



OLJE- OG ENERGIDEPARTEMENTET

Carbon Dioxide Capture and Storage in Norway



The Norwegian setting

- Fossil fuels remain the dominant global source of energy - the Climate challenge
- Norwegian energy supply requires increased capacity and less dependence on hydropower
- Renewables and gas-fired power plants equipped with CCS: Sustainable energy solutions



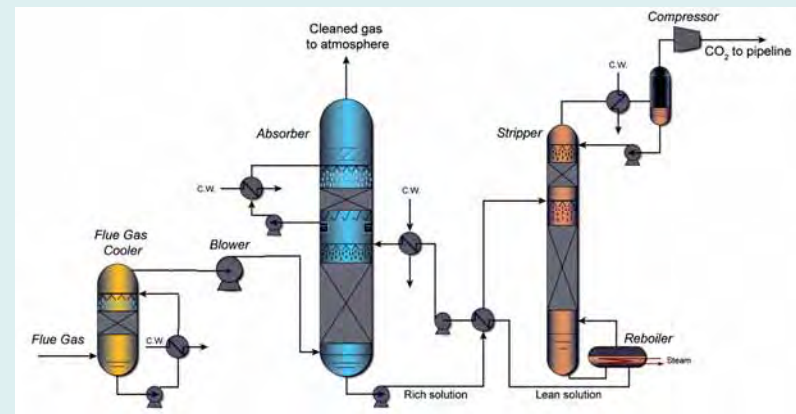
CO₂ Capture and Storage

The Norwegian Government Policy

- 1. New licenses for gas-fired power plants require CO₂ capture and storage**
 - Governmental financing
- 2. Annually US\$ 25 mill to support research, development, demonstration**
- 3. Agreement with Statoil to establish full-scale capture of CO₂ at the Mongstad oil refinery**
 - CO₂ capture test facility will be in place in 2010
 - Full-scale capture of CO₂ by the end of 2014
- 4. Ambitions to construct a retrofit CO₂ capture facility at the Kårstø gas-fired power station**
 - Allocation of US\$ 50 million in the 2007 state budget
- 5. Government responsible for facilitation of CO₂ transport and storage**
 - Project assessing possible solutions for CO₂ from Mongstad

CCS Projects in Norway

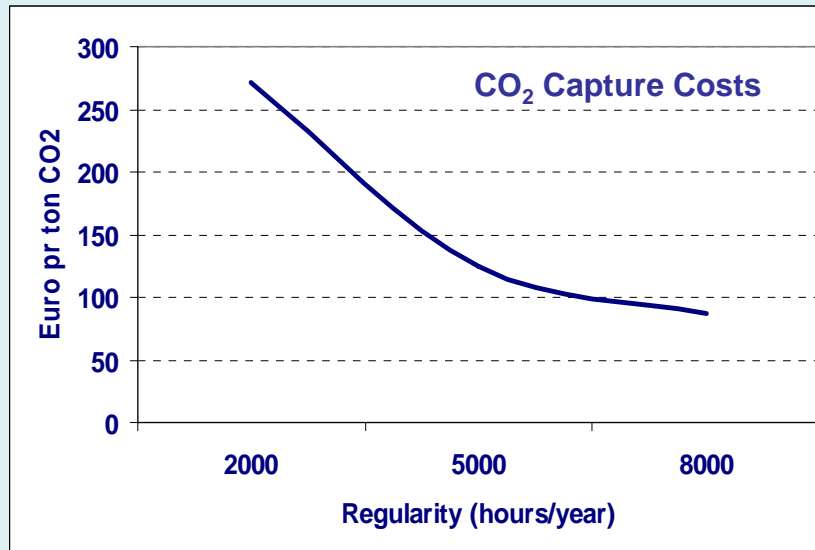
- The Norwegian government and Statoil to establish full-scale CCS at *Mongstad*
- Shell, Statoil considering the world's largest project using CO₂ for EOR offshore, *Halten CO₂*
- Planning of the CCS facility at the *Kårstø* gas-fired power plant is given high priority



CO₂ Capture at Kårstø

A report from The Norwegian Water Resources and Energy Directorate shows:

- Full-scale carbon capture at the gas fired power plant at Kårstø is feasible by 2011/2012
- Present value of costs are US\$ 1,8 billion
- The project faces a significant degree of risk in terms of technical performance, costs and operation time



Mongstad CCS Project

- **CO₂ Test Centre: Large scale pilot will be in place in 2010, 0.1 Mt CO₂/year**
- **Main objectives:**
 - Develop concepts for CO₂ capture with reduced cost and risk
 - Develop technology for CO₂ capture for wider international application
- **Full scale CCS by the end of 2014, 1.3 Mt CO₂/year**



Mongstad Technology Company

- The aim of the technology co is to develop more cost-efficient CO₂ capture technology
- Owners in the company will participate with competence, IPR and capital
- Preparation for Pre Engineering: June-Dec 07
- Pre Engineering: Jan 08-onwards

