

## Z E P      Zero Emission Fossil Fuel Power Plants

### *Task Force on Policy and Regulation*

#### **Minutes from Third Meeting of ZEP Task Force on Policy and Regulation**

*Brussels, 7 June 2007*

*The ZEP Task Force on Policy and Regulation held its third meeting in Brussels on 7 June 2007. Thirty-six participants attended the meeting, representing European industry, NGOs, the European Commission, the Efta Surveillance Agency and the European Investment Bank. Participants heard presentations from the five sub-groups of the Task Force, DG Competition, the Electricity Authority of Cyprus, the UK Carbon Capture & Storage Association (CCSA) and the ZEP Flagship Group. The sub-groups agreed on their deliverables. The next Task Force meeting will take place on 11 September 2007 in Brussels.*

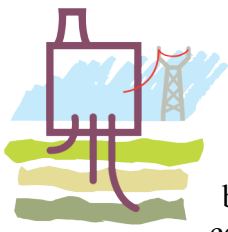
Welcome, adoption of the agenda and approval of the minutes of the last meeting. Co-chairs: Arve Thorvik, Francois Giger and Paal Frisvold

The agenda was adopted and the minutes of the last meeting approved.

- i) Sub-group: Removing the legislative barriers and regulating CCS, by Thomas Hensel, including discussions with Scott Brockett from DG Environment

Thomas Hensel presented the draft ZEP Position Paper on the Commission's proposals for a CCS regulatory framework including comments on the different aspects under discussion.

During the discussion following the presentation Scott Brockett, DG ENV, outlined the current viewpoint of the Commission with regards to certain aspects of the regulatory framework. For transport and capture no new regulation would be needed. For regulating the storage part the Commission would now be in favor of designing a free standing directive instead of regulating it under the IPPC. An issue still under discussion would be the verification of storage sites. There could either be a centralized verification at EU level for a transition phase to increase public confidence in the technology or a more decentralized verification at Member State level according to certain guidelines right from the beginning. The maximum acceptable impurity of the CO<sub>2</sub> stream shall be determined by the concept of Best Available Technologies (BAT) which is in line with the requirements under OSPAR and those for transport and capture. Local damage to the environment would be regulated by the Environmental Liability Directive. Non-local damage would be covered by the inclusion in the European Emissions Trading Scheme (ETS) but there would also be financial provisions for future liabilities (e.g. decommissioning through the Landfill Directive). While an opt-in solution for CCS projects would probably be made available for the second phase of the ETS the options for the third phase would still be under discussion. There would either be an enhanced opt-in for project classes for all Member States or CCS would be included in Annex I of the ETS Directive. The opt-in approach could be more appropriate in the sense that every single category of CCS projects would be checked before being included into the system. The UK would submit monitoring and reporting guidelines together with its application for opt-in for the second phase. The Commission would check these and then decide whether CCS can be included in Annex I by using these guidelines. According to Scott Brockett the issue of making CCS mandatory would still be under discussion as the related Impact Assessment would only be finished by the end of August. Either the EU ETS would act as the sole



instrument to incentivise CCS or there would be some obligation. It would neither be clear yet to which installations this obligation would then apply. Retrofitting could be required either between now and 2020 or between 2020 and 2030. Reacting to a question from the Task Force regarding the need for investment security Mr. Brockett stated that the regulation would most likely be up and running in 2010. However, it would also be possible to have the proposal agreed upon by the Parliament already in beginning of 2009 before the election of the new Parliament. Replying to a question regarding the allocation for CCS projects under the EU ETS Mr. Brockett said that until 2013 there would be free allocation as for the other installations. CCS should be recognized as an abatement option and treated equally. However, no massive impact could be expected from allowing opt-in of CCS projects for the second phase. No decision would have been made yet with regards to the allocation method for the period from 2013 on.

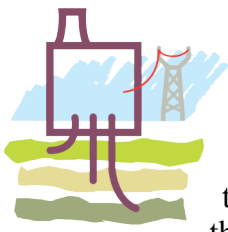
Within the Task Force it was agreed to circulate the draft position paper among the members and then hand it over to the Coordination Group in order to get it approved as an official ZEP document before it will be submitted to the Commission. It was proposed to discuss in more detail the ZEP position towards making CCS mandatory. Some members of the Task Force argued in favor of an obligation for CCS as it would be needed to have CCS deployed at a large scale. The EU ETS would not be able to trigger a technology shift as early as it is needed. Others stated that an obligation would be contradictory to providing incentives through the EU ETS and the general principle of using market-based mechanisms instead of regulations. If CO<sub>2</sub> reduction was the target it should be left to each country or installation how this should be reached. Reacting to the comments from the Task Force Scott Brockett stressed that if the EU ETS was not able to give sufficient incentives to implement CCS a mandatory regulation would be needed as the wide deployment of CCS would be crucial for reaching the emission reduction targets.

- ii) Sub-group on financial incentives: Costs of CCS and possible funding sources, by Paal Frisvold and Luc van Nuffel

Luc van Nuffel presented cost figures for capturing CO<sub>2</sub> and impacts of CCS on electricity costs (all presentations will be made available on the ZEP website [www.zero-emissionplatform.eu](http://www.zero-emissionplatform.eu)). The results would be in line with recent report from the IEA. The market price of CO<sub>2</sub> would be the major economic instrument to foster CCS but might not be sufficient as the expected price would be too low and too volatile. Thus, additional incentives would be needed at least for the demonstration phase. Paal Frisvold stressed that investment in CCS demonstration plants would be very capital-intensive. He presented possible funding sources that could be used to address this issue. The funding options that had so far been brought forward would most likely not be sufficient. However, DG TREN was currently working on a White Paper on incentives for CCS to be published at the end of 2007. The Task Force should give input to the Commission on what incentives should be included in this paper. Finally, investments from the national governments would be crucial and state aid should be considered and its legal basis clarified.

- iii) Incentivising CCS, by Jeff Chapman, UK Carbon Capture & Storage Association

Jeff Chapman presented a list of possible measures to incentivise CCS including retailer obligations, enhanced capital allowances or tax exemptions. He stressed that not enough information would be available on phase three of the EU ETS and that additional incentives would thus be needed. In addition, Mr. Chapman listed possible sources of funds including governments, taxpayers, electricity consumer, VAT, lotteries or Bingo. Funds generating from EU ETS auctioning revenues would be most appropriate. These could for example be



used to finance contractual arrangements between companies and the government that guarantee the companies a fixed payment for emission reductions achieved through CCS.

During the discussion it was mentioned that risk sharing through joint ventures, commercial debts and public funding could also be considered as funding option. Incentives should be market-based and thus not take the form of e.g. feed-in tariffs. In order to avoid competitive distortions there should be a level playing field in Europe with regards to incentive measures. Auctioning revenues could be used to support abatement measures in general, not only CCS. According to Nicholas Jennett from the European Investment Bank the risk sharing between the banking market and the corporate side would be crucial in the discussion about funding opportunities. He raised the question whether the banking sector should only take the risk of delivering a certain volume of capture or also the risk related to carbon price volatility. Under the project finance model of the EIB the EU ETS would not be bankable. Jan Panek from DG TREN stressed the importance of a clear commitment from the industry. The discussion about demonstration plants should not only focus on where the financial means should come from. He stressed the difference between funding for demonstration plants and long-term incentives for CCS and raised the question which of the proposed incentive measures could help to foster the quick set up of demonstration plants throughout Europe. According to Tim Dixon support options for demonstration plants in the UK would still be under discussion. Some kind of support mechanism would be launched in November. In the view of the potential role of auctioning revenues for funding CCS it was proposed to develop a ZEP position on auctioning. The issue of how to recycle auctioning revenues would need in-depth analysis.

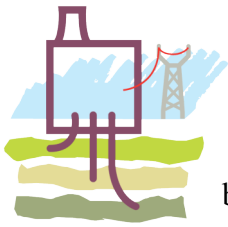
iv) State aid for CCS projects, by Kristyna Deiberova, DG COMP

Kristyna Deiberova from DG COMP presented the legal basis for allowing state aid under the Community law – Art. 87 (3)(b) or Art. 87 (3)(c) - and described two policy frameworks that could be relevant for state aid for CCS projects - the Guidelines for State Aid for Environmental Protection and the Research & Demonstration & Innovation (R&D&I) Framework. While the Environmental Guidelines generally apply to users of a technology that is already available on the market, the R&D&I Framework is designed for technology developers but can also be applied to pilot plants. Ms. Deiberova outlined the basic principles of the “balancing test” used under the Environmental Guidelines to decide whether state aid can be allowed for a certain project. If Art. 87 (3) (b) that allows state aid to be considered for an “important project of common European interest” shall be used for the demonstration projects included in the Flagship Programme it would be advisable to show that these projects are complementary and not in competition with each other. However, a common notification would not be necessary.

Replying to a question from the Task Force Ms. Deiberova stated that the pilot plants under the R&D&I Framework could also be large scale plants as they are planned for CCS.

Outlining the main difference between the two policy frameworks named above Ms. Deiberova described the different eligible costs which consist of the entire project costs for the R&D&I Framework and the additional costs to make the investment “green” for the Environmental Guidelines. Under both frameworks about 25-40% of the eligible costs could be financed by state aid. 100% state aid would not be allowed as there would always be some benefits arising from the project for the companies that have to be taken into account. Moreover, it would be very difficult to calculate the eligible costs.

Lena Sandberg Mørch from the Efta Surveillance Agency stated that the Efta could take up all cases they get to know about no matter if they have been officially notified or not. Ms.



Sandberg stressed that if the state invests on pure economic terms this would not be considered state aid.

- v) Analysis of the future sustainable power technologies with CCS, by Andreas Poullikkas

Andreas Poullikkas presented future technologies with CCS as well as related cost calculations through a simulation tool. This tool had been used among others to simulate the CO<sub>2</sub> avoidance and electricity costs that would result from the different technologies.

During the discussion it was asked why oxyfuel had not been included in the analysis and Andreas Poullikkas replied that the cost simulations for oxyfuel would probably be finished in November.

- vi) Sub-group: Market mechanisms and business models, by Emilio Rodriguez-Izquierdo

Emilio Rodriguez-Izquierdo outlined the objectives of the sub-group as follows:

- Analyze the position of CCS in the market of CO<sub>2</sub>
- Produce an overview of the situation of CCS technology under CDM/JI, focusing on the main barriers to accept the methodologies proposed, as far as the European industry should be the main driver for this technology worldwide.
- Analyse and provide advise to the Commission for the integration of Zero Emission Fossil Fuel Power Plants under into the EU ETS
- Analyse and take the first steps in order to implement different business models to develop the demand side of CCS emission reductions

Envisaged actions of the sub-group were described as continuous communication with:

- UNFCCC-CDM Methodology Panel on development of CCS under CDM
- UNFCCC-JISC (Joint Implementation Supervisory Committee) on development of CCS under JI
- World Bank, EIB and EBRD on their role and potential development of the demand side for emission reductions generated through CCS technology
- DG Environment on EU ETS revision

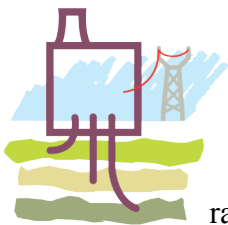
As deliverables of the sub-group the following was agreed:

- Input to DG ENV on the EU ETS with regards to the opt-in period for CCS projects from 2008-2012
- Development of a carbon fund market that covers all periods
- Recommendations for the inclusion of CCS projects as CDM/JI project activity

During the discussion it was stressed that there would be a considerable difference between LULUCF credits and credits from CCS (as it would have been also stated in the IPCC Inventory Guidelines). There was a general support for not drawing comparisons between LULUCF temporary credits and credits from CCS.

- vii) Sub-group: Managing the risks, by Claude Roulet

Claude Roulet presented an executive summary report of his proposal for a risk management scheme that he had already presented during the second Task Force meeting. Mr. Roulet stressed among others that it was not economic to purify the CO<sub>2</sub> stream to have a purity of 99%. Purity should rather be defined in line with the requirements of the capture, transport and storage process. For each geological formation a set of specific conditions should be determined with regards to purity.



During the discussion it was stressed that one should not mention any leakage rates in the context of the regulation as this would give a wrong signal. One should rather stick to the fundamental principle outlined in the IPCC Inventory Guidelines. It was stressed that there would not be such a thing as a leakage rate – there could only be leakage events. A risk management system would have to specify what should be done in such an event. Replying to a question from the Task Force Claude Roulet stated that there was basically no limit to monitoring. The degree of monitoring that could be done would rather depend on the financial means available. The attention of the audience was also drawn to the institutional organization of the risk management scheme. In this respect it was proposed to invite relevant companies like e.g. DNV to the Task Force meetings.

viii) Sub-group: Cooperation with other regions, by Arve Thorvik

Arve Thorvik referred to the Transatlantic Dialogue on CCS that took place on 3 May 2007 in Brussels. A common CCS Roadmap is being worked on by Jason Anderson from IEEP. A second transatlantic CCS event is envisaged to take place in Washington in September 2007. A representative from the Chinese government will attend the General Assembly on 3 October 2007.

ix) Status report on the Flagship Group, by Arve Thorvik

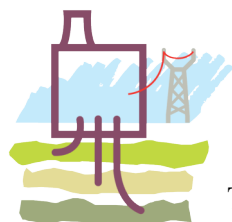
Arve Thorvik presented the current status of the work undertaken in the Flagship Group. He outlined the thinking about selection criteria for the demonstration projects to be included in the Flagship Programme as well as the envisaged timeline for the whole process of getting the programme implemented. Mr. Thorvik stressed the importance of the Flagship Programme for the demonstration of different technologies, transport and storage options in different countries. He proposed to separate the Flagship Programme in some way from the ZEP as it would have a different dimension. Instead of focusing on research activities it would deal with the design and implementation of a policy framework and the establishment of the demonstration plants.

During the discussion it was proposed to merge the public funding group within the Flagship Group with the Policy and Regulation Task Force's sub-group on financial incentives and funding options chaired by Paal Frisvold who confirmed that the groups were already communicating with each other. It was stressed that the public-private partnership structure possibly to be used for financing the demonstration projects should also include the infrastructure part. Other participants raised the issue of how the Flagship Programme would relate to the respective processes in the Member States. The attention was once again drawn to the importance of the allowance of state aid from national governments and the existence of an incentive framework for implementing the demonstration plants.

x) Identification of deliverables, by Paal Frisvold

Paal Frisvold summarized the deliverables of each sub-group that had been agreed during the meeting as follows:

Sub-group on Risk Management: The paper by Claude Roulet on a proposal for a risk management scheme will be circulated to the Task Force members for as soon as it becomes available and then submitted for approval of ZEP Coordination Committee and to the Commission.



Sub-group on legislative barriers and regulatory framework: The position paper by Thomas Hensel on the ZEP input to the regulatory framework for CCS will be finalized and circulated to the ZEP Coordination Committee and submitted the Commission.

Sub-group on market mechanisms and business models: Emilio Rodriguez-Izquierdo will circulate a ZEP position paper on the revision of the ETS, a carbon fund and CDM/JI. This paper could be discussed at our next meeting.

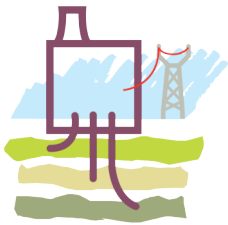
Sub-group on financial incentives: A policy paper on state aid and funding sources will be produced.

Sub-group on cooperation with other regions: A second transatlantic seminar will take place in Washington in September 2007 and a representative from the Chinese government will attend the ZEP General Assembly in Paris on 3 October 2007.

The next Task Force meeting will take place on 11 September 2007 in Brussels.

#### List of participants of ZEP P&R TF Meeting on 7 June 2007

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