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*To stabilize the atmospheric concentration of greenhouse gases (GHG), a huge reduction of carbon dioxide (CO (sub 2) ) emissions is required. Although some people believe that this necessitates a considerable reduction in the use of fossil fuels or fuel*

*switching, other options are available that allow the use of fossil fuels and reduce atmospheric emissions of CO (sub 2) . Sequestration of CO (sub 2) from fossil fuel combustion in the subsurface could prevent the CO (sub 2) from reaching the surface for millions of years. Geological sequestration of CO (sub 2) in deep aquifers or in depleted oil and gas reservoirs is a mature technology. Despite the huge quantities of CO (sub 2) that can be sequestered in this way, this approach does not provide any economic benefit. This paper discusses a third option, which consists of injecting CO (sub 2) in deep coal seams to sequester the carbon and enhance the recovery of coalbed methane (CBM). Waste CO (sub 2) from CBM-fueled power plants could be injected into CBM reservoirs to produce more methane (CH (sub 4) ) for the power plant. The 2:1 coal-sorption selectivity for CO (sub 2) over CH (sub 4) supports the feasibility of operating fossil -fueled power plants without atmospheric CO (sub 2) emissions. Other CO (sub 2) sequestration technologies, such as ocean disposal and biofixation, are briefly discussed and the suitability of these approaches is evaluated for use in Alberta, Canada.*

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*There is a natural association of sedimentary basins and fossil fuels. Therefore, we should expect a relation between the sedimentary basin, the exploitation of its fossil fuels, and the resulting greenhouse gas emissions. Carbon dioxide is the dominant greenhouse gas resulting from the burning of fossil fuels, and it comprises more than half of all man-made greenhouse gas emissions. Among the methods proposed for the mitigation of greenhouse gas emissions, specifically carbon dioxide, is disposal into porous formations deep in sedimentary basins. This includes injection into hydrocarbon reservoirs to enhance oil and gas recovery and the long-term sequestration in aquifers. The methodology for proving the latter concept has been developed in the Alberta Basin, Canada. It is now being practiced in the North Sea and considered in Indonesia. A further development is the concept of injecting carbon dioxide, from the burning of fossil fuels, into coal-beds to remove methane. This would have the dual result of increasing the production of methane, a more environmentally friendly fossil fuel than coal or oil, and using waste carbon dioxide to a useful purpose. While burning the recovered methane will result in more carbon dioxide, clearly this additional carbon dioxide can either be used to recover more methane or be disposed of underground in suitable aquifers. There is, thus, a serendipitous association of sedimentary basins, their contained fossil fuels and the means of exploiting or disposing of the greenhouse gases produced from the fossil fuels. This paper expands on this theme, with special effort being made to explain the concepts for those who may not be familiar with the earth sciences.*

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