



OLJE- OG ENERGIDEPARTEMENTET

Norwegian Energy Policy

The Potential Role of Carbon Capture and Storage

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An Overview

- I Fossil fuels will be with us long into the future
- II Carbon Capture and Storage Technologies *will* be one solution in a more sustainable energy future
- III Solutions can only be found through combined efforts

Fossil fuels will be with us into the future

- The Outlook to 2030
 - energy demand is projected to rise by over 60 % up to 2030
 - approximately 90 % of the energy sources will be fossil fuels.
 - not on schedule for a sustainable energy future

CO₂ Capture, Transport and Storage Concept

CAPTURE for example



Power plants



Gas processing

Illustration: BUC, Statoil

TRANSPORT



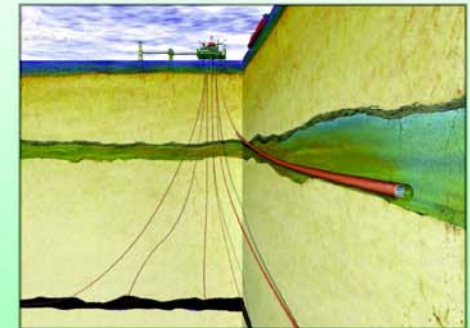
Pipelines



Ships

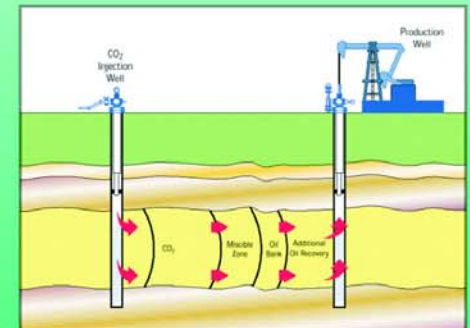
Photo: Sealand, Statoil

STORAGE for example



Storage in saline aquifers

Illustration: D. Fierstein, Statoil



Enhanced oil recovery

Illustration: IEA GHG R&D Programme

Solutions can only be found through combined efforts

- Co-ordinated international effort
- Co-operation between industry and government
- Well-focused R&D programmes
- Transition from R&D to technology deployment

The Norwegian context

- Norway currently has two projects on CO₂-storage:
 - Sleipner, 1 million tonnes annually, since 1996
 - Snøhvit, 700 000 tonnes annually, starting 2007
- Both projects in connection with:
 - extraction of petroleum from NCS - CO₂ extracted from gas-stream
 - injection of CO₂ into a sub-seabed geological structure
 - injection into another reservoir than the producing, i.e. not for EOR

Ambitious goals to realize CCS...

- **The Government has ambitious goals regarding capture, use and storage of carbon dioxide with a demanding timetable**
- The aims are to:
 - cooperate with industry on realizing capture of carbon dioxide at gas fired power plants as soon as possible – the state will contribute financially.
 - make sure that the process to realize a carbon dioxide capture-facility at the Kårstø gas fired power plant within 2009 is started – the state will contribute financially
 - establishing a value chain for transportation and injection of CO₂ - the state will contribute financially

....cooperation is a key factor

- R&D
- Gassnova
- IEA
- CSLF
- MOU Norway-US
- Dialogue at a political level
 - energy dialogue Norway-EU Commission
 - joint statement between Norwegian and EU energy ministers on CCS, including establishment of a North Sea Basin Task Force



Conclusions

- Solutions to a sustainable energy future can only be found through combined efforts
- SSC technologies will be part of the solution
- The Norwegian government has ambitious goals, and the real work has already started