



IZ Klima – Information Centre CO₂-Technologies
Realizing large scale infrastructure projects

Michael Donnermeyer | 10th Conference on Applied Infrastructure Research (INFRADAY) | 7 October 2011

Members of IZ Klima e.V.

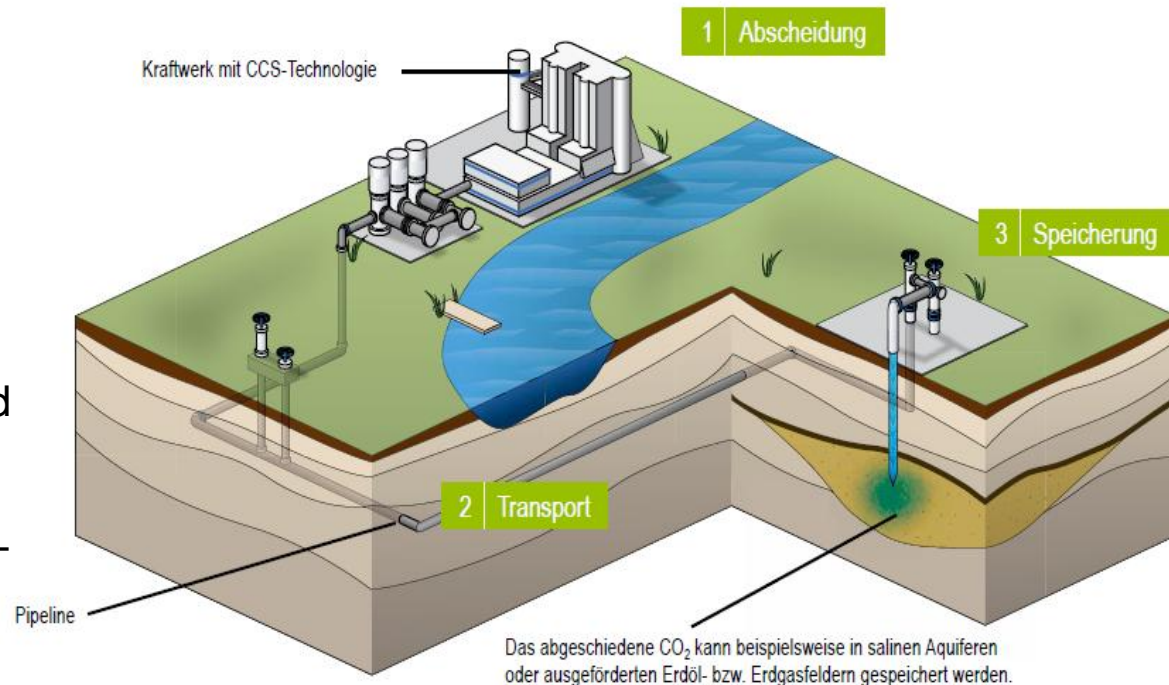
„IZ Klima – Informationszentrum für CO₂-Technologien e.V.“ is an Information platform of industrial companies:



What is CCS?

Carbon Capture and Storage

- Technology to combat Climate Change
- Storage of CO₂ in a huge extent in deep underground (depleted oil and gasfields or saline aquifers)
- Technology in development stage – Market-ready 2020-2025
- Capture Technologies in progress – Knowledge about Storage increasing (Monitoring, Safety)



What has happened ?

Germany: First attempt seems to fail

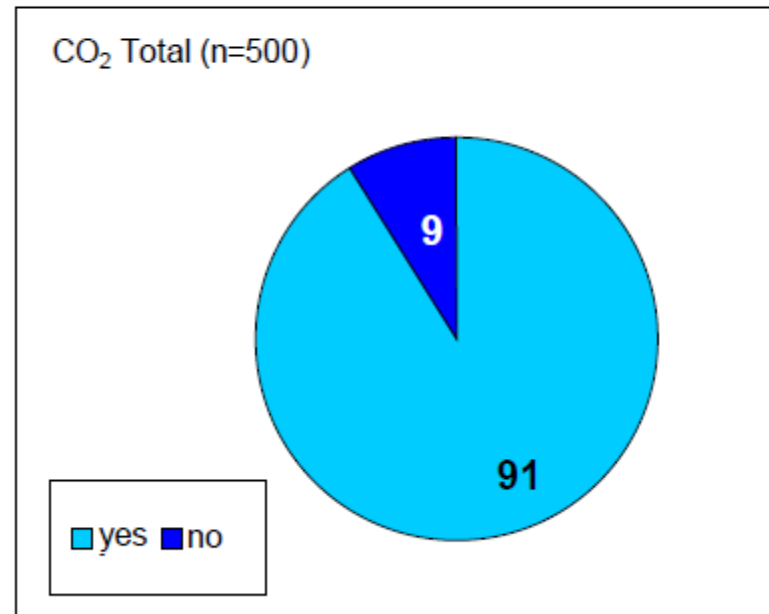
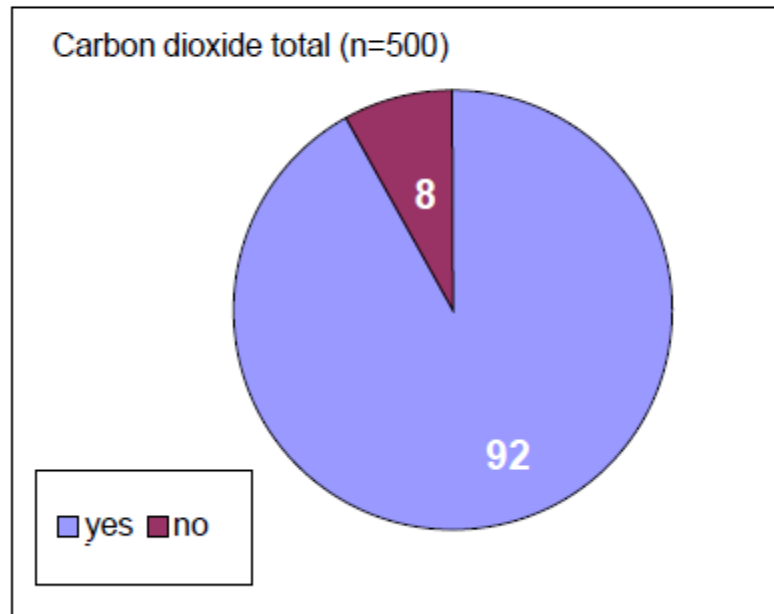
- Public Acceptance main obstacle
- Withdrawal of Demonstration Projects
 - RWE
 - Vattenfall ?
- CCS-Law blocked in German Politics due to local opposition



What's going wrong? It's public acceptance, stupid!

CO₂: Level and Knowledge of understanding

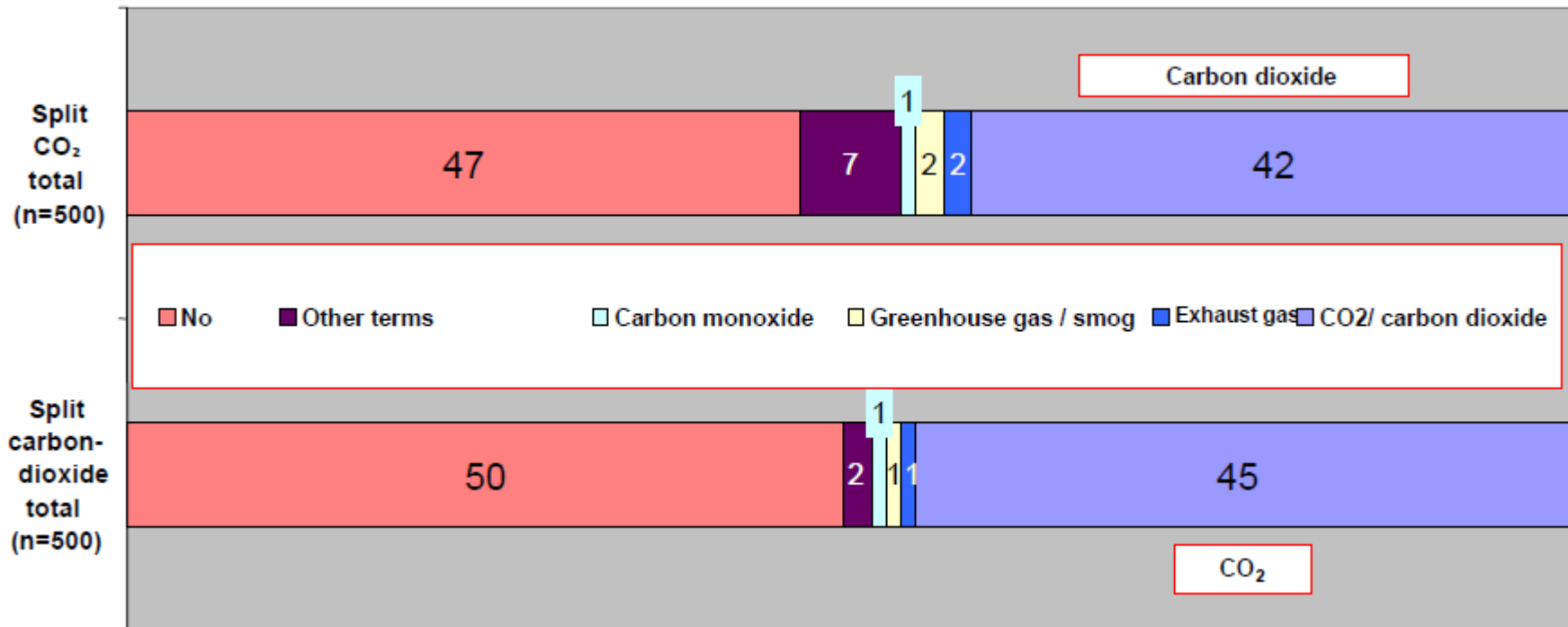
“Do you know what [split 1: carbon dioxide / split 2: CO₂] is?” (in %)



What's going wrong? It's public acceptance, stupid!



“Are you aware of any other term used for [split 1: carbon dioxide / split 2: CO₂]?” (%)



What's going wrong? It's public acceptance, stupid!



People fear CO₂!

“Properties of CO₂ / carbon dioxide“ (applies / in %)

Number of respondents / percent (aided interview)	Total (n=1000)
is part of the exhaust fumes of cars	90
increases the greenhouse effect	87
attacks the ozonosphere	79
is a natural part of the air	76
is created by combustion of organic material	76
is toxic	73
displaces oxygen	71
is needed by plants	68
is part of sparkling water	41
is used in fire fighting	39
is part of natural gas	38
is an important industrial raw material	34
has a pungent smell	32

What's going wrong ?

CCS launched as clean coal technology

- Image of coal in germany is enduring negative
- CCS not only for fossil fuels (Industrial CO₂, Negative Emission)

(Values in percent, top-2-box)	Nuclear	Natural gas	Coal	Wind / sun
(P1) is modern	53	64 !	16	87
(P2) still enough available	67 !	44	32	83
(P3) is the latest state of the art	48	54 !	22	70
(P4) secures energy supply in Germany	59	52	34	40
(N5) pollutes the environment	65 !	42	81	14
(N6) damages climate	54 !	41	78	11
(N7) is expensive	50	65	53	52
Sum of 4 positive mentions (P1-P4)	227%	214%	104%	280%
Sum of 3 negative mentions (N5-N7)	169%	148%	212%	77%

What's going wrong ?

CCS is (in Germany) not perceived as a climate protection technology

- Some NGOs fight against Coal and Energy Companies
 - But: WWF, Germanwatch in favour of ccs
- Background: Specific german nuclear-debate

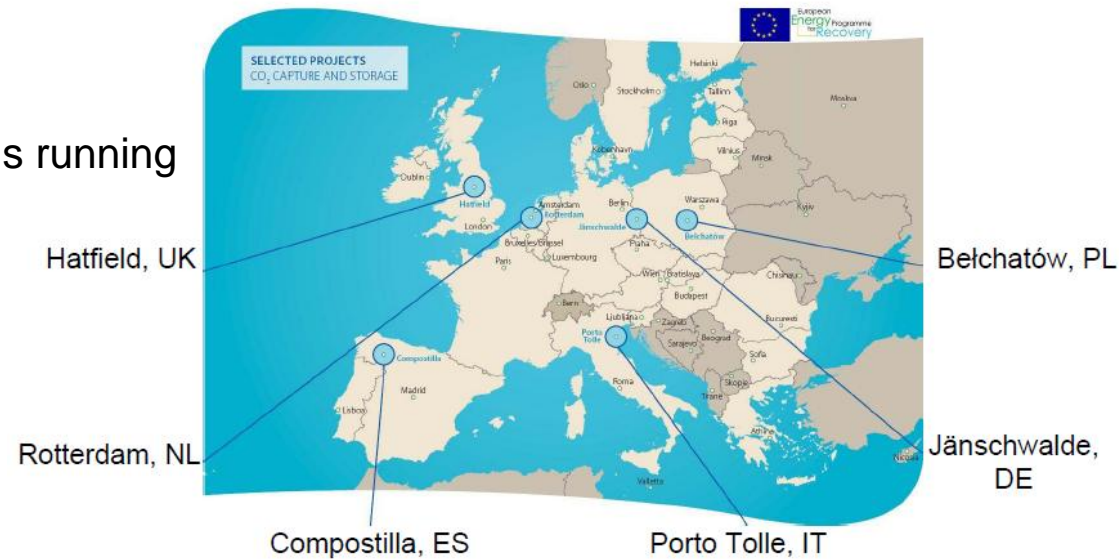
CCS driven by energy utilities

- Low credibility of energy companies
- Role of policy: Avoiding clear commitment
- IPCC clearly in favour of CCS, but recently: more reserve of science

International Outlook

CCS Part of EU Climate Package

- NER 300-Programme: Application is running
- 4 to 5 Bln € out of ETS
- 6 CCS Projects



International Perspective

- US/China starting Investments
- Australia: Involved Player (GCCSI)

Technological Outlook – Mostly On Track!

Capture

- All Capture Technologies nearly market-ready
 - Several Post-Combustion Technologies improve efficiency factor
 - Oxyfuel-process stabile with 99% capture rate

Storage

- Research very successful (Ketzin)
- Sleipner: best practice
- Need of more large demonstration projects (onshore)

Transport

- Pipeline-Infrastructure to be planned
- No technical problem, but: Regulation – Implementation – Public Acceptance

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