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EUROPEAN COMMISSION

CCS Demonstration

Latest developments in the EU

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Background

- The use of fossil fuels in power generation leads to approximately 40% of all CO2 emissions in the EU
- Fossil fuels will remain important part of the EU and global energy mix but solutions addressing carbon footprint needed
- CO2 Capture and Storage – obvious choice. Technology present – but not scale

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Policy goal

- CCS commercially viable by 2020

Delay of demonstration
means more CO2 emitted !!!

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The CCS Story

- **2007 Spring European Council** calls for enabling low-CO2 power generation from fossil fuels by 2020. Reference to up to 12 CCS demonstration plants in operation by 2015;
- **November 2007: Strategic Energy Technology Plan -** R&D efforts to focus on strategic low carbon technologies with CCS as one of them. Large-scale demos next priority;
- **23 January 2008:** Commission adopts Energy and Climate package including CCS Directive, ETS Directive and revised rules on environmental state aid mentioning CCS;

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X-mas CCS Revolution

- **December 2008** EU institutions agree on the CCS enabling Directive and Emission Trading Scheme Directive (including famous 300 M pot of allowances on CCS projects)
- **January 2009** Commission adopts Recovery Package proposing 1.25 B for 5 large scale CCS projects

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Follow up

- **Legislation**
  - » CCS Directive (ENV)
  - » Revised ETS (ENV)
  - » Recovery Package (TREN)

- **Non-legislative actions (TREN)**
  - » Network of CCS demo projects
  - » Deployment of CO2 Infrastructure

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CCS Directive

- **Enabling Framework**
  - » Member States determine whether and where CCS will happen
  - » Companies decide whether to use CCS on the basis of conditions in the carbon market

- **Objectives and Principles**
  - » Legislative Framework for managing environmental risks
  - » Overcame existing legal barriers
  - » Use existing frameworks where possible

- **Focus on Storage**
  - » Capture regulated under IPPC Directive
  - » Transport regulated as for natural gas transport (by Environmental Impact Assessment and at Member state Level)

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EU Emission Trading System

- **ETS Phase III**
  - » from 2013 full auctioning of allowances for the power sector (with some exceptions)

- **CCS under the ETS:**
  - » CO_2 captured, transported and safely stored considered as not emitted
  - » ETS allowances must be surrendered for any leakage
  - » monitoring and reporting guidelines under preparation

- **ETS as a source of CCS support**
  - » 300 M of allowances for large-scale CCS and RES
  - » 50% earmarking to low-CO_2 technologies
  - » Countries allocating allowances for free bound to invest equivalent

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Recovery Package

- €1.05 bn for CCS demonstration
- Up to 7 projects, max. 1 project per MS
- Max €180 million per project for incremental investment costs (CCS-related)
- Limited call for proposal with funding decision to be made before the end of this year

NOW agreement of EP needed (decision May)

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Network of CCS demo projects

EU structure to stimulate demonstration of CCS power plants without financing them

- **SET-Plan: proposes European Industry Initiatives (EII) in technologies needed for a decarbonized baseload**
- **Det Norske Veritas selected to assist COM in establishing and** running the network

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Network of CCS demo projects

- **Added value to the first movers:**
  - » Coordination of demonstration projects
  - » Identification of best practises
  - » Exchange of information and experience
  - » European logo / market brand
  - » Consulting services
  - » Increasing public awareness
  - » International cooperation

- **Timeframe**
  - » Criteria published: 2Q 2009
  - » Project network start: 3Q 2009

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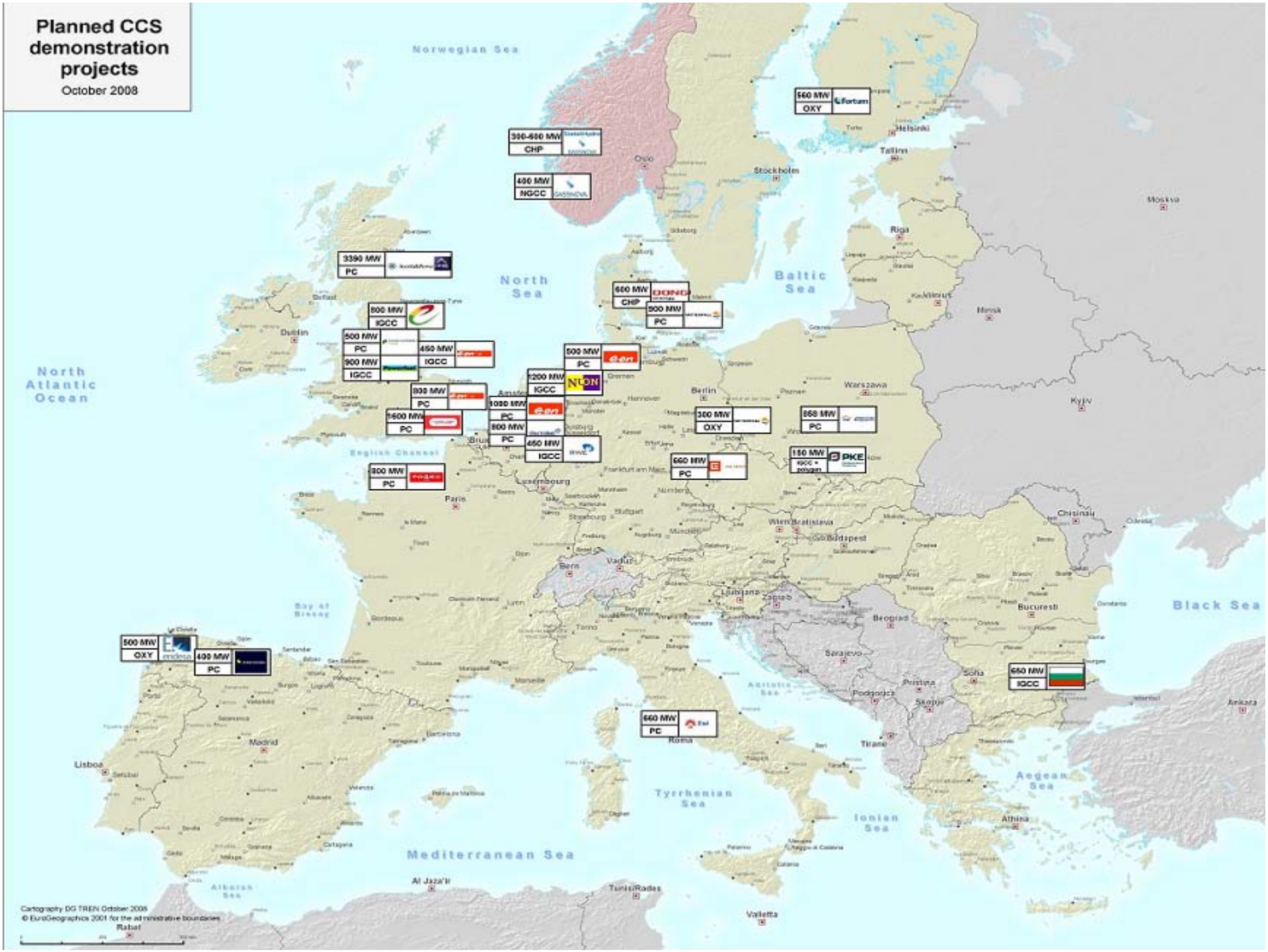
Planned CCS demonstration projects
October 2008
Norwegian Sea
North Sea
Baltic Sea
North Atlantic Ocean
English Channel
Bay of Biscay
Mediterranean Sea
Tyrrhenian Sea
Ionian Sea
Aegean Sea
Adriatic Sea
Black Sea
Alboran Sea
560 MW OXY
300-600 MW CHP
400 MW INGCC
3390 MW PC
800 MW IGCC
500 MW PC
900 MW IGCC
450 MW IGCC
600 MW CHP
500 MW PC
1200 MW IGCC
1000 MW PC
800 MW PC
450 MW IGCC
300 MW PC
1600 MW PC
300 MW OXY
868 MW PC
150 MW
660 MW PC
500 MW OXY
400 MW PC
660 MW PC
650 MW IGCC
Helsinki
Tallinn
Stockholm
Oslo
Moskva
Riga
Minsk
Kyiv
Warszawa
Berlin
Dublin
Belfast
Paris
Luxembourg
Frankfurt am Main
Wien/Bratislava
Budapest
Chisinau
Bucuresti
Beograd
Sarajevo
Ljubljana
Zagreb
Sofia
Pristina
Podgorica
Skopje
Tirana
Athina
Ankara
Roma
Madrid
Lisboa
Barcelona
Valencia
Marseille
Bern
Milano
Torino
Bordeaux
Al Jaza'ir
Tunis/Radès
Valletta
Rabat
Cartography DG TREN October 2008
© EuroGeographics 2001 for the administrative boundaries

Deployment of CO2 Infrastructure

- New infrastructures needed in Europe to facilitate a successful transition towards a low carbon energy system

- **Our goal** - to develop a complete and integrated database of European CO2 sinks and sources and identify the main outline of CO2 transport infrastructure for different scenarios

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How we want to achieve it?

I. Analyse results of previous/ongoing projects on CO2 emission points, potential storage sites and infrastructure transport needs

II. Identify gaps and problems

III. Fill-in the gaps and solve/propose solutions of remaining problems

IV. Enable access for interested parties to database

V. Identify main characteristics of core European CO2 transport infrastructure

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Timeframe

- Call for tender (study) published: March 2009
- Deadline for submissions: May 2009
- Project execution 2009/2010

- 2009 - Revision of TEN-E guidelines to include CO2 infrastructure (?)
- Green Paper on Energy Network
- For more information see: http://ec.europa.eu/energy/index_en.html

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Conclusions

- To prove CCS economically viable by 2020 we need demonstration plants asap
- Commission identified financing sources. Now clear commitment of MS and companies needed
- CO2 infrastructure needed to push CCS to commercial stage
- International co-operation - crucial
- Financial crisis to be used as opportunity

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THANK YOU
FOR YOUR ATTENTION