

## **THE PLAINS CO<sub>2</sub> REDUCTION (PCOR) PARTNERSHIP: DEVELOPING CARBON MANAGEMENT OPTIONS FOR THE CENTRAL INTERIOR OF NORTH AMERICA**

Edward Steadman (esteadman@undeerc.org), John Harju (jharju@undeerc.org), Dan Daly (ddaly@undeerc.org), Charles Gorecki (cgorecki@undeerc.org), Melanie Jensen (mjensen@undeerc.org), Wes Peck (wpeck@undeerc.org), Steve Smith (ssmith@undeerc.org), and Jim Sorensen (jsorensen@undeerc.org)

Energy & Environmental Research Center  
15 North 23rd Street, Stop 9018  
Grand Forks, ND 58202-9018  
(701) 777-5000

The Plains CO<sub>2</sub> Reduction (PCOR) Partnership is one of seven regional partnerships established by the U.S. Department of Energy National Energy Technology Laboratory to assess and develop carbon sequestration opportunities. The PCOR Partnership covers an area of over 1.4 million square miles in the central interior of North America and includes all or part of nine states and four Canadian provinces. The PCOR Partnership is characterizing the region's stationary CO<sub>2</sub> sources and sinks and evaluating the efficacy of CO<sub>2</sub> capture and storage (CCS) in our region by providing outreach and support for carbon management activities for our numerous partners and conducting commercially relevant demonstrations.

The PCOR Partnership has completed four field validation tests thus far: 1) Apache Canada Limited hosted a combined enhanced oil recovery (EOR)/sequestration activity that injected acid gas (approximately 70% CO<sub>2</sub> and 30% H<sub>2</sub>S) into a pinnacle reef structure from its Zama, Alberta, gas plant for use as a miscible flood agent; 2) a huff 'n' puff EOR project in the Williston Basin demonstrated the potential of using CO<sub>2</sub> in a tertiary oil recovery operation in a carbonate formation at depths of approximately 8000 feet; 3) the CO<sub>2</sub> sequestration and enhanced coalbed methane potential in a Williston Basin lignite was investigated; and 4) a terrestrial field validation test developed carbon offsets from the use of alternative land management of wetlands in the Prairie Pothole Region.

The PCOR Partnership is now teaming with industrial partners to conduct two commercial-scale (greater than 1 million tons per year) CCS demonstrations in the region. One of the large-scale tests will demonstrate CO<sub>2</sub> storage in a saline formation, while the other will be a combined CCS and EOR demonstration. The sources of CO<sub>2</sub> in both demonstrations are natural gas-processing facilities. The commercial-scale demonstration tests are designed to establish the technical and economic efficacy of CCS in the region, and injections are planned to begin in 2012 for both projects.

Key words: sequestration, Williston Basin, CCS, demonstration, EOR