

26th World Gas Conference

1 – 5 June 2015, Paris, France



*PGC A-1: Carbon Capture and Storage (CCS)
development and perspectives for a sustainable gas
industry*

Capturing the Future of Natural Gas

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Statoil



Contents

- Energy realities
- Statoil CCS experience
- Natural Gas and CCS



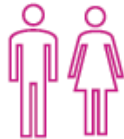
The world needs more and cleaner energy

- Population
- Poverty
- Energy
- Climate change

THE WORLD NEEDS MORE ENERGY

GLOBAL POPULATION GROWING

The current world population of 7.2 Bn is projected to increase to 9.6 Bn by 2050



PEOPLE ARE MOVING OUT OF POVERTY

Three billion people will enter middle class by

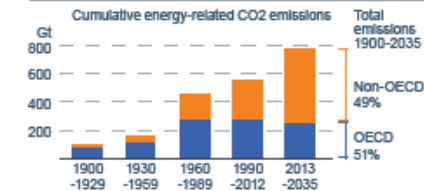
2035

ENERGY GAP WIDENING

1 IN 5

People lack access to electricity

EMISSIONS RISING



Source: World Bank

Source: United Nations

TACKLING THE CARBON CHALLENGE IN THREE CORE AREAS

We are a technology focused upstream company active in three core areas:

OIL

Vital to powering transport but must be produced and used with consideration for the climate



GAS



A valuable lower carbon partner to support growth in renewables

TECHNOLOGY AND INNOVATION

New, effective and scalable solutions to a range of energy challenges:

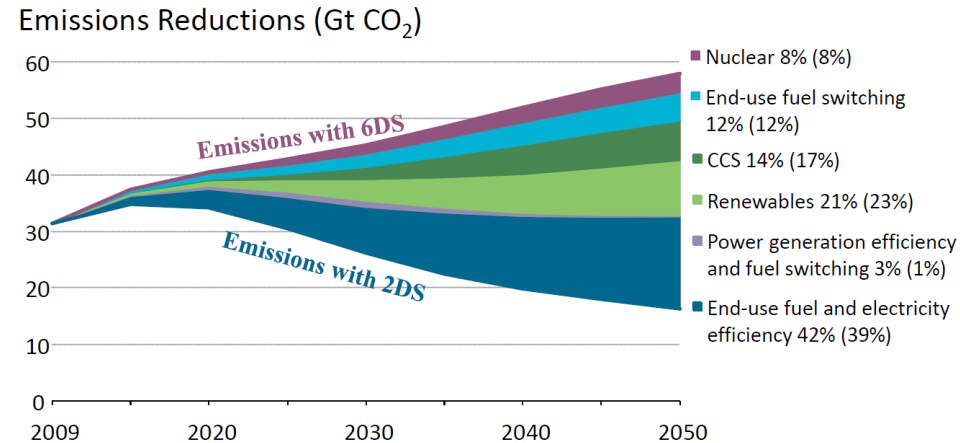
- CCS
- Energy Efficiency
- Wind



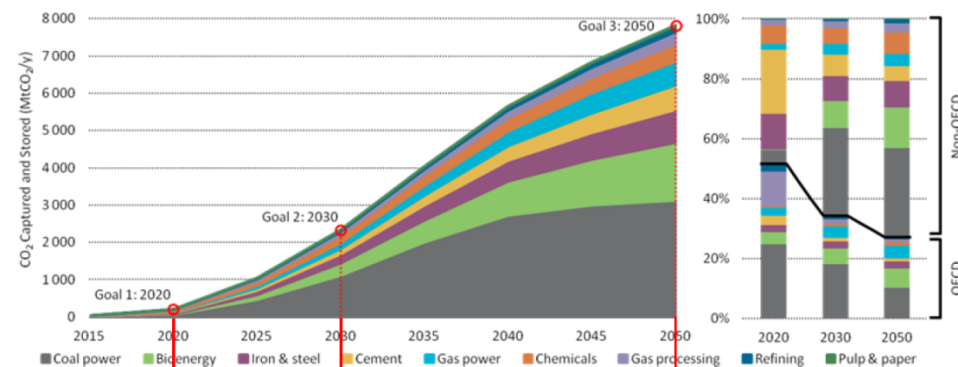
Carbon Capture and Storage to take its share

- IEA's CCS-target: 7-8 Gt CO₂ reduction by 2050
- 50/50 split power/ non-power industry CCS

Portfolio of decarbonising measures



IEA vision: 120 Gt of CO₂ stored by 2050



Source: IEA

Goal 1: 2020:

Over 30 large projects are in operation in power and across a range of industrial processes, storing 50Mt CO₂ per year.

Goal 2: 2030:

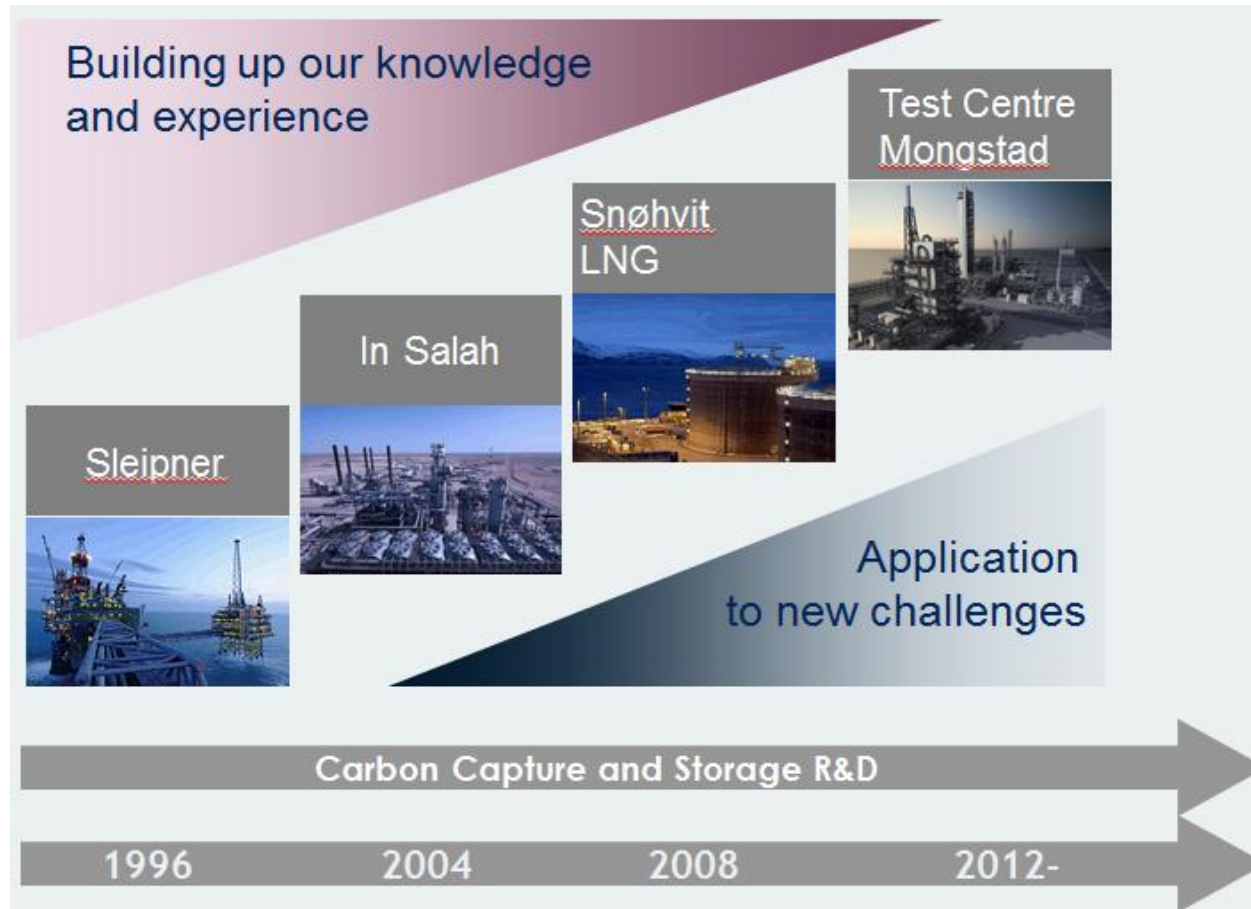
Over 2Gt of CO₂ is stored per year. CCS is routinely used in power and certain industrial applications.

Goal 3: 2050:

Over 7Gt of CO₂ is stored per year. CCS is routinely used in all applicable power and industry.

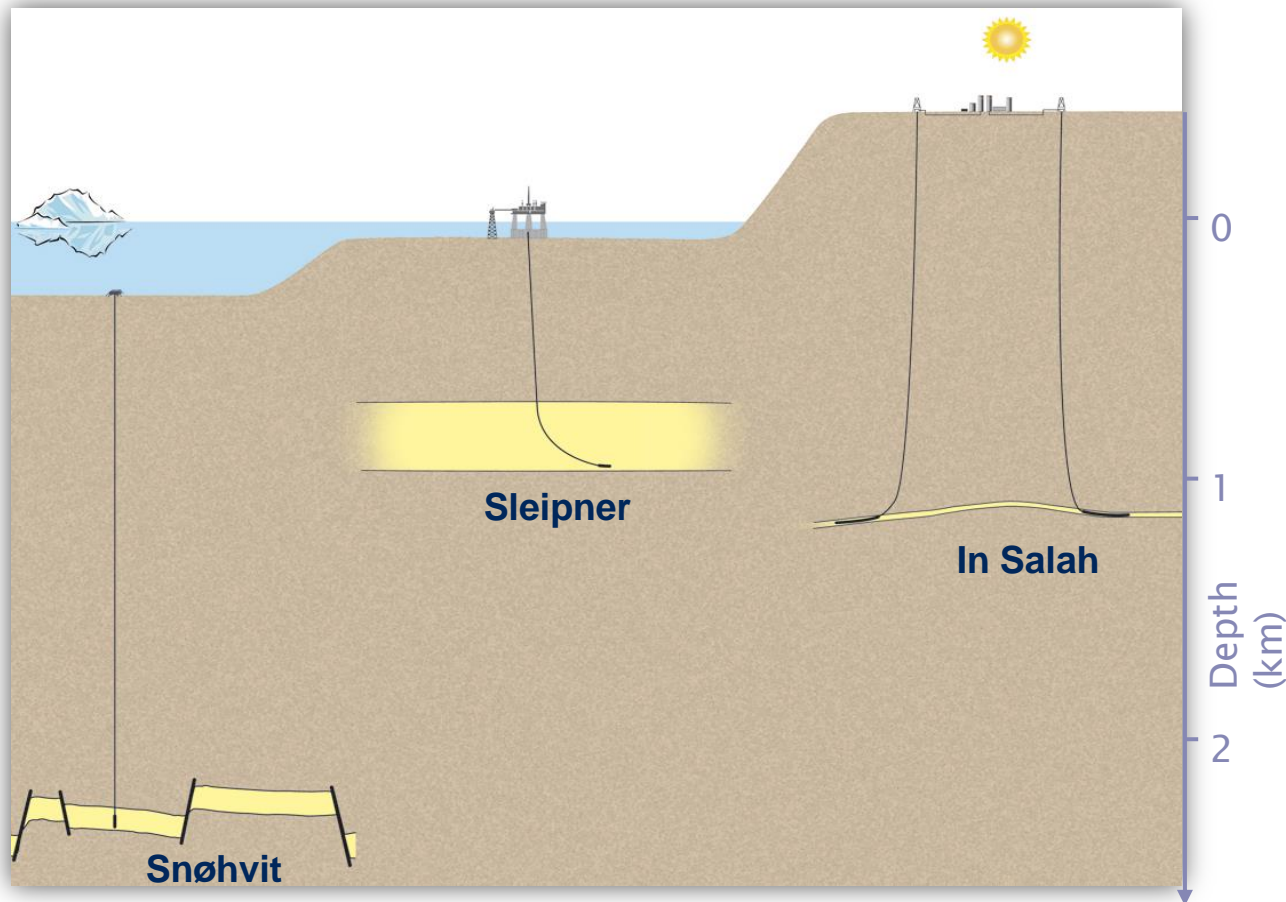
Statoil CCS-experience

- CO₂ storage operations and mapping
- CO₂ capture tech R&D, project feasibility and TCM Mongstad
- CCS-policy and incentives advocacy

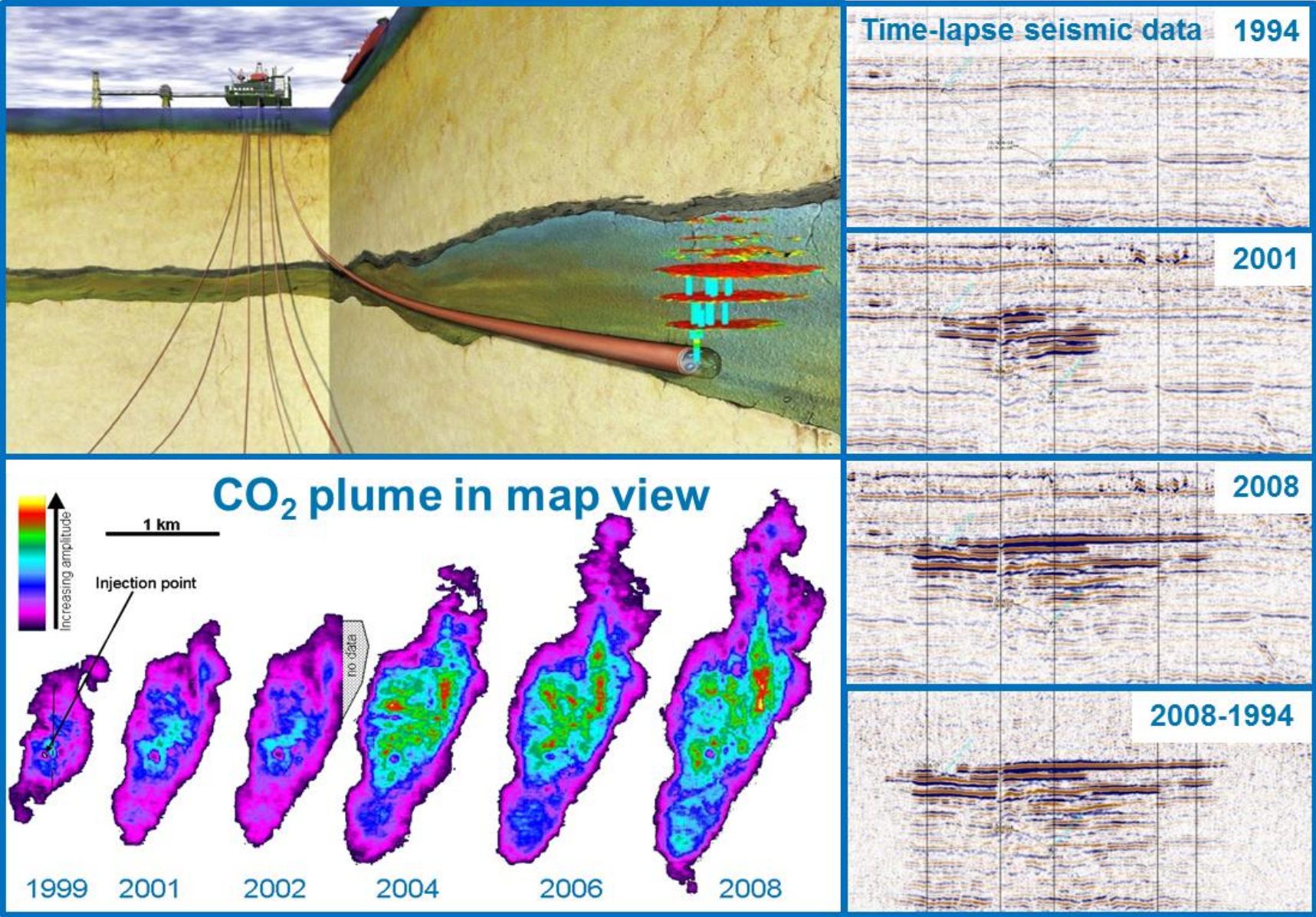


Unique non-EOR CO₂ Storage Operations

- Sleipner from 1996
- In Salah from 2004
- Snøhvit from 2008



Sleipner - Safe storage operations demonstrated



1st generation CCS projects in power

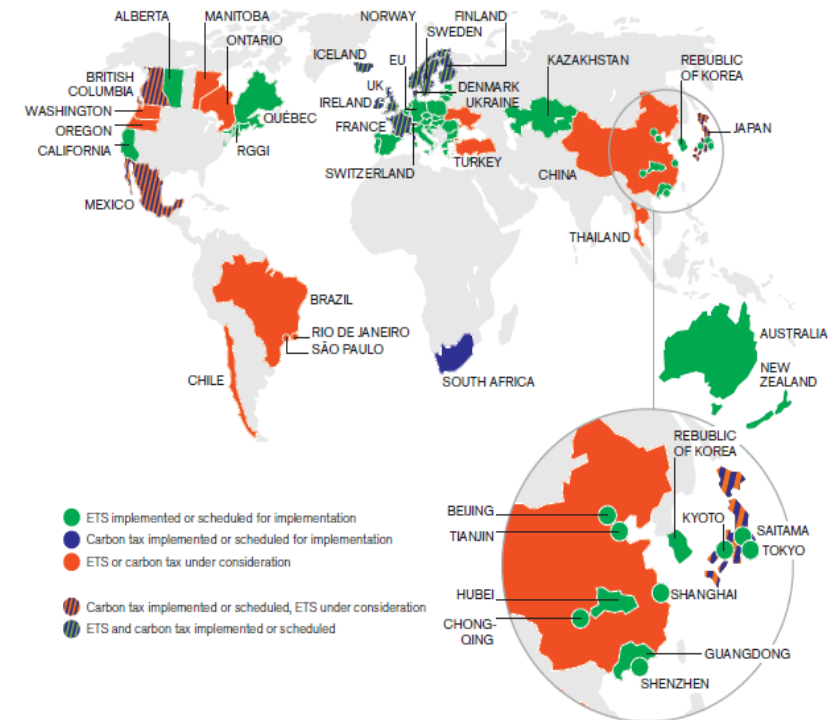
Enabled through dedicated policy and funding schemes

- Boundary Dam; Coal-Postcomb-EOR project; Saskatchewan, Canada
- Kemper County; Coal-IGCC-EOR project; Mississippi, US
- Petra Nova; Coal-Postcomb-EOR project; Texas, US
- Peterhead; Gas-Postcomb-Storage project; Scotland, UK
- White Rose; Coal-Oxyfuel-Storage project; Yorkshire, UK
- ROAD; Coal-Postcomb-Storage project; Netherlands



Carbon pricing – key to secure long-term decarbonisation

- Short-term: framework, incentives and project support schemes
- Long-term: effective carbon pricing



Capturing the Future of Natural Gas - takeaways

- CCS key for a low carbon pathway
- CO₂ storage is feasible and safe
- Regulatory framework essential
- Multi-stakeholder collaboration required
- 1st generation CCS in power sector under way
- Cost reductions along with deployments
- Robust and widespread carbon pricing essential
- Gas power w/CCS is competitive

