

# METHANE: A useful problem

## Gas found in coal mines 'can be quite profitable'

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As long as companies have pulled coal from mines in Colorado, they've contended with methane problems.

About 5.5 trillion cubic feet of coal-bed methane are believed trapped in the Piceance and Uinta basins split by Energy Alley, according to the Potential Gas Committee at Colorado School of Mines. Most of that methane is in the Uinta Basin.

Coal-bed methane is a two-fold safety risk to miners because it's an asphyxiant and is highly explosive when mixed with air, which has to be piped in.

If it can be collected, though, methane "can be quite profitable, assuming all the pieces fall into place," said Pamela Franklin, team leader for the coal-bed methane outreach program of the U.S. Environmental Protection Agency.

Environmental groups, meanwhile, are pushing the companies to do more than just vent methane. At the very least they want it flared off to reduce its potency as a greenhouse gas. The reason is that methane is more than 20 times as effective as carbon dioxide in trapping heat in the atmosphere, the Environmental Protection Agency says. Flaring it would convert it to carbon dioxide, sharply reducing the impact.

Capturing and using it would be better yet, said Rob Peters, executive director of the Western Slope Environmental Resource Council in Paonia. After all, natural gas companies are drilling all over the West to produce methane for sale.

"At the same time you've got this huge amount of gas just being released into the atmosphere as a byproduct of coal mining," Peters said.

That amount totals many millions of cubic feet per day in the West Elk and Elk Creek mines in Somerset northwest of Paonia. The West Elk Mine produces up to 7 million cubic feet per day, or \$10 million worth per year, says Jeremy Nichols of WildEarth Guardians, which has sued the federal government over the methane venting at West Elk. That's enough to heat about 35,000 homes, he said.

"It's not going to change the economy of western Colorado," Franklin said, "but it's not insignificant, either, and it's there for the taking, relatively high quality and just going up into the atmosphere."

There are "some interesting and challenging issues with regard to ownership" of methane, Franklin said.

Coal companies don't automatically have a right to the methane that permeates the coal they're mining, because methane is a separate estate from coal, making it more difficult from a legal standpoint to collect and sell it, Franklin said.



WILLIAM WOODY/The Daily Sentinel

AN OXBOW COAL MINER uses an electronic device to detect the levels of methane in the Oxbow coal mine in Somerset earlier this month. Mine officials use ventilation and these devices to monitor and keep methane levels down.

"It's a huge challenge, obviously," Franklin said.

The terrain above coal mines also makes it difficult because the mines often run underneath forested or other pristine areas, making venting and recovery problematic.

A recent Bureau of Land Management decision removed one stumbling block to the collection of methane from the West Elk Mine. The decision clarified that the mine could capture methane despite its lack of a federal oil and gas lease.

Capturing methane remains an expensive proposition, mining companies say.

"We've tried to look at it every way in the world. If it was economic to do, we would already be doing it. It would add to our income," said James Cooper, president of Oxbow Mining LLC, owner of the Elk Creek Mine.

Rhino Energy, which is working to open the proposed Red Cliff Mine in the Bookcliffs overlooking Energy Alley above Fruita, is looking at two ways of capturing the methane trapped in the seam, project manager Corey Heaps said.

There has been some progress on the issue of whether miners can legally trap and sell methane, and that's one possibility, Heaps said. Another is to oxidize the gas to render it less potent as a greenhouse gas, Heaps said.

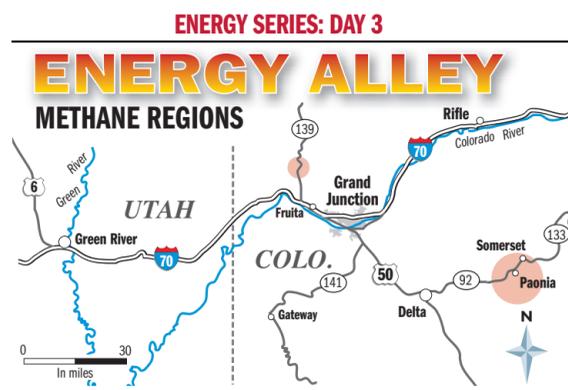
Many of the coal-bed methane reserves reachable from Energy Alley are beyond the reach of modern coal mining, and efforts to tap methane from the highly pressurized rock deep below have been met with frustration, Colorado State Geologist Vince Matthews said.

"All the majors (energy companies) tried to tap that gas," Matthews said. "It's expensive, it's wild, and it's not predictable."

hibited in roadless areas, with some exceptions.

Greg Schaefer, vice president of external affairs for St. Louis-based Arch Coal's western operations, which include subsidiary Mountain Coal Co.'s West Elk Mine, said the state's proposed roadless rule would make a crucial exemption for coal-mining operations in Somerset.

"The importance of this ... is that it preserves about 1,000 jobs in the North Fork Valley,"



#### METHANE STUDY AT ISSUE

Peters' group has avoided taking the litigation route on methane capture, instead working with Arch Coal to get federal permission for it to capture the methane its mining produces.

The Bureau of Land Management says the legal door was opened by an Interior Department administrative appeals decision on a case in Utah. It held that gas released through the mining process isn't subject to mineral leasing laws.

That enabled the BLM to take the novel step of amending West Elk's federal lease to let it capture methane it produced, despite the fact the area in question hasn't been leased.

Nichols thinks WildEarth Guardians' suit helped spur that action. But he isn't fully satisfied with the results. Arch Coal has studied the economic feasibility of methane capture or flaring, and it determined neither approach is economically viable, at least for now.

"What is economically feasible? That's what we're debating right now," Nichols said.

Schaefer said, referring to the rough total employment of the valley's West Elk, Elk Creek and Bowie No. 2 mines.

The Colorado Roadless Rule would provide conservation direction for some 4 million acres of national forest lands. For example, road construction and tree cutting would be prohibited in roadless areas, with some exceptions.

The Western Slope Environmental Resource Council in Paonia supports the Somer-

set-area coal mine exemption, putting it at odds with many other such groups that would prefer that Gov. Bill Ritter abandon the state rule in favor of a national roadless rule.

The council's executive director, Rob Peters, said his group's position stems from its recognition of the local mines' importance to the economy.

Ultimately, the group would like to see an eventual transition away from coal as an energy source.

Still, said Steve Wolcott, chairman of its coal committee, "We're supporting the mines' ability to temporarily go into the roadless areas to vent the methane in order to keep the mines safe, keep the mines operating so that they can supply clean coal to the power plants so they can meet the requirements of the Clean Air Act."

Low-sulfur North Fork Valley coal is shipped to other parts of the country where it can be combined with dirtier coal to

cally viable from the perspective of the coal miners," Hall said.

Miner safety is a big consideration for Oxbow as it considers the question of methane capture. Gunnison Energy, a sister company of Oxbow Mining, owns the oil and gas rights in the mine area, so that's not an issue. But Cooper, the mine's president, said the federal Mine Safety and Health Administration never has approved flaring mine-vent bore holes because of the danger of flame going into the mine.

Oxbow has explored putting the methane into pipelines, but the closest pipeline is nine miles away. Building a pipeline would result in objections over surface disturbances, and the methane is too contaminated to be pipeline-ready, company officials say.

Mines vent methane directly to the surface, where the underground mine collapses behind advancing longwall mining operations and releases gas. Methane also is continually swept out of the rest of the mine workings by huge ventilator fans. But Oxbow says this methane is diluted to below 1 percent concentration, which makes economically capturing it difficult.

#### A DIFFERENT VIEW

In comments to the BLM regarding a mine expansion application by Oxbow outside the roadless area, WildEarth Guardians said there is "a long and safe history of flaring" at coal mines in other countries, and the BLM rejected the idea at Oxbow "because a single MSHA official over a year ago rejected a different flaring proposal."

The group said the EPA has documented 10 methane-capture projects at U.S. mines and has reported that technology is available to harness highly diluted methane.

The methane venting issue is coming up elsewhere in western Colorado. The Colorado Environmental Coalition has contended the BLM failed to give serious consideration to flaring and capture for the Red Cliff Mine proposal near Grand Junction.

Nichols said mining companies are "gaming the system" by waiting for passage of cap-and-trade legislation under which they could get paid for capturing methane. Oxbow officials say they oppose cap-and-trade, worrying it will be detrimental to jobs and consumers.

"That's all it is, is a tax, and it's going to be passed on to every individual," Cooper said.

In the cases of the Elk Creek Mine expansion proposal and the Red Cliff Mine project, environmental groups have broached the larger question of the appropriateness of allowing development of a fuel source they say will contribute to climate change when burned in power plants.

Arch Coal spokeswoman Kim Link said it's important to figure out how to use coal in a cleaner way. But the industry's outlook continues to look good until 2030, at least, because of large global demand and the amount of time it will take to develop renewable energy, she said.

"We're very optimistic about the future. Certainly there are a lot of unknowns," she said.

She said her company looks forward to cap-and-trade legislation passing, "because the unknown is more difficult to steer business through than knowing what you're up against."

Sentinel reporter Gary Harmon contributed to this story.

## Somerset mines consider proposed roadless exemption crucial

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While two mines in the Somerset area remain interested in methane capture, a bigger political issue for them at the moment may be the roadless debate.

The Colorado Roadless Rule would provide conservation direction for some 4 million acres of national forest lands. For example, road construction and tree cutting would be pro-

duce an environmentally compliant mixture.

The West Elk Mine has federal coal leases that predate the Clinton administration 2001 rule intended to protect roadless areas from surface disturbances, including coal operations such as installing vents for methane. As a result, those leases wouldn't be affected by the rule, which has been the