

Carbon Dioxide Geosequestration in British Columbia

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The Flow of Business; Stakeholders in the Business

Carbon dioxide (CO₂) geosequestration is the long term, secure storage of this greenhouse gas in geological formations as a means of reducing emissions into the atmosphere. The burning of fossil fuels and the resulting release of CO₂ is unlikely to disappear completely in the near term. CO₂ geosequestration offers an available solution to significantly reduce these emissions and compliment the development/deployment of more permanent control strategies such as improved energy efficiency, conservation, and use of renewable/alternative energy sources. The technology for geosequestration is well established and similar to that utilized throughout western Canada for acid gas (H₂S + CO₂) injection and CO₂ enhanced oil recovery.

Within British Columbia, CO₂ geosequestration is presently viable in the northeast portion of the province. Here, there are large stationary sources of CO₂ (gas processing plants) in close proximity to potential disposal sites (well bores) with ample storage capacity. The best storage options are injection into depleted gas reservoirs and deep saltwater-filled aquifers. These storage reservoirs are stratigraphically isolated by areally extensive, thick, highly competent aquitards to secure the CO₂ plume. Northeast British Columbia is tectonically relatively stable and the geological setting is well known because of the number of wells drilled, amount of seismic data acquired, and wealth of published geo-technical studies. There is abundant infrastructure, expertise and technology in place to support the active acid gas injection operations.

The depleted gas reservoirs alone are capable of sequestering approximately 1,900 Mt of CO₂ (Bachu, 2006). This is sufficient capacity to accommodate British Columbia's emissions for the next century. Even greater volume is available in saline aquifers and previously abandoned gas pools. There is reasonable geographic distribution of potential storage sites across the northeast. British Columbia currently has strict regulations governing the disposal of acid gas which may form the basis for future modifications as necessary for large-scale CO₂ sequestration operations.

References

Bachu, S., 2006: The Potential for Geological Storage of Carbon Dioxide in Northeastern British Columbia, Report to the B.C. Ministry of Energy, Mines, and Petroleum Resources, 71 p.