

Carbon Management Options for the Energy Industry

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ABSTRACT

H₂ will not add carbon to the atmosphere if produced from carbon-free primary energy (i.e., renewables or nuclear); however, H₂ from fossil fuels is less expensive than from renewable or nuclear energy and is likely to be so for the foreseeable future. Therefore, to prevent increasing atmospheric greenhouse gas levels, carbon management should be addressed when considering H₂ production. Carbon capture and storage (CCS) is the technology that enables fossil fuel-based processing facilities to control carbon emissions.

Identification and examination of the critical engineering, geologic, and geographic factors must be considered with respect to the potential application of CCS from large industrial point sources of CO₂ in a specified area. A carbon management plan provides an assessment of carbon management options for existing and planned industrial facilities.

The Plains CO₂ Reduction (PCOR) Partnership is demonstrating the efficacy of CCS in the north-central interior 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 Regional Carbon Sequestration Partnership Program 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 has developed several carbon management plans for industrial partners. Based on this experience, an overview of CCS and carbon management planning in the context of hydrogen processing from fossil fuels is presented herein.