Project Archive - Regional Partnership

Project Title	Primary Contractor	Project End Date	Fact Sheet Listing
Midwest Regional Carbon Sequestration Partnership *Phase I*	Battelle Memorial Institute	9/30/2005	PAR-2
An Assessment of Geological Carbon Sequestration Options in the Illinois Basin *Phase I*	The Board of Trustees of the University of Illinois, Illinois State Geological Survey	9/30/2005	PAR-4
Southeast Regional Carbon Sequestration Partnership *Phase I*	Southern States Energy Board	11/30/2005	PAR-6
Southwest Regional Partnership for Carbon Sequestration *Phase I*	New Mexico Institute of Mining and Technology	12/31/2005	PAR-10
West Coast Regional Carbon Sequestration Partnership *Phase I*	State of California, California Energy Commission	12/1/2005	PAR-12
Big Sky and Great Plains Regional Carbon Sequestration Partnership *Phase I*	Montana State University	2/31/2005	PAR-14
Plains CO_2 Reduction Partnership *Phase I*	University North Dakota - Energy & Environmental Research Center	9/29/2005	PAR-18

* Factsheet Not Available

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

07/2005

MIDWEST REGIONAL CARBON SEQUESTRATION PARTNERSHIP (MRCSP)

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CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.

Description

Battelle Memorial Institute is leading one of those partnerships. Battelle has built a unique public-private partnership, the Midwest Regional Carbon Sequestration Partnership (MRCSP), to tackle the challenge of reducing CO_2 emissions while simultaneously protecting the industrial infrastructure of the Midwest Region. The partnership will assess the technical, economic, and social acceptability of carbon sequestration as part of a strategy to reduce CO_2 emissions in the United States. The MRCSP will focus its research in the U.S. industrial heartland: Indiana, Ohio, Kentucky, West Virginia, Pennsylvania, Michigan and Maryland. This Region is a concentrated center for industrial and manufacturing activities which it maintains because of the affordable energy made possible by abundant domestic energy resources and a quality workforce. MRCSP will identify greenhouse gas sources in the region and assess the ability and cost of capturing and sequestering these emissions in the region's numerous deep geologic formations and abundant agricultural, forest, and degraded land systems. In addition, MRCSP will engage the public and elected officials at all levels to communicate the issues and the potential value associated with terrestrial and geologic sequestration. MRCSP will also examine existing regulatory and other barriers that might hinder our ability to cost effectively deploy these technologies and will define strategies for overcoming these barriers.

PARTNERS

- American Electric Power
- AES Warrior Run
- AJW Group
- Alliance Resource Partners (Mettiki Coal)
- Arch Coal Inc.
- Baard Energy
- Babcock & Wilcox
- Battelle Memorial Institute
- British Petroleum
- Center for Energy & Economic Development
- Cinergy Corp.
- CONSOL Energy Inc.
- Constellation Energy
- DTE Energy
- First Energy
- Indiana Geological Survey
- Kentucky Geological Survey
- Maryland Energy Administration
- Maryland Geological Survey
- Monsanto
- NRRI, National Regulatory Research Institute
- Ohio Coal Development Office
- Ohio Corn Growers Association
- Ohio Division of Geological Survey
- Ohio Environmental Council
- Ohio Forestry Association
- Ohio Soybean Council
- Ohio State University- Ag Admin
- Ohio State University-Chemical Engineering
- Ohio Turfgrass Foundation
- Pacific Northwest National Laboratory
- Pennsylvania Geological Survey
- Pennsylvania State University
- Purdue University
- Scotts Company
- The Keystone Center
- University of Maryland
- West Virginia Geological and Economic Survey
- West Virginia University
- Western Michigan University

COST

Total Project Value

$3,068,468

DOE/Non-DOE Share

$2,250,000/$818,468

Primary Project Goal

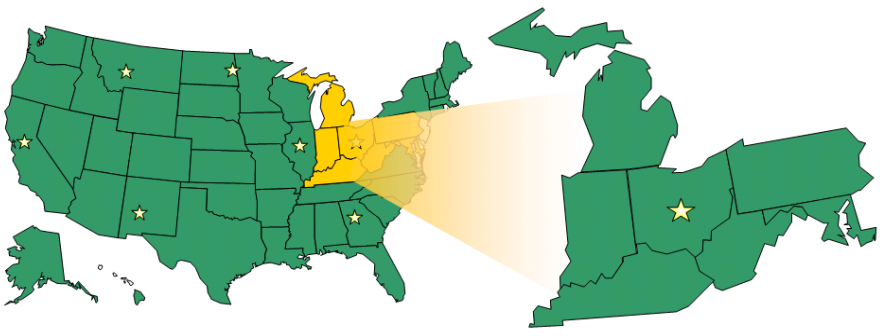
To identify green house gas sources in the partnership's region and determine the technical feasibility and cost of capturing and sequestering these emissions in deep geologic formations and in forests and agriculturally degraded land systems

Objectives

- To identify greenhouse gas sources in the region and assess the ability and cost of capturing and sequestering these emissions in the region's numerous deep geologic formations and abundant agricultural, forest, and degraded land systems.
- To engage the public and elected officials at all levels and dialog on the issues and potential values associated with terrestrial and geologic sequestration.
- To examine existing regulatory and other barriers that might hinder the ability to cost-effectively deploy these technologies and to define strategies for overcoming these barriers.
- To translate this accumulated knowledge into practical implementation approaches. At the end of two years, the partnerships will have developed action plans for public outreach and education, regulatory compliance, and technology validation to support potential small scale tests within the region.

Benefits

Battelle researchers are currently leading the U.S. Department of Energy's Mountaineer Project, which is evaluating the feasibility of sequestering in deep saline formations CO_2 from one of American Electric Power's modern coal-fired units. Never before has a team of researchers with skills of such depth and breadth worked together to advance key energy and climate management technologies, such as CO_2 sequestration. This project will determine whether there is a cost-effective way to reduce relatively high CO_2 emissions in the region.



Midwest Regional Carbon Sequestration Partnership - (Region 1)

Project 243.pmd

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

MIDWEST GEOLOGIC SEQUESTRATION CONSORTIUM (MGSC)

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Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.

Description

The Illinois Basin is home to one of the highest concentration of stationary sources of carbon dioxide including utilities, cement plants, and ethanol production facilities, which together emit in excess of 255 million tonnes of CO_2 annually. A targeted study on geologic sequestration issues that will meet regional needs is required. The Midwest Geological Sequestration Consortium (MGSC), headed by the University of Illinois — Illinois State Geological Survey, will look at ways of storing CO_2 within deep, uneconomic coal seams, numerous mature oil fields and saline reservoirs that lie beneath the 60,000 square mile Illinois Basin, which underlies most of Illinois, western Indiana and western Kentucky. The consortium will assess technical and economical options to determine the feasibility of using these geological sinks for long-term storage.

MGSC, led by the Illinois State Geologic Survey, combines the expertise of three state geologic surveys, two university researchers, six private corporations, five professional business association, and one interstate compact, two Illinois agencies, and two consultants to develop a Midwest solution to carbon capture, transportation and storage.

PARTNERS

Air Liquide

Ameren

Aventine Renewable Energy

Brigham Young University

Cinergy Corp.

Consultant

D.J. Nyman & Associates

Electric Power Research Institute (EPRI)

IL Dept of Commerce & Economic Opportunity

Illinois Corn Growers Association

Illinois Department of Natural Resources

Illinois Oil and Gas Association

Illinois State Geological Survey

Indiana Geological Survey, Indiana University

Indiana Oil & Gas Association

Interstate Oil and Gas Compact Commission (IOGCC)

Kentucky Geological Survey, University of Kentucky

Kentucky Oil & Gas Association

Louisville Gas and Electric Energy

LincolnLand Agri-Energy

Peabody Energy

Southern IL University

COST

Total Project Value
$3,521,297

DOE/Non-DOE Share
$1,782,385 / $1,738,912

CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

Primary Project Goal

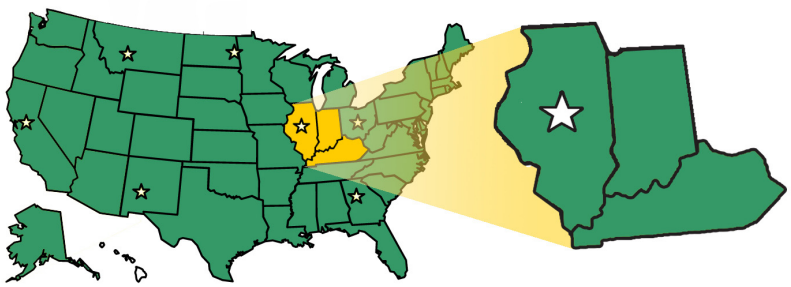
The goal of the project is a targeted, coherent study on geologic sequestration issues that will meet regional needs as will as contribute to a broader generic understanding of carbon sequestration in saline reservoirs, depleted oil reservoirs, and deep coal seams.

Objectives

- Developing a database and assessing CO_2 capture and transport in the region
- Focus on storage for 13-15 months for each of the three sinks
- Link integrated options for capture, storage and transportation with environmental and regulatory framework to define sequestration scenarios and outcomes for the region. At the end of two years, the partnership will have developed action plans for possible technology validation field tests involving CO_2 injection.

Benefits

While terrestrial sequestration options in the Midwest agricultural land is being addressed by a separate consortium, it is believed that geologic sequestration is the most appropriate in order to develop a balance portfolio of sequestration options in the high-emissions Illinois Basin region.



Midwest Geologic Sequestration Consortium - (Region 2)

Project 242.pmd

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

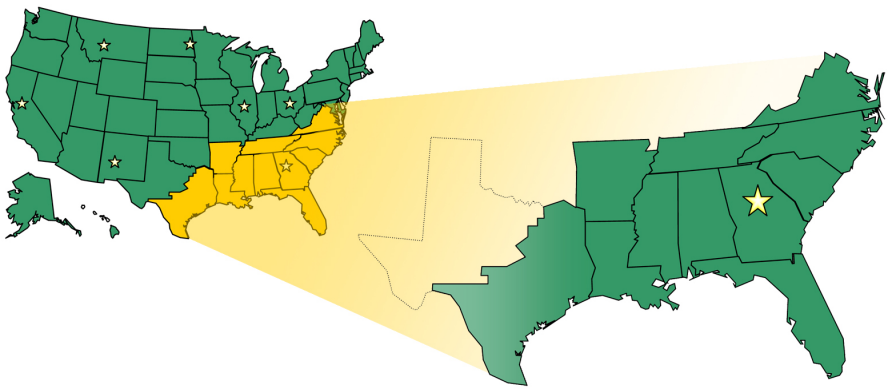
07/2005

SOUTHEAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP (SECARB)

Background

The U.S. Department of Energy has selected the seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 240 organizations, spanning 40 states, three Indian nations, and two Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.



Southeast Regional Carbon Sequestration Partnership

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Description

The Southeast Regional Carbon Sequestration Partnership (SECARB), led by the Southern States Energy Board (SSEB), Norcross, GA, represents the eleven southeastern states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia). SECARB will accomplish its objectives by defining similarities in the eleven state region; characterizing the region relative to sources, sinks, transport, sequestration options, and existing and future infrastructure requirements; identifying and addressing issues for technology deployment; developing public involvement and education mechanisms; identifying the most promising capture, sequestration, and transport options; and developing action plans for implementation and technology validation.

SECARB will define the geographic boundary of the study. CO_2 sources, sinks, and transport requirements will be described and entered into a GIS system. An assessment of public involvement and educational needs will be conducted, and an outreach plan will be developed so that stakeholders can help identify and implement regional CO_2 sequestration measures. Safety, regulatory, and permitting requirements within the region will be assessed in consultation with regulatory agencies, state public utility commissions, and oil and gas commissions. Assessment of ecosystem impacts will be completed, and an action plan to address impact issues will be developed. Monitoring and verification requirements will be established, along with protocols for geologic and terrestrial sequestration, and measurement of stack emissions of CO_2.

Primary Project Goal

The primary project goal is to promote the development of the framework and infrastructure necessary for the validation and deployment of carbon sequestration technologies, and to evaluate options and potential opportunities for regional CO_2 sequestration.

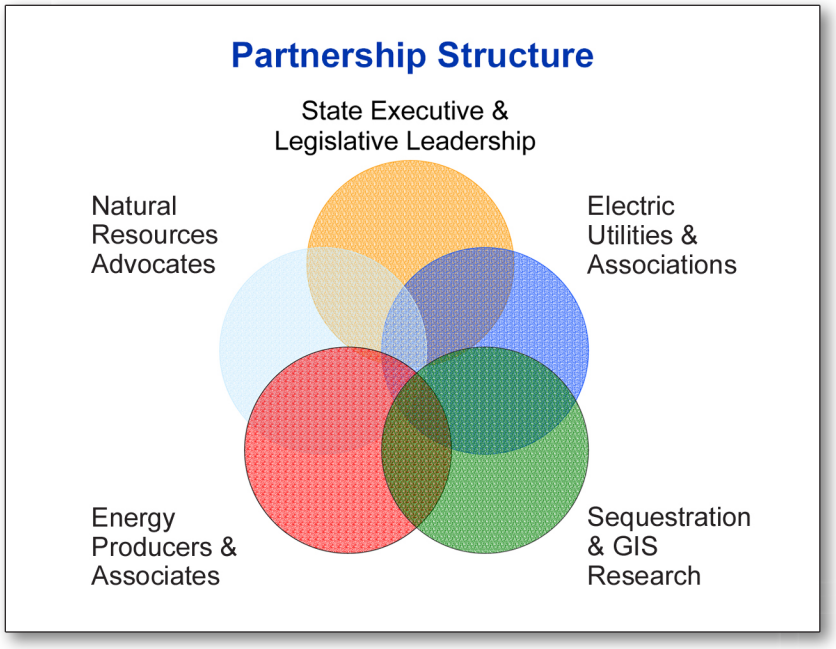
Objectives

- Define similarities among the eleven states in the region.
- Characterize the region relative to sources, sinks, transport, sequestration options, and existing and future infrastructure requirements.
- Identify and address issues involved with technology deployment.
- Develop public involvement and education mechanisms.
- Identify the most promising capture, sequestration, and transport options.
- Develop action plans for implementation and technology validation.

Benefits

SECARB's study for this eleven state region will result in the following specific programmatic benefits:

- Support the United States Department of Energy's (DOE) Carbon Sequestration Program by promoting the development of the framework and infrastructure necessary for the validation and deployment of carbon sequestration technologies.
- Support the President's Global Climate Change Initiative goal of reducing greenhouse gas intensity by 18 percent by 2012.
- Evaluate options and potential opportunities for regional CO_2 sequestration.



CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

COST

Total Project Value
$2,817,080

DOE/Non-DOE Share
$2,019,908/$797,172

PARTNERS

***Lead*:**
Southern States Energy Board (SSEB)

Advanced Resources International (ARI)

Applied Geo Technologies (AGT)

Augusta Systems, Inc.

Electric Power Research Institute (EPRI)

Geological Survey of Alabama (GSA)

Gulf Coast & Carbon Center, University of Texas at Austin

Massachusetts Institute of Technology (MIT)

Mississippi State University (MSU) Diagnostic Instrumentation and Analysis Laboratory (DIAL)

Phillips Group

The RMS Strategies

Susan Rice and Associates, Incorporated

Tennessee Valley Authority (TVA)

Virginia Center for Coal and Energy Research, Virginia Polytechnic Institute and State University

Winrock International

Technology Coalition:

AGL Resources
American Electric Power
Arkansas Oil and Gas Commission
BP America
Center for Energy and Economic Development
CO_2 Capture Project
ChevronTexaco Corporation
Clean Energy Systems, Inc.
Composite Energy Technologies
Dominion
Duke Power
Edison Electric Institute
Entergy Services
Florida Power & Light Company
Geological Survey of Alabama
Georgia Environmental Facilities Authority
Georgia Forestry Commission
Interstate Oil and Gas Compact Commission
Louisiana Department of Environmental Quality
Marshall Miller & Associates
North American Coal Corporation
The North Carolina State Energy Office
Nuclear Energy Institute
Oak Ridge National Laboratory
Old Dominion Electric Cooperative
Progress Energy
SCANA Corporation
South Carolina Electric and Gas Company
South Carolina Public Service Authority/ Santee Cooper
Southern Company
Tampa Electric Company

Project 278.pmd

U.S. Department of Energy
Office of Fossil Energy
National Energy Technology Laboratory

Southwest Regional Partnership for Carbon Sequestration

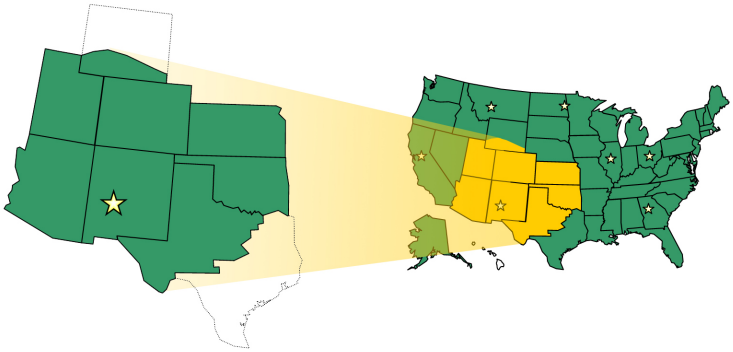
Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.

Description

The Southwest Regional Partnership for Carbon Sequestration (Southwest), led by the New Mexico Institute of Mining and Technology, Socorro, NM, will disseminate existing regulatory/permitting requirements, assess the most appropriate sequestration strategies, and evaluate and rank sequestration technologies for CO_2 capture and storage in the Southwest region, which includes Arizona, Colorado, Kansas, New Mexico, Oklahoma, Texas, Utah, and Wyoming. In the Southwest Region, over 95% of CO_2 emissions result from fossil fuel combustion, and about half of these emissions are from power plants. Geologic storage options include coal beds, natural gas and CO_2 fields, depleted and marginal oil fields, and deep saline aquifers. One option the partnership will explore is the viability of supplanting the CO_2 currently produced from natural CO_2 reservoirs, used for enhanced oil and natural gas recovery, with anthropogenic power plant CO_2. The presence of CO_2 pipelines may improve the viability of this possibility. Although terrestrial CO_2 sequestration appears to be a viable alternative in several parts of the Southwest Region, low rainfall in some areas may decrease the value of this option.



Southwest Regional Carbon Sequestration Partnership - (Region 4)

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PARTNER

University of Texas at Austin

PROJECT DURATION

24 Months

COST

Total Project Value

$2,265,506

DOE/Non-DOE Share

$1,770,000 / $495,506

CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

A website network will be set up to share information, store data, and help with decision-making and future management of carbon sequestration in the region. Over twenty partners, including the Navajo nation, state geologic surveys, coal, oil and natural gas companies, utilities, technology companies, and universities, make up this partnership.

Primary Project Goal

The goal of this project is to develop a sequestration strategy for the region, subject to the constraints unique to the Southwest, such as water resource availability. The assessment will not only identify the available technologies on which the strategy relies, but will also determine technological gaps.

Objectives

- To prepare a comprehensive assessment of the CO_2 sequestration aspects of the region, including sources, sinks, transport, sequestration options, and existing and future infrastructure requirements.
- To identify and address sequestration implementation issues.
- To initiate public outreach and assess public acceptance of CO_2 sequestration.
- To identify and rank sequestration options for the Southwest region.

Benefits

This project will benefit the U.S. by providing a comprehensive assessment of the sources and potential sinks for CO_2 in the Southwest region. This data can be integrated with the data from other partnerships to provide a data base covering the entire nation. This effort will also provide information to evaluate potential pilot sequestration projects in the Southwest.

PARTNERS

Advanced Resources International

Arizona Geological Survey

Arizona State University

Burlington Resources, San Juan Division

Center for Energy & Economic Development

ChevronTexaco Energy Research and Technology Company

ChevronTexaco Permian Business Unit

Colorado Geological Survey

ConocoPhillips

Dine College, Shiprock Campus

GTI

Intermountain Power Agency

Interstate Oil and Gas Compact Commission (IOGCC)

Kansas Geological Survey

Kinder Morgan CO_2

Los Alamos National Laboratory

Marathon Oil Company

McNeill Technologies

Merchant Consulting

Navajo Nation

Nevada Bureau of Mines & Geology

New Mexico Bureau of Geology

New Mexico Energy, Minerals, and Natural Resources Department

New Mexico Institute of Mining and Technology

New Mexico Oil Conservation Division

New Mexico State University

New Mexico State University, WERC

New Mexico Oil and Gas Association

Oklahoma Gas and Electric

Oklahoma Geological Survey

Oklahoma State University

Oxy Permian Ltd.

PacifiCorp

PNM, Public Service Co. of New Mexico

Sandia National Laboratory

Texas A&M University (Texas A&M)

Texas Bureau of Economic Geology - UT

Tucson Electric Power Company

U.S. Department of Agriculture

University of Oklahoma

University of Utah

Utah ARGC

Utah Division of Air Quality

Utah Energy Office

Utah Geological Survey

Utah State University

Western Governors Association

Wyoming State Geological Survey

Yates Petroleum Corporation

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

07/2005

WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP

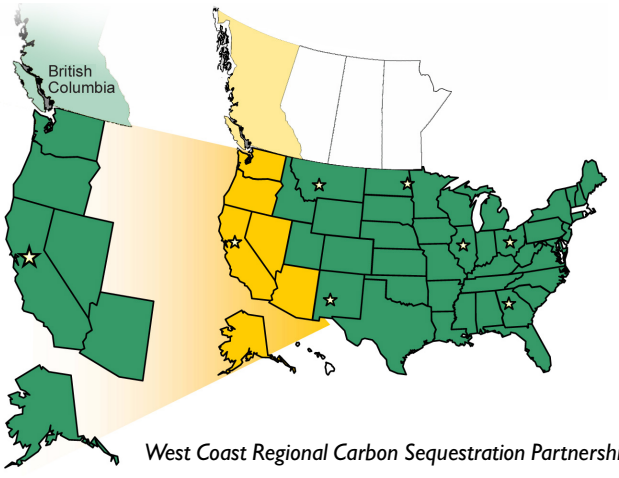
Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.

Description

The West Coast Regional Carbon Sequestration Partnership (WestCarb), led by the California Energy Commission, Sacramento, CA, plans to identify, characterize, and locate CO_2 emission sources in the region and determine capture and long-term sequestration methods by enlisting the help of numerous federal, state, and local government agencies and industry sources. WestCarb is comprised of representatives from universities, national labs, nonprofit organizations, technology vendors, oil and gas companies, and policy oriented organizations from Alaska, Arizona, California, Nevada, Oregon, Washington and the Canadian Province of British Columbia.



West Coast Regional Carbon Sequestration Partnership - (Region 5)

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COST

Length of Contract
24 Months

Total Project Value
$3,550,912

DOE/Non-DOE Share
$1,600,000/1,950,912

The West Coast Region accounts for more than 11% of the nation's CO_2 emissions, with the bulk of these being from California. Total CO_2 emissions from the industrial and utility sectors, which have point sources that are most amenable to capture, are about 56 million tons of carbon equivalent per year. The region offers significant potential for sequestration in porous sediments, especially the brine formations of the Central Valley. Of particular interest is the use of CO_2 for enhanced oil recovery. The West Coast Region has a wealth of forest and agricultural lands, where improved management practices could also sequester substantial quantities of carbon. Technology discussions, regional meetings and joint research will be used to maintain an open dialogue with stakeholders so that a regional strategy for terrestrial and geologic carbon sequestration projects that meet the area's near- and long-term needs can be developed. Demonstration projects will be identified, and plans for their effective implementation will be developed.

Primary Project Goal

The overall goal of this project is to identify the most cost effective, technically feasible, and publicly acceptable options for terrestrial and geologic carbon sequestration in the region.

Objectives

- To develop a geographic information system (GIS) database for characterizing the sources, the potential sinks, and the transportation infrastructure for CO_2 in the region.
- To evaluate region-specific issues affecting technology deployment.
- To implement local and regional public outreach programs.
- To identify optimal demonstration opportunities for geologic and terrestrial sequestration in the region.

Benefits

This project will benefit the U.S. by providing a comprehensive assessment of the sources and potential sinks for CO_2 in the West Coast Region. This data can be integrated with the data from other partnerships to provide a data base covering the entire nation. This effort will also provide information to evaluate potential pilot sequestration projects in the West Coast Region. The project will promote cooperation among stakeholders and ensure public acceptance of CO_2 sequestration, should that become necessary.

PARTNERS

Advanced Resources International
Aera
American Petroleum Institute
Automated Geographic Reference Center
B C Ministry of Energy and Mines
BKI
British Petroleum
California Climate Registry
California Department of Forestry and Fire Protection
California Department of Oil Gas and Geothermal Resources
California Energy Commission
California Geologic Survey
California Polytechnic Institute
California State University at Bakersfield
Cement Industry Environmental Consortium
ChevronTexaco
Clean Energy Systems, Inc.
ConocoPhillips
CSU, School of Natural Sciences & Mathematics
Dept. Env., City and County of San Francisco
Electric Innovation Institute
EPA-California
Golder Associates
Greenwood Enterprises
Kinder Morgan CO2
Lawrence Berkeley National Laboratory
Lawrence Livermore National Laboratory
M.Theo Kearney Foundation of Soil Science
Massachusetts Institute of Technology (MIT)
National Council for Air and Stream Improvement
Nevada Bureau of Mines and Geology
Nexant Inc.
Occidental Petroleum
Oregon Department of Forestry
Pacific Forest Trust
PacifiCorp
Region 9 EPA
Salt River Project
San Francisco Department of the Environment
Science Strategies
SFA Pacific
Shell
Sierra Pacific Resources
Stanford Global Climate Energy Project
Terralog Technologies
TransAlta
University of Alaska Fairbanks
Washington State Department of Natural Resources
Western Interstate Energy Board
Western States Petroleum Association (WSPA)
Winrock International

Project252.pmd

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

07/2005

BIG SKY CARBON SEQUESTRATION PARTNERSHIP

Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.

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PARTNERS

Boise State University

EnTech Strategies, LLC / New Directions

Environmental Financial Products

Idaho Carbon Sequestration Advisory Committee / ID Soil Conservation Commission

Idaho National Engineering and Environmental Laboratory

Inland Northwest Research Alliance

Jackson Hole Center for Global Affairs

Los Alamos National Laboratory

Montana Bureau of Mines and Technology

Montana Department of Environmental Quality

Montana GIS Services Bureau Information Technology Services

Montana Governor's Carbon Sequestration Working Group

Montana Natural Resource Information System-Montana State Library

Montana State University - Bozeman

Description

The Big Sky Carbon Sequestration Partnership (Big Sky), led by Montana State University, Bozeman, MT, will identify and catalogue CO_2 sources and promising geologic and terrestrial storage sites, develop a risk assessment and decision support framework to optimize the area's carbon storage portfolio, enhance market-based carbon storage methods, identify advanced greenhouse gas measurement technologies to improve verification, support voluntary trading and stimulate economic development, call upon community leaders to define carbon-sequestration strategies, and sponsor forums that involve the public. Idaho, Montana, eastern Oregon, South Dakota, eastern Washington, and Wyoming are served by this partnership that is comprised of 30 organizations, including the Confederated Salish and Kootenai Tribes and the Nez Perce Tribe.

The region has both industrial and agricultural greenhouse gas (CO_2, methane, and nitrous oxide) emissions from three major sources: fossil fuel power plants, industrial plants, including metals processing, chemical plants, and ethanol production facilities, and agricultural operations, principally feedlots.

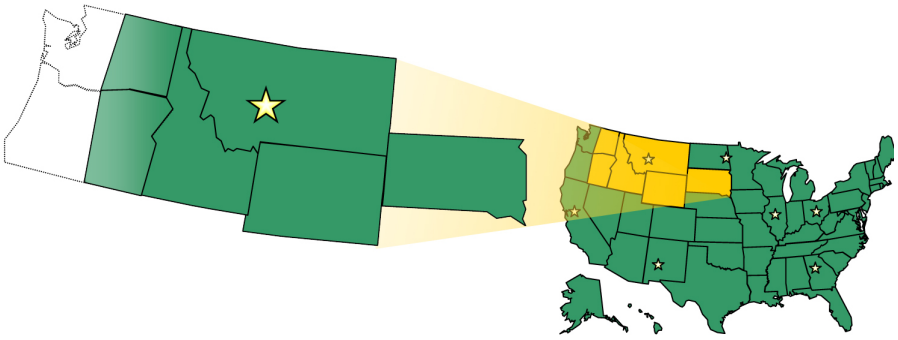
The region encompassed by the partnership includes three major geological terrains with high geologic sequestration potential: the Snake River Plain, the Williston Basin, and the Powder River and Associated Basins. The region contains large forested areas that have great potential to sequester carbon. Cropland and rangeland comprise a sizeable portion of the region and also possess considerable potential for carbon sequestration through improved land management practices. There are a number of abandoned mine sites that have the potential to be reclaimed/ reforested to maximize carbon storage.

Primary Project Goal

The overall goal of this project is to identify the most cost effective, technically feasible, and publicly acceptable options for geologic and terrestrial carbon sequestration in the region. The goal in both sequestration options is to optimize the region's carbon storage portfolio, and to improve understanding of geological terrains and ecosystems to assess their long-term potential and effectiveness for storing carbon.

Objectives

- To identify and catalogue sources of CO_2 and promising geologic and terrestrial storage sites.
- To develop a risk assessment and decision support framework to optimize the region's carbon storage portfolio.
- To enhance market based, voluntary approaches to carbon storage.
- To identify and apply advanced greenhouse gas measurement technologies to improve verification protocols, support voluntary trading, and stimulate economic development.
- To engage community leaders to define carbon sequestration implementation strategies.
- To sponsor forums to inform stakeholders and secure input from the public.



Big Sky Regional Carbon Sequestration Partnership - (Region 6)

PARTNERS (cont.)

National Carbon Offset Coalition

Nez Perce Tribe

Pacific Northwest National Lab (PNNL)

Puget Sound Energy (PSE)

South Dakota School of Mines and Technology

Texas A&M University (Texas A&M)

The Confederated Salish and Kootenai Tribes

The Sampson Group

U of Wyoming Geographic Information Science Center

U of Wyoming Institute for Energy Research

U of Wyoming Ruckelshaus Institute for Environment & Natural Resources

Unifield Engineering, Inc.

University of Idaho

Western Governors' Association

Wyoming Carbon Sequestration Advisory Committee / U of Wyoming

Wyoming Department of Environmental Quality

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COST

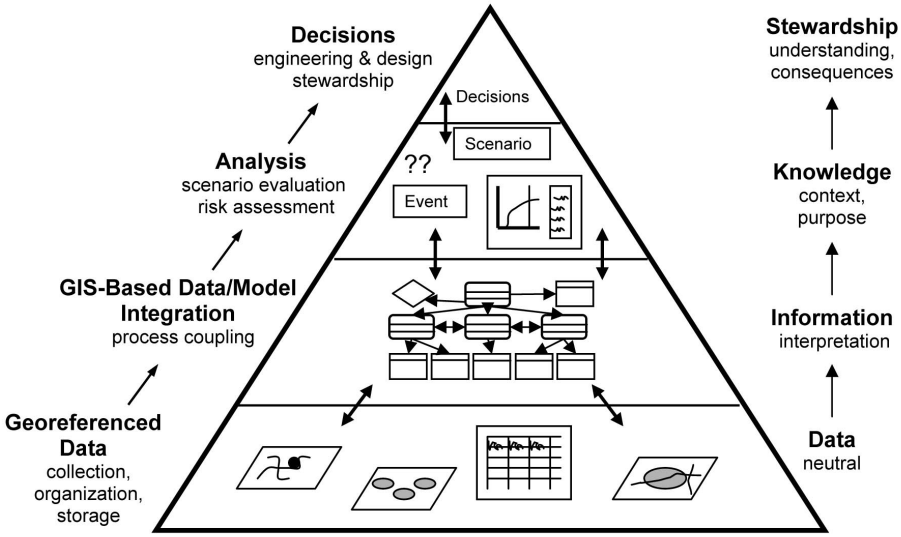
Length of Contract
24 Months

Total Project Value
$2,074,996

DOE/Non-DOE Share
$1,651,886/$423,110

Benefits

This project will benefit the U.S. by providing a comprehensive assessment of the sources and potential sinks for CO_2 in the Northern Rockies and Great Plains Region. This data can be integrated with the data from other partnerships to provide a database covering the entire nation. This effort will also provide information to evaluate potential pilot sequestration projects in the Northern Rockies and Great Plains Region. The project will promote cooperation among stakeholders and help ensure public acceptance of CO_2 sequestration, should that become necessary.



Project267.pmd

PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Sequestration

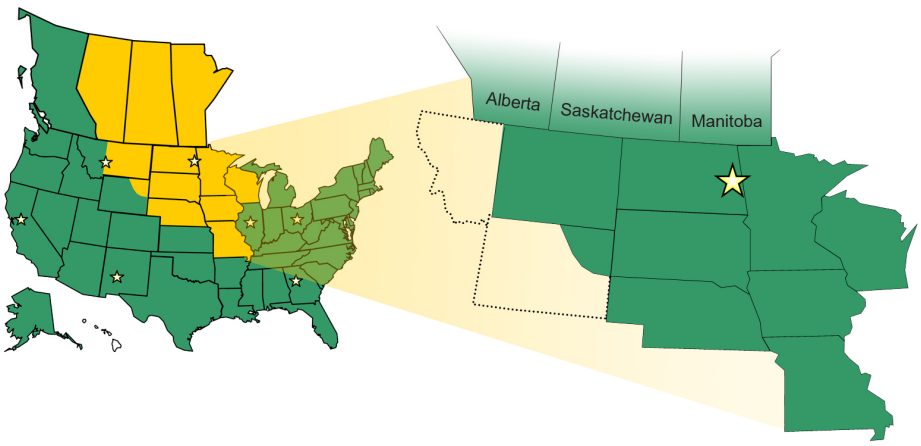
06/2005

PLAINS CO_2 REDUCTION PARTNERSHIP

Background

The U.S. Department of Energy has designated seven partnerships of state agencies, universities, and private companies that will form the core of a nationwide network that will help determine the best approaches for capturing and permanently storing gases that can contribute to global climate change. All together, the partnerships include more than 244 organizations, spanning 40 states, three Indian nations, and four Canadian provinces.

The seven partnerships will develop the framework needed to validate and potentially deploy carbon sequestration technologies. They will evaluate and determine which of the numerous sequestration approaches that have emerged in the last few years are best suited for their specific regions of the country. They will also begin studying possible regulations and infrastructure requirements that would be needed should climate science indicate that sequestration be deployed on a wide scale in the future.



Plains CO_2 Reduction Partnership - (Region 7)

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PARTNERS

Alberta Department of Environment

Alberta Energy & Utilities Board

Alberta Energy Research Institute

Amerada Hess Corporation

Basin Electric Power Cooperative

Bechtel Corporation, Nexant

Center for Energy & Economic Development

Chicago Climate Exchange

Dakota Gasification Company

Ducks Unlimited Canada

Eagle Operating, Inc.

Encore Acquisition Company

Environment Canada

Excelsior Energy Inc.

Fischer Oil and Gas, Inc.

Great Northern Power Development

Great River Energy

Interstate Oil and Gas Compact Commission (IOGCC)

Kiewit Mining Group

Lignite Energy Council

Manitoba Hydro

Minnesota Pollution Control Agency

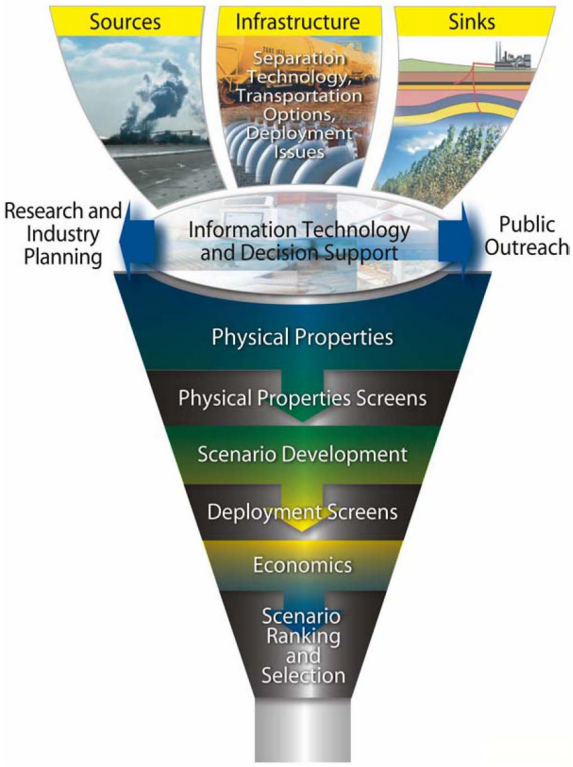
Minnkota Power Cooperative, Inc.

Montana Department of Environmental Quality

Description

The Plains CO_2 Reduction (PCOR) Partnership, led by the Energy & Environmental Research Center (EERC) at the University of North Dakota, Grand Forks, ND, proposes a three-step approach that involves characterizing technical issues and the public's understanding regarding all aspects of CO_2 sequestration, identifying regional opportunities for sequestration, and detailing action plans to be carried out in Phase II of the Carbon Sequestration Regional Partnership solicitation. The region, which includes North and South Dakota, Minnesota, Wisconsin, Iowa, Missouri, Nebraska and portions of Montana, Wyoming, Saskatchewan, Manitoba, and Alberta, was chosen based on a similarity in large stationary CO_2 sources and geologic and terrestrial CO_2 sinks, transport considerations for direct CO_2 sequestration, and the presence of two major anthropogenic CO_2 enhanced oil recovery projects.

The region generates a little less than 5% of U.S. CO_2 emissions from 29 coal-fired utilities, 27 ethanol-production facilities, and the Dakota Gasification facility, which together account for about half of the region's CO_2 emissions. The region includes the Williston and Powder River basins. These basins have active or planned sequestration projects related to value added conventional oil or coal bed methane production, as well as recognized potential for sequestration in deep aquifers, depleted hydrocarbon production units, and unminable coal seams. The semiarid, rolling grasslands of the plains dominate the Western portion of the region. They are currently used for grazing and growing small grains. Together with the forested landscape of the Northeast and North, they offer opportunities for testing and verification of soil and vegetative terrestrial CO_2 sequestration technologies.



The PCOR Partnership will be utilizing a screen and funnel approach to determine the best opportunities for carbon sequestration in the region.

Primary Project Goal

The goal of this project is to develop and implement a partnership in the Northern Great Plains region that can identify cost effective CO_2 sequestration systems for the region and then facilitate and manage the testing of these technologies.

Objectives

- To assess CO_2 sources, sinks, technologies for CO_2 separation, and transportation options within the region.
- To evaluate options and potential opportunities for regional CO_2 sequestration.
- To develop action plans for the implementation of small-scale validation testing of the most promising technologies.
- To promote the implementation of technology for the capture, transport, and storage of anthropogenic fossil fuel combustion CO_2 emissions.
- To raise public awareness regarding carbon sequestration issues and to obtain public input.

The PCOR Partnership had its kickoff meeting on December 11 and 12, 2003.The PCOR Partnership currently has 42 active partners from a broad range of industry, academia, research organizations, federal institutions, and non-governmental organizations.

PARTNERS (cont.)

Montana Public Service Commision

Montana–Dakota Utilities Co

Natural Resources Trust

North Dakota Department of Health

North Dakota Geological Survey

North Dakota Industrial Commission Oil and Gas Division

North Dakota Petroleum Council

North Dakota State University

Otter Tail Power Company

Petroleum Technology Research Center

Petroleum Technology Transfer Council

Prairie Public Television

Sask Power

Saskatchewan Industry and Resources

Tesoro Refinery

U.S. Geological Survey-Northern Prairie Wildlife Research Center

Univ. North Dakota-Energy & Environmental Research Center (EERC)

University of Regina

Western Governors Association

Xcel Energy

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COST

Length of Contract
24 Months

Total Project Value
$3,118,227

DOE/Non-DOE Share
$2,455,164/$663,063

Benefits

Sequestration is one option to reduce CO_2 emissions and this project will benefit the U.S. by providing a comprehensive assessment of the sources and potential sinks for CO_2 in the Northern Great Plains Region. This data can be integrated with the data from other partnerships to provide a data base covering the entire nation. This effort will also provide information to evaluate potential pilot sequestration projects in the Northern Great Plains Region. The project will promote cooperation among stake holders and help ensure an informed public should CO_2 sequestration become an option. Analysis of existing EOR projects in the region will also provide valuable data to increase understanding of this option for CO_2 sequestration.

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