



Directorate-General
for Energy
and Transport



EUROPEAN
COMMISSION

- CCS Projects in Europe and the Issue of Finance

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Content

- EU Policy Context: Energy and Climate Change
- Deploying CCS in Europe
 - » Legislative Framework
 - » Long Term Economic Viability
- Financing CCS demonstration projects

● Policy Context

Objectives agreed for 2020

- 20% GHG reduction compared to 1990
 - » Independent commitment
- 20% reduction in primary energy consumption
- 20% renewables in energy mix
- 10% biofuels in transport
 - » If production is sustainable
 - » If second generation biofuels commercially available

● Policy Context

- **2007 Spring European Council**
 - » target of 20% cut in greenhouse gas emission by 2020
 - » enabling low-CO2 power generation from fossil fuels by 2020
 - » up to 12 CCS demonstration plants in operation by 2015
- **Summer-Autumn 2007**
 - » Evaluation and Impact Assessment period
- **November 2007: Strategic Energy Technology Plan**
 - » R&D efforts to focus on low carbon technologies
 - » CCS one of strategic technologies: large-scale demos next priority
- **23 January 2008:** Commission adopts a set of proposals including the CCS Communication and the CCS Directive

● Costs and benefits of CCS

- **Costs:**

- » R&D (€1bn) and demonstration (€10-20bn) to reduce costs
- » further investment to roll out CCS on a wide-scale

- **Benefits:**

- » 20-28% of the achievable global CO₂ emission reductions by 2050 (IEA)
- » solution for both power generation and energy intensive industries
- » for managing future CO₂ emissions of dynamically developing coal users (China, etc.)

- **Policy goal = CCS commercially feasible by 2020:**

- » CCS in retrofits and newbuild thereafter
- » capture-readiness in the meantime

● Obstacles / EC Proposals

- **Legislative Hurdles**

- **CCS Directive**

- **Non legislative Hurdles**

- » Long term economic viability
 - **Emission Trading System (ETS)**
- » Industrial Scale CCS Demonstration Projects (all main technology routes (Pre-, Post-, Oxyfuel-Combustion))
- » General and Industry Awareness
- » Public Acceptance
 - **CCS Communication**

● CCS-Directive - 1

- **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)

- **Novel element is CO₂ storage, main focus of proposes directive**

● CCS Directive - 2

● Content

- » Site Selection
- » Authorisation for Storage
- » Monitoring plan to confirm expected CO₂ behaviour
- » Liability measures in case sites do leak
- » Transfer of Responsibility to the state
- » Access for third parties

● **CCS-not mandatory, but member states need to**

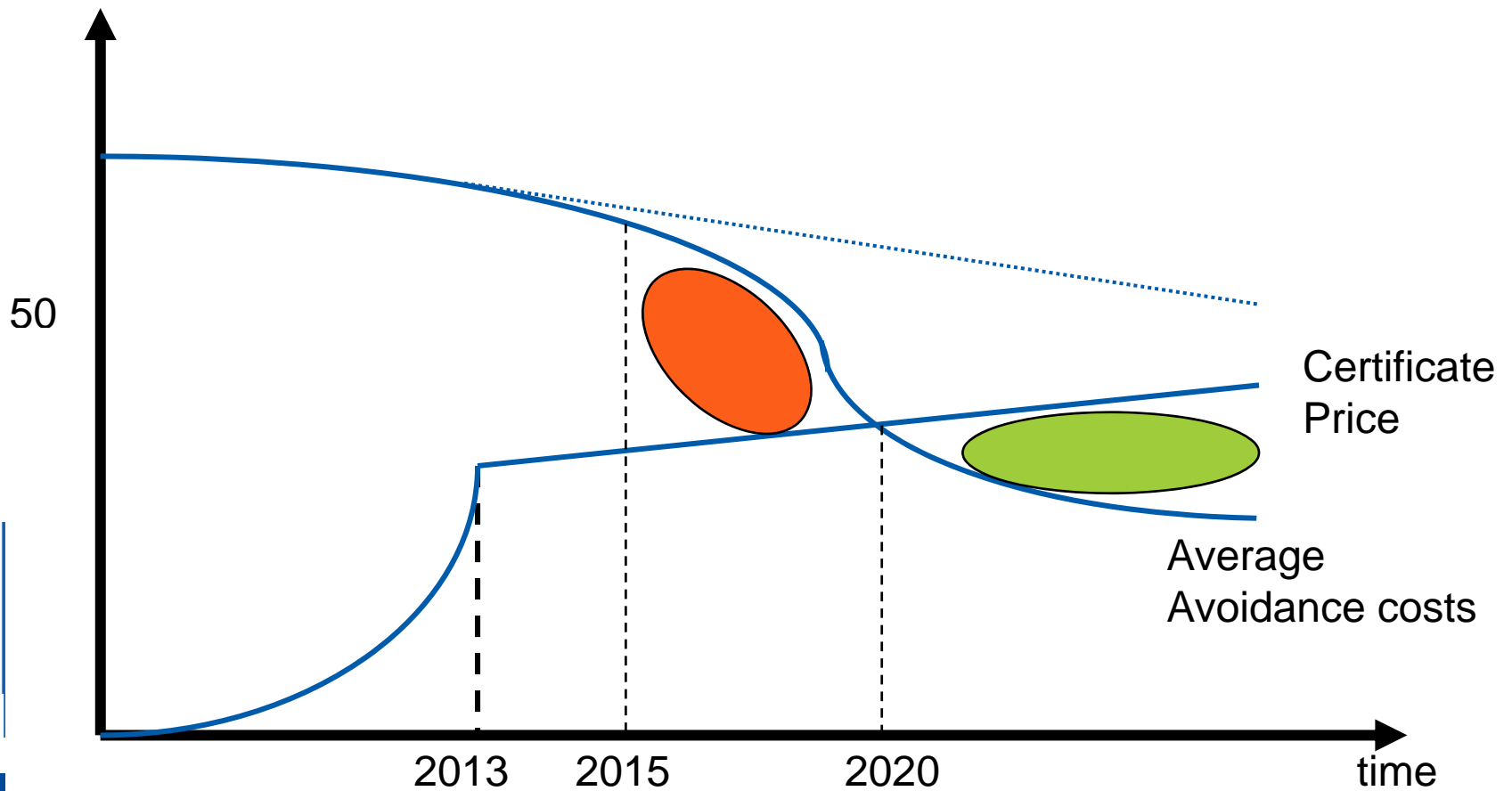
- » assure, that enough space is available on site to retrofit plant with capturing and compression facilities
- » verify, if storage capacities and transport facilities are available and retrofitting is technological feasible
 - **CAPTURE READINESS**

● EU Emission Trading System

- **ETS Phase III proposal**
 - » from 2013 full auctioning of CO2 certificates for the power sector
- **CCS under the ETS:**
 - » CO2 captured, transported and safely stored considered as not emitted
 - » no allocation to capture, transport and storage
 - » ETS allowances must be surrendered for any leakage
 - » monitoring and reporting guidelines under preparation
- **ETS auctioning revenues**
 - » major potential source of funding for CCS demonstration projects
 - » EC suggestion: 20% earmarking to low-CO2 technologies

Economic viability of CCS under ETS

Additional Cost for CCS, per ton CO₂



● Financing CCS demonstration projects

● Economics of early demonstration

● Sources of financing

» Industrial commitments

- ETP-ZEP: a vital initiative with commitments to the issue
- still needed: clear, early and decisive commitments by individual players to concrete large-scale demonstration

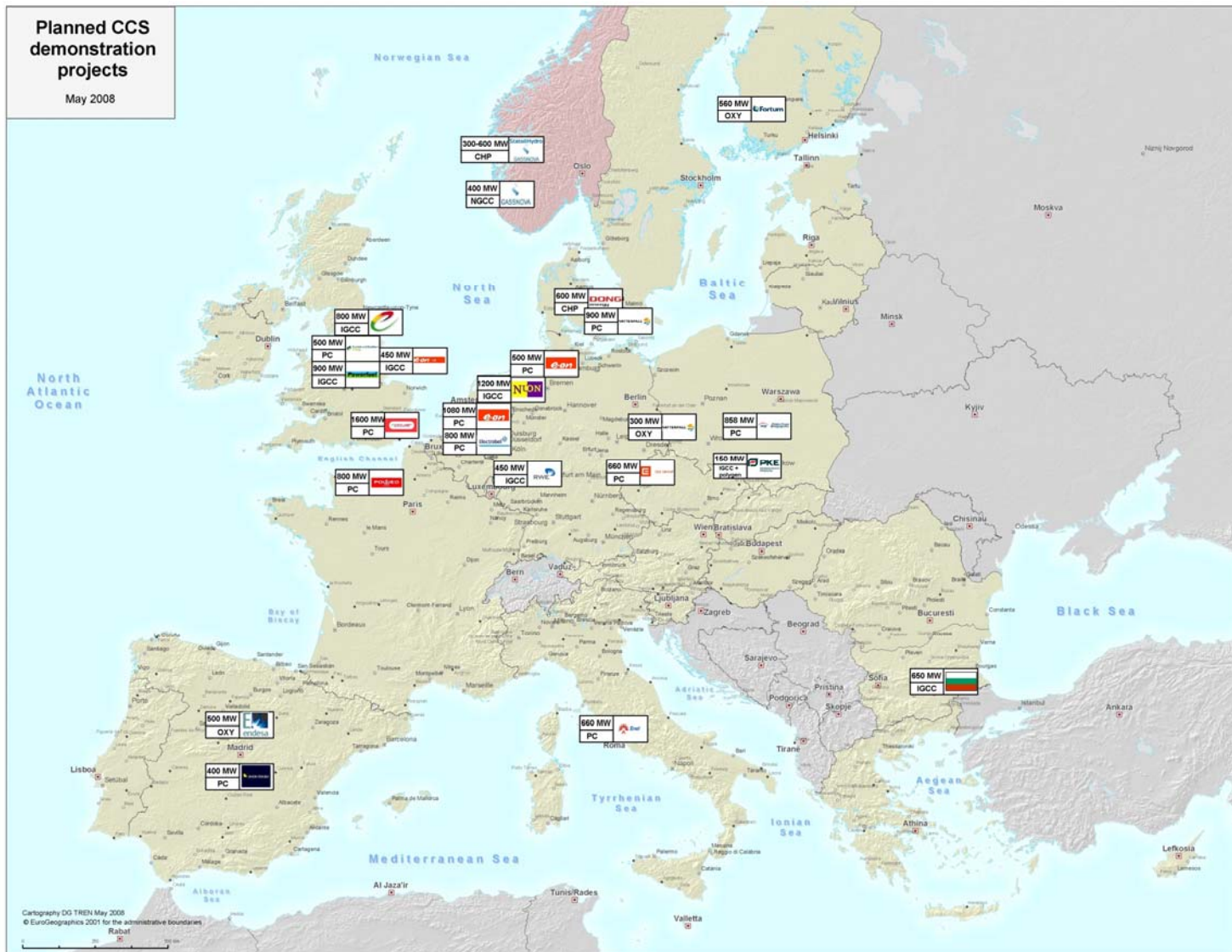
» Member States' involvement

- MS-level crucial given budgetary reality and size of challenge
- Commission guidelines facilitate state aid to CCS
- ETS revenues + structural policies hinted as suitable

» EU-level financing

- limited availability for the time being
 - FP7 + EU structural funds
 - EU financial institutions for specialized cases
 - Communication on financing low-carbon technologies

Potential CCS demonstration projects



● Conclusion – Executive summary

- **CCS: priority of strategic importance**
 - » CCS can be commercially viable by 2020
 - » opportunities and challenges:
 - early effective demonstration
 - timely and bold industry and public investment
 - market-based stimuli to avoid CO2 emissions
- **Commission / Council / EP:**
 - » CCS regulatory framework
 - » CCS in ETS
 - » revised Community guidelines on state aid for environmental protection
 - » revision of TEN-E guidelines (transport infrastructure)
 - » European Industrial Initiative on CCS
- **Early demonstrations**
 - » major financial commitments
 - decisive commitments from industry to trigger public contribution
 - national schemes by Member States
 - » continued R&D

A wide-angle photograph of a vast field of bright yellow flowers, likely rapeseed, stretching to the horizon. The sky is a deep blue with scattered, soft white and grey clouds. The text "Thank You for Your Attention" is centered in the middle of the image in a white, sans-serif font.

Thank You for Your Attention