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by Andrew R. Scott  
Altuda Energy Corporation  
San Antonio, Texas

## Coalbed Methane Exploration Concepts— Where is the Next Big Play?

Natural gas prices are expected to remain relatively high over the next two to five years and these higher gas prices have turned coalbed into one of the most active gas plays in the United States. Coalbed methane (CBM) is an important part of the natural gas supply for the United States and now represents more than 7 percent of total gas production and 7 percent of dry gas proved reserves—and these values are expected to increase. Everyone asks where the next big San Juan Basin-scale CBM play will be in the United States. The simple answer is that the San Juan Basin (SJB) is unique and there will not be another “perfect CBM play.” But all basins share characteristics with the SJB and following proven exploration concepts can minimize risk in any coal-bearing basin.

Over the past decade, hydrogeologic evaluation and comparison of coal basins in the United States and internationally indicates that depositional systems and coal distribution, coal rank, gas content, permeability, hydrodynamics and tectonic/structural setting are critical controls on coalbed methane producibility. A dynamic interplay among these controls determines high coalbed methane productivity and the absence of one or more of these factors will result in lower coalbed methane production. Where is the next coalbed methane play? The most prospective drilling locations will be in areas of upward flow potential in the presence of thermally mature coals that have reached the threshold of thermogenic gas generation, and/or where secondary biogenic gas generation has occurred. A regional understanding of hydrogeology to delineate sweet-spots and an accurate economic evaluation of the prospect are critical to project success.

Of equal importance are the economic aspects of any hydrogeologic-based play. Accurate determination of land acquisition and drilling costs water disposal methodology, pipeline gathering

system costs, and future gas prices on a local and regional scale must also be considered. Enhanced recovery techniques such as nitrogen and carbon dioxide injection will ultimately recover more CBM resources and some deeper coal beds may prove exploitable. An emerging technology that utilizes microbes to stimulate or enhance CBM production through the in situ bioconversion of coal or sequestered carbon dioxide potentially may result in CBM production in areas that are currently uneconomical. If this technology is successful maybe the correct answer to “Where is the next big CBM play?” should be both “nowhere” and “everywhere.” ■

*Everyone asks where the next  
big San Juan Basin-scale  
CBM play will be.*

### Bibliographical Sketch

ANDREW R. SCOTT has more than 14 years of coalbed methane experience and has published more than 70 senior author papers and abstracts. He is fortunate to have received 12 best paper awards for his research efforts from a variety of geological organizations including the American Association of Petroleum Geologists, Geological Society of America, International Coalbed Methane Symposium and Rocky Mountain Association of Geologists, *Mountain Geologist Journal*. Prior to starting Altuda Energy Corporation, Mr. Scott held a position of Research Associate at the Bureau of Economic Geology, the University of Texas at Austin, where he worked on a wide variety of research projects and served as Program Director of Domestic Energy Research. Andrew also served as Director for the Texas Region Petroleum Technology Transfer Council and, recently, President of the Energy Minerals Division of the American Association of Petroleum Geologists.

