

THE PLAINS CO₂ REDUCTION PARTNERSHIP: DEMONSTRATING THE GEOLOGIC STORAGE OF CARBON DIOXIDE

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ABSTRACT

The Plains CO₂ Reduction (PCOR) Partnership is one of seven regional partnerships awarded in 2003 by the U.S. Department of Energy's National Energy Technology Laboratory to determine the best methods and technologies to safely and permanently demonstrate the geologic storage of CO₂. The PCOR Partnership region covers an area of over 1.4 million square miles in the central interior of North America, and includes all or part of nine U.S. states and four Canadian provinces.

Several efforts by the PCOR Partnership have been completed to date, including a best practices manual for a injecting 2 million tonnes of CO₂ per year into a saline formation [1, 2]; a regional technology implementation plan for a combined acid gas enhanced oil recovery (EOR) and CO₂ storage project [3]; and a binational effort between the United States and Canada to characterize the lowermost saline system in the Williston and Alberta Basins [4]. Ongoing efforts include the Bell Creek and Aquistore projects.

The Aquistore project is a carbon capture, utilization, and storage (CCUS) project managed by the Petroleum Technology Research Centre (PTRC). Aquistore will serve as buffer storage for CO₂ from the SaskPower Boundary Dam CCUS project, the world's first commercial-scale postcombustion CCUS project from a coal-fired electricity generating facility. The PCOR Partnership is working with PTRC on site characterization; risk assessment; public outreach; and monitoring, verification, and accounting (MVA) activities at the Aquistore site [5, 6].

The PCOR Partnership is working with Denbury to study CO₂ storage associated with commercial CO₂ EOR at the Bell Creek oil field. Denbury is carrying out injection and production operations, with the EERC providing support for site characterization, modeling and simulation, integrated risk assessment, and MVA of the injected CO₂ [7, 8]. Injection operations began at the Bell Creek Field in May 2013, and as of November 30, 2014, 1.60 million tonnes of CO₂ had been injected, with 1.51 million tonnes stored.

The PCOR Partnership also continues to provide widespread carbon capture and storage outreach and education, aid in regulatory development, and regional characterization efforts [9]. Paramount to PCOR Partnership activities is knowledge-sharing focused on effective techniques for implementing large-scale CO₂ storage projects. Discussion will include lessons learned and

successful strategies during the feasibility, design, and/or implementation of PCOR Partnership projects.

References

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