

## Coalbed Methane

Coalbed methane (CBM), a relatively new energy source, is a form of natural gas that is trapped in underground coal seams by water pressure. While methane is marketed as a “clean” energy source, its extraction can have a detrimental impact on underground water supplies or aquifers, as well as surface waters, fish and wildlife, and surrounding agricultural operations, landowners and municipalities. Well sites require new access roads, pipelines, catchment basins, power lines for electricity, compressors and other infrastructure that can drastically alter rural landscapes.

Landowners and residents in Eastern Montana and on the Bozeman Pass who have been confronted with the prospects of large scale industrial coal bed methane development are concerned about these impacts and the lack of protections they have for existing water supplies, agricultural operations, human health and safety, and their residential and business properties if CBM development occurs nearby.

### Background

Coalbed methane gas is taken from the ground by pumping out the water that traps the gas within the coal seam aquifers. The subsequent decrease in pressure allows the methane to be released to a wellhead, where it is collected for refining and transport.

Most of Montana’s methane is slated for Midwest and Pacific Coast markets, since Montana already produces more energy than it consumes. Producers estimate that up to 40 trillion cubic feet of coalbed methane is held in underground reserves in the Powder River Basin of Wyoming and Montana alone. Other areas of Montana and Wyoming are also being eyed for

increased development, and 3,000 active wells are already operating in the region. The Bureau of Land Management (BLM) says 10,000 to 26,000 new methane wells could potentially be drilled in Montana in the next two decades. That’s in addition to the 50,000 to 80,000 wells predicted in Wyoming’s portion of the basin.

### Landowner and Resident Concerns

**Aquifer Drawdown:** Draining of aquifers is one of the greatest impacts of CBM production. An average CBM well draws approximately 16,000 to 17,000 gallons of water per day to the surface, or more than 6 million gallons per year. State and federal officials estimate pumping groundwater for methane development will lower aquifers by 600 feet across the Powder River Basin, drying up valuable springs and water wells, with recharge taking several decades.

**Wastewater Discharge:** Disposal of wastewater released when methane gas is taken from the ground is one of CBM development’s biggest challenges. Discharges from methane wells are typically high in saline and other materials, such as ammonia, fluoride, and sulfate, and cannot be used for irrigation and harm aquatic life.

Currently, most methane water is discharged to rivers and streams, unlined impoundments, or directly onto the ground. Dissolved salts in the wastewater can damage soils, rendering them unable to support plants. Irrigation districts have challenged some methane development practices for fear of long-term damage to their fields and hay meadows.

Already, more than 100 methane wells discharge into Montana’s Tongue River,

## Resources

### On the Web

**Montana Environmental Information Center**

P. O. Box 1184  
Helena, MT 59624  
(406) 443-2520  
[www.meic.org](http://www.meic.org)

**Northern Plains Resource Council**

220 South 27th Street, Suite A  
Billings, Montana 59101  
(406) 248-1154  
[www.northernplains.org](http://www.northernplains.org)

### Government Agencies

**Montana Department of  
Environmental Quality**

P.O. Box 200901  
Helena, MT 59620-0901  
(406) 444-2544  
[www.deq.state.mt.us](http://www.deq.state.mt.us)

**US Bureau of Land Management**

1849 C Street, Room 406-LS  
Washington, DC 20240  
(202) 452-5125  
[www.blm.gov](http://www.blm.gov)

**Montana Environmental  
Quality Council**

P. O. Box 201704  
Helena, MT 59620-1704  
(406) 444-3742  
<http://leg.mt.gov/css/lepo>

where related contamination has already been documented. Estimates of the impact in Montana of Wyoming's discharge predict that if current practices continue, the Tongue River, Powder River, and Little Powder will be too salty to use for irrigation, without even taking into consideration the impacts of discharge from Montana wells.

Currently, numeric standards are in place for wastewater discharge on four Eastern Montana rivers that specify how much water can be put instream from methane wells, but ranching groups warn that the standards may not be enough to protect from the effects of the wastewater on small streams and the land they irrigate. Montana citizens are pressing the gas producers to look at alternatives to simply dumping the water into streams and rivers as they are now doing. These landowners, irrigators, homeowners and others would like, among other things, to see the water treated to remove most of the harmful chemicals before it is put in streams.

### Split Estates

One of the primary issues of concern for citizens of Park and Gallatin counties are split estates. These citizens got a crash course in coalbed methane development with J M Huber Corporation's arrival in late 1999. Over a two-year period prior to that, the company was quietly buying up mineral leases across 18,000 acres of private land on the Bozeman Pass, an area straddling the two counties. Almost all of the surface lands and the minerals beneath the surface on the Bozeman Pass are privately-owned. In most cases on the Pass, the surface owner was not the mineral owner. J.M. Huber leased privately-owned minerals primarily from people who did not own or occupy the surface lands above. This situation has created enormous conflict between the surface owners, mineral owners, and J.M. Huber Corporation over the past several years, and citizens are seeking a solution that provides better protections for surface owners confronted with split estates.

### Extensive New Disturbances

According to recent joint federal-state analysis of the impact of CBM development in the Powder River Basin, an average CBM well can result in an estimated half-mile of new access roads, one and one-half miles of new power lines and pipelines, four and a half high-sodium wastewater impoundments, about four acres of newly disturbed lands, and will impact over 250 acres of wildlife habitat. Currently, a company can post a blanket bond of \$50,000 for all private and state CBM wells in Montana, which is grossly inadequate. One producing field of hundreds of methane wells and thousands of disturbed acres could cost millions of dollars to reclaim, a liability imposed on Montana taxpayers and future generations if a methane company goes bankrupt.

### Montana Legislative Actions

The 2005 Legislature took two steps back and one step forward with respect to coalbed methane. Bills that would have required adequate bonding for reclamation and another to provide landowners more say over how coalbed methane development happens on their land both failed to pass. However, a bill that

requires the Environmental Quality Council to conduct a study on split estates of property between mineral owners and surface owners related to oil and gas development and CBM reclamation and bonding was successfully enacted into law.

The 2007 Legislature did not handle the issue any better. Senate Bill 407, introduced last session by Senator Keith Bales (R-Otter) attempted to create a loophole to allow coal bed methane companies to irresponsibly discharge degraded water. SB 407 exempted the industry by allowing water discharge into impoundments for undefined "emergencies". The Environmental Protection Agency (EPA) cited that the bill was not compliant with the federal Clean Water Act (CWA).

Although this ill-advised bill passed both the Senate and the House, Governor Brian Schweitzer vetoed it, stating that the bill threatened Montana's farmers and ranchers and was not in compliance with federal CWA requirements.

### Recommendations for the Future

CBM development should not be allowed to damage or deplete water supplies, harm other existing land uses, or leave taxpayers with the liability and responsibility of reclaiming disturbed lands. The 2009 Montana Legislature can:

- Ensure that mining companies properly reclaim disturbed lands: Require full reclamation of drilled areas and related disturbances, with associated bonding sufficient to repair all environmental impacts.
- Safeguard Montana's water: Oppose attempts to weaken the Montana Water Use Act by allowing the waste of millions of gallons of valuable groundwater by the methane industry; and provide tax incentives or statutory requirements for methane companies to use the best available technologies such as aquifer recharge (injection into the same aquifer) and wastewater treatment.
- Protect the rights of surface owners in split estates: Require methane developers to negotiate surface use consent with potentially affected surface owners before commencing operations.
- Require that Montana understand the impacts of CBM development: Require the state to monitor CBM development and associated impacts. This publication includes information provided by the contacts listed on the front page. Since issues change on a daily basis, please contact these groups for the most recent information.