

Best Practices in CCS Communication and Outreach



Lessons from the Regional Carbon
Sequestration Partnerships

Sarah Wade, AJW, Inc.
June 2, 2008

Regional Carbon Sequestration Partnerships

Three Phases:

Characterization Phase

Validation Phase

Deployment Phase

Representing:

>350 Org's

41 States

4 Canadian Prov's

3 Indian Nations

Addressing:

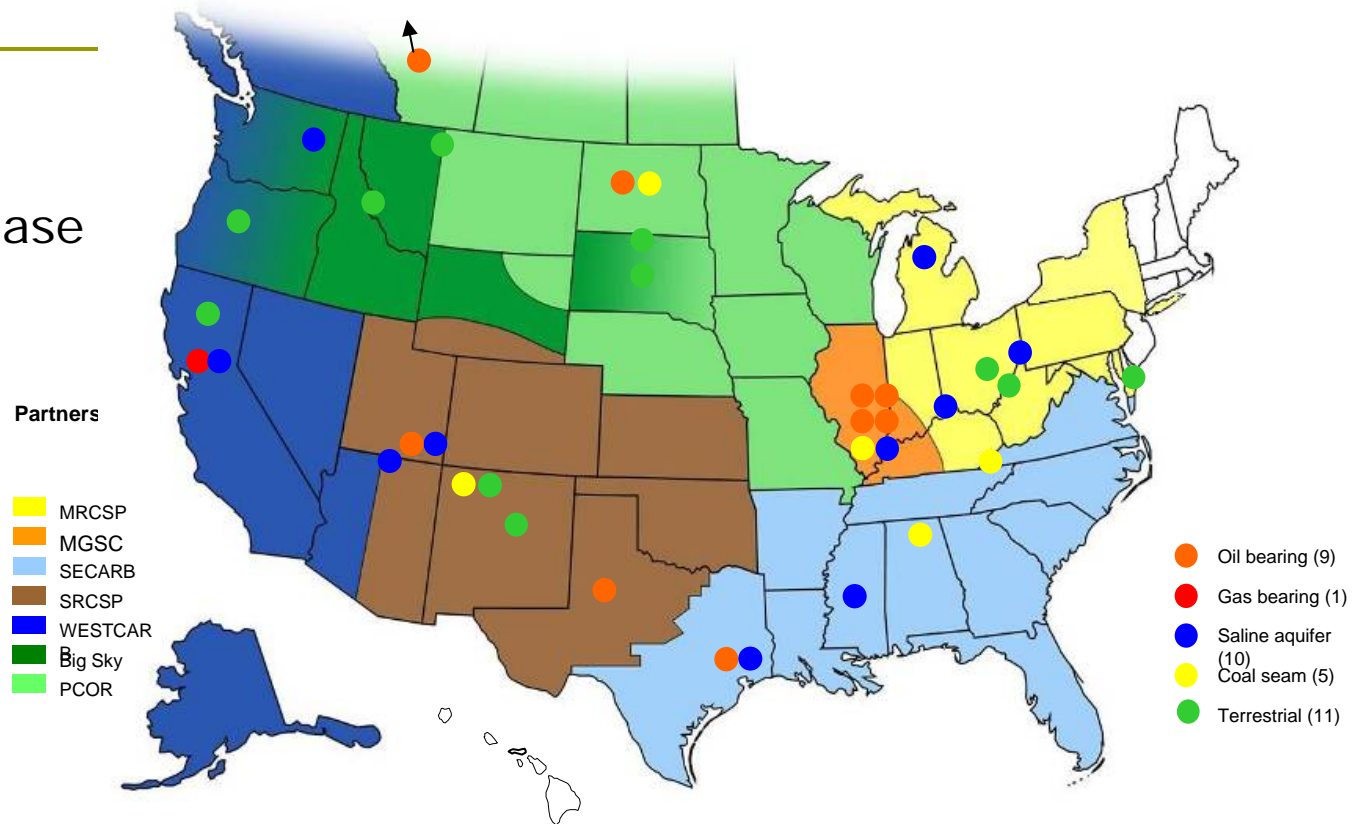
Permitting

Regulatory framework

Public Acceptance

Liability

Best Practices



Summary

- ❑ Public outreach and education an essential component of each RCSP mission
- ❑ Each RCSP has developed a team approach consisting of technology and communications experts
- ❑ Phase I and II provided significant “learning by doing” in approaches and materials
- ❑ Lessons for Phase III:
 - Learn about stakeholders’ concerns and perceptions
 - Develop materials that speak to the stakeholders (not just to the research team)
 - Trust – gained through openness and transparency key

Challenges in CS Public Outreach

- ❑ Small project size
- ❑ Complexity of sequestration and climate change
- ❑ General skepticism towards new technology
- ❑ Hornet's nest syndrome
- ❑ Negative experiences with or distrust in government institutions
- ❑ Perceived resource competition with renewable energy or energy efficiency
- ❑ Well publicized CO₂ release incidents

Partnership Outreach Activities

- Research and Coordination:
 - Focus groups and interviews with stakeholders and partners
 - Mediated modeling
 - Outreach Working Group (OWG) calls
- 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
- Project Outreach:
 - Detailed project materials – geologic columns, well diagrams, photographs, “Dear Neighbor” packets
 - Targeted communication – neighbors, information open houses at the local level

“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/Advocacy – 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

Websites

MRCSP
MIDWEST REGIONAL CARBON SEQUESTRATION PARTNERSHIP

Michigan Basin Project Update (January 23, 2008)
MRCSP has received the final permit and will move ahead with the injection at the Michigan Basin field site. MRCSP intends to inject approximately 10,000 tons of carbon dioxide during a six-eight week period. [Read More](#)

Other recent updates

Managing Climate Change and Securing a Future for the Midwest's Industrial Base

Big Sky Carbon Sequestration Partnership

A NEW ENERGY FUTURE FOR MONTANA, IDAHO, WYOMING, SOUTH DAKOTA, THE PACIFIC NORTHWEST, AND THE NATION

Home
Overview
Carbon Atlas
Terrestrial
Geologic
GIS
Publications / Reports
Presentations
Partners

Midwest Geological Sequestration Consortium

Phase III Project Awarded

The Midwest Geological Sequestration Consortium (MGSC), and the Illinois State Geological Survey (ISGS) have been awarded a \$66.7 million contract from the U.S. Department of Energy to conduct a Phase III large-scale sequestration demonstration project in the Mt. Simon Sandstone. The MGSC, ISGS, and Archer Daniels Midland Company (ADM) will work together on this carbon sequestration project, which will involve the capture and storage of carbon dioxide from ADM's ethanol plant in Decatur, Illinois. The project is designed to confirm the ability of the Mt. Simon Sandstone, a major regional saline reservoir in Illinois, to accept and store 1 million metric tonnes of carbon dioxide over a period of three years. The carbon dioxide will be provided by ADM from its Decatur, Illinois, ethanol plant, and the project will be located on ADM's Decatur property. Carbon dioxide from ADM's plant is injected into wells drilled to depths exceeding 6,500 feet into the Mt. Simon Sandstone, where the compressed, liquid-like carbon dioxide is stored in the pores of the rock formation, which is presently saturated with water that is several times saltier than sea water. The success of the storage will be monitored by the MGSC through an extensive Monitoring, Mitigation and Verification (MMV) program. The project began in spring 2008 with the drilling of the injection well. Environmental monitoring will begin in October 2008 to collect background data. The sequestration and injection of carbon dioxide is scheduled to begin in October 2009 and should conclude in 2012. The project will be funded by \$66.7 million from the U.S. Department of Energy over a period of seven years, supplemented by cofunding from AmeriCarbon Services, and other corporate and state resources.

WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP
westcarb.org

HOME CONTACT US PARTNER LOG-IN

Expand Menu | Collapse Menu

About WESTCARB
What Is Sequestration?

WESTCARB is a collaborative research project bringing together dedicated scientists and engineers at 70 public agencies, private companies, and nonprofits to identify and validate the best regional opportunities for keeping CO₂ out of the atmosphere and thereby reducing mankind's impact on the climate.

SOUTHWEST PARTNERSHIP CO₂ SEQUESTRATION

MEMBER LOGIN

How Does Carbon Dioxide Affect Global Climate Change?

When the Intergovernmental Panel on Climate Change (IPCC) released its Climate Change 2007 Report, it named carbon dioxide (CO₂) the most important human produced greenhouse gas. The report confirmed that the high levels of CO₂ in our atmosphere are caused by fossil fuel emissions and are a major contributor to global warming. The increased occurrence of extreme weather such as droughts, heavy precipitation, heat waves, and intensity of hurricanes and typhoons is a symptom of climate change.

Several options will be needed to moderate CO₂ levels in our atmosphere. One approach to lowering atmospheric CO₂ levels, called **Terrestrial Carbon Sequestration**, includes planting vegetation or enhancing an already present ecosystem to store carbon.

Terrestrial Carbon Sequestration
and store it in rock formations

Southwest Carbon Partnership
Pioneers in the Carbon Economy

PCOR
Partnership

Plains CO₂ Reduction Partnership

Home EERC Contact Us Partners Only

About the Partnership
Carbon Sequestration, Climate Change, and CO₂
Region
Publicly Available Products
Documentaries
Kids Only!
Links
What Can I Do?
Frequently Asked Questions
Events
Site Map

What's New?
10/10/2007
PCOR Partnership Phase III Announced
Phase II Field Validation Project Map with Links
PCOR Streaming Video
Upcoming Events

Sequestration in the News

Climate change bill heads for full Senate
Database revealing highest CO₂ emitting power sources created

The PCOR Partnership is led by the Energy & Environmental Research Center at the University of North Dakota and is one of seven regional partnerships under the National Energy Technology Laboratory's

Southeast Regional Carbon Sequestration Partnership
SECarbon.org

- about the partnership
- partners
- event schedule
- about carbon dioxide and sequestration technologies
- regional partnerships
- partner area
- contact us

Midwest Regional Carbon Sequestration Partnership Posters, Fact Sheets, Video



Purpose of the Demonstration

The Midwest Regional Carbon Sequestration Partnership (MRCSPP) for demonstration, led by Battelle, under contract to the U.S. Department of Energy, is planning several field demonstration sites in the Midwest region. The project's purpose is to demonstrate the effectiveness of permanently storing carbon dioxide deep underground. These field demonstration sites are part of the MRCSPP, Phase II program, which began in October 2007. These MRCSPP demonstration sites are located in two basins in different geological areas: the Appalachian Basin, the Central and the Michigan Basins.

WHAT IS A FIELD DEMONSTRATION?

A field demonstration is a test to determine if a technology is ready for commercial-scale use. It is a test to determine if a technology is ready for commercial-scale use.

Purpose of the Demonstration

The MRCSPP is a partnership between the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the U.S. Geological Survey.



Purpose of the Demonstration

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

Carbon dioxide is the most common of the greenhouse gases that contribute to global warming. Much research is being done to reduce carbon dioxide emissions from power plants, steel mills, refineries, and other industrial processes. One major source of carbon dioxide emissions is the Midwest region. U.S. concerns about climate change have 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 one of several field tests being conducted in the Midwest. It is one of several field tests being conducted in the Midwest. It is one of several field tests being conducted in the Midwest.

August 2006

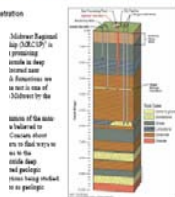


Figure 3. Subsurface Rock Parameters. The diagram shows the subsurface geology of the East Bend Generating Station, including the reservoir, caprock, and overburden layers.

The diagram shows the subsurface geology of the East Bend Generating Station, including the reservoir, caprock, and overburden layers.

The diagram shows the subsurface geology of the East Bend Generating Station, including the reservoir, caprock, and overburden layers.

The diagram shows the subsurface geology of the East Bend Generating Station, including the reservoir, caprock, and overburden layers.

The diagram shows the subsurface geology of the East Bend Generating Station, including the reservoir, caprock, and overburden layers.



Opportunity for Educational Outreach

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.

Carbon sequestration is a promising technology for reducing greenhouse gas emissions. It is a promising technology for reducing greenhouse gas emissions.



Educational Materials

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.

Standards Key
Glossary
Resources

THE KEYSTONE CENTER

Welcome to The middle and high school new ways of thinking about a non-biased perspective on energy.

The Keystone Energy Technology Center and high school Status Investigations

An Interdisciplinary Curriculum Module For Middle School, Grades 5-8

CURRICULUM GRID RESOURCES GLOSSARY DAY 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY 6 DAY 7 DAY 8 DAY 9 DAY 10

Middle School CSI: Climate Status Investigations (grades 5-8)

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 Cool For School

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

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

KEEP K-12 Energy Education Program

Programs

- Home Energy Education
- School Energy Education
- Renewables Energy Education

About KEEP

What's New

Professional Development

- KEEP Courses

Resources

- Lesson Plans
- Activities

Student Involvement

Networking

- Newsletter

Site Map

Events Calendar

Glossary

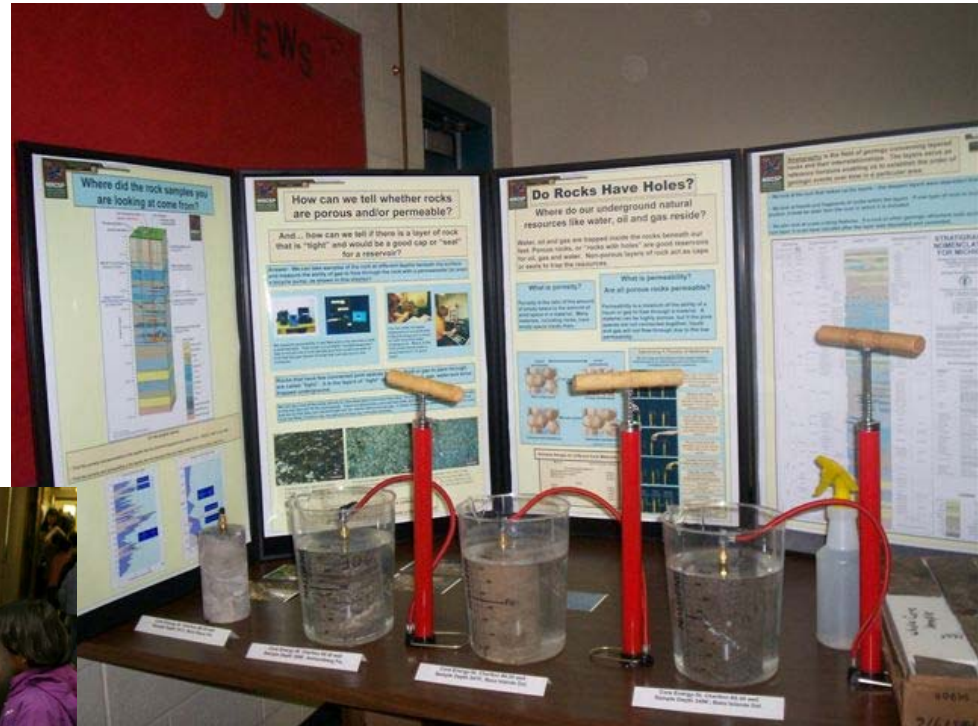
Copyright © 2006, KEEP

KEEP's mission is to initiate and facilitate the development, dissemination, implementation and evaluation of energy education programs within Wisconsin schools.

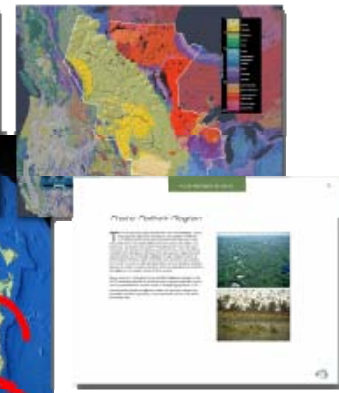
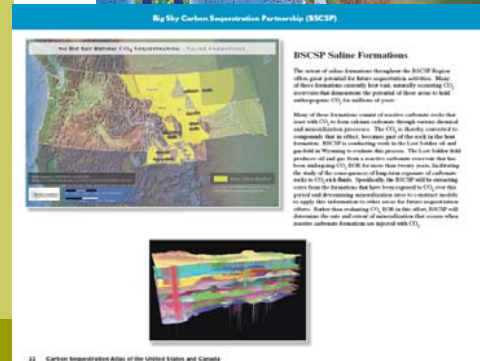
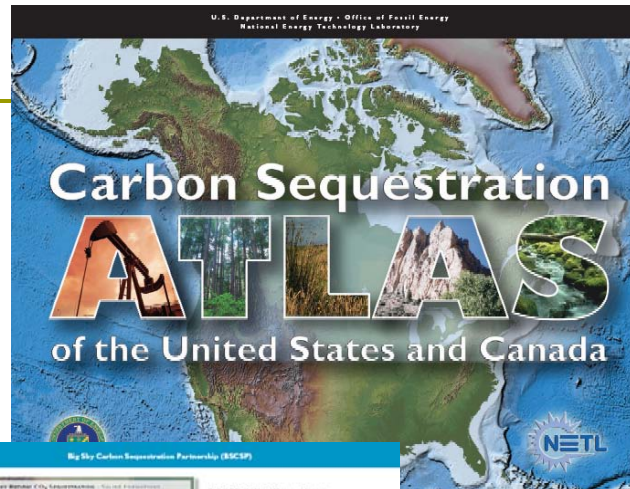
focus on energy™
The power is within you.

From the PCORP site, several links for educators including The Wisconsin materials
<http://www.uwsp.edu/cnr/wcee/keep/>

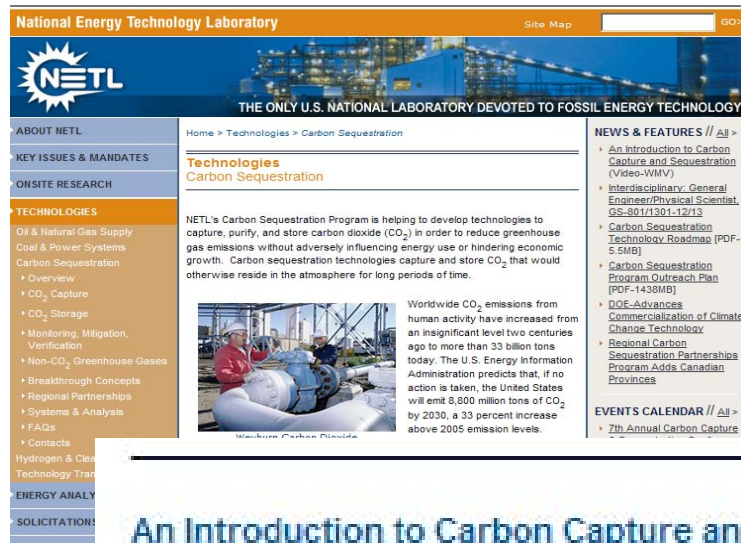
CCS Models



Carbon Atlases



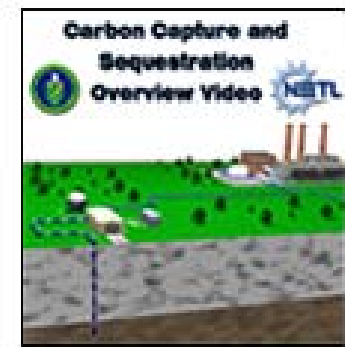
The NETL Carbon Sequestration Reference Shelf



NETL maintains a reference shelf on its carbon sequestration website. This contains materials such as the atlas, project portfolio descriptions, the sequestration newsletter, the carbon sequestration R&D roadmap and several other reports and links.

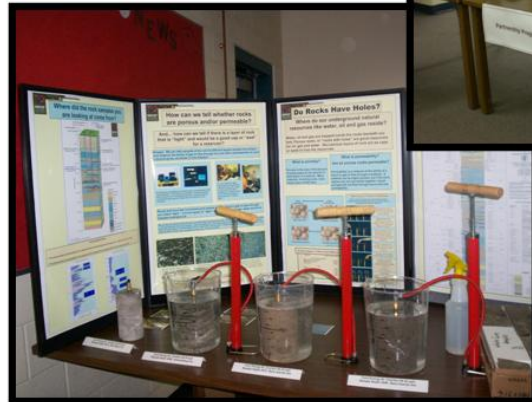
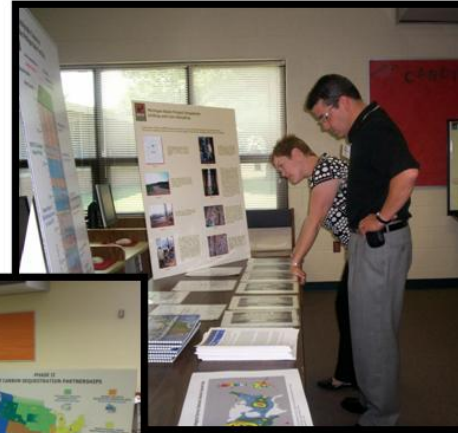
[An Introduction to Carbon Capture and Sequestration](#) (Video - WMV File)

This video was developed by NETL/DOE with significant input from the Regional Carbon Sequestration Partnerships' Outreach Working Group. It is intended to provide audiences with a general introduction to carbon sequestration. It also provides background information on climate change, the greenhouse effect and the role of carbon sequestration in an array of approaches for addressing climate change. In addition, the video describes the research initiatives of the Regional Partnerships.



http://www.netl.doe.gov/publications/carbon_seq/refshelf.html

Public Information Meetings



Hallmarks of Good Science Communication:

- ❑ Illustrates both the process and product of science
- ❑ Involves scientists in a substantial way
- ❑ Considers political climate and/or involves decision makers
- ❑ Uses multimedia/illustrations/interactivity
- ❑ Relates science to the everyday environment
- ❑ Avoids parochialism
- ❑ Views the topic from the audience's point of view
- ❑ Uses face-to-face methods
- ❑ Reaches out beyond the science attentive public
- ❑ Reaches out beyond the science attentive public
- ❑ Provides information in easily usable form
- ❑ Engages in research and performance evaluation

Source: NIST - http://www.nist.gov/public_affairs/bestpractices/conf_summary.htm.

Thank You!

□ Sarah Wade – swade@ajwgroup.com

□ Regional Carbon Sequestration
Partnership Websites:

[http://www.netl.doe.gov/technologies/carbon_seq/
partnerships/partnerships.html](http://www.netl.doe.gov/technologies/carbon_seq/partnerships/partnerships.html)