



Towards an EU Regulatory Framework for CCS

Jane Amilhat

Policy Officer –

Unit C.1: Climate Strategy, International Negotiations and Monitoring of EU Action

Environment Directorate General

European Commission, Brussels



A growing interest for CCS in the EU

- **“Winning the Battle Against Global Climate Change” (February 2005)**
 - ECCP II to address Carbon Capture and Storage
- **“A European Strategy for Sustainable, Competitive and Secure Energy” (March 2006)**
 - Carbon Capture and Geological Storage opportunity for near-zero emission technology



Towards An EU Policy Framework for CCS

- **EU research into CCS**
- **Recent EU-based industry initiatives**
- **Towards an enabling regulatory framework**
- **EU-OPEC possible cooperation on CCS**



EU-Funded Research on CCS

EU 5th and 6th Research Framework Programme

- Project portfolio worth more than 170 M€ (~75 M€ EU contribution)
- Hypogen – first phase DYNAMIS (3 yrs)
- Co-ordination of Member States activities, ERA-NET (FENCO)
- 1st European High Level Conference on CO₂ Capture and Storage (April 2005)
- International Cooperation: Contribute to the Carbon Sequestration Leadership Forum (CSLF), an objective in last 2 Call for Proposals
- European Technology Platform on Zero Emission Fossil Fuel Power Plants (ZEFFPP) (launched on 1 December 2005)
- **Support for EU-China Partnership implementation (COACH)**

EU 7th Research Framework Programme (2007-2013)

- CO₂ capture and storage technologies for zero emission power generation
- Clean coal technologies
 - Budget increase ~30%



Recent Major EU-Funded Projects

In addition to 9 Specific Targeted Research Projects
total EC funding of 13.5 M EUR

Project Acronym	Title	EU funds (M€)	Coord.	Duration / months	Start	No of Partners	No of countries
CO2SINK	In-situ laboratory for capture and sequestration of CO ₂	8.7	Postdam Research (DE)	60	1/4/04	14	8
ENCAP	Enhanced capture of CO ₂	10.7	Vattenfall (DE)	60	1/3/04	33	9
CASTOR	CO ₂ from capture to storage	8.5	IFP (FR)	48	1/2/04	30	12
CO2GEONET	Network of excellence on geological sequestration of CO ₂	6	BGS (UK)	60	1/4/04	13	7
CACHET	CO ₂ capture and hydrogen production from gaseous fuels	7.5	BP (UK)	36	1/4/06	29	18 (4 Third countries)
DYNAMIS	Preparing for large scale H ₂ production from decarbonised fossil fuels with CO ₂ geological storage	4	SINTEF (NO)	36	1/3/06	30	14
CO2REMOVE	The monitoring and verification of CO ₂ geological storage	8	TNO (NL)	60	1/5/06	27	10 (1 Third country)



European Technology Platform on Zero Emission Fossil Fuel Power Plants (ZEP)

- “To enable European fossil fuel power plants to have zero emission of CO₂ by 2020”
- 25 Members, balance between regional and sectoral origins (Utilities, Energy Companies, Equipment Suppliers, Researchers, Authorities, ENGOs)
- 5 working groups (Capture, Storage, Infrastructure, Market & Regulation, Communication & Public Acceptance)
- Producing **Strategic Research Agenda** and **Deployment Document** (adoption mid-2006)
- Steer first call for proposals under 7th Framework Programme (end 2006-beginning 2007)



Recently announced industry-led CCS initiatives in the EU

Date	Companies Involved	Technology Options	Plant Capacity	CO2 Avoided per year Million Tonnes	Estimated Cost	Place and Date of start of Operation
May 2005	VATTENFALL	Thermal Oxyfuel Pilot Coal Power Plant with CO2 capture	30 MW		40 million €	Germany 2008
June 2005	BP and Partners CONOCO-PHILLIPS, SHELL, SCOTTISH AND SOUTHERN ENERGY	Power Plant with H2 as fuel a) Natural gas conversion to H2 and CO2 b) CO2 capture, transport and use for Enhanced oil recovery c) H2 is used as fuel for power generation	350 MW	1.3	600 million \$	Scotland 2009
March 2006	STATOIL and SHELL	Natural Gas Power Plant a) Capture and transport of CO2 for offshore injection b) Enhanced oil recovery	860 MW	2.5	1.2 - 1.5 billion \$	Norway 2010-2011
March 2006	RWE	IGCC Power Plant-, CO2 capture and storage	450 MW		1 billion €	Germany 2014



Towards an enabling regulatory framework ECCP II – working group on CCS

- Stakeholder consultation, 4 meetings 1st half of 2006
- Explore geological carbon capture and storage as a mitigation option by:
 - reviewing the *potential, economics and risks* of CCS;
 - identifying regulatory needs and barriers and exploring the elements of an *enabling regulatory framework* for the development of environmentally sound CCS;
 - identifying *other barriers* that could impede the development of environmentally sound policies to advance CCS, and policies to enable the development of environmentally sound CCS.
- Final report in June 2006
- Commission proposals in 3rd quarter 2007



Towards an enabling policy framework ECCP II – working group on CCS

- **Policy and Regulatory Framework:**
 - **Assessment of risks/environmental impacts**
 - **Permitting of CCS activities**
 - **Unwarranted barriers to CCS in existing legislation**
 - **Short & long-term liability**
 - **Incentives for CCS, including the role under the EU ETS**



Next steps inside the EU

- **Communication on Sustainable Coal planned for January 2007 as part of the EU Energy package.**
- **Communication possibly with legislative proposal on an EU regulatory framework for CCS in the second part of 2007. On going impact assessment.**



Particular role of EU ETS and CDM as incentive

- **Discussion about the integration of CCS in the EU ETS review (2006-2007)**
- **CCS can also be recognised as CDM projects**
- **It is important for the further development of CCS to continue to have a framework for incentives after 2012 (CDM and EU ETS). Other instruments could be applied.**



Current bilateral cooperation on CCS

- **EU-China Action Plan on Clean Coal Technologies (March 2005)**
 - **“Near Zero Emissions Coal”, construct plant by 2014**
 - Phase 1: ~ €10M, MoUs signed, kick-off conference (July 06)
 - **Working group dealing with clean coal and clean coal technologies under the India-EU Energy Panel.**
 - **Possible study from the Indian side on CO₂ capture and geological sequestration.**
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EU-OPEC possible cooperation on CCS

- **FP7 – Calls for funded projects end 2006-
beginning 2007 (some of the projects with
participation of third countries).**
- **EU-GCC discussion on regulatory
frameworks for CCS.**



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More information on EU climate policy:

http://europa.eu.int/comm/environment/climat/home_en.htm