

High Country News

FOR PEOPLE WHO CARE ABOUT THE WEST

Can coal remain the bedrock of Wyoming's economy?

As companies experiment with “clean coal,” cheaper and cleaner fuels are taking over.

Joshua Zaffos | Sept. 18, 2017 | *From the print edition*

Wearing a blue construction helmet, Dennis Thorfinnson stands in the shadow of a 500-foot-high chimney, and stares up at a sharp blue sky filled with puffy summer clouds. “What do you see?” he asks me. It seems like a trick question; I see nothing.

Thorfinnson grins proudly. Not a single visible trace of pollution floats from the stack of Gillette, Wyoming's Dry Fork power plant, even as it burns coal. This is one of the country's newest — and cleanest — coal plants. The engineers who built it in 2011 tailored its pollution controls to the particular chemical composition of coal from the neighboring Dry Fork Mine. That means it releases less sulfur dioxide, nitrogen dioxide and even carbon dioxide than older coal plants do.

But it still releases invisible carbon dioxide, which contributes to climate change. And Wyoming's leaders know that's a problem. Forty-two percent of the domestic coal supply is mined in the state, much of it from large mines around Gillette. In recent years, the coal industry has employed one in every 10 workers in Gillette and surrounding Campbell County. But coal is declining as a power source. It can't compete with cheaper, cleaner natural gas, and eventually, climate change regulations are expected to worsen its prospects.



Train cars to be filled with coal move through a loading area at Peabody Energy's Rawhide Mine, outside Gillette, Wyoming. The Dry Fork power plant, where researchers will soon begin experimenting with turning the plant's emissions into useful products, operates in the background.

Kristina Barker

Yet with roughly 6.6 billion tons of recoverable coal still in the ground, and an economy hooked on mining and burning it, Wyoming can't seem to quit it. Instead, state leaders are trying to clean it up and find new uses for it.

Near where Thorfinnson and I stand, a construction crew is setting beams for the Wyoming Integrated Test Center, where researchers hope to capture carbon dioxide emissions and eventually turn those emissions into plastic, carbon-fiber materials, concrete or fuels. Wyoming has put \$15 million into its construction. A private utility company will test new carbon-capture technologies and pursue uses for the carbon, while five smaller research teams compete for \$20 million in industry prize money, offered to commercialize "advanced coal" products.

During a 30-year career, Thorfinnson has seen technological advances reduce power plants' output of mercury, sulfur dioxide and nitrogen dioxide, virtually eliminating problems like acid rain. Capturing and using carbon emissions is the natural next step, he says. Capable, confident and affable, Thorfinnson has me believing, too.

So far, though, most "clean coal" initiatives have failed. Carbon-based rubbers, asphalts and chemicals have never achieved large-scale commercial success, partly because it's easier and cheaper to just use petroleum. Highly touted efforts to capture and store

emissions from coal plants have also fizzled because costs spiraled out of control. Even in Wyoming, it's hard not to wonder: Is it smart to keep betting on coal?

On the last day of March 2016, Gillette miners traded anxious phone calls, trying to figure out who still had a job. Following months of declining coal prices, mining companies laid off more than 500 Wyoming workers. By the end of the year, another 500 had lost their jobs.

The bust hurt more than Gillette and other mining towns; it hammered the whole state. Taxes on the minerals dug from the earth, along with property taxes paid by the energy industry, account for 50 to 65 percent of Wyoming's total tax revenue, bankrolling schools, roads, hospitals, police and emergency services. Coal mining, specifically, has recently contributed more than \$1 billion annually to state and local budgets.

When production crashes, so does the state's budget. The decline of coal was a major factor in lawmakers' 2016 decision to drastically cut funding for public schools, suicide-prevention programs, health-care services, and fish and wildlife management. And this time, few are banking on coal's full comeback.

So last November, Gov. Matt Mead, R, launched ENDOW, an economic diversity initiative designed to attract new manufacturing and technology businesses and create work for young Wyomingites. Business and community leaders began meeting this May to develop a 20-year economic vision, discussing the possibilities of tourism, the state's super-fast internet connectivity, outdoor recreation and tax breaks for targeted industries.

But so far, even forward-looking projects like the Integrated Test Center still rely on fossil fuels. In some ways, that makes sense. With so much coal here, why not use it?

"If we can develop advanced coal industries, they could be using amounts equal to power plants in 20 or more years," says Phil Christopherson, CEO of the Gillette nonprofit Energy Capital Economic Development. Christopherson envisions a future bustling manufacturing sector, anchored by a Boeing or Ford plant that uses coal-derived carbon-fiber in its planes or cars.

“Three years ago, the coal companies wouldn’t talk about advanced coal,” Christopherson says. But in the wake of bankruptcies and with market conditions still looking gloomy, they’ve warmed to the idea. “Now we’re working closely with some because they see small markets can become big markets.”

Not everyone is convinced, however. “Some of these technologies are way out in the future and expensive, and others are small and not going to employ thousands of people,” says Jill Morrison, director of the Powder Basin Resource Council, an environmentally minded landowners’ group in the heart of Wyoming’s coal country. She says carbon capture research is a poor use of taxpayer dollars; the money would be better spent developing renewable energy and more efficient electricity grids. “They are trying to spin gold out of coal.”



Instructors set up a wind turbine hub trainer in the Wind Lab at Laramie County Community College. As wind energy production crops up around Wyoming, more workers are being trained for jobs in wind turbine maintenance.

Courtesy Laramie County Community College

W Wyoming is as rich in wind as it is in coal, with some of the country’s stiffest, most reliable winds. But harnessing that wind into energy is politically fraught.

One July morning, a couple dozen people filled a classroom at Gillette College to learn about careers in wind energy. The session was organized by Goldwind Americas, a subsidiary of a Chinese company that is helping to build a large wind farm near

Medicine Bow. University of Wyoming economist Robert Godby says the state could quintuple its wind generation, adding a load of technician jobs. Goldwind was offering free training and job-placement for prospective turbine techs — and targeting miners.

I sat next to a coal miner, who smiled and asked if I am part of the “biased media.” A former Army aviator, he was one of the lucky workers to survive the layoffs, and he asked that I not use his name. He worried that his comments — and even his attendance here — might get him fired.

He was interested in Goldwind’s offer: Coal mining is tough, dangerous work with brutal hours and a precarious future. But wind has downsides, too. The starting salary for a tech is \$40,000, half his current salary, and he’d have to move. Others echoed his reservations: Few miners want to uproot their families, and many have doubts about the prospects of a real wind-energy boom.

That’s partly because Wyoming lawmakers have long resisted renewables as unwelcome competition for fossil fuels. Last winter, legislators tried — unsuccessfully — to prohibit utilities from providing electricity generated by wind and solar. Wyoming is also the only state that taxes wind production, at a rate of \$1 per megawatt-hour. Some lawmakers have suggested increasing the tax three- or fivefold, partly to offset declining fossil fuel revenues. The tax hasn’t deterred the industry from pursuing projects here, but hiking it, says Godby, could certainly discourage future development, including among tech companies looking for clean-energy sources when considering new locations.

There are other ways the state could fill its budget gaps — fairly simple ones, even. Wyoming has no individual or corporate income tax, and its sales tax, property tax and beer tax are all among the lowest in the country. The average Wyomingite pays about \$3,000 in taxes each year, but gets back \$15,000 or more in public services.

“Being a conservative state, the battle cry should be ‘we’re going to pay our own way’,” Christopherson says. Yet few lawmakers want anything to do with tax increases.

Most economists agree that taxes on energy production should be directed into special funds rather than used as a state’s primary revenue stream. States need to provide public services during booms and busts, but when production slows, lawmakers tend to focus more on helping industry than on shoring up public services.

Unfortunately, good policy doesn't always make for good politics. Michael VanaFlatern, a Republican state senator from Gillette who is on the ENDOW panel, is one of the few legislators who openly advocates raising some taxes rather than continuing to cut services. " 'Income tax,' " he says, "is about the dirtiest word you can say in this state."

Despite the layoffs and uncertainty, I encountered a lot of optimism in Gillette and found it contagious. "Obviously, in the future, we will not use coal for energy, but we're not at the point where we can shut it off," Lora Dilley told me over happy-hour beers at Applebee's. Dilley, the safety coordinator at the Dry Fork Mine, held onto her coal job last year. Her husband lost his, so he got his commercial driver's license. "He saw the opportunity to get out of mining," and he took it, Dilley explained pragmatically. Their family, you might say, has diversified.

Still, Dilley believes advanced coal will buoy Wyoming in the future, and after a few days in town, I, too, began thinking, "Wouldn't it be great if some mix of innovation, investment and gumption saved Wyoming — and the climate?"

That kind of optimism is necessary for innovation, but it can also be a trap. It's what kept Pacific Northwest logging towns from diversifying before the bottom fell out of the timber industry, says Mark Haggerty with the Headwaters Institute, a Montana-based economic think tank. Those towns are still struggling to regain their footing. For Wyoming, which is so uniquely reliant on fossil fuels, the task could be even tougher.

"The Integrated Test Center is our future in many aspects, but we need to find other products," says Van Flatern. "We'll see how things shape up." Then he sighs. So far, on low-hanging fruit, like taxes, "they're not listening to me."

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