

## Organisation

The project is being conducted by the following German research institutes:

- Wuppertal Institute for Climate, Environment and Energy (WI)
- Institute of Energy Research System Analysis and Technology Evaluation (IEF-STE) Research Centre Juelich
- Fraunhofer Institute for Systems and Innovation Research (ISI)
- BSR Sustainability GmbH

on behalf of the Federal Ministry of Economics and Technology.

The language used within the project is German. The full title is "Sozioökonomische Begleitforschung zur gesellschaftlichen Akzeptanz von Carbon Capture and Storage (CCS) auf nationaler und internationaler Ebene".

Coordination of the project is accomplished by Research Group I "Future Energy and Mobility Structures" of the Wuppertal Institute.

Project duration: 21 months, starting April 2006

## Project Team

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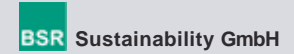
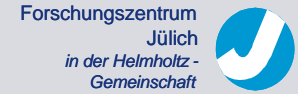
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Research project

## Socio-economic Research on Acceptance of Carbon Capture and Storage (CCS) at National and International Level

Research project on behalf of the



## Background

Climate protection is one of the major drivers in current energy policy. A broad range of technical and economic instruments and measures — aiming at the reduction of energy-related CO<sub>2</sub> emissions — have already been implemented or are in the process of implementation.

Large scale power plants contribute about fifty percent to total CO<sub>2</sub> emissions in industrialised countries. As concentrated CO<sub>2</sub> flue gas streams from power plants represent so-called point sources, approaches for carbon management (carbon capture and storage, CCS) covering these industrial scale structures seem to be a promising option for climate protection. On the side of CO<sub>2</sub> storage, different types of carbon deposits could be made available for CCS infrastructures in Germany: First and foremost saline aquifers (deep geological layers mostly consisting of sandstone containing salt water in pore spaces), as well as depleted oil and natural gas reservoirs.

For climate protection and especially the reduction of energy related CO<sub>2</sub> emissions, CCS is competing with various other options and concepts. In energy-economic terms, competition concentrates mostly on the increase of energy efficiency and a further extension of renewable energy use. Furthermore the increasing in specific electricity generation costs have to be considered.

In particular regarding societal acceptance CCS competes with other climate protection options. The guiding question is whether CCS technologies will be accepted by the society (i. e. from the many different stakeholders and the public as necessarily additional or even as better option). Successful technologies will, in this regard, only include technologies that are able to gain broad acceptance (i. e. support) in the public.

The large-scale introduction of CCS would influence the shape of current energy systems and infrastructures significantly. This does not only touch technological, legal and economical feasibility. It would particularly require fundamental decisions on the general energy path societies want to follow in the future: Do they want to rely mainly on the current path, characterised by fossil fuels as a dominating pillar of energy supply? In this system CCS could fulfil the task of a “bridge” into a future energy system eventually using renewable energies as major supply sources. Or do they vote for all the accelerated transformation of energy systems

towards renewable energies, meaning the implementation of larger shares of decentralised generation technologies and infrastructures?

Hence, the analysis of socio-economic aspects, particularly the analysis of public acceptance, is a major precondition for full and exhaustive appraisal of carbon capture and storage options.

## Aims

The aims of the project are:

Assessment of the status quo

- Which general and detailed assessments already exist?

Assessments of potential hazards and risk perception

- Which hazards have to be taken into consideration and how are risks and hazards perceived by different stakeholders and the broad public?

Presentation of historic and current media coverage of CCS

- Which aspects of CCS are of relevance in media coverage?
- Which media cover CCS, and how? What are the basic trends in media coverage?

Analysis of acceptance of CCS

- Which factors influence public acceptance in general?
- What is the current level of public acceptance?

Development of a communication concept

- Which criteria have to be met for objective, transparent and credible information campaigns in Germany?

Intensive exchange of expertise, research and practical experience is an essential tool during the course of the project. In this respect experts from different branches like industry, economy, non-governmental organisations and others will be closely integrated as discussion partners.

## Scientific approach

### (I) Assessment of status quo

- Which research results on public acceptance do already exist for other energy technologies and how can they be transferred to the case of CCS?
- In-depth analysis of experiences available from other energy technologies in terms of acceptance (e. g. nuclear and wind power)
- Overview and analysis of existing studies on acceptance of CCS
- Presentation and analysis of existing experience from international CCS projects and working groups (e. g. CATO, FENCO, CSLF)

### (II) Analysis of potential hazards and risk perception

- Identification of potential hazards along the whole CCS chain (from plant to storage site)
- Identification of factors influencing risk perception and acceptance in the public
- Analysis of processes that can influence the use of CCS very suddenly — be it positively or negatively. These sudden effects are called tilting effects

### (III) Media analysis

- Analysis of coverage of different CCS topics in print media in Germany
- Structural comparison with media coverage in other countries

### (IV) Empirical analysis of social acceptance in Germany

- Design of an appropriate evaluation concept
- Empirical in-depth analysis of selected groups of stakeholders and other actors (scientific community, NGOs, industry etc.)
- Presentation of some cornerstones for a possible information campaign