

BIG PIVOTS

Energy and water transitions in Colorado and beyond

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Solar savings key to expansion of Pueblo steel mill

by Allen Best

What might be called the world's first solar-powered steel mill will be moving forward.

EVRAZ North America plans construction of a long-rail mill at its Rocky Mountain Steel operation in Pueblo, Colo. This decision allows execution of an agreement reached in September 2019 for a 240-megawatt solar facility located on 1,500 acres of land at the steel mill.

It will be the largest on-site solar facility in the United States dedicated to a single customer. Another way of saying it is that it will be the largest behind-the-meter solar project in the nation.

The solar production from the project, called [Bighorn Solar](#), will offset about 90% of the annual electricity demand from the mill.

Lightsource BP will finance, build, own and operate the project and sell all the electricity generated by the 700,000 solar panels to Xcel Energy under a 20-year

power-purchase agreement. Lightsource says it is investing \$250 million in the solar project.

Kevin B. Smith, chief executive of the Americas for Lightsource BP, said he expects construction to start in October. Commercial operations will begin by the end of 2021. He rates the solar resource at Pueblo as 8 on a scale of 10.

Several states had been vying for the long-rail mill, which will be able to produce rails up to 100 meters long, or about as long as a football field with its end zones, for use in heavy-haul and high-speed railways. The mill uses recycled steel from old cars and other sources. The new mill is to have a production capacity of 670,000 short tons, according to a [2019 release](#).

The price of the solar energy was crucial to the decision for the siting in Pueblo, says Lightsource BP's Smith.

"The long-rail mill is a go on the basis of the EVRAZ-Xcel Energy long term electricity agreement for cost-effective electricity," Smith said in an email interview. "Xcel was able to provide that cost-effective pricing on the basis of the Lightsource BP solar project on the EVRAZ site, which provides cost effective energy to Xcel under a 20-year contract."



The steel mill in Pueblo has operated for almost 140 years.

That was also the message from Skip Herald, chief executive of EVRAZ North America in a 2019 release. “This long-term agreement is key to our investment in Colorado’s new sustainable economy,” he said.

The steel mill in Pueblo was Colorado’s largest employer for a century and, for part of that time, the state’s largest consumer of electricity. Photo/Allen Best

Pueblo sweetened the pot, giving EVRAZ an incentive package reported to be worth \$100 million, a portion of it to be used for environmental clean-up of the site. In turn, EVRAZ needed to commit to keeping 1,000 employees, [KOAA News reported in 2019](#). The new mill was expected to produce 1,000 new jobs that will pay between \$60,000 and \$65,000.

The solar farm will also help Xcel achieve 55% renewable penetration in its Colorado electrical supply by 2026. By then, two of the three coal-fired Comanche units that serve as a backdrop for the steel mill will have been retired. The new solar farm will

surpass in size and production the nearby 156-megawatt Comanche solar project, which currently is the largest solar production facility east of the Rocky Mountains.

Colorado Gov. Jared Polis issued a statement Thursday evening saying that he’s “thrilled that the steel mill’s new expansion has passed this important milestone. Pueblo workers have been making the world’s best steel for nearly 140 years, and with this addition, Pueblo’s next generation of steelworkers can count on good-paying jobs well into the future.”

The new steel mill was still tentative in September 2019 when Polis and various other dignitaries gathered on an asphalt parking lot on the perimeters of the steel mill to announce the solar deal.

With the early-autumn sun beating down, Pueblo Mayor Nick Gradisar spoke, saying that people had come to Pueblo from all over the world to make the steel that created the American West. For nearly 100 years, he said, the mill was the largest



Colorado Gov. Jared Polis urged cooperation to “make change work for us, rather than against us.”

employer in the state of Colorado. His family, he said, was part of that story, his grandfather arrived from Slovenia in 1910 and worked at the steel mill for 50 years, while his father worked there for 30 years. ([See video here](#)).

Colorado Gov. Jared Polis talks about the competitive advantages of renewable energy. Photo/Allen Best

Alice Jackson, chief executive of Public Service Co. of Colorado, the Xcel subsidiary, pointed to three years of negotiations that weren’t always easy but lauded the result as “perfective marriage of a variety of parties coming together” to show the world how to use renewable energy.

U.S. Senator Cory Gardner emphasized the combination of recyclable—the mill uses 1.2 million tons of material a year, he said—and renewable energy.

During his turn at the lectern, Polis, who had announced his candidacy for governor the prior year at a coffee shop in downtown Pueblo called Solar Roasters, emphasized the competitive edge that renewable energy provides.

“For those who wonder what a renewable energy future will look like, this is a great example of what that future will look like: low-cost energy for a manufacturing

company that will stay in Pueblo and grow jobs for Pueblo residents,” he said.

Polis also pointed to symbolism on the Pueblo skyline, the smoke stacks of the Comanche power plants in the background. The steel mill—which once burned prodigious amounts of coal, with smudges of that past still evident—was the impetus for construction of the Comanche power station in the early 1970s. Now, as two of those three coal-burning units will be retired within a few years, another shift is underway.

“By working together to make change work for us, rather than against us, we can lead boldly in the future, create good jobs, create low-cost energy and cleaner air and do our part on climate,” he said.

Herald, the chief executive of EVRAZ, said his company will be making the “greenest steel products in the world.” It is a change, he said, that amazes him. “Just imagine recycled scrap metal being melted into new steel just a few hundred yards from where we stand in the electric arc furnace powered by the sun,” he said.

It is, he added, “one of the most amazing feats I’ve seen in my 40 years” in the steel industry.



Can Colorado lead on coal just transition?

Story/photos by Allen Best

In early March, a few days before the dark curtain of COVID-19 fell, Colorado Gov. Jared Polis was in the coal community of Hayden to speak about the concept of just transition — the idea that workers and communities need help to new careers and new economic foundations as coal gives way to new energy sources.

It's an unprecedented goal in Colorado, and other states, too. But it remains an experiment.

Polis was in Hayden not to deliver answers, but rather to listen. Wearing a light-blue polo shirt buttoned at the color, Polis sat at a table normally occupied by

Craig's primary industry oversees one of Craig's nicer and newer neighborhoods in May 2019.

town council members as he heard details of union contracts, updates on economic diversification strategies, and lectures, too.

"You drive into our valley and you see nothing but blue skies," he was told, a reference meant to draw a contrast to the often-polluted skies over Denver — a source of resentment for some rural communities who feel they're bearing the brunt of the state's push to cut emissions.

Gov. Jared Polis visited Craig, Colorado, just before the COVID-19 pandemic hit.

In that long afternoon, he heard no easy answers for how Hayden, Craig and other coal-dependent communities in Colorado's sagebrush- and aspen-edged Yampa River Valley will transition to life after coal. Days later, the coronavirus pandemic would begin occupying the governor's every waking hour. It also muddled Colorado's effort to assist workers and communities impacted by the transition from coal to other energy sources.

COVID-19 may temporarily frustrate the good intentions expressed by Colorado legislators in [HB 19-1314](#), titled “Just Transition From Coal-based Electrical Energy Economy.” The state budget had to be cut 21%, and budget analysts expect deeper cuts next year and beyond. That will make it hard to find state funds to assist workers.

But then most of the impacts will begin in about five years. As one committee member says, it will probably be easier to ask for \$10 million than \$1 million now. The law passed in May 2019 assumes state assistance, most directly for workers in coal mines and plants and on the railroads. It also seeks to assist impacted communities but does not presume to have all the answers.

An advisory committee whose 19 members are drawn from the ranks of state government, local governments, think tanks, and economic development institutions, [has drawn up a draft report](#), released this week. A final report is due state legislators Dec. 31.

‘We have time to get this right’

Colorado’s Just Transition law, passed in the same early morning hour on the final day of the 2019 legislative session as a bill establishing Colorado’s decarbonization goals, is the most systematic effort in the United States in regard to coal, says Dr. Dimitris Stevis, a professor of political science at Colorado State University who co-edited a book, [“Just Transitions: Social Justice in the Shift Towards a Low-Carbon World.”](#)

[Other states in the West and Appalachia](#) have addressed elements of the transition from coal, but community development expert Chris Markuson contends that Colorado has an opportunity to create the national model.

“Colorado is the first state to think of just transition on a statewide basis,” says Markuson, who directs the Colorado economic transition policy for the BlueGreen Alliance, a national coalition of environmental groups and labor unions.

Some think an even broader perspective is needed. “There will be transitions and more transitions. Any number of towns will go through the same thing that coal towns are going through today,” says Suzanne Tegen, assistant director at the Colorado-based Center for the New Energy Economy.

Some think that the just transition model being developed for coal will be applicable to the oil-and-gas sector. Others, such as Will Toor, the director of the Colorado Energy Office, point out a key difference. Oil and gas have always been cyclical, booming and busting, whereas coal has been steady in places like Craig and Hayden.

Coal, though, is now rapidly slipping. It has fallen from providing 68% of net electrical generation in Colorado to 45% in the decade ending in 2019, [according to the U.S. Energy Information Administration](#), while renewables more than doubled, to 25%.

Colorado ranks 11th in coal production among U.S. states. Half the coal is exported out of state, and half that to other countries, [reports the EIA](#), and half is used for power production in Colorado.

By 2030, coal consumption in Colorado will decline far more. Nine coal-burning units — three at Craig, two at Pueblo, three in or near Colorado Springs, and one north of Fort Collins — are scheduled to close. Others operated by Xcel Energy, the state’s largest electrical utility, could also close.

“We don’t have time to waste, but we have time to get this right,” says Wade Buchanan, director of the Just Transition office. He is, and will be for the foreseeable future, the sole employee of the office.

This shift will be easier for some communities than others. Colorado Springs, a booming metro area of more than 700,000, will provide more opportunities for workers than the remote Yampa River Valley, which is more than three hours from Denver. There’s a major airport at Hayden, but the flights cater to the rhythms of the



Colorado Gov. Jared Polis paid a quick visit to Good Vibes, a boating auxiliary supply store, on his visit to Craig and Hayden in early March.

mountain resort economy of Steamboat Springs 25 miles to the east.

Hayden and Craig depend almost exclusively upon coal. There's some agriculture, and tourism, too, especially during hunting season. Visitors also stop along the way to or from Dinosaur National Monument, which lies 90 minutes to the west of Craig.

But even the motels in Craig rely far more on work crews than other travelers. At the Elk Run Inn, co-proprietor Randy Looper estimates that two-thirds of his customers are workers, mostly in town for temporary jobs at the coal units. "Hunters are great; they're neat people," he says. "But workers make my business work."

School and other taxing districts rely even more heavily on the coal mines and coal-burning plants because of their reliance upon property taxes. At the Hayden School District, the Hayden Generating Station pays 57% of the property taxes to pay for a new K-12 school. It pays the same proportions for

the local fire district and other taxing districts. When the coal plants close, the taxes of others will necessarily rise.

"Coal built this country, whether you like it or not," says Doug Monger, a life-time resident of Hayden and a Routt County commissioner. "We can go away from it now, but we need to figure out how not to throw us under the bus."

Academic discussion to reality

The Just Transition law is founded on obligation, one described in the statute as "a moral commitment to assist the workers and communities that have powered Colorado for generations."

Colorado's law also mentions the dirty side of coal beyond greenhouse gases, the "disproportionately impacted communities who have borne the costs of coal power pollution for decades." A practical component also underlies the just transition movement. Creating a path forward for impacted communities eases the opposition

to reducing emissions, points out Erin Overturf, deputy director of the clean energy program at Western Resource Advocates.

Colorado's law came together conceptually in 2018 in a collaboration of social justice, environmental, faith and labor groups. The [Colorado People's Alliance](#), a social justice organization formed in 2015, and SEIU Local 105, a union representing health care and service workers, initiated the discussions and were soon joined by the AFL-CIO and environmental groups, including the Natural Resources Defense Council. The groups coalesced into the [Colorado People's Climate Movement](#).

A study was commissioned to probe what it would take to get Colorado in accordance with the goals of the Paris climate accords from 2015, and what a "just transition" would look like.

["A Green Growth Program for Colorado: Climate Stabilization, Good Jobs, and Just Transition,"](#) found that 88% of all energy consumption in Colorado came from burning oil, coal and natural gas. To achieve climate stabilization, coal consumption needed to fall 70% by 2030 and oil and gas 40%. That same study reported investing \$14.5 billion per year in clean energy projects in Colorado from 2021 to 2030 would generate about 100,000 jobs.

The Colorado AFL-CIO has had a major presence in both shaping the legislation and now sharpening the recommendation to legislators for what is needed next. Dennis Dougherty, the union's executive director, says his perspective was shaped by a resolution at the AFL-CIO's national convention in 2017. [Resolution](#)

[55](#) recognized the need to rapidly shift from fossil fuel combustion because of warming temperatures and implicitly authorized members to work toward policies "at the center of creating solutions that reduce emissions while investing in our communities, maintaining and creating high-wage union jobs and reducing poverty."

Lizeth Chacon, co-chair of the Colorado



Pro-coal signs are common in front yards in Craig.

People's Alliance, said her group was motivated by reports of the poor air and water quality associated with energy development in disproportionately impacted communities, which tend to be lower income and places with people of color.

It was an academic discussion until the November 2018 election, when Democrats gained control of both houses of the Colorado Legislature. Dougherty said there was a realization that carbon-reduction goals and just transition had to go hand in hand. "We didn't want to wait another year for a more perfect bill. We wanted to do it concurrently," he says.

Draft legislation was altered in one significant way before adoption. The original bill specified wage differentials and other benefits for displaced workers for three years. Polis, the new governor, discouraged prescriptive precedent. Needs of displaced

coal workers, for example, might be different from those of workers displaced by automation. Displaced workers in other industries might also expect the same benefits package.

Also, while it mentions disproportionately impacted communities, it gives little clear direction on how this is to be addressed.

The bill passed on a party-line vote in the Colorado Senate at 2 a.m. in the final hours of the session.

Colorado's just transition report distinguishes between needs of impacted workers and those of the larger communities where they work.

The draft report identifies a need for three and possibly four buckets of money to be drawn from state and philanthropic sources.

By far the largest need will be assistance to the 2,100 workers in coal mines, plants and railroads. Most make \$80,000 to \$100,000 per year, and it will be challenging, if not impossible, to find similar wages in new jobs while remaining in their communities.

A second monetary need will be the assistance to aid economic development by impacted communities. The Colorado law makes clear that the state won't decide how Craig, Hayden and other impacted communities will reinvent themselves. That has to be driven largely from the grassroots. It can, however, assist them.

A third and overlapping fund will be needed to help with the private or public sector strategies to attract investment



The ColoWyo Coal Mine supplies coal to Craig Generating Station.

capital into the communities. How do you incentivize capital and entrepreneurs in a relatively risky environment?

The fourth and final bucket, much smaller, will be the financing to continue and perhaps expand the Just Transition office, which currently consists of one employee.

Instead of precise figures, the committee is trying to create a formula. But then again, every community's needs will be different.

'Coal keeps the lights on'

Craig and Hayden have generally resisted the energy transition. In 2015, when a WildEarth Guardians lawsuit threatened the ColoWyo Mine, signs went up around Craig saying, "Coal Keeps the Lights On." Beer from a Colorado-based brewer who had supported WildEarth Guardians was removed from liquor stores and restaurant offerings. There was talk about economic diversification, but little energy was put into it.

Then in January, Tri-State said all three units at Craig would be closed by 2030. In the dark and cold of a hard winter, it shocked some in Craig.



Jennifer Holloway grew up in a coal-mining family but says that coal has prevented Craig from doing what it needed to do to become more diverse.

Rawness remained in early March when Dougherty and other members of the Just Transition committee arrived in Craig to hear from the public. There was anger and denial, protests that “Denver” didn’t understand Craig. But others had already been thinking about what comes next. A few remembered Craig before coal dominated the town.

“Growing up here, the coal miners were all treated like astronauts,” says Jennifer Holloway, executive director of the Craig Chamber of Commerce.

Strategies for the next career for Craig and Hayden remain incipient, little more than thoughts. Nobody has yet any notion of how to create anything that will substitute for the solid middle-class wages and the enormous tax payments delivered by the coal infrastructure to the local school districts, even the fire and library districts.

Jennifer Holloway, executive director of the Craig Chamber of Commerce, has a long view of coal extraction. In 1942, her great

grandfather died in a coal mine explosion at Mt. Harris, a now-abandoned coal community near Hayden. Today, one of her brothers works at the power plant in Craig.

“Growing up here, the coal miners were all treated like astronauts,” she says. Miners made more money than people with bachelor’s degrees, and if it was hard and dangerous work, there was also a sense of mission, to help communities prosper with the electricity that is produced.

Now, with the coal plants closing, there’s a lost sense of mission. That loss may be just as important to the community psyche as the lost payroll and tax collections.

But coal also kept Craig from thinking about what else it might become, says Holloway. Now, it must confront that question directly.

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