

# PROJECT facts

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



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## MIDCONTINENT INTERACTIVE DIGITAL CARBON ATLAS AND RELATIONAL DATABASE (MIDCARB)

### Background

Current federal energy policy assumes that fossil fuels will continue to be the primary source of energy for the United States and the world well into the 21st century. However, there is growing concern about the possible role of increasing atmospheric concentration of carbon dioxide (CO<sub>2</sub>) on climate change. For this reason, it may become necessary to manage anthropogenic CO<sub>2</sub> emissions. Sequestering CO<sub>2</sub> in geological reservoirs may be one way to safely store carbon over long periods of time, if the proper data and tools to analyze the geological feasibility as well as the associated costs can be developed.

The Midcontinent Interactive Digital Carbon Atlas and Relational DataBase (MIDCARB) is a joint project between the State Geological Surveys of Illinois, Indiana, Kansas, Kentucky, and Ohio, with funding from the Department of Energy's National Energy Technology Laboratory. The purpose of MIDCARB is to enable the evaluation of carbon sequestration potential in these sponsoring states. When completed, the digital spatial database will allow users to estimate the amount of CO<sub>2</sub> emitted by sources (such as power plants, refineries and other fossil fuel consuming industries) in relation to geologic reservoirs that can provide safe, secure sequestration sites over long periods. MIDCARB is organizing and enhancing the critical information about CO<sub>2</sub> sources and developing the technology needed to access, query, model, analyze, display, and distribute natural-resource data related to carbon management.

Large stationary sources of CO<sub>2</sub> emissions are identified, located, and characterized. Potential CO<sub>2</sub> sequestration sites, including producing and depleted oil and gas fields, unconventional oil and gas reservoirs, uneconomic coal seams, and saline aquifers, will be characterized to determine quality, size, and geologic integrity. All information will be available online through user query and will be provided through a single interface that will access multiple servers in each state. The approach is one of the first demonstrations of a large scale distributed natural resource databases and geological information. Access to the up-to-date technical information can be used at the regional and national level as a tool to minimize the negative economic impact and maximize the possible value of the CO<sub>2</sub> sequestration to hydrocarbon recovery from oil and gas fields, coal beds, and organic-rich shales.

# MIDCONTINENT INTERACTIVE DIGITAL CARBON ATLAS AND RELATIONAL DATABASE (MIDCARB)

## Primary Project Goal

The goal of the proposed project is to improve the relational database management system with spatial query capabilities to evaluate the geographic distribution, physical characteristics, and economic parameters of potential CO<sub>2</sub> sources and geologic sequestration sites. Potential geologic sequestration sites include oil and gas fields, coal beds, unconventional oil and gas reservoirs, and saline aquifers.

## Objectives

- Develop improved online tools to provide real-time display and analyze CO<sub>2</sub> sequestration data.
- Enhance the current webpage by making it more user friendly, design a more advanced query, and provide more options.
- Increase the server strength and efficiency.
- Add reservoir volumetric parameters and more and structural map information.

## Accomplishments

MIDCARB map server is active and currently running on the internet. The MIDCARB interactive site can be utilized by accessing the following web address: <http://www.midcarb.org>

## Benefits

The MIDCARB project will benefit the power industry by providing improved online tools for the real-time display and analysis of CO<sub>2</sub> sequestration data. The system links together data from sources, sinks and transportation within a spatial database that can be queried online. MIDCARB can assist decision makers by providing access to common sets of high quality data in a consistent manner.

## PROJECT PARTNERS

University of Kansas Center for Research

The US Geological Survey

## COST

Total Project Value: \$3,307,515  
DOE: \$2,436,690  
Non-DOE Share: \$ 870,825



Screen shot of the MIDCARB interactive map program.  
Source: <http://www.midcarb.org>