

# The European context for CCS



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- *IPPC: Globally, emissions will need to peak within the next 10-15 years, followed by substantial reductions of 50-85% by 2050*
- *Fossil fuels set to remain major part of the energy mix*
- *RES and EE at centre of EU strategy*

*But*

- *Need CCS as part of the mix*



- CCS regulatory framework
- Implementation
- Demonstration support
- Other initiatives



- Enabling approach
  - Draft directive on geological storage sets environmental rules and liability requirements
  - Member States determine whether and where CCS will happen on their territory
  - Emissions captured and stored are recognised as not emitted under the Emissions Trading Scheme
  - Companies decide whether to use CCS on the basis of conditions in the carbon market
- Capture-ready assessment required to avoid lock-in of high-emissions technology
- No mandatory CCS at this stage:
  - Let the market work: The revised ETS will ensure a robust carbon price and action on demonstration will bring CCS costs down

## Mandatory CCS?

- EP proposed performance standards for new plant operational from 2015 of 500 g/kWh
  - Implications for whether new coal can be built without CCS
- COM position in Impact Assessment:
  - Would make meeting 20% GHG reduction target more expensive
  - Cost burden falls disproportionately on small number of Member States (DE, PL, UK, BE)
  - In tension with market-driven deployment under ETS
  - CCS technology still not demonstrated at commercial scale.
- Council: reservations from most Member States
- Outcome:
  - review once CCS demonstrated to be safe and economically feasible.

# Liability and transfer to the state

- Enabling legal framework sets out liabilities covered
  - Corrective measures for any leakage (geological storage directive)
  - Surrender of allowances under the ETS to cover any leaked emissions
  - Liabilities under the Environmental Liability Directive (2004/35/EC)
- Site transfers to the state when injection has ceased and site has progressed towards safe condition:
  - Criterion: all available evidence indicates that stored CO<sub>2</sub> will be completely and permanently contained
- Further issues in Council and EP:
  - Minimum period before transfer of 20 years unless condition for transfer met earlier
  - Financial contribution to cover at least post-transfer monitoring for 30 years

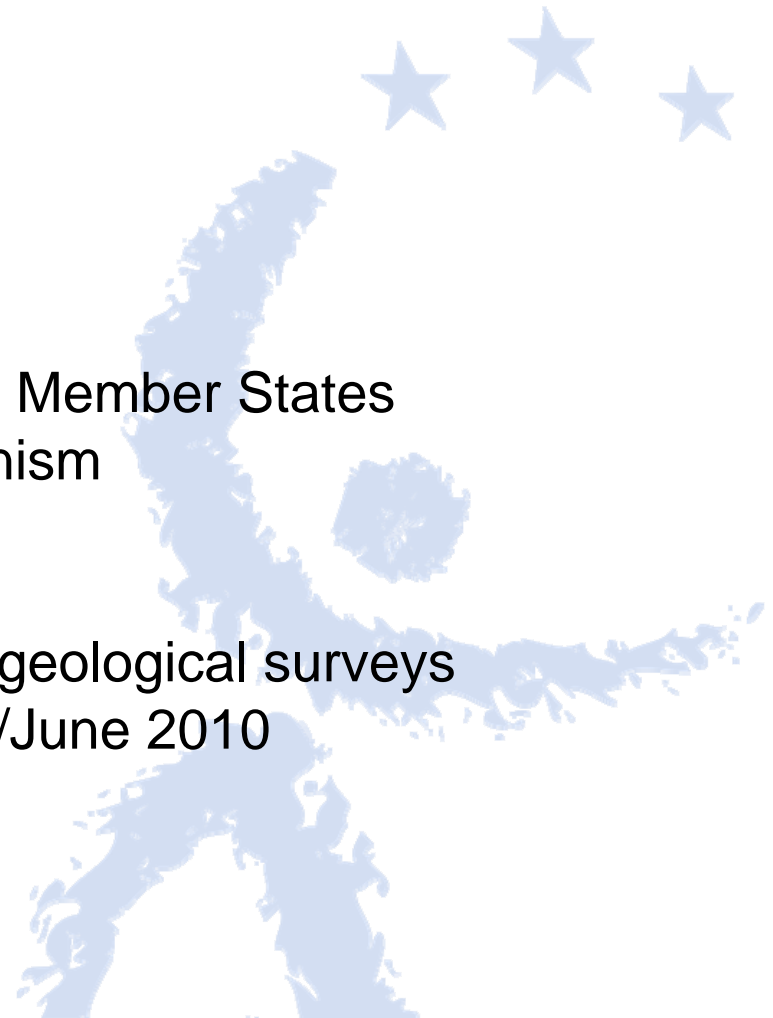
- CCS Directive implementation
  - Exchange of information with Member States
  - Guidance on key issues (some requested by Council and EP)
  - Transposition
- Commission review of draft permit decisions and decisions of transfer
  - Establishment of Scientific Panel by Commission Decision
- CO<sub>2</sub> captured and stored recognised as not emitted under the ETS
  - Finalisation of Monitoring and Reporting Guidelines
- Ratification of changes to international conventions (OSPAR ratified end 2009)

## Four main guidance documents

- Life-cycle risk management framework
- Detailed guidance on
  - Site characterisation
  - CO2 stream composition
  - Monitoring
  - Corrective measures
- Criteria for transferring responsibility to Member States
- Financial security and financial mechanism

## Timing

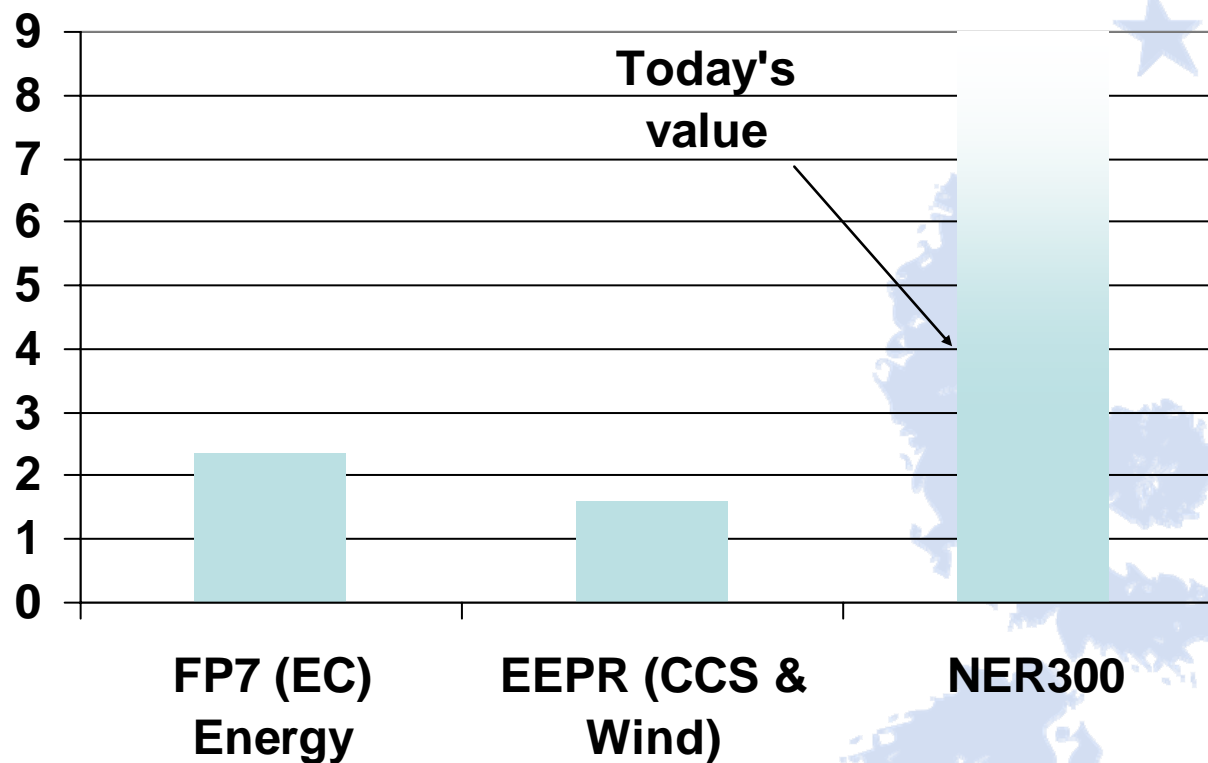
- Currently consulting MSs and national geological surveys
- Issue drafts for wider consultation May/June 2010
- Finalisation Oct/Nov 2010



# Clarity on potential for CCS in Europe

- Map of storage sites classified according to the main storage options, with capacity estimates (GESTCO, CASTOR and GEOCAPACITY)
  - Depleted oil and gas reservoirs
  - Deep saline aquifers
  - Unmineable coal seams
- Map of combustion installations
- Projections for future capture, transport and storage network
  - Domestic storage capacity, for Europe and for MSs?
  - Proportion of storage land-based, sea-based?
  - Which kinds of storage site used?
  - What sort of transport network is needed?

# Financial resources for CCS and RES demonstration



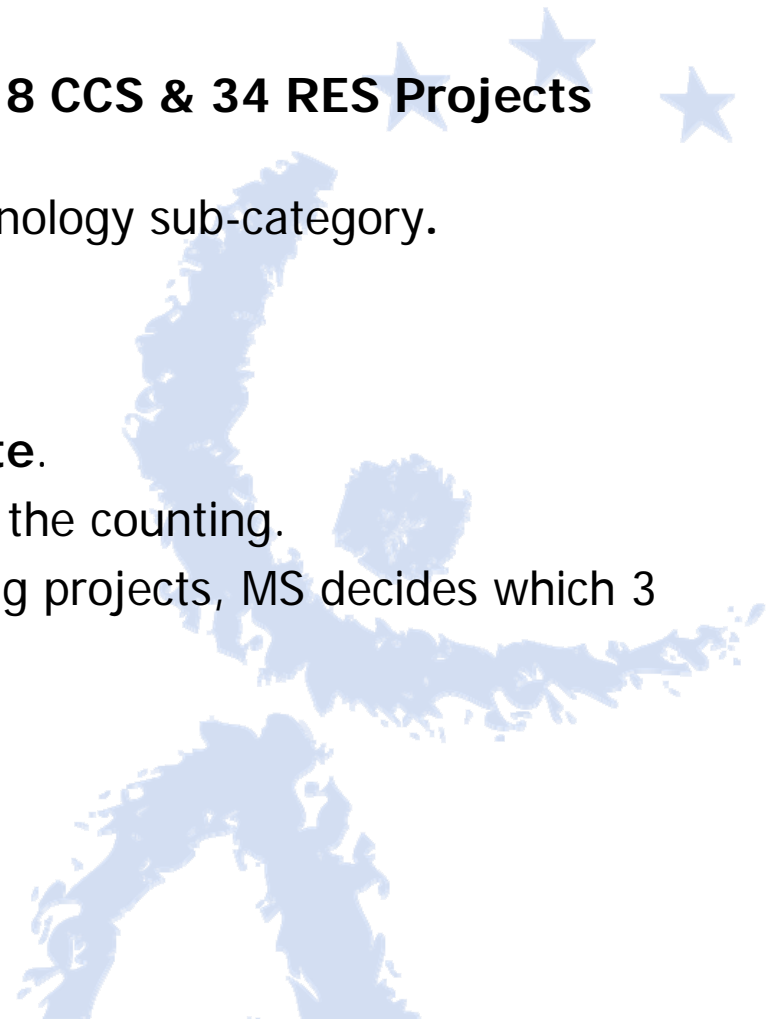
- **In revised ETS directive (2009/29/EC)**
  - **300 M EUA** (Million EU Emission Allowances)
  - Of the New Entrants Reserve (**NER**)
  - Available until **31 December 2015**
  - To support **commercial demonstration** projects in **CCS** and innovative **Renewables**
  - Development of a **wide range** of (CCS and RES) **technologies** in **geographically balanced locations**.
  - **Award** shall be **dependent upon** the **verified avoidance** of CO<sub>2</sub> emissions.
- **NER300 Decision** lays down the **rules** for the use of the 300\_M EUAs

### ➤ **Technology balance**

- Starting point. **Basic Projects portfolio: 8 CCS & 34 RES Projects** (grouped in 8 RES categories).
- Each RES project covering a different technology sub-category.

### ➤ **Geographical balance.**

- **Min 1, Max 3** projects **per Member State**.
- **Trans-boundary** projects not included in the counting.
- If a MS has more than 3 potentially winning projects, MS decides which 3 to support.



➤ **8 CCS projects, of which:**

- Min 1 Max 3 in the following categories: pre-combustion, post-combustion, oxy-fuel and industrial applications
- Min 3 with saline aquifers & Min 3 with depleted hydrocarbons reservoirs
- Min size threshold: 250 MW. Min capture efficiency: 85%.

➤ **34 RES projects, of which:**

- 9 Bio-energy
- 5 CSP
- 3 PV
- 6 Wind
- 4 Geothermal
- 3 Ocean
- 1 Hydro
- 3 Distributed Renewables Management (SmartGrids)

- To guarantee the pre-commercial relevance of all selected projects, each project sub-category is characterized by a **minimum size threshold**.
- Should a MS not be in a position to submit projects in any sub-category which meet the minimum size thresholds, than projects submitted by that MS below the size thresholds become eligible.



- Definition of **Relevant Costs**. Extra investment costs + extra operating costs – extra operating benefits (which include pre-existing support schemes, State aid or not).
- **NER300 (+EEPR)** will finance **50% of relevant costs** except where the promoter provides more than 50%, in which case the NER contribution will be reduced accordingly. The remainder can be financed by the project promoter, the MS concerned, or a combination of the two.
- Financing under **NER300 can be combined** with **Structural Funds, EEPR** and **RSFF**.
- **Payments**. Financing to be disbursed on a **yearly basis during operation**, as a function of the amount of CO<sub>2</sub> stored (CCS) or of energy produced (RES).
  - **No pre-financing**, unless the MS concerned is ready to guarantee that funds will be returned to EIB in case of failure.
  - **No financial penalty** if projects achieve at least 75% of projected total amount of CO<sub>2</sub> stored or energy produced.

- Each **MS** evaluate **eligibility criteria** (including compliance with minimum technical requirements and innovative nature), and decides which projects to pass for next selection step.
- **EIB** will perform **financial and technical due diligence**
- **Ranking** of projects based on **cost** (total request public funding, not relevant costs) **per unit of performance**. (Level of innovation not used in the ranking).
  - All CCS projects are ranked as a single group, and then additional portfolio criteria are applied.
  - RES projects are ranked within each of the 34 sub-category.
- If sufficient funds are not available, the CCS portfolio and RES portfolio are reduced proportionally, **maintaining** the same **funding proportionality** between the two portfolios.

### ➤ **NER300 Decision**

- **2 Feb 2010 - Approved by Climate Change Committee**
- **May 2010 - Parliament scrutiny**
- **End of May 2010 - Formal Adoption by Commission**

### ➤ **1<sup>st</sup> Call (200 M EUA)**

- **Early summer 2010 - Publication**
- **31 Oct 2010 - Deadline for submission to MS**
- **31 Dec 2010 - Deadline for submission to EIB**
- **31 Dec 2011 - Deadline for Award Decision**

### ➤ **2<sup>nd</sup> Call (100 M EUA)**

- **31 Dec 2013 - Deadline for Award Decision**

- Main elements of CCS enabling framework have gained broad acceptance in institutions
- Enabling under ETS is chosen approach: revised Emissions Trading Directive will enhance regulatory stability and predictability.
- Implementation will focus on guidance on key issues, monitoring and reporting guidelines for CO<sub>2</sub> leakage under the ETS, and establishment of Scientific Panel
- Substantial finance available at EU level for demonstration support, in NER 300, EEPR and FP7.