



# CCS Stakeholder Involvement and Outreach

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# Overview



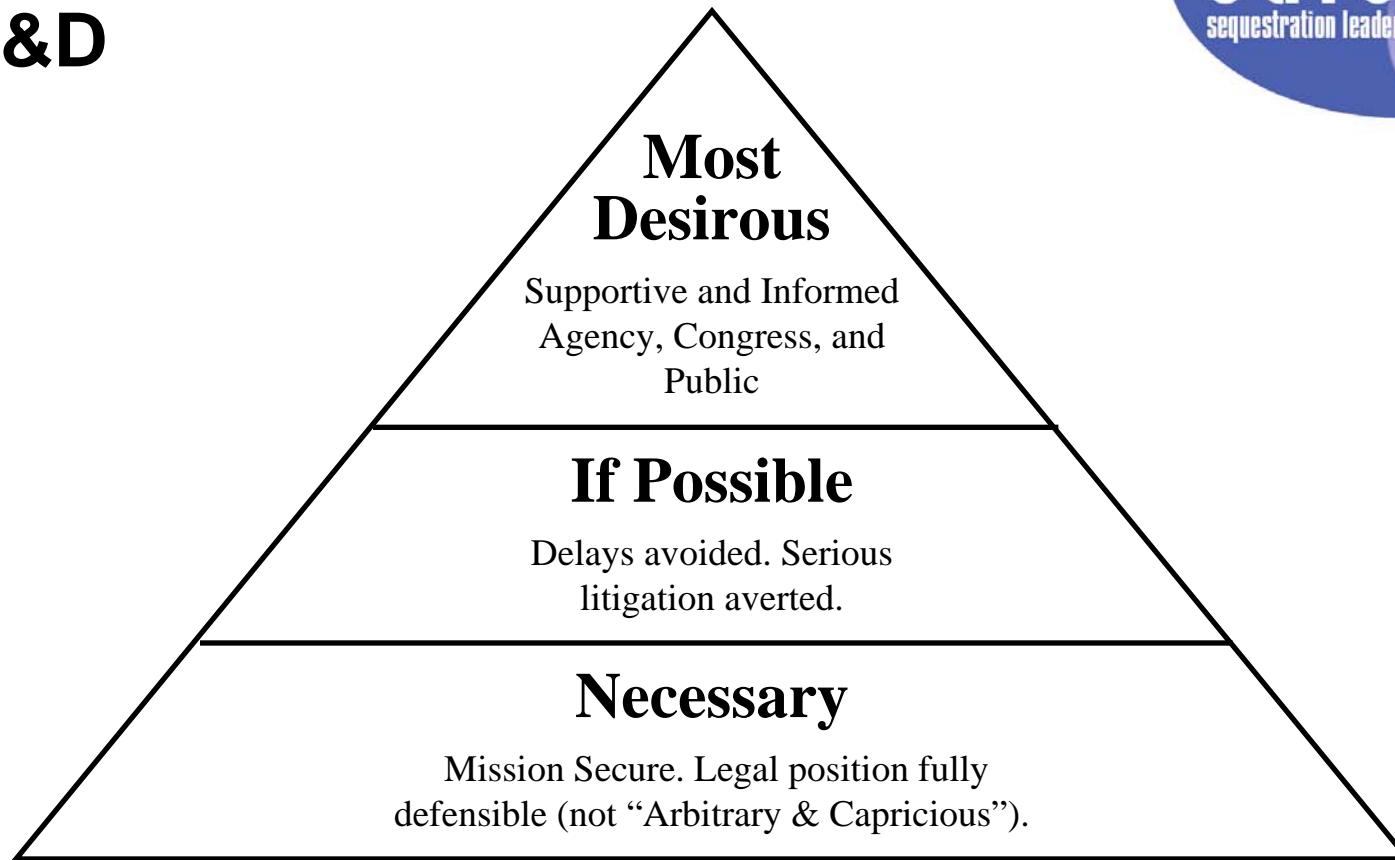
- Public outreach critical in building public acceptance for CCS
- True outreach involves listening, sharing information and addressing concerns
- We understand a little bit about stakeholder perceptions of CCS
- The Regional Carbon Sequestration Partnerships are building on and using this information
- International assessment of perceptions show much in common

# Rethinking the Role of Public Outreach:



- Consider this analogy: Geology is to physical science as outreach is to social science
- Outreach is informed by social science research into the ways in which people perceive the need for, risks of, and tradeoffs with CCS
- “Site Characterization” in public outreach consists of a systematic process to identify:
  - Different publics and their level of interest, information needs and perspectives
  - Ways to address those differing needs

# The Goal of Early CCS Outreach: Securing “Public Permission” for RD&D



Source: Dr. Peter Adler, The Keystone Center

**A Hierarchy of Stakeholder Goals In the  
Face of Potential Controversy**

# “Public Outreach” an Imprecise Term



- What it is:
  - Outreach - extending services or assistance beyond current or usual limits
  - Engagement – involving people and seeking their commitment
  - Building Trust & Respect – developing confidence in the process through actions, openness and responsiveness
- What it is not:
  - Public Relations – inducing the public to have understanding for and goodwill toward a person, firm, or institution
  - Sales –persuading or influencing to a course of action or to the acceptance of something
  - Marketing - the process or technique of promoting, selling, and distributing a product or service

# CCS Perceptions: What Do We (Think We) Know



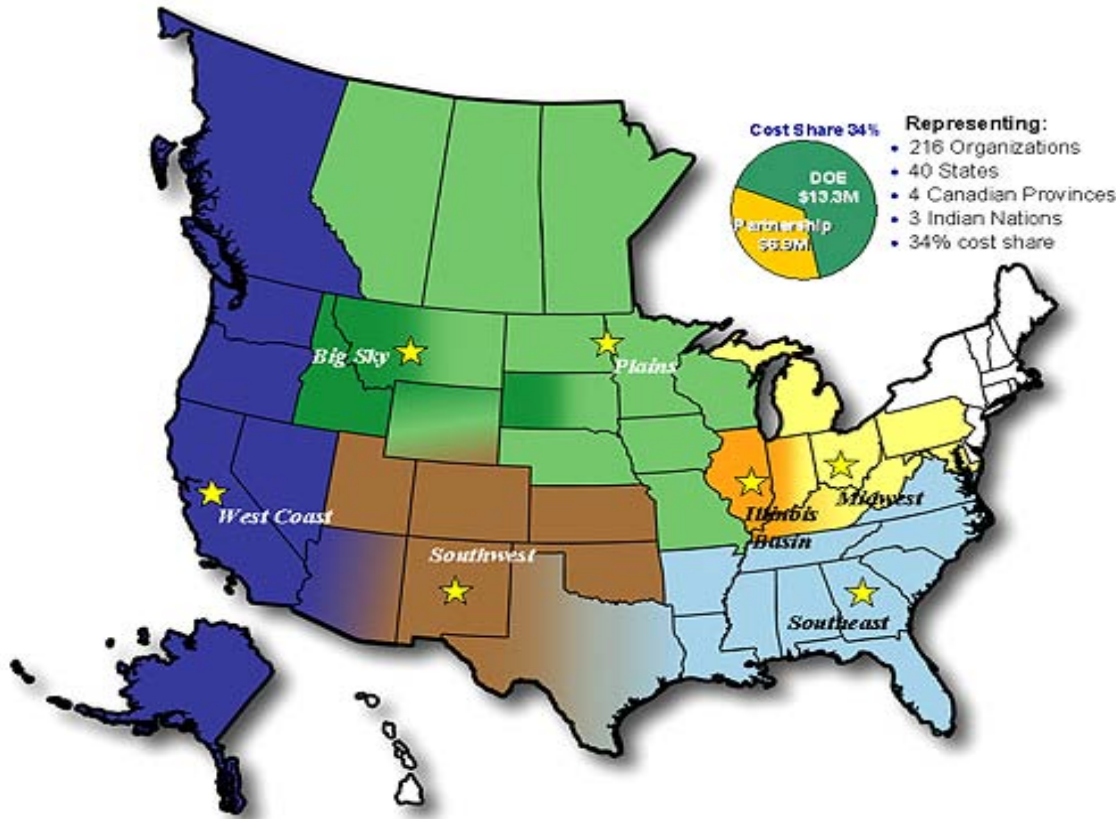
- Majority of people do not understand climate change, low to zero familiarity with CCS
- Public skepticism often greets new technologies
- Potential international, national and local split on views about CCS (vs nuclear, vs renewable energy)
- Many people get technical information from websites and trusted sources
- Framing CCS critically important in shaping public perceptions
- So far, more support and interest than opposition (government, industry, NGOs)

# What Factors Might Shape Public Perceptions?



- Media coverage of “climate-change-like” events and findings such as temperature trends, glacial melt, changes in migratory patterns, etc.
- Continued concerns about global energy costs
- Release of IPCC reports
- Commercial efforts in CCS, Weyburn, BP, FutureGen, AEP, other commercial deployments
- Policy discussions at all levels
- Performance of existing / emerging CCS projects

# Outreach Experience in the Partnerships



- Each partnership acts independently on outreach
- This reflects the variations in regional sources, sinks and culture
- Collaboration and coordination through Outreach Working Group process
- Additional collaboration through international efforts and discussion

# Partnership Outreach Activities



- General Outreach:
  - Websites
  - Information materials – Atlas, fact sheets, posters, videos, models
  - Briefings – civic groups, trade associations, policy makers, ENGOS
  - Media – television and print
  - Education – curricula for grades K-12
- Research:
  - Focus groups
  - mediated modeling,
- Project Outreach:
  - Detailed project materials – geologic columns, well diagrams, photographs, “Dear Neighbor” packets
  - Targeted communication – neighbors, information open houses at the local level

# Posters, Fact Sheets, Videos



### Purpose of the Demonstration

The Midwest Regional Carbon Sequestration Partnership (MRCSFP) is doing, led by Shell, under contract to the U.S. Department of Energy, is planning several field demonstrations in its Midwest region. The project assesses the effectiveness of permanently storing dioxide deep underground. These field demonstrations are part of the MRCSFP's second Phase II program due to October, 2015. These MRCSFP industry partners volunteered their sites or test locations in different geologic areas: the Appalachians Basin, the Cincinnatian and the Michigan Basin.

### WHAT IS A FIELD DEMONSTRATION TEST?

In geologic basins, injectors



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### Purpose of the Demonstration

Duke Energy has volunteered to take part in a field test of a promising technology for permanently storing carbon dioxide deep under its East Bend Generating Station. The test is one of several being conducted in the Midwest by the Midwest Regional Carbon Sequestration Partnership (MRCSFP).

Carbon dioxide is the most common of the associated greenhouse gases that are thought to contribute to global warming, which scientists believe is a global climate change. Coal-fired power plants, steel mills, refineries and other industrial processes are major sources of carbon dioxide emissions in the Midwest U.S. Concern about climate change has resulted in efforts to find ways to reduce these emissions. Permanently storing carbon dioxide deep underground in carefully selected geologic formations is one of several options being studied. This concept is often referred to as geologic sequestration.

The field test at East Bend is not a commercial-sized project for a very small-scale test. It holds great promise as an important step in building our knowledge and helping firms determine to address climate change. If successful, geologic sequestration could also be economically important to Kentucky and other Midwestern states that depend heavily on coal for their energy.

<sup>1</sup> The Midwest Regional Carbon Sequestration Partnership is one of several regional partnerships established by the U.S. Department of Energy. It includes Kentucky, Ohio, Michigan, Indiana, Illinois, Pennsylvania and West Virginia. The MRCSFP is made up of state, federal, university, and industry partners, and state and federal officials. It is led by Shell, a world-class energy and chemical company, and state and federal officials. It is led by Shell, a world-class energy and chemical company, and state and federal officials. It is led by Shell, a world-class energy and chemical company, and state and federal officials.

August, 2006

## Opportunity for Educational Outreach

Phase II—Outreach and Educational Initiative

Opportunities for the general public and the education community have been provided through reports, and webinars.

**General Public Outreach:** Looked for specific groups to increase awareness and understanding of the technology and its potential.

**Educational Community:** Reported on outreach opportunities being undertaken by the industry, state, and cooperative with stakeholders.

**Educational Community: Building Bridges—A Unique Opportunity**

- Conduct outreach through targeted webinars from MRCSFP.
- Develop an outreach strategy to build on existing outreach efforts.
- Conduct outreach through targeted webinars from MRCSFP.

**Teacher Workshops**

- Two-day workshops in Kentucky, Illinois, and Indiana.
- Focus on regional geologic sequestration in the environmental context.
- Partner with state-level teachers and dissemination.
- Review role of materials and publications for their own use.
- Develop and distribute final outreach learning materials.

**Carbon Capture and Sequestration: Bridging the Gap**

- Develop educational and outreach materials to support the technology.
- Focus on educational partnerships and outreach.
- Use carbon dioxide capture and sequestration as a theme for outreach.
- Coordinate outreach with public outreach and educational initiatives.

**Sequestration Model**

- Develop educational and outreach materials to support the technology.
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# Curriculum, Models



CSI: Climate Status Investigations

THE DEVELOPMENT OF THIS CURRICULUM AND WEBSITE WAS POSSIBLE THROUGH GENEROUS SUPPORT FROM THE DEPARTMENT OF ENERGY AND THE NATIONAL ENERGY TECHNOLOGY LABORATORY.

HOME CURRICULUM GRID RESOURCES STANDARDS GLOSSARY

DAY ONE DAY TWO DAY THREE DAY FOUR DAY FIVE DAY SIX DAY SEVEN DAY EIGHT DAY NINE DAY TEN

Curriculum Grid

Use this grid to navigate throughout curriculum by days or discipline.

The development of this curriculum and this website was possible because of generous support from the Department of Energy and the National Energy Technology Laboratory.

Lesson Day Language Arts

Day 1 Special Delivery: Opinion Warns students of the rising greenhouse gas emissions

Day 2 The Great Climate Change Debate Explores the origins of global climate change

Too For School

Day 1: Special Delivery: Opinion (Language Arts) Too Cool For School (Science) Parts Per Million (Math) Acting Out Energy (Social Studies) Totally Cubular (Extension Activity)

Links on this page: [GHG Explanation Sheet](#) | [Data Table](#) | [Teacher Sheet](#) | [Extension Activity](#) | [Student Sheet](#) | [Extension Activity - Student Sheet](#)

National Education Standards Met:

Science Discipline

DAY 1

Goal: To understand the definition, types and origins of the major greenhouse gases.

Objective: Students will:

- Create a town with all the elements to sustain human life.
- Discuss how the activities of the people in the town may create greenhouse gases.
- Make a connection between small unrelated activities and their cumulative affects on emissions of greenhouses gases.

Materials (For a class of 32):

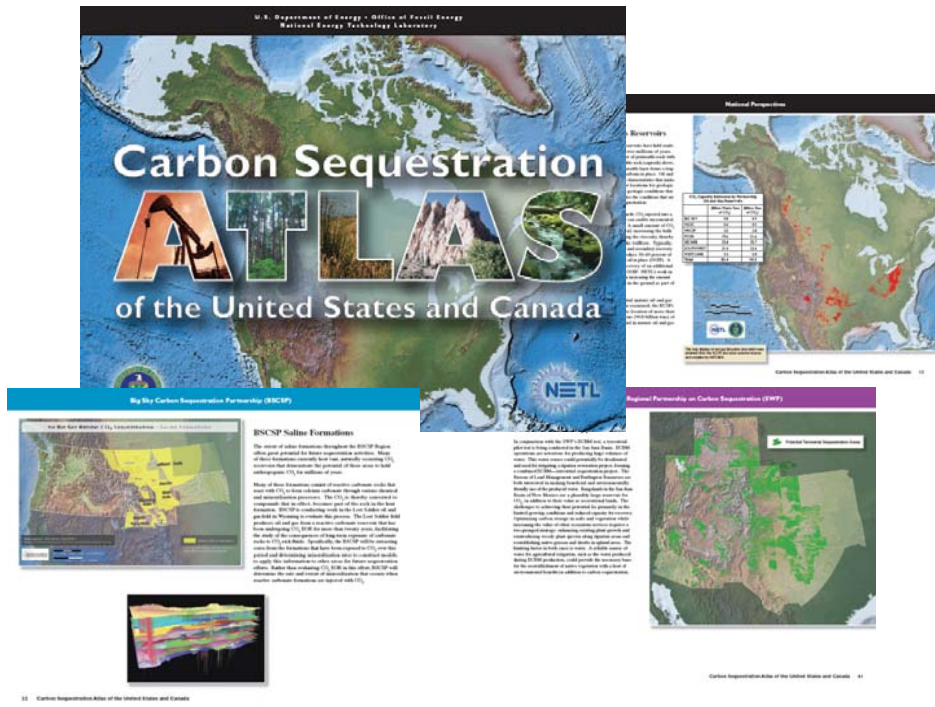
- 8 sets of crayons or markers (1 per group)
- Tape for displaying created towns

MGSC developed a physical model for sequestration and uses it for outreach – note placeholder photo

The Keystone Science School Curriculum trains teachers and gives detailed lesson plans and information:  
<http://www.keystonecurriculum.org/>



# Carbon Sequestration Atlases



[http://www.netl.doe.gov/publications/carbon\\_seq/atlas/ATLAS.pdf](http://www.netl.doe.gov/publications/carbon_seq/atlas/ATLAS.pdf)

NETL has developed a National Carbon Sequestration Atlas based on the Phase I research and modeled on the Atlas developed by the PCORP partnership.



<http://www.undeerc.org/pcor/products/atlas.asp>

# Lessons from Phase I and II (and a little from American Culture)



- Do general outreach  
AND project outreach
- Avoid “Who’s on First?!”
  - <http://video.google.com/videoplay?docid=-8342445135331678445>
- Flexibility Key
- Message Balance
- Know your audience
- The media: “can’t live with ‘em, can’t live without ‘em”



# International Outreach Efforts Show Much in Common



- IEA commissioned an international assessment of public perceptions of CCS
- Involved ANZ, EU, NA, China, Japan, India, South Africa
- Focus on RD&D, Industry, Policymakers, ENGOs, General Public
- Common Findings:
  - Awareness of CCS very low
  - Cautious positive interest on part of well-informed stakeholders because of concern about climate change
  - Early, frequent, open, interactive communication essential

**CO<sub>2</sub> CAPTURE PROJECT**

**Public Perception of Carbon Dioxide Capture and Storage:  
Prioritised Assessment of Issues and Concerns**

Summary for Policy-Makers

Commissioned by: International Energy Agency  
Working Party on Fossil Fuels

Funded by: UK Department of Trade and Industry

**dti**

**Summary of Findings**

The Potential Role of CCS  
CCS is a key technology to be developed before it enters the advanced energy systems space to deliver on climate change mitigation targets for developed countries.

The role that CCS could play in providing energy, energy services and industrial heat is dependent on the extent to which CCS is developed. It is likely that CCS will be used to provide a range of services, including power generation, industrial heat and transport.

The Importance of Public Perception  
CCS is a new technology and its development, investment, and implementation will be dependent on public perception. This includes the extent to which the public is aware of CCS, the extent to which the public is concerned about CCS, and the extent to which the public is willing to accept CCS.

Public Perception of CCS  
Public perception of CCS is generally low, with most people having little or no knowledge of CCS. However, there is a growing awareness of CCS, particularly among well-informed stakeholders. This awareness is based on concerns about climate change and the need for CCS to be developed to meet climate change targets.

Key Findings  
The key findings of the assessment are as follows:  
- Awareness of CCS is very low.  
- There is cautious positive interest on part of well-informed stakeholders.  
- Concern about climate change is a major driver of interest in CCS.  
- Early, frequent, open, interactive communication is essential.

**CCS Communications Strategy**

Issue	Priority	Target Audience	Key Messages	Key Activities	Timeline	Responsible Party
Public Awareness	High	General Public	CCS is a key technology to be developed to meet climate change targets.	Public awareness campaigns, media engagement, stakeholder consultations.	2008-2010	IEA, DTI
Public Perception	High	Well-informed Stakeholders	CCS is a safe and effective technology that can help to reduce greenhouse gas emissions.	Public perception surveys, stakeholder consultations, media engagement.	2008-2010	IEA, DTI
Public Acceptance	Medium	General Public	CCS is a key technology to be developed to meet climate change targets.	Public awareness campaigns, media engagement, stakeholder consultations.	2008-2010	IEA, DTI
Public Engagement	Medium	Well-informed Stakeholders	CCS is a safe and effective technology that can help to reduce greenhouse gas emissions.	Public perception surveys, stakeholder consultations, media engagement.	2008-2010	IEA, DTI

<http://www.zero-emissionplatform.eu/website/docs/related%20docs/IEA%20WPF%20CCS%20COMMUNICATIONS%20STRATEGY-SPM%20-%202023%20March.pdf>

# A Recap



- Public outreach critical in building public acceptance for CCS
- True outreach involves listening, sharing information and addressing concerns
- We understand a little bit about stakeholder perceptions of CCS and are learning more
- The Regional Carbon Sequestration Partnerships are building on and using this information
- International assessment of perceptions show much in common
- There is a significant body of work and resources to draw from in developing CCS outreach plans.
- We are finding that the efforts of proactive outreach are paying off in the form of cautious support for CCS on the part of many and constructive discussion with those who are less supportive