



Energy geoscience at the Geological Survey of Canada – contributing to Canada’s net-zero emission objectives.

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Summary

The Geological Survey of Canada (GSC), a branch of Natural Resources Canada’s Lands and Minerals Sector, is globally recognized for its leadership in geoscience research and its dedication to serving the public. As the federal science leader in subsurface energy resources, the GSC provides open-access geoscience data that supports sustainable development, fosters innovation, and enables informed decision-making across Canada.

To support Canada’s commitment to achieving net-zero emissions by 2050, the GSC delivers geoscience information through multiple programs. By reducing risks associated with clean energy storage solutions and researching new, clean energy sources, the GSC aims to foster investment and drive Canada’s transition to a sustainable energy future. Energy geoscience at the GSC currently targets four research themes:

- Identifying optimal geological formations for carbon capture and storage (CCS)
- Assessing geothermal energy potential
- Evaluating opportunities for subsurface hydrogen storage
- Mapping Canada’s potential for naturally occurring (geologic) hydrogen

GSC’s projects focus on caprock integrity, advancing reservoir modeling, carbon mineralization, and characterization / monitoring of subsurface reservoirs. The GSC remains committed to expanding and refining knowledge of surface and subsurface geology—a cornerstone of the GSC’s work. These efforts are underpinned by the latest advancements in subsurface understanding by leveraging cutting-edge techniques such as artificial intelligence (AI) and machine learning to enhance the accuracy, efficiency, and scope of project assessments.

GSC energy-related research will be prominently featured at GeoConvention 2025, showcasing advancements in natural hydrogen resources, the role of salt formations in the energy transition, and critical mineral potential in Western Canada. Through its programming, the GSC reaffirms its leadership in geoscience innovation, driving progress toward a cleaner, more sustainable energy future for Canada.