

The Promise of Coalbed Methane

By Wayne Greenberg



DURING THE LAST several years America's attention has been pulled to the ever-widening gap between the supply of and demand for natural gas. Prices for the commodity have reflected this growing tension.

Residential natural gas rates have increased steadily over the last 10 years, following a decade-long period of relative stability. In the last three years prices have skyrocketed, with residential rates hitting \$16.50 per million cubic feet in November, 2005. The Energy Information Association projects that the average residential price for 2006 will be just under \$16 per million cubic feet. By comparison, the average price of natural gas for the 1980s and 1990s was \$5.64 per million cubic feet and \$6.69 per million cubic feet, respectively.

Fundamental forces are at work, including the declining supply of conventional forms of natural gas and significantly increased demand from new gas-fired power plants. Furthermore, since natural gas is generally transported via pipelines, potential relief from sources outside of North America is limited.

Liquefied natural gas (LNG) may provide some relief in the future, but that's several years out at the earliest and continues our dependence on OPEC and African nations — hardly in America's best interest. Canada has provided much of the gas that covers the gap we are experiencing; however, their parallel situation of growing use and declining supply is such that within a few years they will only be able to meet their own domestic demand.

Enter coalbed — or unconventional — natural gas. At least one industry executive calls CBNG the "get-out-of-jail-free card" for the natural gas industry. As recently as 20 years ago, methane from coalbeds was not considered a viable alternative for the supply of natural gas in the United States, generally being vented from mines as a safety precaution. When we heard about this resource at all, it was most often in the context of an explosion in a coal mine in China or West Virginia.

Since 1990, however, economic quantities of CBNG have been produced from several states including Alabama, New Mexico, Utah and Wyoming. CBNG is projected to represent more than 12 percent of all natural gas produced in the United States in 2006, and could provide as much as 25 percent of all of our natural gas production by 2020.

One reason for the sharp increase in CBNG's contribution is the rapid and steepening decline in conventional gas supplies. CBNG is composed of the same elements as the natural gas we have been using for many years. It also has a higher concentration of methane than conventionally produced natural gas, and is 25 to 30 times cleaner than burning the coal in which it is stored.

CBNG is called "unconventional" because it is found trapped in coal formations, in contrast to the large pockets (domes) in which conventional gas is located. In 95 percent of the coals in the United States, the gas molecules are adsorbed in the coal and kept there by the pressure of water co-existent in the formation; pressure which must be relieved for the methane molecules to be released. This is accomplished by pumping off water, sometimes many millions of gallons. Paradoxically, bringing these great quantities of water to the surface in the arid environments that often surround the coal fields can be highly problematic. Sometimes the water is salt-laden; sometimes it causes erosion; and there can be yet other disruptive effects.

Rising natural gas prices are helping us solve the environmental issues surrounding CBNG. Rising prices stimulate investment in new technologies that have made it more efficient to search for the CBNG resource. The second-generation technologies now coming into play streamline the process, allowing the resource to be produced with smaller infrastructure, diminishing environmental impacts and less cost.

New technology tells producers which wells or coal seams will produce the most gas with the least amount of water, allaying the concerns of environmentalists and government officials. Other companies are bringing innovation to the water quality remediation process, and still others are developing new horizontal or spider-like drilling methods to shrink the surface footprint.

Coalbed natural gas represents one of our best options for relief from the constant upward price pressure we will see over the next few years. Coal is still far more environmentally costly, LNG is years out and even then is subject to the volatility and hostility of a small group of self-interested nations. A new Alaska natural gas pipeline is at least eight years away and demand will absolutely continue to grow.

CBNG won't just get us out of jail. It's actually a great deal.



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MONTANA COALBED METHANE RULE

A Montana agency has ruled that water removed during coalbed methane production does not have to be put back in aquifers, the *Associated Press* reported.

Ranchers wanted the water put back in the ground because they said the gas production could negatively affect their wells and springs.

The Montana Board of Environmental Review took action to limit the release of salty water produced during coalbed methane extraction.