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Abstract Submission

THE PLAINS CO_2 REDUCTION (PCOR) PARTNERSHIP GEOLOGIC CO_2 SEQUESTRATION APPROACH – DEMONSTRATING THE TECHNICAL AND COMMERCIAL VIABILITY OF THIS EMERGING TECHNOLOGY

TOPIC: Global Climate Change: Science, Sequestration, and Utilization

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Abstract:

The Plains CO_2 Reduction (PCOR) Partnership is one of seven regional partnerships established by the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) to assess carbon sequestration opportunities that exist nationwide. 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 central interior of North America contains several seismically stable intracratonic geologic basins that are ideal sinks for geologic CO_2 sequestration. These basins have been well characterized because of commercial oil and gas activities. The geologic characteristics of the oil and gas reservoirs offer significant opportunities for developing the expertise and infrastructure required to make geologic CO_2 sequestration a commercial reality while maintaining and even enhancing the regional economy.

The coal-fired electrical utilities in the region produce over 60% of the CO_2 emissions from stationary sources. With the distinct possibility of carbon management becoming more important in the future, industries that rely on fossil fuels are looking towards CO_2 sequestration as a strategy for carbon management. Further, many of the region's oil fields could develop CO_2-based enhanced oil recovery (EOR) projects with increased availability of CO_2. These situations make the PCOR Partnership region a prime area for CO_2 sequestration demonstrations and projects. PCOR Partnership activities include four CO_2 sequestration field tests. Three of the tests combine sequestration and enhanced resource recovery, while an additional test is based on terrestrial sequestration. All of the tests are aimed at monetizing carbon credits and developing long-term industrial projects.

The PCOR Partnership has developed a regional vision for the widespread commercial development of CO_2 sequestration. The vision includes several key elements: 1) targeting tertiary EOR opportunities, 2) employing the existing oil and gas regulatory structure and agencies for oversight, 3) developing a protocol for the establishment of geologic sequestration units (GSUs) that is based on the standard oil-field practice of unitization, 4) developing rigorous site selection criteria that will allow for the adoption of commercially viable measuring, monitoring, and verification (MMV) procedures, and 5) coordination of MMV procedures with oil and gas sampling requirements already in place, wherever possible. This strategy will first allow for the development of EOR-based opportunities, to be followed by nonresource recovery-based sequestration when the EOR opportunities have been exhausted.