



Towards an EU Policy Framework for CCS

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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 policy framework**



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 2006)
- **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%
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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 (ZEFFPP)

- “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 Strategy** (adoption mid-2006)
 - Steer first call for proposals under 7th Framework Programme (end 2006)
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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 policy 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 Communication in 3rd quarter 2007**
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- **Policy and Regulatory Framework:**
 - Assessment of risks/environmental impacts
 - Permitting of CCS activities
 - Short & long-term liability
 - Incentives for CCS, including the role under the EU ETS



get to grips with
climate change

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



More information on EU climate change policy