



EU-OPEC Roundtable on Carbon  
Dioxide Capture and Storage

Further R&D paths for securing  
commercial breakthroughs of CCS

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Riyadh, Saudi Arabia – 21 September 2006



## EU-OPEC Roundtable on Carbon Dioxide Capture and Storage

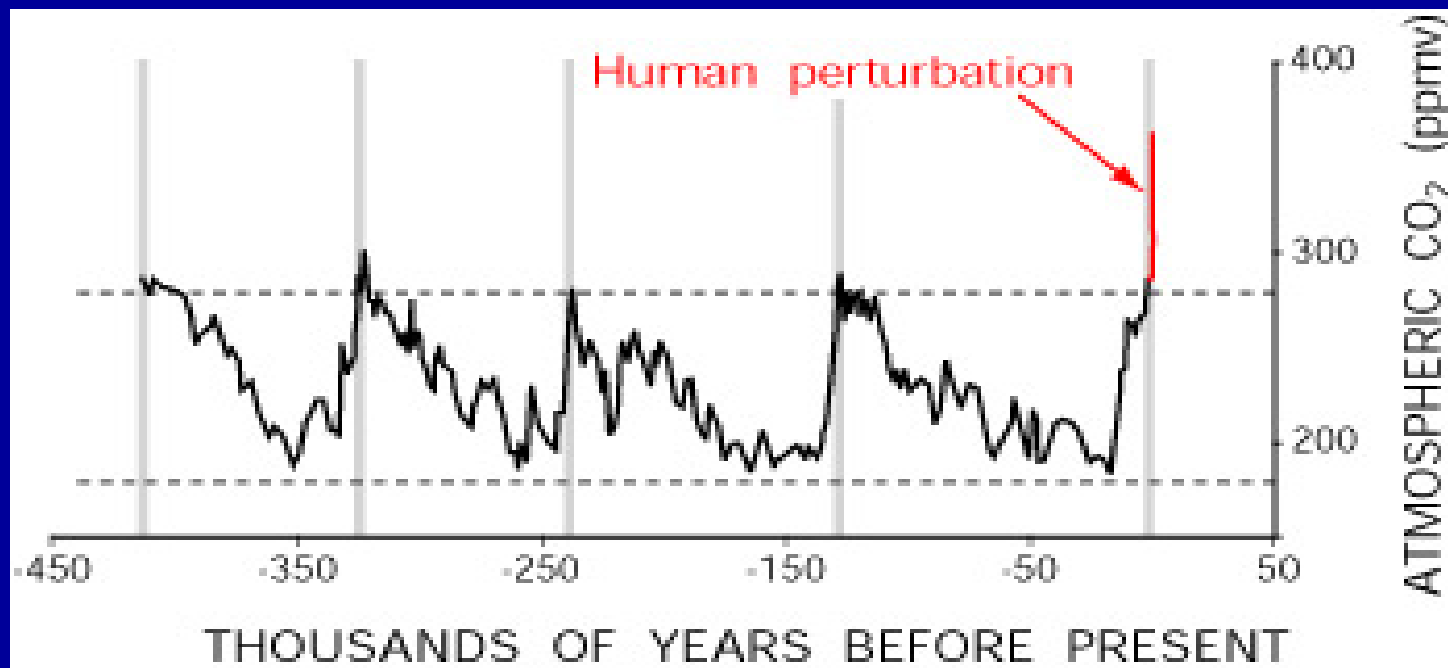
# Further R&D paths for securing commercial breakthroughs of CCS – The EU Perspective

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# Why are we here?

- Global Warming, Climate Change and the Greenhouse Effect
- Key concern is carbon dioxide
- Power plants the most identifiable CO<sub>2</sub> emitters



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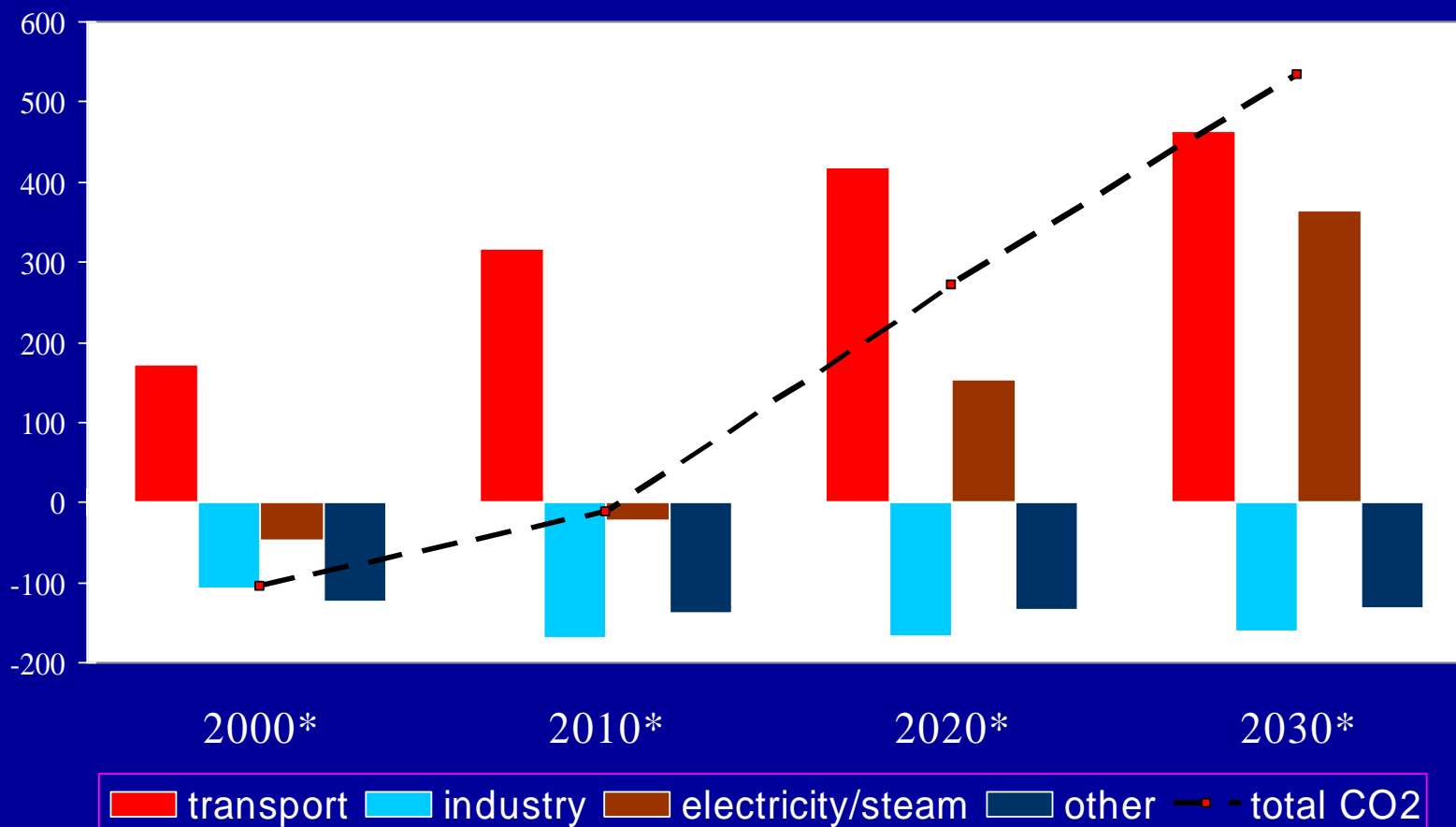


# EU Policies

- “Sustainability” is a key element in many of the policies of the European Union.
- This is particularly true for both Environment and Energy policies
- A major – and increasing - concern of the EU Public is the issue of **Climate Change**
- 90% of our CO<sub>2</sub> emissions arise from energy use – mainly fossil fuel burn.



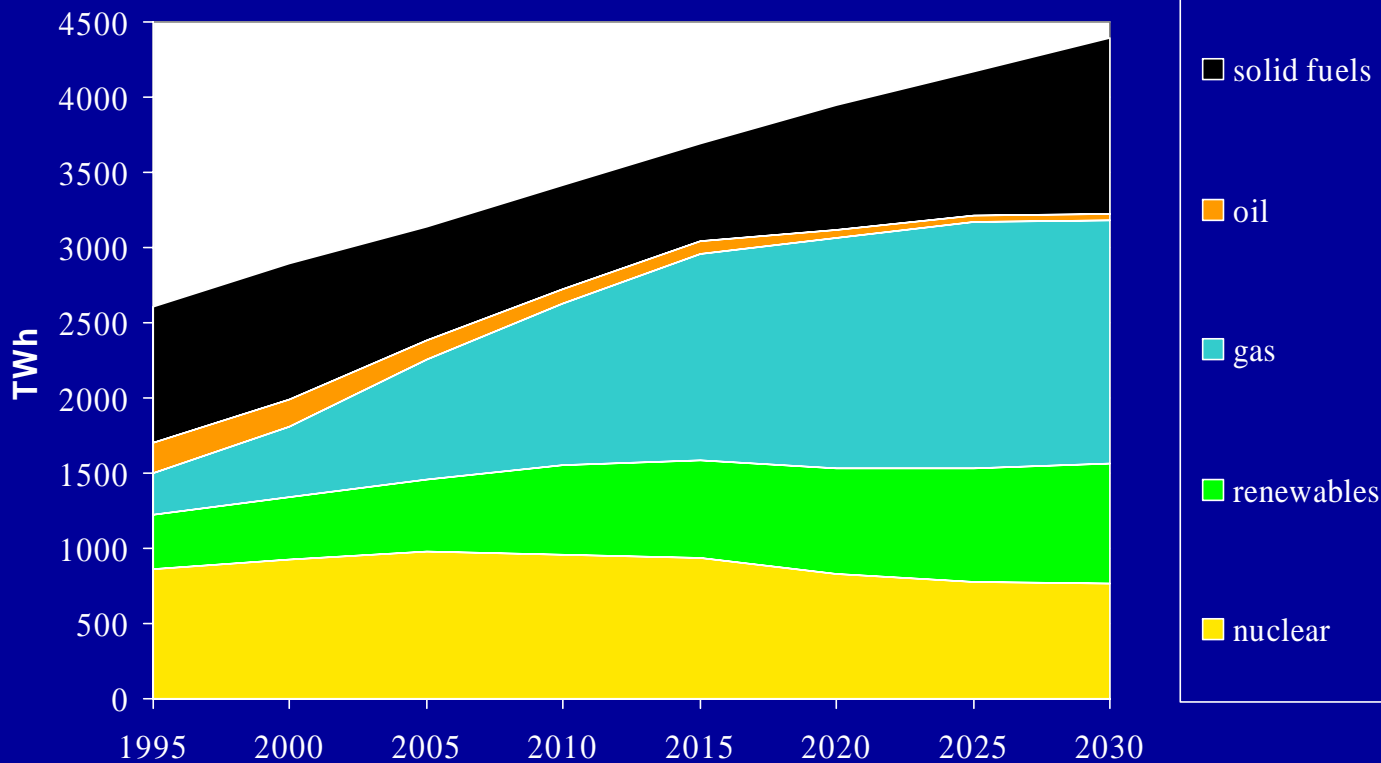
# Changes in CO2 emissions (\*relative to 1990)



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# EU electricity generation by source



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# CCS Activities

## under Sixth Framework Programme

- **Projects and activities on Capture and Storage (a total cost of > 170 M€)**
  - A number of actions such as Hypogen, including the Dynamis Project (part of the EU “Quick Start” Programme)
  - Co-ordination of member states activities – Fossil Energy Coalition (FENCO)
  - International Cooperation : Contribute to the Carbon Sequestration Leadership Forum (CSLF)

*and*

- ***European Technology Platform on Zero Emission Fossil Fuel Power Plants (ZEFFPP) launched on 1 December 2006***
  - **1<sup>st</sup> General Assembly on 12-13 September 2006**

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# FP6 Projects on CCS

Project Acronym	Title	EU funds (M€)
CO2SINK	In-situ laboratory for capture and sequestration of CO <sub>2</sub>	8.7
ENCAP	Enhanced capture of CO <sub>2</sub>	10.7
CASTOR	CO <sub>2</sub> from capture to storage	8.5
CO2GEONET	Network of excellence on geological sequestration of CO <sub>2</sub>	6
CACHET	CO <sub>2</sub> capture and hydrogen production from gaseous fuels	7.5
DYNAMIS	Preparing for large scale H <sub>2</sub> production from decarbonised fossil fuels with CO <sub>2</sub> geological storage	4
CO2REMOVE	The monitoring and verification of CO <sub>2</sub> geological storage	8

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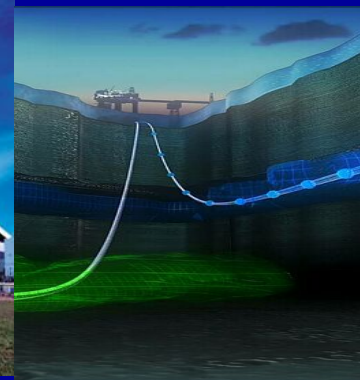
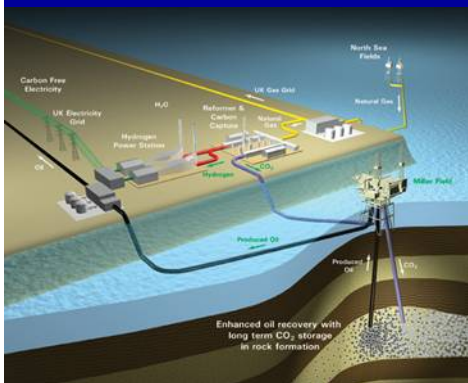


# Hypogen

- Phase 0 Pre-Feasibility Study by JRC (2004)
- Phase 1 Feasibility Study, DYNAMIS (2006-2008) 7.5 M€  
*Preparing for large scale H2 production from carbonized fossil fuels with CO2 geological storage*
- Phase 2 Pilot Scale Demonstrations (2006-2010) 290 M€
- Phase 3 Demonstration Plant Construction (2008 – 2012) 800 M€
- Phase 4 Operation and validation (2012-2015) 200 M€

**TOTAL**

**~1300 M€**



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# Priority Topics for activities under FP7

## *Include ...*

- **CO2 Capture and Storage technologies for zero emission power generation**

To drastically reduce the environmental impact of fossil fuel use aiming at highly efficient power generation plants with near zero emissions based on CO2 capture and storage technologies.

- **Clean Coal Technologies**

To substantially improve plant efficiency, reliability and cost through development and demonstration of clean coal conversion technologies

## *and cover ....*

- **Zero Emission Power Plants**

The Technology Platform for Zero Emission Fossil Fuels Power Plants (ZEFFPP)

- A possible topic for a future PPP