IEAGHG attended and spoke in plenary with the intervention give in Annex 1 to this Information Paper. It was important to highlight that there is considerable progress being made with CCS, including relating to offshore CCS, not least to counter Greenpeace's claims there that lack of CCS projects offshore means that the London Protocol moved too fast on CCS, and when other countries are not saying much.



IEAGHG at the London Convention

Japan provided an update on the Tomakomai project, Saudi followed IEAGHG to reinforce IPCC AR5 and UNFCCC messages (see IEAGHG blogs of 4th Nov and 23rd October) and Greenpeace asked for examples of application of the London Protocol's CO₂ Specific Guidelines, particularly regarding site selection and CO₂ stream purity. It was notable that UK, USA, Australia and Norway delegations did not give updates.

Following my intervention, I had follow-up from UK Defra, Saudi, Japan, and Greenpeace. Defra, Saudi and Japan thanked IEAGHG for the comprehensive update on CCS and asked for copies of our intervention to use internally.

In terms of ratification of the CO₂ export amendment, UK and Norway have previously ratified. Netherlands have their ratification approved domestically and will submit to the London Protocol in early 2015. Korea, Canada and Australia are still working on theirs (as they were last year). Sweden announced they have started work on theirs. The London Convention Chair emphasised that this ratification "is crucial to combat climate change". So only modest progress given that two thirds of the 45 Parties to the London Protocol need to ratify it for it to come into force.

On marine geoengineering, work is ongoing to develop the procedure for including new marine geoengineering activities (it includes just ocean fertilisation at the moment) and to develop a roster of experts for an 'independent expert advice group'. The geoengineering amendment from 2013 (see IP27) is also slow in being ratified so far (none so far), but may provide addition motivation to ratify the CO₂ export amendment at the same time.

Greenpeace always ask for any examples of application of the London Protocol CO₂ Guidelines (for issuing permits), partly to justify the CCS amendment. None have been available to date. I recently obtained a copy of the ROAD permit (650pp in Dutch), which meets the requirements of the EU CCS Directive, which itself is compliant with and consistent with the OSPAR requirements, which are derived directly from the London Protocol requirements. When I informed Greenpeace of this,



Greenpeace asked the Netherlands to facilitate an analysis of how it meets London Protocol requirements. This is a good idea as it helps to justify the CCS amendment in the London Protocol and will build confidence in the London Protocol's requirements for CCS, so I supported this and asked for IEAGHG to be involved.

IEAGHG and IEA appear to be the main information source on CCS in the London Protocol. CCS would not look very good there otherwise.

Tim Dixon
5 Nov 2014

Annex 1. IEA and IEAGHG Intervention in Plenary to the LC-36/LP-9 agenda item "6.3 Experiences with CO₂ Sequestration Technologies and their application".

The International Energy Agency (IEA) and IEAGHG's work on policy and technical issues associated with CCS has been ongoing since the last meeting.

Of particular note in general relating to CCS and climate change, the IPCC has just published its 'Synthesis Report' of its 5th Assessment Report, the most comprehensive assessment of climate change yet undertaken. This Synthesis Report brings together the three underlying reports already published on the Science, Impacts and Adaptation, and Mitigation, and so aims to provide a clear and up to date view of the current state of scientific knowledge relevant to climate change, produced by many hundreds of scientists. You will have most likely seen the key messages in the news media, including:

- Human influence on the climate system is clear
- The more we disrupt our climate, and cause ocean acidification, the more we risk severe, pervasive and irreversible impacts
- We have the means to limit climate change and build a more prosperous, sustainable future
- Energy production remains the primary driver of GHG emissions
- The window for action to limit temperature rise to 2C is rapidly closing.
- Ambitious mitigation is affordable
- Unmitigated climate change would create increasing risks to economic growth

In terms of CCS, its importance cannot be hidden, both for reducing emissions from fossil fuels and also for combining with bioenergy to take CO₂ out of the atmosphere (BECCS or BioCCS). The importance of CCS jumps out of table SPM2 (Table 3.2 in full report) where their analysis shows that removing CCS from the mix will increase mitigation costs by a massive 138%, and may not achieve a 450ppm scenario at all. This is by far the highest increase from any of the technologies analysed (bioenergy, wind, solar, nuclear). So we really do need CCS in the portfolio of low carbon energy technologies.

Project developments: - Coal Power plant full scale projects: Boundary Dam in Canada became operational in October 2014, Kemper project in Mississippi USA is at advanced stage of construction and operational in 2015, and NRG recently announced their proceeding with a project in Texas USA, operational in 2016. All have onshore injection and storage, but are relevant to demonstrating the feasibility of CCS at full-scale.

Further to these, there exists CCS-specific regulation in several places and there are now projects that have been successfully permitted under these: 5 Class VI permits in the USA, and the ROAD project in



the Netherlands. ROAD has been permitted under the requirements of the EU CCS Directive, which is compliant and consistent with the requirements of OSPAR, which itself is derived from the London Protocol requirements under the CO₂ Specific Guidelines.

IEA analysis continues to highlight the importance of CCS as a technology that allows us to meet the challenge of reducing emissions while meeting growing energy demand around the world. In particular, *IEA Energy Technology Perspectives 2014* (ETP 2014) highlights the important role for CCS in reducing emissions from use of natural gas in power generation. In addition, the IEA's CCS Roadmap 2013 includes that ratification of the LP export amendment is a recommended key action for CCS to progress.

The IEA continues to support governments in implementing enabling policies and regulatory frameworks for CCS. The main vehicles through which the IEA supports its member and non-member governments in this area are the *IEA International CCS Regulatory Network* and its annual update on CCS regulation, the *IEA Carbon Capture and Storage Legal and Regulatory Review*. The Regulatory Network provides a neutral forum for CCS regulators, policy makers and stakeholders to share updates and views on CCS regulatory developments. The most recent meeting of the Regulatory Network was held in May 2014, a [meeting report from which is available](#) from the IEA website. The [fourth edition of the Legal and Regulatory Review](#) was released in early-2014.

IEAGHG runs several Research Networks relevant to CCS and the marine environment. There has recently been a combined meeting of the Monitoring Network and the Modelling Research Network hosted by WVU in Morgantown, USA. There was a dedicated session on 'Offshore Monitoring'. Of note were the advances in offshore monitoring for seabed features and leakage detection from the ECO₂ project, the results from the QICS controlled release project including recovery of sediment and seabed geochemistry and ecosystems, and the processes in the overburden. Presentations are available at <http://www.ieaghg.org/networks/monitoring-network/>. The QICS project recently published its results in *Nature Climate Change*, the paper will be available at <http://dx.doi.org/10.1038/nclimate2381>. The ECO₂ project held its annual meeting on Salina in June 2014. IEAGHG attended as a member of its Stakeholder Board. Of particular note are the demonstrations of remote geophysical monitoring techniques for the detection of gas leakage from the seabed, and the ability to subsequently analyse and assess the geochemistry of the leakage gases and fluids. These capabilities can be coupled with the latest in automated underwater vehicles (AUVs) to enable the surveying of large areas. This project has significantly progressed the knowledge and capabilities for monitoring and environmental assessment of offshore CO₂ storage. The project will complete in early 2015, and the last year of its work will focus on synthesising the results and producing a best practice guide for monitoring and environmental assessment.

Given the recent advances in offshore monitoring, IEAGHG has commenced a comprehensive review of offshore monitoring techniques. The report is expected to be published early next year.

The report of the IEAGHG meeting of "Monitoring Network and Environmental Research Network – Combined Meeting; Theme: Realistic Monitoring of CO₂ Migration from the Reservoir to the Surface" held in Canberra in August 2013, has been published as IEAGHG Report 2013/15, November, 2013'.

IEAGHG will hold a combined meeting of its Environmental Research Network and Risk Management Network next year, to be hosted by the National Oceanography Centre at Southampton UK, in the week of 28th September 2015. The meeting will have an offshore theme, and fits with the two UK CCS projects being developed in FEEDs, as both have offshore storage under the North Sea. All are welcome.



IEAGHG is a participant in the ISO Technical Committee on CCS TC 265. To note that the working group on storage is using as a seed document the Canadian Standard for CO₂ geological storage Z741 and are working to ensure it will be applicable offshore as well as onshore, taking into account the requirements of the London Protocol.

The Carbon Sequestration Leadership Forum (CSLF) has started an Offshore Task Force, to assess the global potential for offshore storage, and identification of technical barriers and challenges as well as RD&D opportunities and opportunities for global collaboration. This work is led by the USA DOE and supported by University of Texas BEG including providing the background assessment, and IEAGHG is a member of this task force, which will report next year.

There was a UNFCCC meeting in Bonn two weeks ago, ADP Technical Expert Meeting on CCS, to look at CCS project experiences in context of pre- and post-2020 climate agreement, this climate agreement to be agreed in Paris in 2015. In discussions on transboundary issues, IEAGHG recommended reference to the good work of the LP in developing safeguard and guidelines for transboundary CCS activities.

Also in terms of outreach, the major CCS conference, GHGT-12, was held in Austin Texas last month, hosted by the University of Texas. IEAGHG and IMO presented an update on LP developments in 2013 on transboundary CCS and on geoengineering. The paper will be available on Energy Procedia.

For more information on IEAGHG activities, contact tim.dixon@ieaghg.org or visit the website <http://www.ieaghg.org/>.

Tim Dixon (IEAGHG) and Sean McCoy (IEA) 3 Nov 2014