

FACT SHEET

*Resource Development
in the North*

LAND, WATER, TOXIC AND NOISE ISSUES FOR COALBED METHANE IN BC

Coalbed Methane in British Columbia

Coalbed methane is a natural gas trapped in coal seams. Although the same product as conventional natural gas, the process of extracting it can have greater local impacts

In British Columbia, more than 85 coalbed methane wells have been drilled, but commercial production is not yet underway. In the North, coalbed methane wells have been drilled near Hudson's Hope and Iskut and are proposed for the Telkwa coalfield.

Experience in Alberta can provide a sense of what coalbed methane development may mean for British Columbia. In 2000, Alberta had about 20 coalbed methane wells.

By the end of 2005, over 6,000 wells had been drilled, and about 50,000 wells are expected to be drilled within the next 10 years or so.

Many people in Alberta who live near coalbed methane development are experiencing water and noise problems. Gas migration from coal seams

into water wells and aquifers is a serious concern; in some communities oil and gas companies are therefore now providing water to residents. There have been cases where landowners have been able to light their well water on fire, likely because of gas migrating from nearby coal seams. Increased truck traffic and the constant drilling and servicing of wells are transforming rural communities into industrial areas.

Land Issues

Smaller amounts of gas are extracted from coalbed methane wells than from conventional wells, so companies need more wells to earn similar profit. Up to eight wells can be required per section (640 acres or 258 hectares of land) for coalbed methane to be profitable, compared with one well per section for conventional gas. The provincial government's guidelines place no limits on the number of coalbed methane wells that can be drilled in an area; consequently potential impacts on the land can be significant.

Directionally drilling several wells from one pad (where possible) and sharing facilities and infrastructure

among companies to reduce overlap is one way of minimizing these land impacts. The impacts of coalbed methane activity could also be limited by requiring companies to share long-term development plans in advance and adhere to them



▲ Coalbed methane well site in the Elk Valley shows that the land impact is much larger than the actual well.

CREDIT: ERIN SEXTON

Water Issues

Coal seams contain varying quantities of water. Although some Alberta coal seams are dry, some seams in British Columbia that have been drilled produce water. This water must be pumped out of the coal seam before gas drilling to reduce the pressure so the gas will flow. While quantity and quality of water will differ from basin to basin, this produced water can contain salt or heavy metals. Detailed analysis of groundwater aquifers should be done for at least three years before development. To minimize risk from a buildup of gas, water wells should be properly ventilated.

In February 2007, the British Columbia government reversed its earlier position and established new standards to not allow surface discharge of produced water. Any re-injected produced water must now be injected well below any domestic water aquifer. This change is welcome, although legal amendments giving force to this commitment still need to be made. There also may be an outstanding issue about whether it is technically possible to re-inject the water because of the geology of a region.

Toxic Issues

After the well has been drilled, a combination of sand and chemicals is injected to fracture the coal seams and allow the gas to flow to the surface. In the U.S., these “frac fluids” have been known to migrate along the coal seams and even into local drinking water. These fluids can contaminate water and soil. The provincial government should require that toxic substances be eliminated from frac fluids to protect water.

It can take several weeks or months for significant quantities of gas to be produced from the well. During that time, the company may vent or flare small quantities of gas, which adds to air pollution. When there is enough gas, a pipeline will be connected to take the gas to market. A better practice is to eliminate venting and reduce flaring by capturing the gas from the outset by pipeline or tank.



▲ This image shows the land disturbance from a single well site in BC. In Alberta, coalbed methane development increased from 20 wells in 2000 to 6,000 in 2005. By 2025, about 50,000 wells are expected. CREDIT: DAVID THOMAS



▲ Water extracted from coal seams can contain salts and heavy metals. The B.C. Government has established new standards prohibiting the surface discharge of produced water.

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Noise Issues

Compressors are usually required to boost the pressure of the gas so that it can flow to a pipeline. More compressors are needed for coalbed methane than for conventional gas, and these compressors and surface water pumps can cause noise that disturbs wildlife and people. A better practice is to install state-of-the-art compressors with soundproofing technologies.



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REFERENCES

- National Energy Board. *Looking Ahead to 2010: Natural Gas Markets in Transition, An Energy Market Assessment*. Calgary, 2004.
- Nikiforuk, Andrew, “Life Inside a Science Project” *Globe and Mail*, April 29, 2005
- Griffiths, Mary, *Unconventional Gas: The environmental challenges of coalbed methane development in Alberta*. Pembina Institute, Calgary, 2003, www.pembina.org.
- Sumi, Lisa, *Our Drinking Water At Risk: What EPA and the Oil And Gas Industry Don't Want Us to Know About Hydraulic Fracturing*. Oil and Gas Accountability Project, 2005, Colorado, www.ogap.org.
- *Guidelines for Coalbed Methane Projects in British Columbia*, Oil and Gas Commission, October 2002.
- Campbell, Karen, Susan Rutherford, *Coalbed Methane: A BC Local Government Guide*, West Coast Environmental Law, May 2006.