



Drilling operations reshape landscape

By Todd Hartman

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GARFIELD COUNTY — Atop this hulking castle of shale and splendor, within the hunter's paradise that is the Roan Plateau, the country's craving for energy is leaving a gash.

Here, 3,000 feet above the lush Colorado River valley near Rifle, an Oklahoma-based oil and gas company has carved the hill out of the hillside, scraped away acres of sagebrush and aspen, moved untold tons of rock and soil, and flattened off what's left.

A blaring drilling rig lords over a site strewn with hydrocarbon tanks, a plastic-lined pit for polluted water, powerful engines, steel debris, portable trailers and a row of porta-potties.

Stone, dirt and uprooted trees have been bulldozed over the side, making a gray-brown ring around the site — a jarring contrast to the green and gold of the Roan in early fall.

It's the startling signature of the latest, and perhaps greatest, natural resource boom in Colorado's history, a gas rush that is transforming the natural environment of the state.

An industry driven by society's demand for fossil fuels and propelled by remarkable advances allowing extraction of gas from once-unreachable geologic reservoirs is on a roll in the Rockies.

In the process, it is scraping away the earth, threatening critical wildlife territory and generating new hazards for Colorado's air and water. The industry is moving into regions cherished not only by hikers and environmentalists, but prized by hunters and the local communities that — until recently — depended on them.

"They're like an octopus," said landowner and insurance man Richard Williams, disgusted with life in the heart of gas country south of Interstate 70 near Silt. "They are just gobbling up the state."

Williams and his horse-showing wife, Cathy, own 40 acres with stunning views, surrounded by the Flat Tops Wilderness, the Mamm Peaks and the Roan Plateau. But with the recent arrival of two natural gas rigs next door, the Williamses say they've had it with the trucks, the odors and the torn-up ground.

"This is the worst extractive industry you can think of," Williams said. "This is worse than a 1,000-acre copper mine. At least a copper mine is all in one place. Oil and gas — they're in your face. They're everywhere."

The gas boom's undeniable environmental impacts have been difficult to fully measure, even as benefits of the 21st century land rush continue to accumulate. Local economies are thriving, awash in gas cash, jobs are plentiful, incomes higher, and the taxes industry pays on property and minerals are soaring, bringing a wealth infusion to state and local governments.

Environmentalists and others have long touted the virtue of natural gas over coal as a cleaner fuel for firing generating plants to create electricity. Industry has embraced that idea, describing natural gas as the "bridge" between fossil fuels and alternative sources of energy — wind, solar, geothermal, biofuels — that may power society in the future.

But, industry spokesmen say, that bridge will take decades to cross, and they're probably right.

Even so, a growing backlash is emerging, not only among environmentalists, but sportsmen, politicians, professionals and everyday residents weary of what's become a Paul Bunyan-sized industrial footprint on regions prized for their fresh air,

postcard landscapes and small-town ambience.

Some are packing up and leaving gas country, moving a few dozen miles out of the way or out of Colorado altogether. Even many activists who once took on the drilling explosion have shelved their talking points and left Dodge, weary of the battle.

Jeremiah Eckhaus, a primary-care physician, arrived in Rifle five years ago from the Northeast, attracted by his love of outdoor fun, including climbing, mountain biking and rafting.

Now, fed up with the industrialization of the region — the fouled air, the constant grind of trucks, the rough-edged gas workers pouring into the neighborhood — he and his family are moving back.

"They're destroying it," Eckhaus said of his adopted home. "It's kind of sad. It was always my dream to move to Colorado."

Indeed, low-rent towns like Rifle that once were defined by the burst of orange that arrived every hunting season are now more readily identified with the parade of diesel trucks plying the region and the distant sight of camouflaged gas wells and towering drill rigs looming over the land.

Companies at the heart of the boom are making efforts to soften the blow. The Colorado Oil and Gas Conservation Commission bestowed honors and recognition at a September convention on gas giants EnCana Oil and Gas and Williams Companies Inc. for their environmental advances.

Some firms are using new drilling technologies so they can access numerous gas deposits from a single site. Some are spending additional money to cut pollution coming from engines and other equipment. They're driving trucks slower, recycling the water used in various operations and looking for ways to give more room to wild animals.

"The big boys, they're really trying," said Bill Eustes, an associate professor of petroleum engineering at the Colorado School of Mines. "Nobody's out there trying to mess up the environment on purpose, but there is an impact. There's no doubt about that."

Their efforts are capturing the attention of even environmental critics who call the trends refreshing.

"The industry is doing a lot of things that are beginning to reduce some of the impacts," said Randy Udall, a Carbondale-based renewable energy advocate, who is otherwise outspoken about the gas boom's earth-gouging effects on the Western landscape.

At the same time, with northwest Colorado's gas fields among the hottest targets in the country, energy executives aren't backing off going after the underground bounty.

Nor are most citizens who own mineral rights ready to give up the royalty checks they receive when the gas is pumped out.

Most significantly, neither are most Front Range consumers ready or even capable of giving up their fossil fuels. After all, 27 percent of Xcel Energy's electricity is generated from natural gas, and most homes in the region are heated with it.

"The system in fact cannot be sustained with simply renewable and alternative energy sources," said Bruce Smith of the Colorado Energy Forum, which describes its mission as educating citizens on the need to invest in the state's energy infrastructure. "Certainly, we ought to put the pedal to the metal (for renewables), but the system will continue to need fossil fuels to provide a reliable electric grid."

The cumulative effects of the industry, with more than 33,600 active wells in Colorado — a number that has increased by an average of nearly 2,000 wells per year during the past six years — along with all the roads, tanks, pipelines, pits, engines, compressor stations and trucks that go with them, are staggering.

Even a spokeswoman for the Tulsa, Okla.-based Williams — a company that can drill more than 20 wells from a single site, dramatically reducing exploration's surface footprint — concedes that the site under development atop the Roan Plateau "is never going to look the same," even after genuine efforts to restore it.

In Weld County, which has the highest concentration of wells in Colorado, chemical compounds generated by gas and oil recovery are so great that regulators say they play a major role in Denver's air pollution woes.

The problem culminated this summer when the metro area formally violated the EPA's health standard for ozone, a pollutant that plays havoc on asthmatics and can even burn the lungs of a healthy person out for an afternoon jog. The violation came even with tough new emission controls on gas and oil equipment northeast of Denver.

In southwestern Colorado, methane seeps exacerbated by gas drilling have accumulated to dangerous levels inside at least a dozen homes and commercial buildings, contaminated water wells and have even blown up structures.

Salty water pulled out of the ground to free up gas is discharged into rivers used for irrigation, harming crops and cutting productivity.

In northwestern Colorado, from Parachute to Silt and north to Meeker, residents complain of smelly air that makes them sick, changes in their well water, traffic jams and fading enthusiasm for once-popular hunting grounds. Trucks traveling newly bladed roads to remote wells kick up dust. Rugged landscapes are dotted with rigs that twinkle in the twilight.

"We're becoming an energy colony," said Pete Morton of The Wilderness Society, a group worried that the fast-expanding gas industry could drag down the Western Slope's recreation economy for decades or more. "All the research shows an energy colony becomes a very ugly place to live."

Doug Hock, a spokesman for energy giant EnCana, suggested Morton's opinion was overstated.

"There's no doubt we have impacts," he said, but once operations are completed and land reclamation occurs "our ultimate footprint is not that large."

New technology is reducing that footprint, he said, adding that houses and roads leave a far longer-lasting mark on the land. "We're there because we're providing a needed resource: energy that heats our homes, lights our homes," Hock said. "At the end of the day, it's a balance."

Residents of even the state's smallest towns, however, say the energy rush requires vigilance.

In tiny DeBeque, on the western fringes of the gas boom, a plan to put a wastewater pit two miles outside town for liquids used in gas drilling left locals alarmed, worried not only about the fumes but the stream of trucks beating down local streets.

"I feel like we're collateral damage to the oil companies," said Kim Weber, one of several residents who banded together to stop the pit.

Most critics, including green activists, acknowledge the energy industry has an important place in Colorado. We all burn oil and gas — plenty of it — they say. But they fear the scope and pace of the gas boom threatens the scenery, wildlife and serenity that gives the state its star power.

"It's starting to feel a little bit like you're a long way from what you came to Colorado to enjoy," said Elise Jones of the Colorado Environmental Coalition. "Oil and gas development really runs the risk of undermining our quality of life in a fundamental way."

Even some with longtime ties to the industry say Colorado must step carefully. Vince Matthews spent 22 years in the oil business and now heads the Colorado Geological Survey, which provides data on the state's mineral resources.

"It's frightening," he said of the prospects of full-out mineral development in the state. "Colorado is a special place and we've got to do it right — and I don't think it's right for Colorado to be a national sacrifice zone."

Regulators and activists have documented a litany of environmental impacts and concerns that many fear will only grow if, as projected, tens of thousands of additional gas wells are drilled in the state over the next two to three decades. Among them:

The Colorado Oil and Gas Conservation Commission has documented 38 cases of drilling activities leading to contaminated water wells in the past decade. In other cases, industry-related activities have contaminated streams, including at least one

case where the water was bubbling with methane gas.

The federal Environmental Protection Agency has serious concerns about the impacts of chemical emissions from oil and gas operations on those living in or near the gas fields. It's still working to assemble the money and equipment needed to study the issue, one about which toxicologists know surprisingly little.

"We field phone calls, we see press clippings and we get letters from very concerned citizens — and we're very concerned about it," said Martin Hestmark, an enforcement official with the EPA's Denver office.

Apprehension about the dearth of research has reached all the way to Congress, where several Coloradans testified on Halloween before the House Committee on Oversight and Government Reform.

Witnesses included Daniel Teitelbaum, a medical toxicologist affiliated with the Colorado School of Mines and the University of Colorado Health Sciences Center. Teitelbaum said he was taken aback by the lack of research into the health effects of oil and gas exposures.

"I have watched with growing concern the widespread development of the oil and gas industry in our state in the absence of any rational public health oversight of the consequences of this development, and of any resource for the evaluation and treatment of human illnesses that have arisen and will arise as a consequence of these activities," he said.

Energy development is quickly moving across Colorado's federal lands, including roadless areas that are home to threatened plants and animals and regions that citizen groups have nominated as wilderness or for other protections, such as the much-loved Roan Plateau near Rifle.

About 4,500 wells operate on the state's federal lands today, and an analysis of government documents by The Wilderness Society found that another 22,000 wells could be permitted on federal lands in the next 15 to 20 years.

Even so, that pales in comparison with wells on the state's private lands, which now total above 29,000. Private lands include a big part of the Roan Plateau — 44,000 acres — where drilling has commenced full-bore even as fierce debate continues about how or whether to drill on the Roan's 73,000 public acres.

Habitat for some of the largest deer and elk herds in the American West is being fragmented by Tinkertoy-like networks of roads, pipes and pumping stations, and animals are increasingly being hit by water, oil and chemical trucks — and even regular folks — traveling the state's back routes and dirt roads in greater numbers.

"This is what happens when you take a two-track and turn them into 30-foot- wide dirt highways," said Randy Hampton, a spokesman for the Colorado Division of Wildlife.

In Wyoming, studies show that gas drilling is driving mule deer and sage grouse out of their traditional range. In Colorado, such studies are only now under way, but biologists fear similar results in the years ahead.

Emissions of nitrogen oxides and tiny particles generated by drilling activity threaten to obscure scenic views in Colorado's so-called Class 1 regions, such as wilderness areas and national parks, where policies call for preserving conditions free of human influence as much as possible.

Environmentalists complain that the oil and gas industry, with its powerful lobby, enjoys numerous exemptions from the nation's environmental laws, including clean air and water laws, as well as toxic cleanup and disclosure laws. Exclusion from such laws will make controlling the industry's hazards, and cleaning up its potential messes, more difficult, critics say.

Higher prices and high technology aren't the only factors driving the gas boom, at least on public lands.

Green activists blame the Bush administration for opening the door too widely for energy companies, a charge backed up by a trail of executive orders and administrative actions, as well as the 2005 Energy Policy Act approved by a then-Republican-led Congress — all geared toward deriving more energy from public lands.

"We see a federal agency acting on behalf of only one user group: the energy industry," said Steve Belinda, with the Theodore

Roosevelt Conservation Partnership, a heavily Republican hunting-oriented conservation group that is fed up with intense oil and gas development on federal lands.

But proponents of greater energy development counter that the country desperately needs to exploit its domestic sources and avoid even greater reliance on foreign fossil fuels, especially those coming from unstable nations in the Middle East and elsewhere.

Officials in the Colorado office of the federal Bureau of Land Management say they have to comply with federal laws requiring that lands nominated for leasing are made available if they're in an area the BLM has found suitable for oil and gas development.

"We have a responsibility as a federal agency to respond to our customers," said Jaime Gardner, a BLM spokeswoman.

BLM supervisors, too, point out that the great majority of oil and gas wells in Colorado — more than 80 percent — are on private land, not the public lands the federal agency oversees, and that even on its federal lands, oil and gas production occurs on only about 1 percent of the surface.

The greatest disruption on most sites — public or private — lasts only a few weeks to months, while the wells are drilled, they said. After that, the wells are drained over decades, a far more benign process free of much of the noise, trucks and heavy equipment that descend initially.

"Fragmentation of (wildlife) habitat gets blamed on the oil and gas industry," said Lynn Rust, BLM's deputy state director for energy, lands and minerals. "How long will a mountain subdivision be up there fragmenting habitat?"

Still, the BLM has come under pressure to look harder at the impacts of gas drilling on the environment. Green activists say the agency focuses too narrowly on project-by-project proposals without looking hard enough at the big picture.

That's one reason the EPA stepped in recently and asked the BLM to look at how so much drilling in one region of northwest Colorado might harm air quality in parks and wilderness outside of the gas field itself. And it's why wildlife advocates say the agency needs to take a landscape-wide view.

"It's that overall fragmentation and infrastructure spilled across the landscape that changes the nature of a much larger area — rather than just the specific amount of dirt that's been disturbed," said Pete Kolbenshlag, an environmentalist and consultant on the Western Slope.

There are some indications the BLM is listening. In the most remarkable example of late, the agency for the first time in decades shelved an entire lease sale in Utah after a Denver-based environmental group, the Center for Native Ecosystems, protested that the agency hadn't appropriately studied the environmental effects of the sale.

In October, the agency deferred leasing nearly 38,000 acres in Grand and Jackson counties after an outcry from local governments, hunters, environmental groups and the Colorado Division of Wildlife, fearful of effects on tourism and wild animals.

Even so, the gas boom shows no sign of slowing. The BLM's new director, James Caswell, noted in October that the agency's lands produce about 18 percent of the country's natural gas and 5 percent of its oil. He forecasts no letup in drilling.

Nor do the big operators in Colorado.

Susan Alvillar, a community affairs representative for Williams Companies, said as much while driving atop the Roan Plateau, past its astonishing views, yellowing aspen stands, small fall hunting camps and a lone hawk, soaring from tree to tree.

Such scenes were interrupted by others: a chaotic jam of specialized, blood-red Halliburton trucks pumping chemicals deep underground to free up gas, enormous swaths of downed trees to make way for a pipeline, and gates with signs alerting drivers to private property belonging to Mobil Oil Corp.

"This is our new frontier up here," she said, her truck rolling along a dirt road toward a well site towering over the area. "This is

where our company looks to the future."

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