

CO₂ Capture Project

Overview of Global Policies

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www.co2captureproject.org

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Policies Team Objectives

- ✓ Survey policies, regulations, and incentives that impact or benefit **CO₂ separation and capture** technologies.
- ✓ **CO₂ injection and storage** in geologic formations.
- 1/3 Prioritize the list of **"roadblocks"** that may impact the project and the list of incentives that are available.
- ✓ **Gap analysis** needed to formulate the economic, legal and policy framework that will fulfill "where we want to be."
- 1/3 Recommend **appropriate actions** to address issues identified.
- ✓ Establish a **network monitoring** function for the team and share information about proposed regulations, policies, and incentives that can affect the CCS.

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Cooperating For A Better Environment

NETL US Dept. of Energy
National Energy Technology Laboratory
David Hyman, Program Manager

Norges forskningsråd
The Research Council of Norway
Program Manager: Hans-Roar Sæverheim

EU DG Research
Directorate-General Research
Program Manager: David O'Brien

EU DG Energy and Transport
Directorate-General Energy and Transport
Program Manager: Vassilios Kougiouas

Joint Industry Partnership (JIP)

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Actions by the Team

- Identified road blocks to successful CO₂ capture and geological storage (CCS) applications
 - CO₂ potential classification as a waste is a key issue
 - London Convention and OSPAR
 - EU Water Directive
 - Overly burdensome site assessment, monitoring, verification requirements
- Identified the need for geologic sequestration to fit into carbon crediting and trading schemes (e.g., EU Emissions Trading's M&V Guidelines will need to include CCS.)
- Watching brief on political and legal/government developments in key countries and supra-national and scientific bodies including the UN IPCC

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Team Members

▪ Dag Christensen	(Hydro)
▪ Jan Hartog	(Shell)
▪ Arthur Lee (Team Lead)	(ChevronTexaco)
▪ Georgia Callahan	(ChevronTexaco)
▪ Bill Senior / Mark Akhurst	(BP)
▪ Alison Taylor / Geoff Johns	(Suncor)
▪ Frede Cappelen	(Statoil)
▪ Giuseppe Iorio	(ENI)
▪ Jim Provias	(Suncor)

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Parties to the London Convention

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Parties to OSPAR Convention

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EU Water Framework Directive

- The EU Water Framework Directive aims to "maintain and improve the aquatic environment in the Community." The Directive has two main objectives:
 - Achieve and maintain water quality ('good status') by 2015;
 - Ensure that the quality of all ground and surface water does not deteriorate below present status.
- CO₂ is not on the Directive's lists of pollutants or dangerous substances.
- Potential triggers include whether CO₂ injection and storage has potential impact to ground and surface waters.

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London and OSPAR Conventions

- The overall intent of these treaties is to prohibit the dumping of wastes at sea.
- The definition and handling of CO₂ will be an important determinant for implementation, particularly in offshore locations. Three factors are relevant:
 - Is the CO₂ being **stored** or **disposed of** ?
 - Is the CO₂ being placed in the seabed and its subsoil as a **scientific experiment** or a CO₂ capture and storage process ?
 - Whether the CO₂ contains impurities resulting from the capture stage (e.g. H₂S).

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Global Policies: Summary

- Little progress in the development of policy and regulatory frameworks for CCS in the countries of interest to this study.
- Some non-government organizations (NGOs) and the public in the European Union are becoming slightly less skeptical of the technology.
- It may still be too early to assess the level of public skepticism, which will become clearer when specific projects are reviewed for permitting or licensing.

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London and OsPar Conventions

- Discussions around the relevance of the London Convention to CCS have only just begun.
- To make changes to the language of the Protocol or to clarify the intent of specific provisions will require long negotiations between nations that are parties to these international treaties.
- Lack of clarity in these issues poses a potential barrier to the offshore deployment of CCS.
- Amendments may be needed to develop the appropriate regulations within the frameworks of the London Convention.

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National Policies: Summary

- Australia, Canada, Netherlands, Norway, UK and US are developing or implementing policy measures aimed at promoting the use of CCS.
 - US is revising 1605b guidelines to include detailed monitoring and verification provisions.
 - UK has not yet developed policies specifically aimed at CCS, but has developed recommendations that encourage a move in that direction.
 - The Alberta government has announced that 2003 greenhouse gas emissions are required to be reported in 2004.
 - Norway proposed a strategy to develop gas-fired power generation with CCS.
 - Netherlands Electricity Act of 2003 through tax exemptions will promote carbon neutral electricity including CCS.

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Country	Supportive Policies or Regulations specific to CO ₂ capture and storage	Restrictive Policies or Regulations specific to CO ₂ capture and storage	Supportive Policies or Regulations extended to CO ₂ capture and storage	Restricting Policies or Regulations extended to CO ₂ capture and storage	Will lack of regulatory framework restrict CCP projects development (Yes/ No)	Limited awareness, Negative (-ve) or Positive (+ve) NGO actions?	Limited awareness, Negative (-ve) or Positive (+ve) public opinion?
EU	■	■	■	■	■	+ve	Limited
Denmark	■	■	✓	✓	No	-ve	Limited (potentiall y -ve)
Germany	■	■	■	■	Yes	-ve	-ve
Italy	■	■	■	■	No	+ve	+ve
Netherlands	✓	■	✓	✓	No	-ve	Limited
Norway	■	■	✓	✓	No	-ve ¹¹	Limited
The UK	✓	■	■	✓	Yes	-ve and +ve	-ve
USA	■	■	✓	✓	Yes	Limited	Limited
Canada	✓	■	✓	✓	Yes	Limited	Limited
Australia	■	■	✓	✓	Limited	-ve	-ve
China	■	■	■	■	-	Limited	Limited

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- ## CO₂ Capture Project
- ### Key Messages
- Clear momentum exists as projects are being deployed and technology continues to be researched and developed.
 - The London and the OsPar Conventions may apply to CCS deployment offshore in geologic formations. Issues for clarification may require several years of intergovernmental negotiations in order to accommodate such deployment.
 - In general, there is little policy and regulatory development specifically addressing CCS in individual countries.
 - Specific countries (Australia, Canada, Netherlands, Norway, UK, US) are moving in the direction of policy development specific to CCS.
 - Public awareness is low to non-existent. Some NGOs will likely play a key role in public acceptance of the technology.
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- ## CO₂ Capture Project
- ### CCS Incentives: Summary
- Clear momentum exists as projects are being deployed and technology continues to be researched and developed.
 - In the EU, Australia, Canada and US, additional efforts for R&D programs and other financial incentives emerged in 2003.
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- ## CO₂ Capture Project
- ### Key Messages
- Some non-government organizations (NGOs) and the public in the European Union are becoming slightly less skeptical of the technology.
 - However, this is still too early to assess and will become clearer only when specific projects are reviewed for permitting or licensing.
 - Existing and emerging financial incentives in Australia, Canada, the European Union, Denmark, Germany, Italy, Netherlands, Norway, the United Kingdom, and the United States are focused principally on research and development.
 - Such incentives are needed to improve the cost-effectiveness for deploying CO₂ capture and storage technology.
 - CCS is becoming recognized and credited in some regulatory regimes.
 - A monitoring and verification framework is needed to achieve wide recognition and crediting.
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Country	Existing or expected financial incentives?	Existing or expected financial disincentives?	Existing or expected program or funding?	Existing or expected Capture and storage pilot or demonstration projects?
EU	✓	■	✓	✓
Denmark	■	■	✓	✓
Germany	✓	■	✓	✓
Italy	✓	■	✓	✓
The Netherlands	✓	✓	✓	✓
Norway	✓	■	✓	✓
The UK	✓	■	✓	✓
USA	✓	✓	✓	✓
Canada	✓	■	✓	✓
Australia	✓	■	✓	✓
China	■	■	■	■

* : non-existent; ✓ : existent; * expected

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Questions ?

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