

# Dynamis - SP6

## Societal anchorage of a HYPOGEN plant

EB-meeting  
Copenhagen, September 18, 2007  
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# Objectives

- Explore the market environment, the financial options, the legal and regulatory environment and the public perception of a future HYPOGEN plant.
- Develop strategies for a successful societal anchorage of a demonstration of hydrogen and electricity production from decarbonised fossil fuels.

# SP6

## Structure and responsibilities

WP 6.1: Strategic market issues of HYPOGEN

Lead: Clemens Cremer, Fraunhofer-ISI

WP 6.2: Financial structures of a HYPOGEN plant

Lead: David Hanstock, Progressive Energy

WP 6.3: Legal implications of a HYPOGEN plant

Lead: Chris Hendriks, Ecofys

WP 6.4: Professional and Public perception

Lead: Edelgard Gruber, Fraunhofer ISI

# WP 6.1 Strategic market issues of HYPOGEN

## Results from market modelling (preliminary):

- Electricity markets will allow financially viable operation of a HYPOGEN plant given a sensible cap on CO<sub>2</sub> emissions.
- The evolution of hydrogen markets can only be projected and modelled as a high risk stream of income for HYPOGEN.
- The expected high volume of capacity replacement creates a tendency to assimilate market conditions.

# WP 6.1 Strategic market issues of HYPOGEN

## Main results - markets:

- There will be no market for hydrogen for transport vehicles by 2012.
- The US FutureGen Initiative is a quite strong competitor to the HYPOGEN programme, also because it involves international partners from future technology markets (China, Australia).

# WP 6.2 Financial structures for HYPOGEN

## Main results:

- Principally, a HYPOGEN plant could be capable of achieving debt finance, if there is support from the contractual parties and the risk of the project is mitigated.
- Achieving financing of a HYPOGEN plant will have to rely on guarantees of technology providers. The companies behind the technologies are in a position to give guarantees accepted by lenders.
- The most important factor influencing the risk profile of a HYPOGEN plant is the continuity and firmness of CO<sub>2</sub> policies

# WP 6.3 Legal implications of a HYPOGEN demonstration facility

## Main results on the position in ETS:

- A considerable need for regulation related to the EU-ETS to make CCS accountable can be observed
  - Risk management and liability of storage
  - Criteria for acceptable methods of CO<sub>2</sub> containment
  - Chain of custody of CO<sub>2</sub> including monitoring and verification rules
- The regulation of CCS under the EU-ETS will influence the conditions for a HYPOGEN plant significantly. The draft directive is to be published today – January 23rd 2008

# WP 6.3 Legal implications of a HYPOGEN demonstration facility

## Main results related to general legal implications:

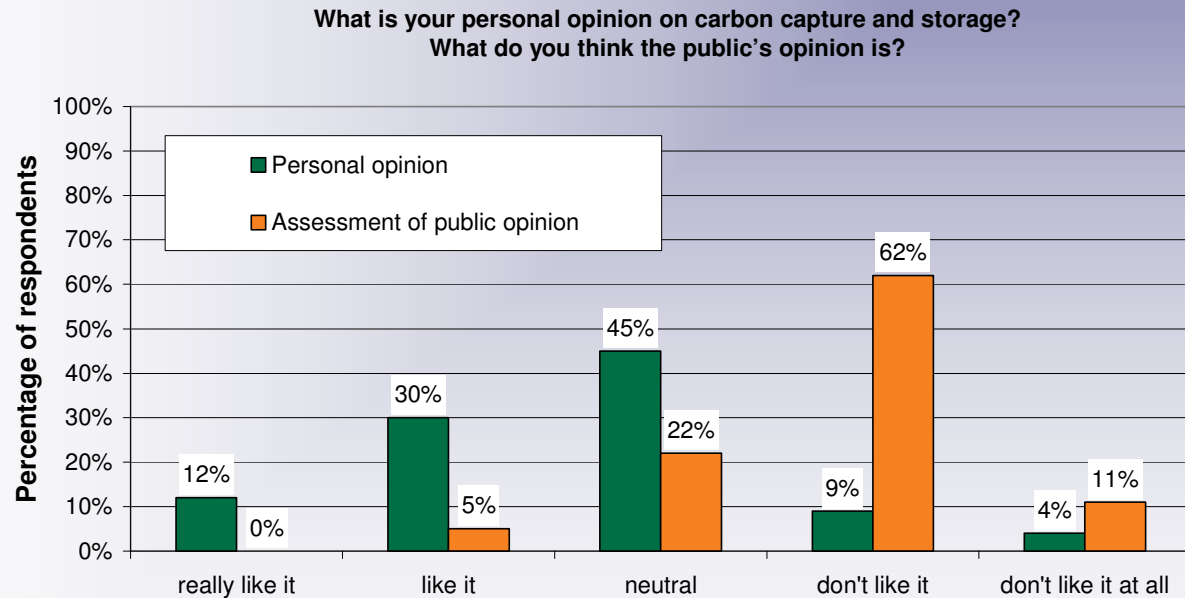
- Direct subsidies could become better feasible under revised DG-Competition rules
- Cohesion funds and regional funds of the EU are mostly committed until 2013 – probably no money from there....
- EU-Commission creates a proposal for a EU-CCS regulatory framework for the issues outside the emissions trade. EU-Commission proposes to regulate CO<sub>2</sub>-storage not under the waste-directive but create separate legislation  
The draft directive is published today – 23.1.2008



# WP6.4 Professional and public acceptance for CCS

## Main results:

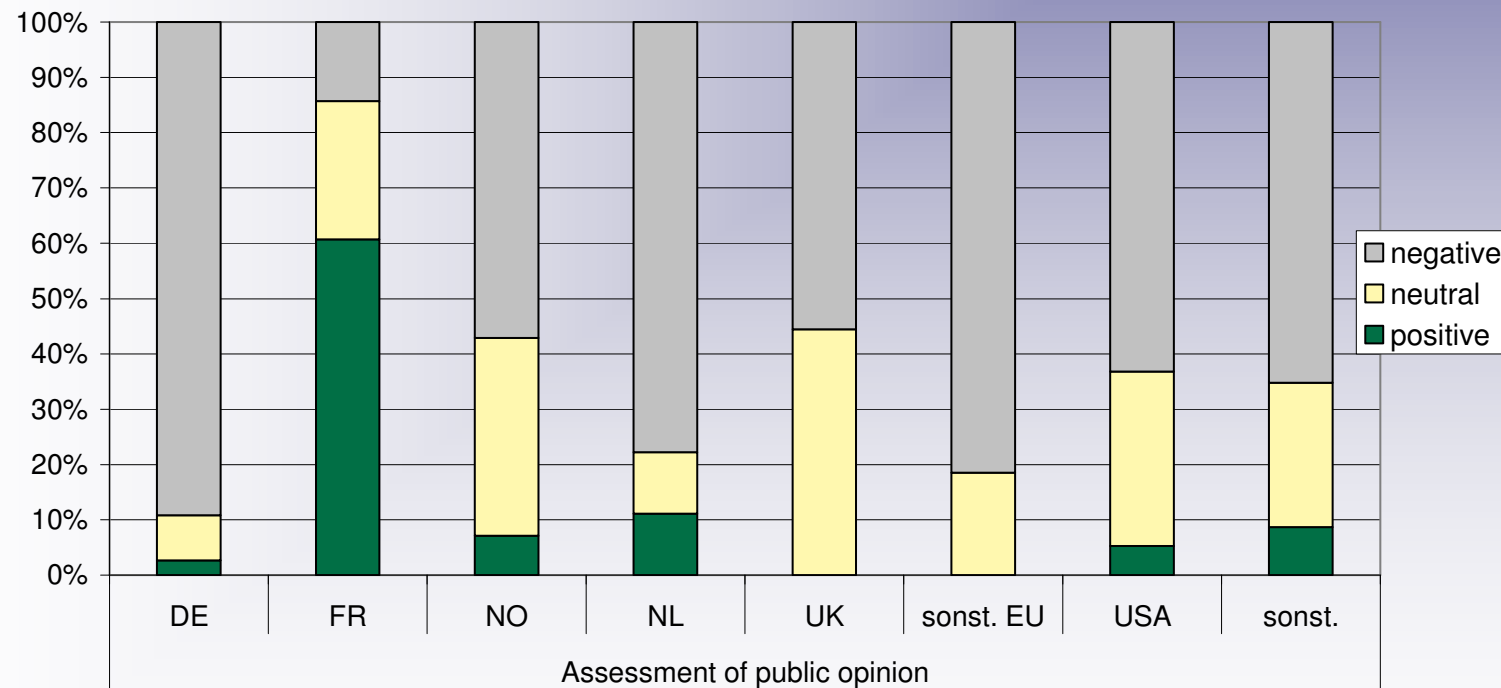
- Professionals are sceptical about the public opinion on CCS



# WP6.4 Professional and public acceptance for CCS

## Main results:

- There are significant differences how, professionals see the public perception in different member states



# WP6.4 Professional and public acceptance for CCS

## Main results – communication strategies

- Avoid a contradiction between the development of CCS and the further promotion of renewable energies or energy efficiency.
- Support CCS as bridging technology until renewables are competitive
- Clarify risks of CCS and avoid that risks will be identified by the public with risks of nuclear waste disposal
- Avoid portraying an overly optimistic view of the role of CCS.