

Coalbed Methane Resource Potential of Canada

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Canada has extensive deposits of coal that are distributed from the Atlantic to the Pacific to the Arctic coasts. These deposits range in rank from lignite to anthracite, and occur in diverse geological settings, ranging from relatively flat-lying seams of Cretaceous to early Tertiary age underlying much of the Western Canada Sedimentary Basin, to complexly faulted and folded deposits of early Cretaceous age within the Foothills and Front Ranges of the Rocky Mountains. Although limited exploration for coalbed methane has been undertaken in Canada since the early 1980's, exploration and production success in several basins in the United States over the past decade, and the recent increase in natural gas prices, has accelerated activity and exploration programs are currently underway in British Columbia, Alberta and Nova Scotia.

The assessment of Canada's in situ coalbed methane resource potential for the Canadian Potential Gas Committee's 2001 report (CGPC 2001) defined a total potential rivaling the magnitude of known conventional gas resources. The uncertainties surrounding these estimates, however, cannot be understated. These uncertainties are related to: 1) the determination of coal seam thickness, depth, gas content and structural configuration for in situ volume estimation and 2) the determination of critical reservoir properties, including permeability, gas saturation and water quality, that define the portion of the in situ resource that can ultimately be recovered. In order to address the uncertainties in Point 1 a "Reliability Factor" was assigned to the in situ estimates for the various coalfields in CGPC 2001, which addresses their geological complexity, the amount of geological data available for volume estimation, and the degree to which these data have been analysed. With the exception of the Alberta Plains, where a comparatively large amount of subsurface data has been analysed, all of the in situ estimates are considered to have a "low" or "very low" reliability factor. With respect to the uncertainty addressed in Point 2, there is nothing that can be said at this time for as at this writing there is no known economic production of coalbed methane in Canada, hence recoverable resources in CGPC 2001 are listed as "unknown". Notwithstanding these uncertainties, however, coalbed methane offers a huge potential non-conventional energy source for Canada, and exploration work that is currently underway by industry, as well as broader studies by governmental organizations, will provide the critical knowledge base that has proven to be essential in developing coalbed methane in the United States and elsewhere.