

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

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Abstract

The PCOR Partnership is one of the Regional CO₂ Sequestration Partnerships established by the U.S. Department of Energy National Energy Technology Laboratory (NETL). The PCOR Partnership, since its inception in 2003, has brought together more than 90 partners representing public agencies, utilities, oil and gas companies, engineering firms, associations and nonprofit organizations, and universities. The PCOR Partnership covers an area of over 1.4 million square miles in the central interior of North America, including all or part of nine states and four Canadian provinces. The 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 (2005–2009). Apache Canada Limited is hosting a combined enhanced oil recovery (EOR)/sequestration activity that is injecting acid gas (approximately 70% CO₂ and 30% H₂S) from the Zama, Alberta, gas plant for use as a miscible flood agent. An EOR project in the Williston Basin is being designed to demonstrate the potential of using CO₂ in a tertiary oil recovery operation at depths of over 10,000 feet. The potential for CO₂ sequestration and enhanced coalbed methane in Williston Basin (Burke County, North Dakota) lignite is also being investigated in a five-spot test that was drilled in the spring of 2007. The terrestrial field validation test (McPherson County, South Dakota) is under way to develop carbon offsets from alternate management of wetlands in the Prairie Pothole Region in partnership with Ducks Unlimited Incorporated.

The 10-year Phase III Program of the PCOR Partnership, initiated in the fall of 2007, features two commercial-scale demonstrations of geologic sequestration of CO₂ from human activities. These two demonstrations, the Western Canada Basin Demonstration in northeastern British Columbia in western Canada and the Williston Basin Demonstration in western North Dakota in the west-central United States, are designed to sequester a total of over 20 million tons of CO₂ by 2017 in deep, well-characterized, underground storage reservoirs.