The Rocky Mountain West is experiencing another energy boom and the stakes are higher than ever. What are the social, economic, and environmental implications? What have we learned from previous booms and busts? What are states and local governments doing to address the positive and negative impacts?

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Western Resource Advocates (WRA)
- Regional non-profit working to protect the environment of the Interior West
- Energy and Lands Programs
  - Promote clean energy development in the region
  - Interdisciplinary staff – economists, engineers, lawyers
  - Work primarily in state & regional forums

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TWO BIG ISSUES GOING FORWARD
- New electrical energy capacity
- New natural gas development on public and split estate lands
- Both have the potential to change the landscape
- State and local governments have a lot to say about how these developments proceed

Coal’s Resurgence in the Interior West
- 31 new coal plants representing over 18,500 MW have been proposed in the region
- 16 plants (8,200 MW) in the permitting process
- Of the 16 plants in permitting
  - 9 sub-critical (5600 MW)
  - 5 super-critical (2250 MW)
  - 2 CFB (350 MW)

Proposed New Coal Plants in Interior West Targeting Pacific Northwest Electricity Markets
- An estimated 8 coal plants totaling over 8,000 MW proposed potentially to serve Pacific Northwest Markets

Environmental Implications
- If built, currently proposed coal plants will run through 2060, when our children’s children are coming of age
- The 16 proposed new coal plants (8200 MW) currently in the permitting process would emit over 66 million tons of CO2 per year (59.9 MMTCO2e)
  - Equivalent to 2.5 times the CO2 emissions from Oregon’s electricity sector in year 2000 (24 MMTCO2)
  - Equivalent to 88% of Oregon’s year 2000 emissions of all greenhouse gases from all sources (67.7 MMTCO2e)
- The plants would emit significant amounts of other harmful pollutants contributing to haze, ozone, nitrogen deposition and other air quality problems in the Interior West.
  - 31,000 tons of SO2 per year
  - 22,000 tons of NOX per year
  - 9,000 tons of PM
  - 1.25 tons of mercury
Coal to California

- Coal plants in the West supply 20% of California’s electrical energy
- SO2 emissions from those coal plants exceed all SO2 emissions from all sources inside CA
- CA’s coal plants emit 67 million TONS of carbon dioxide each year. Equivalent to emissions from 11 million cars
Four Corners and San Juan Plants in NM; Mohave and Reid Gardner in NV; Navajo in AZ; IPP in UT.

Balanced Energy Plan

Study Objectives:
- Develop aggressive but feasible cleaner, diversified energy plan for the Interior West – AZ, CO, NM, NV, UT & WY
- Compare costs, benefits & transmission implications of the Plan to a business-as-usual scenario relying primarily on fossil fuels
- Relative to Business-as-Usual, Balanced Plan includes:
  - Significantly increased reliance on renewable energy, energy efficiency and distributed combined-heat & power resources
  - Retirement of some older, less efficient, more polluting fossil resources now on the system

Background

- Interior West is a rapidly growing region
- Population is concentrated in urban areas
- Available electricity resources not always near where people live
- How do we best meet growing electricity demands?

Historically, Interior West has relied on:

- Large power plants remote from load centers
- Long transmission lines to deliver electricity
- Fossil fuels, especially coal
- More recently natural gas plants closer to load centers

Historic benefits:
- Reliable electricity supply
- Stable, generally low electricity rates

But .....
Balanced Energy Plan seeks to:

- Reduce and manage risks
- Lower the cost of electric energy services
- Reduce environmental impacts of power production
- Ensure transmission and generation reliability

Geographic Scope

- Focus is seven state Interior West region
- PROSYM modeling includes CA and PNW

Role of Energy Efficiency

- The Balanced Energy Plan employs large amounts of cost effective energy efficiency consistent with the Southwest Energy Efficiency Project (SWEPP) study: The New Mother Lode.
- Efficiency reduces electricity consumption in the region by 30 percent, relative to BAU

Capacity Additions

- We did not model genuinely clean-coal technologies.
- But Midwestern & Southern utilities are embracing IGCC.
- Significantly reduced emissions of conventional pollutants.
- Uses much less water.
- Can capture and sequester carbon.
- Senator Salazar’s amendment paves the way.
- Colo legislation to demonstrate using western coals at high altitude.
**Benefits: Cost Savings**

Balanced Energy Plan Savings Relative to Business as Usual

![Cost Savings Graph](image)

**Benefits: Risk Mitigation**

Risk Scenarios: Balanced Energy Plan Savings Relative to BAU

![Risk Mitigation Graph](image)

**Benefits: Decreased Natural Gas Use**

Natural Gas Consumption by the Electric Power Industry in the Interior West

![Natural Gas Use Graph](image)

**Benefits: Less Pollution**

Sulfur Dioxide, Nitrogen Oxides, Carbon Dioxide

![Pollution Graph](image)

**Reliability**

- Analysis ensured that both the BAU and Balanced Energy Plan reliably meet electric demands.
- Both scenarios include adequate generation and transmission resources to meet demand in all parts of the western grid during all hours of the year.
- Balanced Plan paid special attention to effect of intermittent wind resources on system reliability
  - Used PROSYM to model winds intermittent nature and reflect the costs of incorporating intermittent generation into the grid
  - Balanced Plan is mix of energy efficiency, intermittent and other renewable resources and conventional resources with sufficient capacity and availability to meet demand at all times and in all parts of the western grid.

**Moving Forward**

- Business must lead the way
  - Truly the least-cost alternative
- State and local governments should be involved –
  - Air quality
  - Cost
  - Water resources
- State- and local-level initiatives
  - RES
  - Appropriate building codes
  - Tax policies
  - System benefits charges
Switching subjects

- Steady demand for natural gas, some say increasing demand.
- Level or declining production in most of the U.S.
- Increasing production in Rockies
- But…
  - Protect sensitive places
  - Do it right!

**Fig. 1. U.S. Natural Gas Consumption 1970-2003**

- **Fig. 3. U.S. Natural Gas Production and Net Imports**
  - Average production: 71,000 Bcf/d
  - Net imports: 7,000 Bcf/d

- **Fig. 4. U.S. Natural Gas Well Productivity**
  - Production added per day per rig (MMcfe/d/rig)

**Production Added per Day per Gas Rig, 2000-2004**

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Production</th>
<th>Domestic Natural Gas Rig Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>22 MMcfd/rig</td>
<td>450 rigs</td>
</tr>
<tr>
<td>2004</td>
<td>17 MMcfd/rig</td>
<td>900 rigs</td>
</tr>
</tbody>
</table>

As gas rig count doubles from 450 to 900, production added per rig plummets by 325%.

**Fig. 5. Gas Consumption Will Increase Slowly**

- **Pipelines, Power & Plant Fuel**
- **Aircraft Fuel**
- **Industrial including CHP**
- **Commercial**
- **Residential**

Activity in the Rockies

- Over 35 million acres of federal public lands were under lease for oil and gas in 2004.
- However, only 11,671,000 acres under lease were in production.
- In FY 2004, the BLM issued a record number of drilling permits on federal lands—6,052.
- The industry drilled only 2,702 new wells on those permits.
- Natural gas production from onshore federal lands has more than doubled since 1992, to an all-time high in 2004.
  - Between 2003 and 2004, production increased from 2.226 TCF to 3.133 TCF—a 42% increase in one year.

Jonah Basin in WY
Benefits: Decreased Natural Gas Use

Natural Gas Consumption by the Electric Power Industry in the Interior West

The Only Way Out

- Efficiency Investments
  - Reduce gas consumption
  - Save consumers money
  - Lower gas prices
  - Reduce pressure to drill

State and Local Governments

- Renewable Portfolio Standards
- Updated building codes
- Tax incentives and tax credits
- State-based efficiency standards
  - System benefit charges to support investments in public buildings like schools, hospitals.
GOLD
From the Gas Fields

As energy companies reap billions from the region's energy reserves, some Westerners question whether enough of the wealth is staying home

STORY BY RAY RING | PHOTO ESSAY BY TED WOOD

PINEDALE, WYOMING

The cottonwood leaves flutter gold in this small town on a recent October morning. Pickup trucks towing horse trailers rattle along Pine Street. Coffee drinkers huddle over the tables at the Stockman's Restaurant. And on the sagebrush expanse outside of town, natural gas drillers are hard at work.

In Ron Ruckman’s fifth-grade class at Pinedale Elementary School, the students present reports on the planets of our solar system. Ben and Riley describe Mercury, which is undeniably rugged and hot; Tomara and Aiden tell the class about Saturn's otherworldly beauty.

Not that planet reports are anything unusual; they're standard elementary school fare. But in this class, the technology itself is space-age. The fifth-graders did their research using the school's new fleet of laptop computers and its high-speed wireless Internet system. The students created PowerPoint presentations, and now, with the room lights dimmed, they're showing them on a $3,000 “computerized smart board” — one of 10 new blackboard-sized touch-screen displays in Pinedale's schools.

The technology is impressive, because Pinedale is as rural as they come. The primary settlement in 4,600-square-mile Sublette County, it has only about 1,500 residents. Ruckman's students are mostly ranch and gas-industry kids. About 40 percent of the kids have no computers in their homes.

Ruckman says the school's technology is a smart investment, one that will prepare generations of local people to succeed in the future. “The kids will push the technology now,” he says. “They'll ask for it, and they'll push the teachers’ use of technology, too.”

And there's another reason to be impressed by Pinedale's schools: The teachers here are the highest-paid in Wyoming, including Jackson, one of the West's wealthiest resort towns. This year, Pinedale's teachers will make, on average, more than $50,000 each.

All around Pinedale, there are signs that the town is at least keeping up with the Jacksons. Recently completed local projects include a new hockey rink, a riding arena at the fairgrounds, a major courthouse renovation, a new senior center, new county shops, hiking paths, and a $800,000 practice field for high school athletics. Next spring, construction will begin on a $11 million public aquatic and sports center, which will have three pools, racquetball courts, exercise equipment, a running track, and a climbing wall. The county government has also offered to provide funding for another new rec center and a $3 million bowling alley. And the rural health-care district provides the buildings for two clinics, and attracts doctors to the area with guaranteed salaries.

Who pays for all this? Not the ranchers who, at first glance, seem to characterize the community. Nor is it the few lifestyle immigrants who have found their way here from urban places like Florida or California. Almost all the bills for government projects and schools are paid by the energy industry — the gas drillers hard at work out in the sagebrush.

The industry will pull more than $3 billion worth of gas from Sublette County this year, and pay more than $290 million in taxes to local governments, schools and the state. Much of that revenue will go to help other Wyoming communities, but about $44 million will stay here in Sublette County, making this community, as a whole, fantastically rich.

And this is true of all of Wyoming: From the Red Desert to the Powder River Basin, increasing oil and gas prices have spurred the already fast
pace of drilling to a headlong gallop. This year, the industry will produce about $12 billion of oil and gas in the state. In return, it will pay Wyoming government entities about $1.5 billion in total taxes, royalties and lease payments. Other Western states, most notably New Mexico and Colorado, are also enjoying a surge in tax revenues from oil and gas production. Taxes on this industry have become a hot topic, sizzling all the way up to Congress. With many oil and gas companies currently racking up record profits, some Westerners think they should be taxed at higher rates.

No doubt, some of the states could do a better job of collecting, spending and investing their oil and gas revenues. Sooner or later, this energy frenzy, like all the others, will die down. The way state and local governments act today will help determine what the region looks like in the future. The West could use its tax bonanza to go on the equivalent of a three-day bender. Or the region could plan ahead, and use the money to help itself break free from the eternal cycle of boom-and-bust.

continued on next page

COSTS, BENEFITS
OF AN ENERGY FRENZY
On state land near Ucross, Wyoming, a wastewater pipe dumps coalbed methane wastewater into a pond (top left). The area was scraped clean by the operator, then abandoned. Drill rig near Clearmont (top right), with wastewater. A compressor station near Gillette (bottom right). Drillers in an early winter storm (bottom left) snap a coalbed methane hole near Clearmont in the heart of the Powder River Basin. About 18,000 people were directly employed in the oil and gas industry in Wyoming at the end of 2004, according to the Petroleum Association of Wyoming.
Gold

continued from previous page

Wyoming cashes in, invests wisely

Wyoming seems to have learned the most about booms and busts and taxes. The state has ridden the ups and downs of its resource-dependent economy like the bronze bronc rider in the capitol rotunda in Cheyenne (HCN, 2/7/03).

Wyoming’s oil and gas industry first came out of the chutes in the early 1990s, when drillers hit gushers around Salt Creek, north of Casper. That oilfield became one of the largest in the world, says University of Wyoming associate history professor Phil Roberts. Wyoming’s industry soon fell prey to national and global economic swings, however, busting and booming erratically three times over the following century. The current boom began around 2000.

Those ups-and-downs had dramatic effects. In the 1970s, for example, the oil workers who rushed into industry towns overwhelmed government services. Rock Springs had wide-open prostitution and gambling; its corrupt cops were so notorious they were featured in an episode of 60 Minutes. In Gillette, motels rented beds in eight-hour shifts, offering roughnecks some of the only affordable housing around. The town of Medicine Bow went from 300 people to 2,000 after the late-1960s bust; it shrank back to 350.

During an earlier bust, in 1999, then-Gov. Stan Hathaway suddenly realized the government was broke. “The treasurer reported there was only $58 in the state’s operating account, and Hathaway saw no other choice but to put a tax on minerals,” says Roberts.

At Hathaway’s urging, the state Legislature approved a severance tax — a percentage of the value of the minerals “severed” from the earth each year. Many of the legislators who approved the tax and subsequent increases over the years, were olmen. They believed that, even in hard times, their industry should share the tax burden with ranchers and farmers. “They were statesmen,” Roberts says. “Even if (imposing the tax) wasn’t in their financial interest, they knew it was in the overall interest of the state.”

Hathaway also pushed to set up the Permanent Wyoming Mineral Trust Fund, where some of the tax revenues are saved every year as a long-term investment. He coined a phrase — “Grow the on our terms” — that still echoes through the Statehouse, letting companies know that they’re welcome to drill, as long as they pay the toll. And the toll is substantial. The industry pays as much in direct taxes on its production, the state does not have to charge an income tax on any companies or on Wyoming residents.

Today, Wyoming has about $3.3 billion set aside in a couple of trust funds, mostly built with oil and gas revenues. The earnings — hundreds of millions of dollars per year — help fund schools and other government services, even when the industry’s in a slump. With the production currently soaring, the state’s annual budget is a surplus of hundreds of millions of dollars.

Wyoming State Rep. Steve Hamshur, R-Casper, would like to stash an even bigger portion of the cash flow in trust funds. This year, he convinced the Legislature to authorize putting $400 million into a new fund for scholarships at the state university and community colleges. He estimates that when the fund is filled within a few years, 70 percent of the state’s annual crop of high school graduates will be eligible for those scholarships. “Boy, then we’re set for good,” he says.

Recently, Wyoming has found other uses for its oil and gas revenues: It has set up trust funds for preserving wildlife habitat, assisting military families, and creating endowed professorships, pledging $105 million to attract world-class faculty to its university and community colleges. The state also provides $30 million a year in new assistance to entrepreneurs and local economic development projects. There’s talk of creating a new business college in Jackson, setting up a new energy-studies program at the university, and expanding health insurance for low-income families.

Wyoming still has problems, including a shortage of well-paying jobs outside the energy industry. But with its investments in the tax revenues, “I can think of a better place to be in the next five years,” Roberts says. “We’re right on the edge of some great things.”
Other states lag behind

None of the other Western states seem to be using their oil and gas revenues as innovatively as Wyoming. Typically, most of the money goes to general support for schools, and to construction of roads and water projects.

Wyoming will produce $12 billion worth of oil and gas this year, while ding the industry for $1.8 billion in taxes and royalties. And the state taps the earnings of trust funds that hold about $10 billion of oil and gas revenues. Gov. Bill Richardson, D, and the Legislature felt so flush this year that they spent $236 million more — they "have already come and gone," without any lasting effect, she says. And despite the increased spending on schools, the state has abysmal rankings in many categories: the highest rate of child poverty, the highest percentage of minimum-wage workers, the second-highest rate of uninsured adults, a high rate of adults without a high school diploma, and 49th in testing scores for fourth-graders and eighth-graders.

"We have a plethora of needs," Monaco says. "New Mexico is woefully unprepared to compete in today's economy. We don't have a skilled and educated workforce. But (the oil and gas revenue) this year's Legislature to allocate another $109 million for pay raises for teachers, and $8 million for hiring more physical education teachers. The governor may also seek support for companies that do "commercial space development," such as satellite launches, to rich people, and legislators will inevitably divert money to pet projects in their home districts, Denish adds.

Nonetheless, Joe Monahan, a former journalist who writes a weblog covering the state's politics, says, "I have been disappointed so far by the political and business leadership. I haven't heard them talk much about this opportunity. It's an absolutely stunning amount of money, and I think it has put lawmakers back on their heels."

Colorado's energy production has lagged behind Wyoming's and New Mexico's over the decades. Even so, the state has produced at least $1 billion worth of oil and gas almost every year since 1981, and this year it's projected to top $8 billion. Many people believe the state should have more to show for it.

One of Colorado's oil and gas trust funds doesn't generate much in earnings, because state law doesn't allow the fund's managers to invest in the stock market. And Colorado's Legislature has raided the other fund for about $100 million since 2001, for purposes like settling a water dispute with Kansas, handling a forest-fire crisis, and assisting low-income people with energy bills.

Colorado also has a tortuous system of tax formulas and deductions for the oil and gas industry. An economist with the Colorado Legislative Counsel office recently found that Colorado's effective severance tax rate, when deductions are factored in, is only 1.8 percent on the value of oil and gas production. The other Rocky Mountain states have rates ranging from 3.8 percent in Utah to about 8 percent in Montana.

And Colorado's formulas cause big swings in the state's severance tax collections. From 2000 to 2004, while the value of the state's production of natural gas climbed steadily from $2.8 billion to $6 billion, the annual severance tax collections fluctuated from $24 million, to $54 million, to $48 million, to $23 million, and then to $107 million.

Meanwhile, Colorado's schools need at least $6 billion for construction and repairs to address "very dire health and safety circumstances," says Mary Wickersham, director of special projects at the Donnell-Rose Foundation in Denver, which works on school issues. In some districts, one-fourth of the students attend classes in trailers. There's a shortage of technology and science labs, and more than 50 schools have roofs that need to be repaired or replaced. One school last year needed giant steel cables to lash its walls together, she says, and others have fumes from backed-up sewage and malfunctioning furnaces that spew out carbon monoxide.

"The last energy boom in Colorado (25 years ago) came and went, and we didn't really put any money aside for leaner times," says Colorado State Rep. Kathleen Curry, D-Gunnison. "We used it, and now the same thing is happening again."

continued on next page
A movement grows to rework tax codes

To be fair, some of the differences between the states have to do with population: Wyoming spreads its oil and gas revenues over only a half-million people, compared to New Mexico's 2 million and Colorado's 4.6 million. And New Mexico and Colorado have shown innovative thinking in their use of state lottery revenues, devoting that money to college scholarships and private-land conservation, respectively.

But this oil and gas boom presents a spectacular opportunity — along with big trade-offs — everywhere it's happening.

Curry is among the growing chorus calling for higher taxes on oil and gas drillers in Colorado — or at least for changes in the way that money is disbursed.

"There are weaknesses in the tax structure, in the tax rate itself, and how we charge it, and the end use of the money," says Curry, whose district includes gas fields. She wants to increase the severance tax, and restructure the formulas so that more of the money goes to social service programs.

Local governments bear the brunt of the industry's impacts, and some officials want more money so that they can respond effectively. "It hits us everywhere," says John Martin, a commissioner in Garfield County, which sits amid the burgeoning gas fields of northwest Colorado. The industry wears out roads with its increased truck traffic, Martin says; power lines and water systems are overstressed. Homeowners want tougher regulation of the industry, and the county has spent $300,000 lodging protests with the Colorado Oil and Gas Conservation Commission, which oversees the drillers.

Garfield County has hired a full-time staffer to watchdog the industry. It will spend $1 million this year to study drilling's impacts on drinking-water wells, property values and human health. And it is spending another $150,000 to monitor air pollution caused by the industry, and determine its possible health impacts. "We've seen an increase in asthma, bronchial pneumonias, eye irritations, we've even had some tumors," Martin says.

But once the state government, schools and other entities take their cut of the tax revenues from the industry, only a small fraction — $2 million — will go to Garfield County this year, Martin says. That's about 15 percent of the county government's budget, but still, he says, it isn't helping "as much as people think it is."

The Donnell-Kay Foundation hasn't endorsed Curry's idea of raising Colorado's severance tax, but says the legislature should at least consider it. Tacking an additional 2 percent onto that tax rate would bring in another $1.2 million in 2006, to help with the backlog in school construction, the foundation says. It would also like to see more of the money stashed in trust funds, and an end to the wild swings in the way the severance tax is collected.

Next door in Utah, severance tax collections jumped to $43 million this year, a 45 percent increase from last year. But a commission appointed by the governor and legislature says the state's tax rate is relatively low; it's currently considering whether to call for an increase.
Industry could stand more of a squeeze

The possibility of higher taxes on the industry made national headlines recently, after hurricane damaged oil and gas operations just off the Gulf Coast. Gasoline and natural gas prices, already high, soared even higher, amid widespread accusations of profiteering. Leading companies reported record-breaking year-to-date profits, and the U.S. Senate summoned energy executives to Washington, D.C., to discuss the matter (see story below).

Many in Congress, including Western Democrats, want to impose a new windfall-profits tax on the industry. Congress imposed the first windfall-profits tax in 1980, during an Iran-Iraq war that caused oil prices to soar. Then Saudi Arabia opened its oil spigots and flooded the global market, causing prices to plummet in 1982, and Congress ended that tax in 1988.

The industry says that reviving the federal windfall-profits tax would put United States companies at a disadvantage as they compete with foreign companies. "The windfall-profits tax (in the 1980s) was a total rip," says Raymond Flann, chairman of the Houston-based Apache Corporation, which operates oil and gas wells around the world. "It did nothing but interfere" with U.S. companies' efforts to develop new fields in this country, he says, and it helped make the U.S. more dependent on imported oil. U.S. oil production has been decreasing for decades, while our consumption has steadily increased, so today, the country imports nearly 70 percent of the oil it consumes.

Yet many other countries have raised their tax rates or made profit-sharing deals in recent years, aiming to capture more of the companies' recent profits. Oil and gas taxes in the United States are now among the lowest in the world. In the U.S., depending on where a company operates, the government take ranges from about 40 percent to 60 percent, including state and federal income taxes, says Chuck Logsdon, an Alaska consultant who used to be the state's chief petroleum economist. Many major energy-producing countries have government takes higher than 70 percent, including Angola (72 percent), Russia (80 percent), Norway (88 percent), and Venezuela (90 percent), according to IHS Energy, a consulting firm based in Englewood, Colo.

"It's the right time for countries with lots of reserves to cash in, and make a lot of money on what they have now," says James English, an international analyst with Gustavson Associates Inc., a consulting firm based in Boulder, Colo.

Any such move will meet resistance from the industry, however. "We'll probably be sending off a lot of proposals to add new (state) taxes," says Greg Schnacke, executive vice president of the Colorado Oil and Gas Association. "The industry is not hard-hearted. There may be some proposals that are less onerous than others."

Schnacke adds, "Some people want to put (higher) taxes on the industry to shut it down."
Gold

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But Wyoming State Sen. Cale Case, R-Lander, believes states could increase taxes modestly without allowing down drilling much.

“Our taxes have so little to do with anybody’s decision; the market price of oil and gas is the determinant, both for exploration and for increasing production from older wells,” says Case, who holds a Ph.D. in resource economics from the University of Wyoming.

In 2000, skeptical of the industry’s pleas for tax breaks, Case persuaded fellow legislators to commission a series of studies of oil and gas taxes in the state. University of Wyoming economists found that doubling Wyoming’s severance tax would increase tax collections by 90 percent, while causing the state’s total production over the next 40 years to drop by only 6 percent. Other states would see the same effect, the economists concluded.

The industry’s complaints about taxes “just didn’t pan out,” Case says. “It’s clear from our analysis that these resources in Wyoming would sustain higher taxes — it’s not going to affect the behavior of the producers, and the state would reap more money.”

The bonanza — and its trade-offs — continue

Predicting how long any boom will last is perilous. But many experts believe the global demand for gas and oil will continue to rise. With the energy appetites of China and other developing countries increasing, prices are likely to remain high. It’s unlikely the drillers will soon find themselves out of work.

In August, at an industry conference in Denver, Peter Dea, CEO of Western Gas Resources Inc., predicted that companies will drill about 400,000 new gas wells in the Rockies during the next 15 years, to meet demand. The companies will likely make tens of billions of dollars in profit on those wells.

Little Pinedale, with its state-of-the-art school facilities and other community projects, is flush with tax revenues partly because of some idiosyncrasies in Wyoming’s formula. Pinedale’s schools get to capture so much of the money that they receive five times the state’s per-student average. But Pinedale also shows how the locals have to pay the long-term price.

The flood of industry workers is transforming the surrounding landscape. Two man-camps are under construction — collections of prefabricated buildings and central kitchens, plopped down in the sagebrush — to house more than 1,000 workers. “They bring (the modular housing) on skids, and take them away when they’re done,” says Judi Adler, a member of the county planning commission. Man-camps also came and went during the 1960s, but that boom “had a much smaller footprint” than today’s, Adler says.

Another kind of man-camp is rising right in town — a new 100-room motel that will be rented by Halliburton for five years, to house its workers. “A hundred men in the midsummer, Adler says. “It’s likely to be an impact in any small town.”

Adler says. Many of the workers in the outlying man-camps will also drive to town to socialize in bars, and then drive back. Not exactly sober, making local highways more risky for everybody, she says.

Traffic in town is already up. There’s also been an increase in burglaries, and in methamphetamine abuse and production (HCN, 10/3/05). “We’ve lost our sense of safety,” Adler says. “We lock our cars and our houses now. We truly never did that.”

The price of houses in town has doubled over the past five years, largely because the industry pays so well. Other local employers can afford to match the pay, and so they have a much harder time recruiting workers. Some restaurants have had to close down temporarily due to the worker shortages, and the longtime owners of the hardware store recently sold out for the same reason. The county sheriff’s department has five deputy positions vacant.

And the environmental impacts are starting to show. The once-excellent air quality has declined; the famous Wind River Mountains are often veiled in haze these days. And the drilling is threatening the area’s world-renowned wildlife, including tens of thousands of deer, pronghorn and sage grouse.

“These are very fundamental changes,” Adler says. “And we know we’re at the beginning — it’s only going to grow worse.” Many people here think that even Pinedale’s tax bonanza can’t compensate for all that.

Ray Ring, HCN’s Northern Rockies editor. He writes from Bozeman, Montana.

As the age of petroleum scarcity begins, the West — with its vast coal, oil and gas reserves, and its immense potential for solar and wind power — takes center stage in the nation’s energy drama as never before. Read about the new technologies that will reshape the Western landscape in part two of the special report, "The Boom and Beyond," in the next issue of High Country News.
Clean and Diversified Energy Initiative

Background

- North American Energy Summit
- June 2004 Governors’ Resolution
  1. Protection against shortages and spikes
  2. Regional energy policy that is diverse and contains both conventional and alternative energy resource development, energy efficiency, and conservation
  3. Meet the energy needs of the West
  4. Respond to environmental challenges
  5. Take advantage of new technologies that lower the cost of renewable energy and reduce emissions control

Enlibra

- National Standards, Neighborhood Solutions — Assign responsibilities at the right level
- Collaboration, Not Polarization — Use collaborative processes to break down barriers and find solutions
- Reward Results, Not Programs — Move to a performance-based system
- Science for Facts, Process for Priorities — Separate subjective choices from objective data gathering
- Markets Before Mandates — Pursue economic incentives whenever appropriate
- Change a Heart, Change a Nation — Environmental understanding is crucial
- Recognition of Costs and Benefits — Make sure all decisions affecting infrastructure, development and environment are fully informed
- Solutions Transcend Political Boundaries — Use appropriate geographic boundaries for environmental problems

Change a heart, change a nation

If these things are such good ideas, why is it taking so long to fully implement them?

Clean and Diversified Energy Initiative

- Western Governors’ Goals
  1. Add 30,000 megawatts of clean energy by 2015
  2. Increase energy efficiency 20% by 2020
  3. Meet transmission needs over the next 25 years

=> Clean and Diversified Energy Advisory Committee (CDEAC) formed to provide recommendations that are technically and financially viable and that mitigate environmental impacts. They should be voluntary, not mandatory.

“You’ve got to be very careful if you don’t know where you are going, because you might not get there.”
- Yogi Berra
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Clean and Diversified Energy Advisory Committee

Governors
Integration
CDEAC
Transmission
Quantitative Working Group

Wind Natural Gas Clean Coal Biomass Geothermal Solar Energy Efficiency

Public Comments

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Perspective

“The Stone Age ended, but not because of any lack of stones. Undoubtedly the oil age will end the same way.”
- Sheik Yamani, Saudi Arabia

“Forget the science debate. The regulations will change someday, and if we’re not ready, we’re in trouble.”
- James E. Rogers, CEO Cinergy on climate change

Sample of Organizations Participating:

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CDEAC Report

- Illustrate the potential for clean and diversified energy and energy efficiency if the right incentives are provided
- Ultimately the market will determine what gets built and where it gets built, but the CDEAC policies can make it viable for companies to invest in clean fuels and technologies while meeting demand.

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Potential 2015 Generation Capabilities

Advanced Coal – 5,000 megawatts
Biomass – 10,000 megawatts
Energy Efficiency – 48,000 megawatt decrease in forecasted demand (by 2020)
Geothermal – 5,600 megawatts
Solar – 8,000 megawatts
Wind – 54,000 megawatts

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Recommendations -

Advanced Coal –
  - Cost recovery mechanisms for new advanced technology coal plants
  - Direct financial incentives

Biomass –
  - Increased cooperation between state/federal land managers
  - Long-term forest health contracting
  - Uniform definition of biomass

Energy Efficiency –
  - Increased demand side management programs (best practices)
  - Continually updated building and appliance standards
  - Increased consumer and public sector education programs
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**Recommendations -**

**Geothermal –**
- Extension of production tax credit from 2007 to 2010
- Increased renewable portfolio standards for states that have large geothermal resources

**Solar –**
- Implementation of gradually decreasing production tax credit
- Net metering programs
- Performance-based incentives

**Wind –**
- Extension of production tax credit for new generation
- Plan and build transmission to wind resource areas
- Promote studies on integrating more wind to the grid

**Transmission policy –**
- Promote efficient use of existing transmission system
- Improve transmission planning
- Cost allocation and cost recovery for transmission investment
- Siting and permitting coordination

**Transmission studies –**
- Evaluate existing transmission studies to assess transmission capacity to handle CDEAC scenarios
- Eastern Interconnection (MISO and SPP)
- Texas (ERCOT)
- Model CDEAC scenarios in the Western Interconnection building upon the modeling efforts of the Seams Steering Group-Western Interconnection (SSG-WI)

**Current Work -**

In the Western Interconnection, we will model 3 broad CDEAC scenarios:
- High Energy Efficiency
- High Renewable Energy
- High Advanced Fossil Fuel

This will provide bounding scenarios for alternative clean and diverse energy futures

**Next Steps –**

- Finalize remaining Task Force Reports and model the CDEAC scenarios
- CDEAC meeting in early March; develops its report
- CDEAC submits report to Governors
- Governors consider recommendations at meeting June 2006 in Sedona, AZ

“All sufficiently advanced technology is indistinguishable from magic.”
- Arthur C. Clarke
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Please Visit our Web Site for more information on the CDEAC and the full task force reports

www.westgov.org