

The Plains CO₂ Reduction (PCOR) Partnership: Phase II And III Activities

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Abstract

Since its inception in 2003, the PCOR Partnership has brought together over 85 public and private sector groups working to lay the groundwork for practical and environmentally sound CO₂ sequestration in the heartland of North America. Covering a region of nine states and four Canadian provinces, the PCOR Partnership is one of seven regional partnerships in the U.S. Department of Energy's (DOE's) Regional Carbon Sequestration Partnership Initiative. The program partners contribute time, resources, and expertise in an effort to determine the best solutions to the safe, effective, and efficient management of CO₂ emissions.

The PCOR Partnership region contains vast energy, agricultural, forest, and water resources and offers significant opportunities for both geologic and terrestrial sequestration. Three geologic field validation tests and one terrestrial test are now under way in Phase II. Each test explores a unique aspect of CO₂ sequestration including enhanced oil recovery using a mixture of CO₂ and H₂S, utilization of low-grade lignite coals for enhanced gas production and sequestration, and the evaluation of land management practices to increase CO₂ uptake by plants and wetlands characteristic of the northern Great Plains.

Future activities include two large-scale geologic field demonstration tests that will apply the lessons learned in earlier phases of the program to projects that use greater than 500,000 tons of CO₂ a year. One of these demonstrations will inject a stream of acid gas from a gas-processing plant into a carbonate reservoir at a depth of approximately 4000 feet below the surface. This project will provide insight into the regulatory, injection, monitoring, and verification aspects of a commercial venture on this scale. The second project will evaluate a deep oil reservoir (greater than 8000 feet below the surface) for enhanced oil recovery techniques with the added benefit of CO₂ sequestration.