

Underground natural gas storage in the Maritimes

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It would appear that the Sable Island Bank natural gas will come ashore in late 1999 or early 2000 and some of the gas will be available for use in Nova Scotia and New Brunswick while the majority is on its way to markets in the United States. Storage of the gas to allow for daily and seasonal variations in demand becomes essential for local distribution companies (LDCs). The most economical and safest storage is underground in depleted oil and gas reservoirs or in salt caverns located at depths of 12 to 1600 m so as to allow the storage to be operated as a pressure vessel. Similar containers at depths of 300 to 800 m can be used to contain compressed air energy storage (CAES) to provide electrical peaking power.

Nova Scotia and New Brunswick have few hydrocarbon reservoirs that can serve for underground storage but do have numerous Carboniferous salt deposits. Prince Edward

Island has no known reservoirs and few opportunities for salt storage. The ideal salt is thick and at the correct depths, is very pure with a minimum of insolubles that remain behind after dissolution of the salt to create a cavern, has little structural disturbance and is tight, has a low moisture content and low temperature to minimize salt mobility, has no potash mineralization to distort the dissolution process and cavern shape, has fresh water available for dissolution, is in an area where disposal of the brine can go to the ocean directly, and is close to the market to be served.

Nova Scotia and New Brunswick have over 35 known salt deposits in some seven to eight geographical areas. Of these probably less than ten may be suitable to serve as underground storage. Active evaluation of possible sites is known to be occurring in at least four or five locations.