

Overview of the Fort Nelson CCS Project

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The Plains CO₂ Reduction (PCOR) Partnership, led by the Energy & Environmental Research Center (EERC), and Spectra Energy Transmission (SET) are investigating the feasibility of a carbon capture and storage (CCS) project to mitigate carbon dioxide (CO₂) emissions produced by SET's Fort Nelson Gas Plant (FNGP), British Columbia, Canada. The gas stream produced by FNGP will include up to 5% hydrogen sulfide (H₂S) and, therefore, is referred to as "sour" CO₂. The proposed injection target is a carbonate formation at a depth of approximately 2200 meters, with thick overlying shales serving as seals. The Fort Nelson CCS project provides a unique opportunity to develop a set of cost-effective, risk-based monitoring, verification, and accounting (MVA) protocols for injection of at least 1 million metric tons of sour CO₂ a year. The results of the Fort Nelson activities will provide insight regarding 1) the behavior of sour CO₂ in a carbonate reservoir, 2) the effects of large-scale sour CO₂ injection and storage on wellbore integrity, and 3) the effectiveness of selected MVA techniques. Results suggest that the geology in the vicinity of FNGP is amenable to large-scale geologic storage of CO₂. However, additional work must be done to confirm the integrity and capacity of the proposed storage reservoir. An iterative update process including site characterization, modeling and simulation, risk assessment, and MVA, is being conducted to ensure regulatory compliance and project safety.