



● 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



Policy goal

- CCS commercially viable by 2020

Delay of demonstration
means more CO₂ emitted !!!

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;

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

Follow up

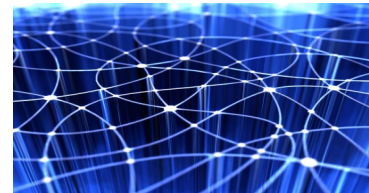
Legislation

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



Non-legislative actions (TREN)

- » Network of CCS demo projects
- » Deployment of CO2 Infrastructure



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)

EU Emission Trading System

ETS Phase III

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

CCS under the ETS:

- » CO₂ 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-CO₂ technologies
- » Countries allocating allowances for free bound to invest equivalent

Recovery Package

€1.15 bn for CCS demonstration

- Up to 7 projects, max. 1 project per MS
- Max €200 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 the agreement of Council and EP needed (decision end of March?)

● Network of CCS demo projects

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

SET-Plan: proposes European Industry

- Initiatives (EI) in technologies needed for a decarbonized baseload

Det Norske Veritas selected to

- assist COM in establishing and running the network

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

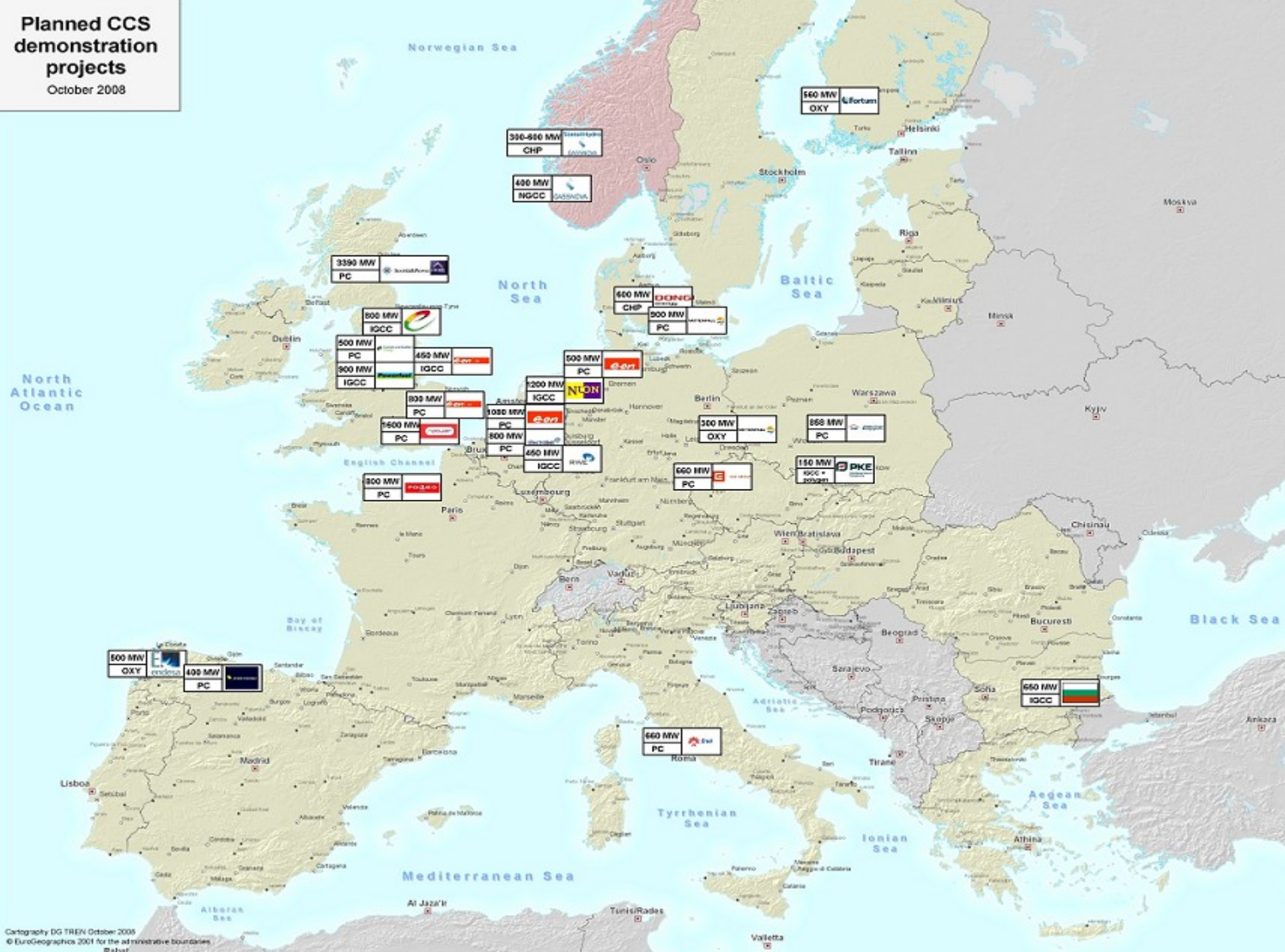
Timeframe

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



Planned CCS demonstration projects

October 2008



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



How we want to achieve it?

- Analyse results of previous/ongoing projects on CO2 emission points, potential storage sites and infrastructure transport needs
- Identify gaps and problems
- Fill-in the gaps and solve/propose solutions of remaining problems
- Enable access for interested parties to database
- Identify main characteristics of core European CO2 transport infrastructure





Study - Timeframe

- » Call for tender (study) published: 1Q 2009
- » Deadline for submissions: 2Q 2009
- » Project execution 2009/2010

Other infrastructure initiatives

- » **Green Paper** on Energy Network
- » 2009 - Revision of TEN-E guidelines to include CO2 infrastructure



● 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**

European leadership on CCS - crucial

- **Financial crisis - opportunity to follow the**
- **Nokia example**



**THANK YOU
FOR YOUR ATTENTION**