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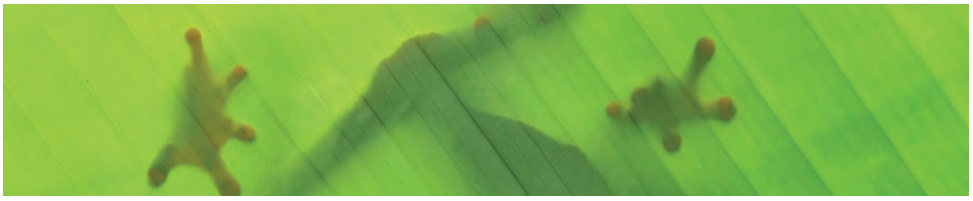

second sharing event

european ccs demonstration project network report

Brussels

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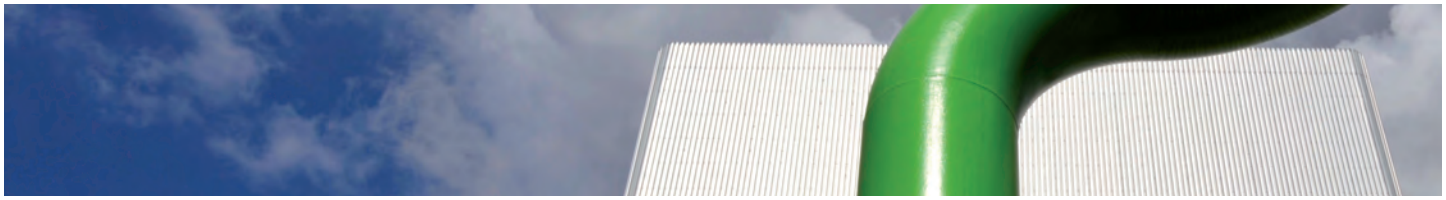
contents



The second sharing event between large-scale CCS projects

The second knowledge sharing event organised by the European CCS Demonstration Project Network brought together 30 representatives from 6 large-scale integrated CCS projects.

The event was organised as a follow-up to the first meeting and knowledge-sharing event held in Bilthoven, the Netherlands on 28-29 April 2010. It focused on further sharing in the themes of permitting, public engagement and risk management.

As at the preliminary meeting in April, six projects granted funding under the European Energy Programme for Recovery (EEPR) participated, namely:

- **Belchatów, Poland**
- **Compostilla, Spain**
- **Hatfield, United Kingdom**
- **Jänschwalde, Germany**
- **Porto Tolle, Italy**
- **Rotterdam, the Netherlands**[1]

In addition to these projects, an observer attended from the Longannet project in Scotland, which has applied for membership.

The main objective of the second meeting was to further share experiences in each of the themes and to specify concrete outputs of the joint work in the coming months.

The meeting started with a brief plenary session going through the status of the CCS Project Network governance structure. Then the participants broke into three groups, each working on one of the themes.

Participants at the event

1 More information on the EEPR projects can be found online at: http://ec.europa.eu/energy/publications/doc/2010_eepr_brochure_co2_en.pdf
Whilst these projects make up the first members of the Network, it is open to any early-mover large-scale CCS demonstration project in Europe and additional projects are expected to join in the coming months. More information on how to apply can be found at: https://www.ccsnetwork.eu

Knowledge sharing theme 1: Permitting

In the first sharing event the participants identified the potential for further knowledge sharing on best practices within permitting and to further build common knowledge on different practices.

The main objective of this session was to identify and assess different practices used by project developers during permitting processes. Practices are defined here as ways of working and the management of the dialogue/consultations with regulators or stakeholders throughout the permitting process.

There is limited experience with CCS permitting processes so far. However, all members have experiences with permitting processes from other large energy or infrastructure projects. The first part of the session was spent on presenting and discussing these case studies. Examples of practices identified and discussed in the session were related to how to involve key stakeholders in early stages of a project; public consultation meetings or different ways of approaching and working together with regulators. Lessons learned included:

- The permitting process is lengthy and both the legislative framework and regulatory institutions organisations could change during the process. Accurate documentation of the process and proactive communication could moderate challenges related to such changes. Anticipation of any changes in political direction can save time for projects by aiding adjustment to the new regime.
- It is very important to maintain good relations with competent authorities and to put in place processes for regular follow up of progress at each stage. This could require a strategy for when and how the various levels of regulatory authorities should be contacted. Existing relations with competent authorities can be built upon and open and transparent communication strategies with competent authorities are encouraged.
- Informing the public through participation in public meetings and discussions on CCS has been seen to enhance public awareness. The local population has to be involved all the way as it is often central to the permitting process. Discussions should be kept on a factual, rather than an emotional, level. Objective experts and scientific organisations should be encouraged to participate.
- The application of a thorough process in the 'optioneering phase' can be demonstrated to regulatory bodies and stakeholders by detailing the assessment of different development alternatives before selecting the option for which the permit is being applied.
- It is good practice to capture any ideas from stakeholders early in the process and to include these in the planning. These ideas may prove beneficial in gaining a positive response to the final concept selection. Likewise, any potential issues with stakeholders should be identified as early as possible and actions should be undertaken to avoid or reduce potential conflicts. To do this it is necessary to carry out early-stage stakeholder identification and consultations.

Guest speaker Sophie Tucker participating in the permitting workshop

Sophie Tucker, Project Manager for Star Energy, was invited to present her experiences with local and national regulators in the permitting process for the Albury gas storage project in the UK. Gas storage can be viewed as analogous to CO2 storage and Star Energy's experiences were considered to be highly relevant to the Network members.

Lessons learned included:

- Spending effort to comprehensively understand the planning / permitting / consultation process is highly profitable.
- A proactive public relations programme and proactive engagement with regulatory bodies are essential. The development of personal relationships with the local community is important in this context.
- Robust planning applications that address stakeholder issues should be prepared.
- In the site selection process it is important to take a broader perspective than technology and cost, hence include environment, communities etc
- It is beneficial to expend more effort in the early planning stages ('optioneering') and to include stakeholders in the process to help avoid planning pitfalls. It is important to be open to input from stakeholders.

In the second part of the session the Network members worked together to draw together the various practices used in permitting processes for CCS projects, or other relevant projects, based on the case studies. The members identified a long list of valuable practices or experiences. This long list can serve as the starting point for developing an overview of practices that can be used by CCS project developers to manage the permitting process.

One issue raised was that the laws and regulations for CCS, in particular for transport and storage, are not yet in place in many EU Member States. The transposition of the EC Directive on the geological storage of CO_2 will be important in clarifying the regulatory framework for CCS. Participants shared concerns from the UK and elsewhere in relation to transposition of the CCS Directive, for example, with regard to the potential liabilities from offshore storage operations that could be implied. Some participants indicated that this issue represents a potential hurdle to CCS deployment across the EU and needs addressing at EU level.

The session identified practices that will be relevant for the CCS projects independent of the national transposition of the Directive.

From the long list mentioned above a few practices were identified by the participants as most relevant to draw lessons for CCS permitting processes. These practices were:

- Involve local and regional authorities in preliminary stages
- Understand the planning and permitting process as fully and as early as possible
- Build personal relationships with competent authorities and local communities to help maximise trust and credibility
- Build on previous surveys of public awareness to understand potential concerns
- Work to identify and promote benefits from projects for the local communities

Based on the identified practices shared by the member projects in this session the Network team and the member projects will work to further describe the practices and formulate good practices (and possibly "best practices") for CCS permitting processes. The collective knowledge on practices in permitting processes will be further elaborated and structured during the next knowledge sharing event in October. A report on good practices in CCS permitting is planned for early 2011.

Knowledge sharing theme 2: Public Engagement

The morning session on public engagement focused on the experiences and status for each project in the group regarding public engagement using the NETL public outreach best practice manual as a reference framework.

The participants particularly looked at:

Integration of public outreach in project management

Integration of public outreach activities into project management is fundamental for a successful outcome. There are also other integration points for the public outreach activities that are vital for a good public outreach process: integration between value chains, integration with external PR firms, integration with other external umbrella bodies and integration between the different partners in the project.

All participating projects have taken, or are planning to take, steps in order to integrate public outreach activities in the project management structure.

Key messages from the projects

In line with the NETL guidance, each of the projects is developing a series of key messages to be used consistently by the project proponents. Those messages include:

- Due to the consistently growing demand for energy worldwide, fossil fuels will remain necessary. CCS offers the opportunity to realise climate neutral coal-fired power plants.
- CCS is not the only measure for acting on climate change. Along with energy efficiency and renewables, CCS will help meet mid- and long-term targets for mitigating climate change.

It was generally felt that, although there needs to be a consistent set of overarching messages, one needs to think of specific messages for specific stakeholder groups as well. Participants discussed the fact that developing and execution of a communication strategy needs particularly careful handling, and justifies much planning and co-ordination between bodies with common interests e.g. via Member State trade associations. In certain respects, however, national strategies may be required, depending on different national circumstances.

It was agreed that the Network team would develop a set of generic key messages that could be used by all the projects. Furthermore, participants indicated that it is not only the message that counts, but also who the messenger is. Projects felt that consistent communication by third parties such as NGOs, researchers and public bodies could facilitate the take-up of key messages by stakeholder groups.

The participants indicated that further discussion would be needed to establish what the Network itself could communicate to further enhance understanding and take-up of CCS.

Social Site Characterisation

The NETL guidance suggests that social site characterisation is a key tool to enhance understanding of the interests of local stakeholders. It was generally felt that developing an understanding of the site-specific social context is crucial to be able to address any local concerns. Therefore, the group discussed how social site characterisation could be used as a tool for establishing profiles for local stakeholder groups and agreed to share experiences with applying social characterisation methods and questionnaires. The use of similar methodologies would facilitate comparisons across projects, and, through sharing of knowledge, overlapping surveys of the same location might be avoided. Other experience, such as that generated by the NEARCO2 project, may also be relevant.

Monitoring of public outreach activities over the lifespan of the project

The workshop identified several key aspects regarding monitoring, including the importance of early initiation of monitoring activities, the need for baseline monitoring, the role of media monitoring as well as local perception monitoring, and the possibility of cooperating with external research programmes on monitoring of the public outreach activities.

The group agreed to complete an overview per participating project for each of the 10 best practices of the NETL guide, for comparison and mutual learning and to start to develop an overview of European current practice in public engagement.

The second half of the session was spent on sharing public communication materials such as videos, animations, website content, brochures, leaflets and other printed material. Participants were impressed by the work already undertaken by the various projects. It was agreed that communication material must be tailored for specific audiences and also that the communication materials should be developed in such a way that later adaptation would be possible at limited cost. Equally, technical jargon needs to be avoided in communicating a project to the local population.

The projects acknowledged that the workshop represented a unique platform for developing case studies with respect to public engagement. Actions were agreed to help record activities and experiences with external relations so that over the course of a project a 'flight data recorder' would help to construct case studies at a later stage without having lost essential information. The Network team will develop a draft template.

A further source of information on the topic is the joint research project "Scrutinizing the Impact of CCS Communication on the General and Local Public". The project results were presented at the FENCO Workshop "How to communicate CCS?" held on 20 May 2010 in Amsterdam. The presentations, as well as further reports and publications, are available on the project's website.

Knowledge sharing theme 3: Risk Management

The morning session focused on the risks related to CO2 stream composition. Guest speaker Antonie Oosterkamp from Foundation Polytec presented an overview of CO2 stream properties and how these are influenced by trace elements. By comparing the stated CO2 stream composition for a number of CO2 pipeline projects, it is possible to see the ranges that are being established for different purposes. Use of CO2 for enhanced oil recovery (EOR) places additional requirements on the impurity content: for example, oxygen must be minimised. Hydrogen sulphide content is treated differently depending on the risks perceived by each project developer. The Weyburn project allows 1% H2S as it helps with oil miscibility considerations, whereas Kinder Morgan reduce this to a 10-100ppm level. Without EOR requirements, the main constraints arise from pipeline considerations. Oxygen and water (which forms corrosive carbonic acid) are unwelcome in pipelines, unless acidic components can be fully removed. One identified information gap is the effect of H2S, NOx and SOx on pipeline materials in the presence of water. Higher levels of water and oxygen than would be tolerated by EOR operators could be an outcome of the trade off between the high marginal costs of removing some impurities, and the risks posed by the impurities, if EOR is not considered a likely use of CO2 delivered by a particular pipeline/ship/network.

Standards for CO2 streams in Europe do not exist and regulators are currently assessing how to manage this issue for the first CCS projects as they seek to implement the CCS Directive. The Commission is planning to publish guidance documents under the CCS Directive that will also cover issues related to CO2 stream composition by the end of 2010. Some regulators have already approached CCS demonstration projects in their jurisdiction for assistance with developing the ranges for CO2 stream composition.

The Ospar and London Convention specifies that CO2 for storage in an offshore geological location must be of at least 95% purity.

CO2 stream composition is strongly influenced by the capture technology and fuel source, and different transport solutions and storage sites may have specific requirements. This variety poses a specific challenge to the first European CCS demonstration projects, several of whom are aiming to become part of a network of capture sources and/or sinks in the coming years. There is a risk associated with taking investment decisions on pipeline and CO2 clean-up designs in the coming 12 months if the future requirements for the integration of multiple CO2 streams are unknown. Over- or under-engineering is recognised as a cost risk by all projects as they all plan to fix the capture design by mid-2012 at the latest, with most projects aiming for mid-2011.

The projects agreed to share their current plans for CO2 composition, which may change as the projects progress. In the next meeting the group will explore the impact of changing the CO2 stream composition on CAPEX and OPEX and the impact on pipeline costs.

The risk management group

The afternoon session focussed on interface risk management. Both technical and organisational interfaces may represent high risks. Each project has several interfaces, such as those interfaces between transport and storage. The projects shared their views on interface risks; such as how to manage interface risks within different subsuppliers, management of battery limits in the capture-transport-storage chain, interface risks with two or more different sources, interface risks in gas transportation, how to deal with different requirements etc. Management of responsibility within the CCS chain in the event that the CO_2 stream is affected by changed operating conditions in capture, transport or storage, leading to loss of electricity dispatch or CO_2 emissions costs, was also raised as an issue for discussion. The projects agreed to combine and organise the different experiences into a collective CCS demonstration project risk register, a first draft of which should be available in early 2011.

A number of proposed agenda points remaining from the first sharing event were reviewed in collaboration with the participants. It was decided that in the third event, a further focus on risks related to CO_2 stream composition and the risk register would be needed.

Concluding remarks

With the second sharing event, the Network has made considerable progress towards realising the objectives for each of the knowledge sharing themes and has further deepened mutual understanding of each participating project's experiences and issues.

Based on the results of the 3 working groups, an agenda for the next meeting to be held in October will be prepared. The intention is for the third event to focus more specifically on the outputs of each theme as agreed in Brussels, and to further explore the interfaces between the permitting and public engagement thematic groups, as participants indicated that there are clear interactions between those two areas in their projects.

In the closing session, participants voiced their wish to avoid proliferation of knowledge sharing arrangements. Where possible, knowledge sharing should be done efficiently, and systems put in place to link other networks internationally where necessary.

The meeting concluded with a presentation from Jan Panek (Head of Unit, EC) who thanked the participants for their continued support for Network activities and stated that he looked forward to seeing concrete outputs from the Network in the second half of the year. He also stressed the importance of establishing the CCS Project Network Steering Committee as soon as possible, especially in light of the value of a successful Advisory Forum meeting in September.