



CASTOR

CO₂, from Capture to Storage

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CASTOR targets

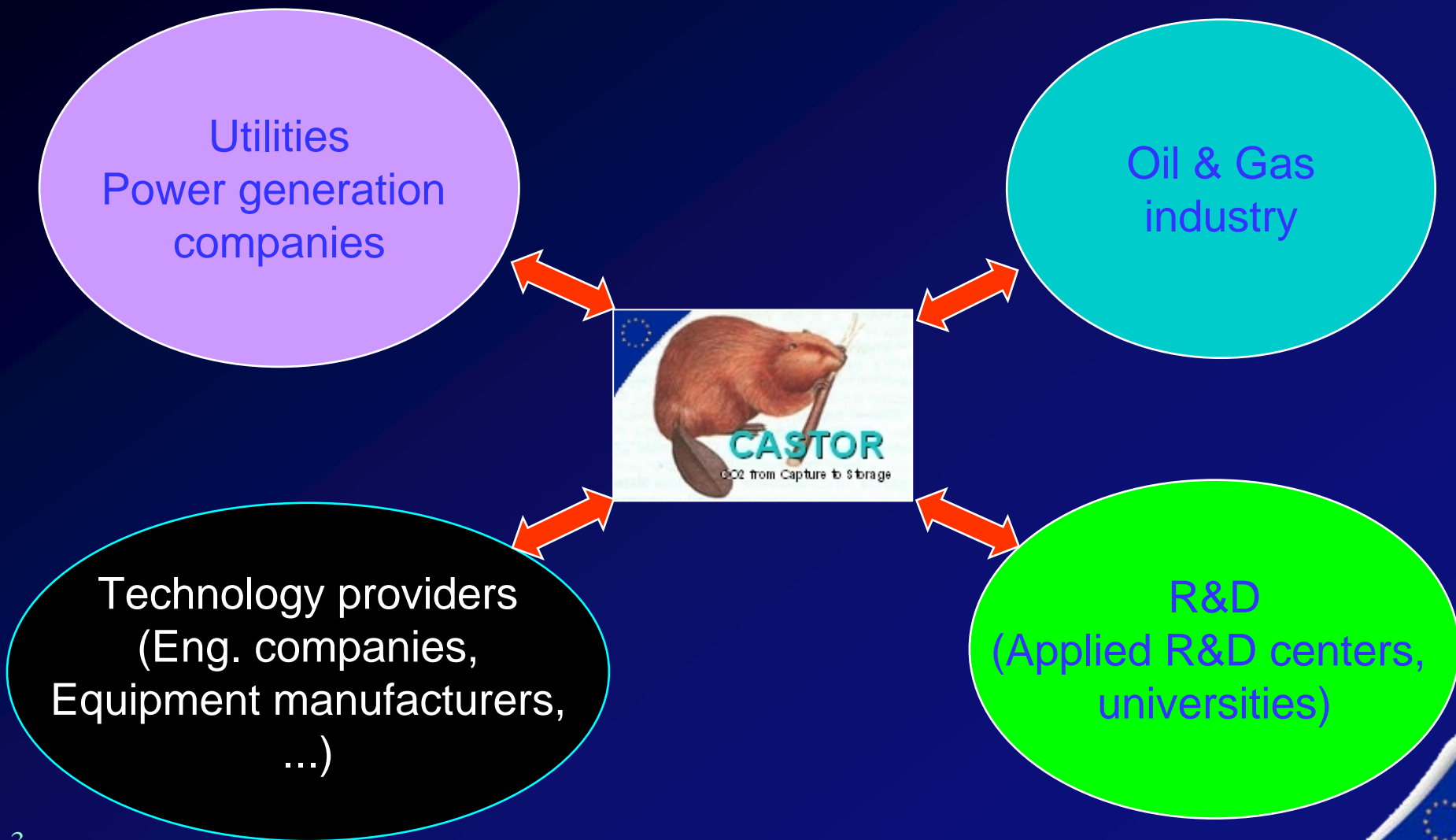


- Develop and validate innovative technologies needed to capture 10% of CO₂ emitted in Europe (30% of CO₂ emitted by power and industrial plants)
 - Reduce the cost of CO₂ **post-combustion** capture,
⇒ *from 50-60 € to 20-30 € / ton of CO₂ avoided*
 - Contribute to the feasibility & acceptance of the geological storage concept
⇒ *study 4 new European storage sites*
 - Start the development of an integrated strategy connecting capture, transport and storage options for Europe





A wide representation of European actors





CASTOR at a Glance



Funded by the European Commission under the 6th Framework Program

R&D

IFP (FR)
TNO (NL)
SINTEF (NO)
NTNU (NO)
BGS (UK)
BGR (DE)
BRGM (FR)
GEUS (DK)
IMPERIAL (UK)
OGS (IT)
TWENTE U. (NL)
STUTTGAERTT U. (DE)

Oil & Gas

STATOIL (NO)
GDF (FR)
REPSOL (SP)
ENITecnologie (IT)
ROHOEL (AT)

Power Companies

VATTENFALL (SE)
ELSAM (DK)
ENERGI E2 (DK)
RWE (DE)
PPC (GR)
POWERGEN (UK)

Manufacturers

ALSTOM POWER (FR)
MITSUI BABCOCK (UK)
SIEMENS (DE)
BASF (DE)
GVS (IT)

Co-ordinator: IFP

Chair of the Executive Board: Statoil

30 partners from 11 European Countries

Budget: 15,8 M€

EU funding: 8,5 M€

Industrial funding: 2,2 M€

Duration: 4 years





Why focusing on post-combustion capture ?

- Post-combustion capture is important because of large existing stock of power plants and boilers but also for new plants, as the cheapest will be conventional ones based on direct combustion of fuel
- Large-scale demos have been announced/scheduled:
 - RWE in Germany (coal-fired power station)



- Shell-Statoil in Norway (gas-fired power station in 2012, with EOR)





CASTOR pilot plant



January – April 2006: MEA-testing for 1000 hrs
May – December 2006: CASTOR1-testing 5000 hrs
January – November 2007: CASTOR2-testing 5000 hrs





CO₂ Geological Storage



No capture without storage!

■ General objectives

- Develop and apply a methodology for the selection and the secure management of storage sites by improving assessment methods, defining acceptance criteria, and developing a strategy for safety-focussed, cost-effective site monitoring
- Improve the "Best Practice Manual", started with the SACS/Sleipner project, by adding 4 more real-site cases





CASTOR CO₂ storage initiatives



- Spain: offshore oil reservoir (Casablanca, REPSOL)
- Norway: offshore aquifer (Snøhvit)
- Austria: offshore gas field (Atzbach, Rohoel)
- The Netherlands: offshore gas field (K12b Gaz de France)



Ketzin (Germany) – CO₂Sink EU project
In-Salah (Algeria)





What needs to be in place?



- Efficient & cost-effective post-combustion processes
- Storage: regulatory framework and accepted methodology for monitoring





How can DYNAMIS help?



- CASTOR is a pilot scale project for post-combustion capture
- CASTOR is studying new types of storage
- Regulatory and financial framework to be studied by DYNAMIS

