

Geologic Sink – Saline Aquifers



Tags

Geologic Storage of CO₂, Carbon capture and storage, geologic sink, formation, saline aquifers

Summary

The Big Sky Carbon Sequestration Partnership is responsible for evaluating the sequestration potential of geologic reservoirs within Idaho, Montana, Wyoming, and South Dakota. The purpose of this data is to provide an assessment of the geologic sequestration potential within the states of Montana and Wyoming.

Description

Environmental concern for the atmospheric concentrations of carbon dioxide and its contribution as a greenhouse gas has provided a need for the assessment of carbon sequestration opportunities. Geologic carbon sequestration has been identified as means of sequestering carbon dioxide in geologic formations for long periods of time. Potential geologic reservoirs include oil and gas reservoirs, saline aquifers, and deep unmineable coal beds. Sequestration of carbon dioxide is accomplished through hydrodynamic trapping, solubility trapping, mineralization, or adsorption.

The carbon sequestration potential for Montana and Wyoming were assessed by evaluating the carbon sequestration capacity of oil and gas reservoirs, saline aquifers, and deep unminable coal beds. Available data were collected to a Geographic Information System (GIS) database for a geospatial assessment. Geothermal and hydrostatic gradients were used to calculate the density and solubility of carbon dioxide within each of the assessed reservoirs to determine the mass of carbon dioxide that could be sequestered. Carbon sequestration capacities were represented on maps to show each reservoirs capacity relative to depth and geospatial boundaries. The mapped carbon sequestration capacities were evaluated with the collected reservoir data to classify each reservoir. Reservoirs which demonstrated the greatest potential for use for carbon sequestration were classified as being favorable or most favorable. The sequestration capacity of favorable and most favorable formations is 1,300,000 Million Metric Tons (MMT).

The regional assessment represents a significant potential for carbon sequestration capacity within Montana and Wyoming. The sequestration of 1,300,000 MMT of carbon dioxide is equivalent to containment of the United States carbon dioxide emissions for the next 200 years.

Credits

Big Sky Carbon Sequestration Partnership - U.S. Department of Energy - National Energy Technology Laboratory

Access and use limitations

This data was collected and analyzed by the BSCSP for the purpose of CO₂ sink capacity inventory and to gain a national perspective on geologic storage of carbon dioxide in the United States. This data is updated irregularly. This data should only be used to show the location and estimated magnitude of geologic storage within oil and gas plays.

Dates Last updated: September 2010