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Bad Gas or Natural Gas?

The compromises involved in energy extraction.

By Allen Best

In Rifle, a town of 9,000 in western Colorado, the latest economic slowdown has been easier on the heart than some of those in the past. Although the natural gas boom of the last decade slowed this year, drilling rigs continue to plunge steel rods into the earth on adjacent ridges. The local Wal-Mart still has customers. Visitors entering the town continue to see the bronze statue of a kneeling bull elk. And on a bluff overlooking the town's old business district, Mayor Keith Lambert still has neighbors.

Economies based on the extraction of hydrocarbons can be fickle, as long-time residents like Lambert can attest. He has seen two booms and one bust during his 28 years in Rifle. Lambert and many other people in town vividly remember learning that Exxon was laying off 2,000 people and ending its efforts to produce oil from shale deposits. The day was May 2, 1982.

"I was doing yard work, and my wife said, 'You need to hear this,'" says Lambert, who was then a third-grade reading teacher.

Local communities didn't recover for more than a decade. A few miles away, at a new company-built town called Battlement Mesa, entire blocks of homes sat empty. On Lambert's street in Rifle, six of 10 homes were vacant. A Great Depression-era mentality prevailed.

Scarred by this experience, Rifle residents were wary when drilling crews started arriving 10 years ago to extract natural gas from the stingy rocks below. Even as the rig count soared, Lambert and town planners were plotting how to keep Rifle on its feet once the drillers laid down their rigs, and the roustabouts, water haulers, and other workers decamped for the next big thing.

"We wanted to become diverse enough so that when the extractive energy is gone, it will be a gentle bump on our economic path rather than a precipitous fall," says Lambert.

The natural gas boom of the last decade has changed the physical and cultural landscape of Rocky Mountain communities. In gas-patch towns, motel rooms fill up with itinerant workers, causing tourists headed to Yellowstone National Park or Dinosaur National Monument to continue on their way. Self-important pickup trucks growl down backcountry roads and then deposit their acquired mud on city streets.

In Rifle, people have become accustomed to seeing workers ordering beer with their breakfast bacon after a graveyard shift on the drilling rigs. "You kind of felt like you were living in a truck stop," says Nathan Lindquist, a community planner who arrived in Rifle in 2006.

It hasn't been all bad, of course. Government treasuries throughout the West fattened with mineral proceeds. Wyoming, with only 500,000 residents, gained $1.5 billion in severance tax and other revenues. Sublette County has become one of the nation's wealthiest counties as measured by per capita income. Despite a population of just 8,000, residents can now afford a $17 million recreation center and other sparkling, new items of community infrastructure.

And in Rifle, town officials began leveraging grants to construct a 2.3-megawatt farm of photovoltaic panels. To cushion its reliance on hydrocarbon extraction, Rifle wants to position itself as a renewable energy center. Matt Sturgeon, Rifle's planning director and assistant city manager, says that Rifle didn't try to fight the boom. "If you're dealing with the national and international frameworks, you can't just say 'no.'"

But the town also moved aggressively to make sure it was at the table, creating a government affairs position, filled by Mike Braaten, to carry the sword on behalf of the town in dealings with powerful state and federal decision makers with authority over drilling operations on surrounding lands.

After the rigs leave

But what happens after the boom? In the San Juan Basin of southwestern Colorado and northwestern New Mexico, natural gas deposits in beds of coal have made the Southern Ute Indian Tribe one of the wealthiest in the nation. It has also flushed the coffers of La Plata County, headquartered in the semi-resort town of Durango.

La Plata County officials have already begun contemplating what planning director Erick Aune, AICP, describes as the financial train wreck that will occur when gas deposits play out several decades from now. Today, drilling operations are responsible for 60 percent of the property tax base. At some point, that will be gone. "That's the number one issue from a long-range planning perspective," says Aune.

Also at issue will be the physical infrastructure from the boom, including old well pads that commonly include pits laced with chemicals. Twenty years from now, if more rural subdivisions get built, as is expected in many of these scenic places of the rural West, people may not know where those old pits are. "That's a bad combination," says Judy Jordan, oil and gas liaison for Colorado's Garfield County.

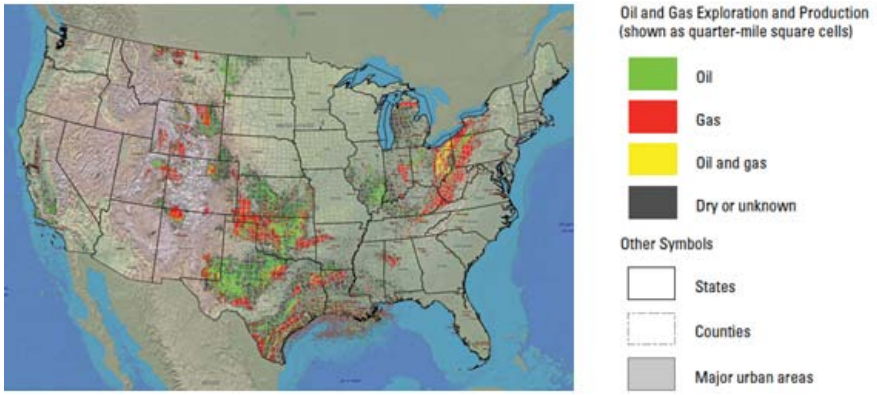
The spaghetti of pipelines in heavily drilled areas also represents a planning issue. Federal, state, and local governments all have a say, but none has total responsibility. In case of wildfire, for example, no one entity is charged with telling firefighters where pipes exist so they can avoid the potential catastrophe of heavy equipment rupturing a line. "Our policies allow pipelines to go anywhere," Jordan says, "and that just doesn't make sense from a planning standpoint."

Planners must also recognize that all booms, no matter how long-lasting they seem at the time, eventually deflate. In Wyoming's Sweetwater County, energy extraction is 80 percent of the economy in the principal town of Rock Springs. Mark Kot, AICP, the county planning director, arrived during the last big boom of the late 1970s and early '80s. When crude oil prices dropped from nearly $100 (adjusted for inflation) to $28 per barrel, he found himself alone on his wind-scoured street in Green River. "It was kind of spooky," he remembers. Most houses were eventually loaded onto trucks and hauled to a college campus in Colorado.

In Vernal, Utah, near Dinosaur National Park, the lesson learned has been to have a general plan that anticipates the housing needs of a transient workforce and avoids leaving behind apartments, condominiums, and other housing that meets the needs of bachelors in a hard-to-manage ghetto. "A large development of housing designed inappropriately can really become a problem to manage in the long term," explains Allen Parker, the city planner and assistant city manger. Better, he advises, is to distribute such complexes broadly across a city.

In Pinedale, Wyoming, in Sublette County, officials decided that temporary housing close to the major drilling areas, the Jonah and Pinedale Anticline, makes sense. Nicknamed "man camps," they eliminate daily commutes over long distances and have become common in drilling areas of the West. Sublette County has authorized six man camps under the county's conditional-use regulations, stipulating limits on alcohol and firearms and mandating levels of landscaping.

"I think there is a danger of overbuilding for the boom, and hopefully we didn't do that," says Bart Myers, the county planning and zoning administrator. "Time will tell."



Looming ozone problem

Time will also tell whether the environmental impacts caused by the natural gas boom have been exaggerated — or perhaps underestimated. Warnings abound about how drilling has sullied air and water quality and threatens wildlife populations. Rarely have accusers clearly established the cause-and-effect guilt of drilling activities. One of those clear-cut cases, however, is in Pinedale and Sublette County.

The area has a magnificent backdrop of the spectacularly wild Wind River Range. Fur trappers and Native Americans held rendezvous here in the 1820s and 1830s. The area remains lightly settled, with a population of just 8,000 in a county the size of Connecticut. Yet the air quality during recent years has so deteriorated that children and people with compromised lungs have been advised to stay indoors at times. The problem: concentrations of ozone in violation of federal health standards.

Ground-level ozone is created when nitrogen oxides, hydrocarbon emissions, and volatile organic compounds are cooked by sunshine. Asphalt paving emits these VOCs, as do emissions from compressors and any number of other activities associated with gas drilling.

Cities have struggled for years with summertime ozone, but monitoring around Pinedale revealed a new twist: formation of ozone in violation of federal standards even during winter months. "This occurrence is not something that people would have predicted 10 years ago," says Jeff Sorkin, acting regional air program manager for the U.S. Forest Service in Wyoming and seven other Western states. The snow cover actually reflects the sunshine, creating the oven in which the ozone is created.

Three years of studies have traced the pollutant sources in large part to drilling operations. The Wyoming legislature considers the issue serious enough to appropriate $1.5 million to address the problem, hoping to figure out a solution within 11 years.

Monitoring has also revealed problems in other pristine parts of the West. Drilling north of Denver has been fingered as a cause in high ozone readings found in Rocky Mountain National Park. Such ozone plumes can extend for 200 miles.

Problems may exist elsewhere, but more monitoring is needed. Sorkin says federal, state, and local authorities need to collaborate in getting a handle on potential problems.

Who's in charge?

The drilling boom has pricked many dreams in rural Colorado, where people have built homes, expecting to hear birds trilling in the morning, see the universe of stars at night, and smell sagebrush and pine forests after summer storms. What many never fathomed was that drilling crews would soon arrive to set up operations in their backyards. What they failed to realize is that subsurface mineral rights often are owned separately from above-ground property in what is called

a split estate.

Split estates exist across the country, including in the 34 states with oil and gas drilling. Property owners and buyers need to ask a question: "If you don't own your minerals and somebody else does, you need to find out if they're leased," says Mary Ellen Denomy, a director of the National Association of Royalty Owners. Rules governing setbacks of rigs from existing structures vary from state to state. In Colorado, it's 150 feet, but in some places it's 1,000 feet.

Tresi Houpt, a county commissioner in Colorado's Garfield County, where such split-estate issues have become legendary, says drillers have shifted their attitudes as a result of unfavorable publicity. Instead of telling property owners what they will do, the companies now exhibit a more cooperative, less imperial attitude. That's good, she says, because "these folks deserve to be listened to."

The drilling boom has also heightened tensions between local governments and the federal government, which controls up to 90 percent of the land in some rural counties. Much of the drilling is on Bureau of Land Management or Forest Service lands, and in both cases subsurface leases are issued by the BLM. But that invites the question of who's in charge, the feds or the locals?

Barbara Green, an attorney based in Boulder, Colorado, says court cases have clearly established that local governments have authority, but within certain limits. "It's important that the regulations be impact-based and performance-based standards, because you absolutely cannot zone on federal land," says Green. "But the impact of what happens on federal land falls squarely within state or local authority."

Less clear-cut are the rights of local governments to be involved in NEPA analysis, although as a practical matter, says Green, they should be "because none of the federal land managers have the resources or time to focus on the impacts."

Dennis Willis, who recently retired from the BLM in Price, Utah, after 35 years with the agency, insists that the BLM has never been as zealous about monitoring as it is about approving oil and gas leases and other uses of federal land. "For the most part, these efforts are inadequate at best and an exercise in 'willful ignorance' at worst," he says. Planners need to ask questions, Willis adds. "It's a real rare day when you ever see the BLM issue a report about the results of the monitoring," he says, noting that leases are supposed to be inspected quarterly.

In a 2009 report, the Western Organization of Resource Councils credits the BLM with more than doubling the number of staff members assigned to environmental inspections in the last decade, but finds that the agency has barely kept up with the increased volume of oil and gas wells.

"We like to do monitoring on the cheap," says Willis. "One repercussion is that you rely upon indicator species. If the spotted owl is okay, that means the whole Pacific Northwest is okay. But time and again, indicator species have fooled us. The spotted owl tells us nothing about the soil."

According to Willis, other problems include inadequate supervision of site disturbances, inadequate bonding for reclamation efforts, and sporadic attention to best management practices. One such practice is closed-loop drilling, which stores drilling fluids more efficiently than pits do. Closed-loop drilling should be standard operating procedure, he notes, but agencies seldom require it.

BLM insists that it has a "robust program for inspection and enforcement" of oil and gas operations. Leases that produce at least 80,000 million cubic feet of gas must be inspected each year. In fiscal year 2008, say agency representatives, BLM has completed 25,870 out of 27,389 required inspections. The BLM policy that emphasizes best management practices in leasing "is significantly reducing impacts associated with new energy development to wildlife habitat, scenic quality, water quality, recreation opportunities, and other resources."

Watershed at risk

Elements of all these concerns can be found in Palisade, a wine and orchard town of 3,000 located along the Colorado River about 45 miles west of Rifle. Sweeping above the town 7,000 feet is the volcanic massif called Grand Mesa. From the edges of that mesa come the springs and streams that provide the town's water.

To the concern of town officials, the BLM has issued leases for natural gas drilling within this watershed. The lessee, Genesis Oil & Gas, strikes town officials as a model partner, willing to fund baseline studies of water quality; its principals show up at community meetings. But in fact the town has relatively little control over what happens in its own watershed.

Tim Sarmo, the town manager, questions whether the next operator, if the company were sold, would try as hard to prevent accidents that might contaminate the water supply. But the broader issue is whether state and federal governments have done a proper job in prioritizing land uses. "I think one of the tenets of civilization that goes back thousands of years is that you don't pollute your water sources. That's not where you do your intrusive industrial-type applications."

Palisade feels no immediate threat. The recession has dramatically cut the demand for natural gas. Prices have fallen from last year's level of nearly $14 per thousand cubic feet of gas to under $4 as of this July. This slackened demand is reflected in the 56 percent decline in rotary rigs drilling for natural gas in Canada and the U.S. during mid-July as compared to the year before, according to Baker Hughes, an oil and gas field services company. Motels in Rocky Mountain boom towns have vacancies once again.

How long will this lull prevail? Rifle is hedging its bets. Like Palisade, it has adopted an ordinance governing drilling within its watershed. It also sided with environmentalists in calling for restraint in drilling on nearby public lands, home to Colorado's largest population of mule deer and the world's largest herd of elk. Until the drilling boom, the start of big-game hunting season was always the busiest time of the year in Rifle.

"We took that position because historically hunting and fishing was our bread and butter," says Mayor Lambert. "It was recreational activities plus some ranching that kept us afloat in the days after the oil shale bust."

Nobody in Rifle expects the drilling rigs to be gone for good. But someday, say Lambert and other officials, the hydrocarbons will be gone. They're planning for that day now.

Allen Best writes about natural resources and other issues of the Rocky Mountains and Great Plains

from his base in Denver.

Sidebar: Water versus Gas

Resources

Images: Top — Natural gas rigs stretch high into the sky in many Colorado towns. Photo Allen Best. Middle — The distribution of oil and gas production in the lower 48 states. Images U.S. Geological Survey. Bottom — A natural gas rig and reserve pit — for discharged fluids from the fracking process — near Divide Creek in western Colorado. Photo Endocrine Disruption Exchange.

From APA: "Fort Worth's Bonanza," a *Planning* story about that city's natural gas boom (July 2008).

Online: For reform advocacy viewpoints on leasing and fracking, see **www.earthworksaction.org**, and for the industry point of view go to the Independent Petroleum Association of America's site, **www.ipaa.org**.

National Association of Royalty Owners: **www.naro-us.org**

The Endocrine Disruption Exchange: **www.endocrinedisruption.com**

Western Organization of Resource Councils: **www.worc.org**

Oil Drum (**www.theoildrum.com**) and the Association for the Study of Peak Oil and Gas-USA (**http://aspo-usa.com**) both have lively discussions and good reporting about natural gas trends.