

BIG PIVOTS

Energy and water transitions in Colorado and beyond

February 25, 2021 Issue No. 32

<https://mountaintownnews.net>

No Texas-like misery in the big chill, but many questions to ask in Colorado

by Allen Best

If Colorado's situation during the cold spell of mid-February was not nearly as dire as that of Texas and other parts of the country, questions are being asked.

One question is whether the utilities should have seen the storm coming and taken precautions to minimize the impact to ratepayers.

But the case also poses questions about the ability of utilities to ensure reliable power as they toward carbon-free goals.

In northern Colorado, the trouble was a relative hiccup. During a 6-hour period on Feb. 14, customers of Platte River Power Authority were asked to use less electricity, such as by postponing use of clothes driers, and using less natural gas for heating by turning down thermostats a few degrees.

Why? It gets complicated.

Steve Roalstad, spokesman for Platte River, said that turbines in the Roundhouse

Renewable Energy wind farm in southern Wyoming was shut down because of icing problems. Also, there was little wind. Snow covered Poudre Valley's solar collectors.

How about natural gas? It can be used to generate electricity, as well as warm homes and heat water. Platte River has the capacity to generate 388 megawatts of electricity through combustion of natural gas.

The supply line, though, got interrupted. Platte River has an interruptible-supply contract with Xcel Energy. "As an interruptible customer, our gas supply can be curtailed by Xcel Gas in the event that

overall system demand requires it," explains Roalstad.

Platte River ceased getting gas on Sunday afternoon, then received notice the interruption had ended early Monday morning.

What electricity that was generated came mostly from the Rawhide coal-fired power plant north of Fort Collins and the coal plants at Craig, of which Platte River is a part owner.

Natural gas is not normally a major component of the generating capacity for Platte River, just 2% annually.

Roalstad told the Fort Collins Coloradan that demand for electricity dropped by about 10 megawatts, roughly equivalent to the power needed for 5,000 to 8,000

PUC launches investigation to find out what utilities knew—or should have

households. He described the call for conservation as precautionary, well short of imminent rolling blackouts.

This poses obviously questions about Platte River's path forward. It set a goal of 100% renewable energy by 2030. The utility consists of Fort Collins, Loveland, Longmont, and Estes Park.

The Denver Post reported weather caused Xcel Energy and Tri-State Generation & Transmission, the state's two largest utilities, to make changes. But the major story is that Colorado was better prepared for cold weather than Texas.

"Colorado has gone through the exercise of weatherizing the system," said Morgan Bazilian, director of the Payne Institute for Public Policy at the Colorado School of Mines in Golden. "Overall, it seems that Colorado has been preparing very well." Will Toor, director of the Colorado Energy Office, said essentially the same thing.

But while Xcel can operate its wind turbines to -22 F, the turbines don't work when the wind doesn't blow, as is often the case during deep cold and which was the case last week. Even so, Xcel was able to dispatch electricity to points east.

If Texas famously operates its own electrical grid, this time of un-Texas-like icicles demonstrates the interconnectedness of energy. The failure of the natural gas infrastructure caused prices of natural gas to spike from \$3 an MMBtu (one million British thermal units) to \$190 per MMBtu at the Rocky Mountain-Cheyenne hub.

The Post said that Xcel Energy's Colorado subsidiary, Public Service Co., estimated it had to spend an extra \$650 million because of surging prices.

The Colorado Public Utilities Commission almost immediately ordered a fact-collecting mission of the four investor-owned gas delivery utilities along with Xcel Energy subsidiary Public Service Steam, which delivers steam to some buildings in

downtown Denver through natural gas combustion.

Commissioner John Gavan suggested a study of National Weather forecast data for the days leading up to the storm. "The question in my mind was whether there was an opportunity to act earlier to avoid the high-priced gas costs," said Gavan at the Feb. 17 meeting.

At the Feb. 24 meeting, PUC staffer Paul Gomez described 14 questions being asked of the utilities. They range from what Gavan asked for, an understanding of what the forecast were and how the utilities responded, what they did during the crisis, and did the utilities have excess gas they were able to sell after the crisis receded.

At stake is how much the regulated gas providers—Xcel, Black Hills, Atmos and Colorado Natural Gas—will be allowed to pass along costs to customers.

On Tuesday, in a letter sent to the PUC, Colorado Gov. Jared Polis emphasized the concern.

"It has come to my attention that as a result of the recent extreme winter conditions starting on February 13th across large parts of the country, some Colorado utilities might have purchased natural gas at exorbitantly high market prices and may now seek to pass the cost of the market gas prices along to customers...Consumers should not be expected to shoulder unexpected exceptional costs without first being advised to reduce usage," he said.

Polis cited the steps taken by Platte River to notify their customers about conserving power and encouraged utilities to empower consumers to make decisions about their energy consumption choices. through emails and phone calls.

"As a backstop measure, if extraordinary circumstances warrant and technology allows, customers should also be able to choose whether to opt into rolling blackouts and thereby hold themselves harmless from drastic price increases," he said.

A second, much larger question is how vulnerable utilities are to extreme weather events even in well-prepared Colorado as they deepen penetration of renewables in electrical generation.

Renewables were pilloried as the villains for the problems in Texas and elsewhere. “Poppycock,” said the New York Times, which described Texas Gov. Greg Abbott as being among the “more prominent nonsense peddlers.” Defenders pointed out that natural gas infrastructure was the greater problem, but also nuclear and even coal plants.

But the Texas problems combined with those of the Southwest Power Pool do provoke the question of what utilities and state regulators need to be thinking about as they continue down the path of decarbonization.

Seizing the moment, Colorado State Sen. Chris Hansen, a Democrat from Denver, and Sen. Dan Coran, a Republican from Montrose, used the emergency to make the case for improved electrical transmission. Hansen and Coran are co-sponsoring a bill with three major components, all of which are designed to improve transmission of electricity in and beyond Colorado.

See [“A 15,000-foot view of Colorado’s legislative climate & energy landscape.”](#)

Two Colorado electrical utilities have adopted 100% carbon-free electricity goals by 2030: Holy Cross Energy and Platte River.

To Bryan Hannegan, chief executive of Holy Cross Energy, I asked very specifically if this made the case for Colorado being better connected to California and other Western states through CAISO as opposed to the Southwest Power Pool. He didn’t take the bait.

Hannegan, who has a degree in meteorology, in addition to several

other advanced degrees that include a Ph.D., instead emphasized the need for both local generation as well as improved regional connections, along with improved storage and demand-management programs.

“The recent extreme cold weather event in Texas, like last summer’s heat wave in California and the West, makes the case for developing local energy resources—in addition to—having access to regionally diverse clean energy resources from an interconnected bulk power system,” he wrote.

“Local resources for power generation, energy storage, and demand flexibility are by definition more resilient than those that are grid-connected, yet few individuals or communities can meet all of their energy needs without an electric grid connection.

“We need a full portfolio of both local and regional options to ensure we can keep the lights on and the services flowing for the members and communities that we serve, especially when we consider the changing demands on our system from future weather and climate extremes.”

In Fort Collins, Platte River’s Roalstad emphasized the unusual nature of the 2021 deep freeze in that it “disrupted power and gas supplies across a large swath of the country, including Colorado.

“It will no doubt be incorporated into future planning,” he said. “How it manifests itself is difficult to predict at this point.”

Suggested reading: [Wall Street Journal’s Texas Freeze: Why the Power Grid Failed](#)





How Xcel Energy plans to get to 80% renewables

by Allen Best

Comanche 3, the newest coal-fired unit in Colorado, will be the last to close, at least if Xcel Energy has its way.

Xcel, the majority owner of the plant, announced Wednesday that it wants to continue operating the plant until 2040, but at a third of its operating capacity after 2030.

Maybe it will, but Xcel has some answering to do in months ahead when it will be forced by state regulators to defend the erratic operations of the troubled coal plant. Comanche 3 has been down for repairs for a third of the time since it began operations in 2010, including most of the last year.

Alice Jackson, chief executive of Xcel's Colorado subsidiary, defends Comanche 3 as

The smokestack of Comanche 3 can be seen at left in background. The two units at right are to be closed in 2022 and 2025. Foreground, the towers of the future for Xcel, more wind generation. 2017 photo/Allen Best

having several vital functions. It has, when operating, provided power at a low cost, and it will continue to provide jobs in Pueblo and a tax base in Pueblo County, easing the transition to clean energy.

But the plant also can provide important generating certainty. Xcel, says Jackson, believes the costly repairs are a thing of the past. And if the plant were retired, the generating capacity would have to be made up elsewhere—and not necessarily with renewables.

"This gives us the opportunity to allow technology to advance to get to net-zero," she said.

And despite the troubled coal-mining operations in Wyoming and elsewhere, she said Xcel is confident of deliveries needed to supply Comanche with fuel.

Utility to defend continued use of troubled coal plant near Pueblo

Xcel is hurrying along the decarbonization path. The singular statistic coming out of a preview of the plans the company will be submitting to Colorado regulators in March is electrical generation by 2030 that will consist of 80% renewables. That's 85% reduction in carbon emissions as compared to 2005, an improvement of 5% from the goal announced by the company little more than two years ago.

It proposes to achieve this new low-carbon mark by converting the Pawnee plant near Brush from coal to natural gas by 2028. Earlier this year it announced plans to close its two units at Hayden, one unit in 2027 and the next unit in 2028. It had previously announced plans to close Comanche units 1 and 2 in 2022 and 2025 respectively.

These plans were announced at a press conference that also included cameos by Gov. Jared Polis and representatives of unions and a leading environmental organization after opening remarks by Ben Fowke, the Minneapolis-based chief executive for Xcel Energy.

Fowke sought to embellish Xcel as a leading utility in decarbonization in Colorado and beyond. At least 20 other major utilities have followed in Xcel's decarbonization footsteps since the company's 2018 attention-grabbing announcement.

Technology has allowed this decarbonization, Fowke said, but stakeholders have clearly said they want it. And the direction of the marketplace is clear, he added, as it "greatly rewards companies that do and quite frankly punishes those that do not."

As it retires coal plants, Xcel proposes to add 2,300 megawatts of wind power, 1,600 megawatts of large-scale solar power, and 400 megawatts of energy storage. The company also proposes 1,300 megawatts of distributed generation solar resources, such as community and rooftop solar.

All this, said Polis, represents an alignment of economic, environmental, and public health benefits.

From 4,412 MW of coal plant capacity to 750 MW in 11 years

Xcel Energy has been seen as a leader in decarbonization, a reputation that began on a sun-splashed December day in 2018 when company officials and others gathered at the Denver Museum of Nature and Science, the city's tallest buildings in the background, to announce the intention of 80% decarbonization by 2030 and, by mid-century, zero carbon.

These declarations, bold at the time, made Xcel a national role model. In truth, others in Colorado were close behind. Just days later, Fort Collins-based Platte River Power Authority announced a provisional 100% goal for electrical deliveries to its four member cities in northern Colorado by 2030. A more cautious but no less ambitious Glenwood Springs-based Holy Cross Energy adopted the same 100% goal for 2030 in December 2020 but without caveats.

Now, the coal plants are closing in droves. Colorado had 17 coal burning units operating in 2018 that collectively had generating capacity of 4,412 megawatts.

Now, as of 2030, just one 750-megawatt plant will be operating, according to the proposal of Xcel, and that one at just a third of capacity.

Tri-State Generation and Transmission, Colorado Springs Utilities and Platte River all have or plan to close their coal plants during the next decade.

"Xcel is showing that this transition to renewable energy can be done in a way that not only saves people money and creates green jobs, but that it also reduces air pollution in Colorado and Colorado's contribution to climate change."

But Xcel also proposes to add 1,300 megawatts of natural gas, either through

construction of plants or acquisition of existing capacity. However, it plans to end 1,400 megawatts of existing natural gas, either through retirement or allowing contracts to lapse.

Still, this was a red flag to at least the Sierra Club. “Xcel has done a great job marketing itself as a climate leader without actually being one. Xcel can either be a climate leader or it can plan to waste more money on gas and keep burning coal,” said Anna McDevitt, the Sierra Club’s Beyond Coal Campaign representative in Colorado.

Western Resource Advocates was largely supportive of the proposal. Jon Golden-Dubois, president of the organization, said Xcel is actually aligning its investments to correspond with its goals. Other utilities have followed Xcel’s lead in setting goals, he said, and “now it’s time for those same utilities to come to the table where Xcel is with concrete actions to align with their words.”

But there are questions in the particulars that the Colorado PUC will likely be asking during the next year. Erin Overturf, deputy director of the Clean Energy Program at Western Resource Advocates, said commissioners should be thoughtful about how to avoid stranded costs. Will a gas plant constructed in 2028 be justified if, for example, a Biden Administration succeeds in its announced goal of cleaning the nation’s electric grid completely of carbon by 2035.

Overturf suggested that when Xcel solicits resource capacity, the answers to the perceived needs may not necessarily lead to natural gas in the same way that Xcel models have indicated will be necessary.

She also noted that having a natural gas plant doesn’t mean that it will be used, except at pinch times, such as to meet peak demands or as backup when renewables fail to deliver, such as during the mid-February deep chill. Wind turbines were idled then, even those winterized to -22 F, because there was little to no wind.

Jackson, in an interview after the press conference, didn’t defend natural gas as the bridge fuel without end. She spoke about hydrogen and ammonium-hydrogen blend, storage medium that would allow utilities to harvest and then store renewable energy for lengthy periods, something not possible with existing lithium-ion batteries. They have a storage capacity of four hours.

“There’s a lot of thinking in that area right now, just as there was a lot of interest in wind and solar 10 and 15 years ago,” she said. “So there’s a lot more to come. This is where we need to be now,” she said of the natural gas—and coal—component.

For now—if Xcel’s announced plan plays out—the 750-megawatt Comanche unit will stay in play, even if in diminished capacity.

It’s Colorado’s largest coal plant and controversial when approved by state regulators in 2004. Opponents in 2003 told state regulators that it was an investment in a soon-to-be-outdated technology, that wind in particular was coming on. PUC commissioners were unpersuaded and approved the \$1 billion plant, most of which remains to be paid for.

Members of the Colorado PUC in May unanimously agreed that an investigation was needed into whether continued investment in Comanche 3 was justified, given its frequent need for repairs. The PUC made that decision formal in October. The report is due to PUC members in the next few weeks.

In January, shortly after Comanche 3 resumed operations after being off-line for much of the prior year, an organization called Institute for Energy Economics and Financial Analysis issued a report that concluded that closing the plant was the best thing for ratepayers. The plant was originally expected to continue operations until 2070.



The Pueblo factory produces towers. 2017 photo/Allen Best

Vestas lays off 450 workers as demand slackens for turbines

The takeaway of the Vestas layoffs in Colorado is that the green economy has its ups and downs, too.

The Danish wind manufacturer in mid-February laid off 450 workers from its manufacturing plants in Colorado at Pueblo, Windsor, and Brighton and closed entirely a third factory at Brighton.

All the components of wind turbines have been manufactured at the four Vestas factories in Colorado. A second factory at Brighton produces nacelles, which houses the drive train of a wind turbine and other tower-top components.

The Pueblo factory, where towers are manufactured, lost 120 workers, down from a peak of 800, reported the Pueblo Chieftain. The closed factory at Brighton had 280 employees.

The Pueblo Chieftain reported that Vestas consolidated its manufacture of blades at its Windsor factory. The Brighton factory, which also made blades, will be repurposed to become the North American headquarters for the Vestas Global Tooling business. It is currently spread across six locations.

An economic development official in Brighton told the local newspaper, the Standard Blade (the newspaper's name preceded the arrival of Vestas about a decade ago) that Vestas was expecting a slow-down in the market for new blades and wind turbines but adding resources to maintain what already exists.

Responding to questions by Pueblo's KRDO, Vestas attributes the layoffs to lowered near-term market demand to the caused by the ramping down of the production tax credit, which was at 100% through 2020 but now ratchets down—

unless Congress decides to ramp it up again as part of the Biden climate agenda.

Boebert says renewables not ready for prime time

U.S. Rep. Lauren Boebert, speaking to oil and gas advocates and others in Grand Junction, laid the blame for the failure of the power grid in Texas on renewable energy.

“I am pushing for reliable energy, and if renewable comes to the point where they are reliable, sustainable and affordable without government getting in the way and choosing winners and losers with their subsidies, then I’ll absolutely promote them,” Boebert said, according to an account in the Grand Junction Sentinel.

“We aren’t to the point where we can get away from petroleum products. We’re not to the point where renewables can sustain our way of living,” she said.

Renewables have enjoyed subsidies in the form of the tax credits for wind and solar, but there’s a large body of evidence about the subsidies for fossil fuels.

“Instead of taxing fossil fuels for the harms they cause, significant subsidies remain in the United States and globally,” writes Leah Cardamore Stokes, in her new book, “Short Circuiting Policy. “Fossil fuel subsidies are forecast to increase from \$2.2 billion in 2018 to \$3.8 billion by 2028,” she says, citing a 2019 report from the Congressional Research Service.

Garfield commissioners oppose Biden climate plan

Garfield County’s Board of commissioner has filed opposition to the proposal by President Joe Biden to conserve 30% of the nation’s land and water by 2030 as part of his plan to address climate change.

“The 30X30 program, if implemented, is likely to cause significant harm to the economy of Garfield County and injure the



county’s businesses and its citizens by depriving them of access to public land and preventing the productive use of these lands’ resources,” the resolution reads.

The Glenwood Springs Post Independent notes that more than 62% of the county consists of federal lands, where resource development and other uses are strictly controlled.

“I like to use our public lands, and I respect them, but this action taken by the president ..., is an end run that ignores federal law and policies already in place,” Commissioner John Martin said.

Climate change is not just the future. It’s here and now.

Gunnison County looking at buildings, transportation as way to trim emissions

Buildings account for 61% of all greenhouse gas emissions in Colorado’s Gunnison County, with the residential sector having four times the square footage of the commercial sector.

How can the county ratchet down its energy use in those buildings?

The Crested Butte News reports that John Cattles, the county’s sustainability coordinator, told county commissioners recently that the first effort was made within county buildings.

“There is a lot of work we can do on buildings,” he said. “There is the most opportunity on buildings.”

For example, the upcoming airport renovations and the new Gunnison library will use fully electric heat pump systems combined with on-site solar production with the goal of eliminating need for natural gas.

Transportation is the second largest source of emissions, and that has been growing, the result of more commuting between Gunnison and Crested Butte. Vehicle miles traveled per capita in Gunnison County are 26.3 miles per person per day, compared to the Colorado average of 24.



Trio of electric buses largely met expectations in heart of Summit County's winter

Three Proterra electric buses were added to the fleet of Summit Stage in October, and so far they have largely met expectations, Summit County Transit Director Chris Lubbers tells the Summit Daily News.

"We have found that they do perform well," Lubbers said. "They're quiet, and so far, the heating isn't a problem in the extreme temperatures that we've endured recently," he said. "Obviously, the range of electric buses hasn't matched the range of diesel buses. We knew that going in.... We have found them effective and to work well on multiple routes."

The buses will soon be used on routes to Fairplay and Leadville, in both cases

requiring travel across passes of more than 11,000 feet.

The buses can run for 5 or 6 hours before batteries have depleted to around 30% and they need to be recharged. By comparison, diesel buses have auxiliary tanks that allow the buses to run for about 17 hours.

The buses cost \$875,000 each, compared to \$470,000 for diesel buses, plus \$40,000 for charging infrastructure.

Michael Wurzel, the sustainability coordinator for Summit County, said the diesel buses get about 4 to 5 miles a gallon. That equates to 80 to 100 pounds of carbon dioxide per mile.

Polis should emulate Biden, says WildEarth's Nichols

Colorado Gov. Jared Polis should emulate President Joe Biden when it comes to land policy and oil and gas leasing.

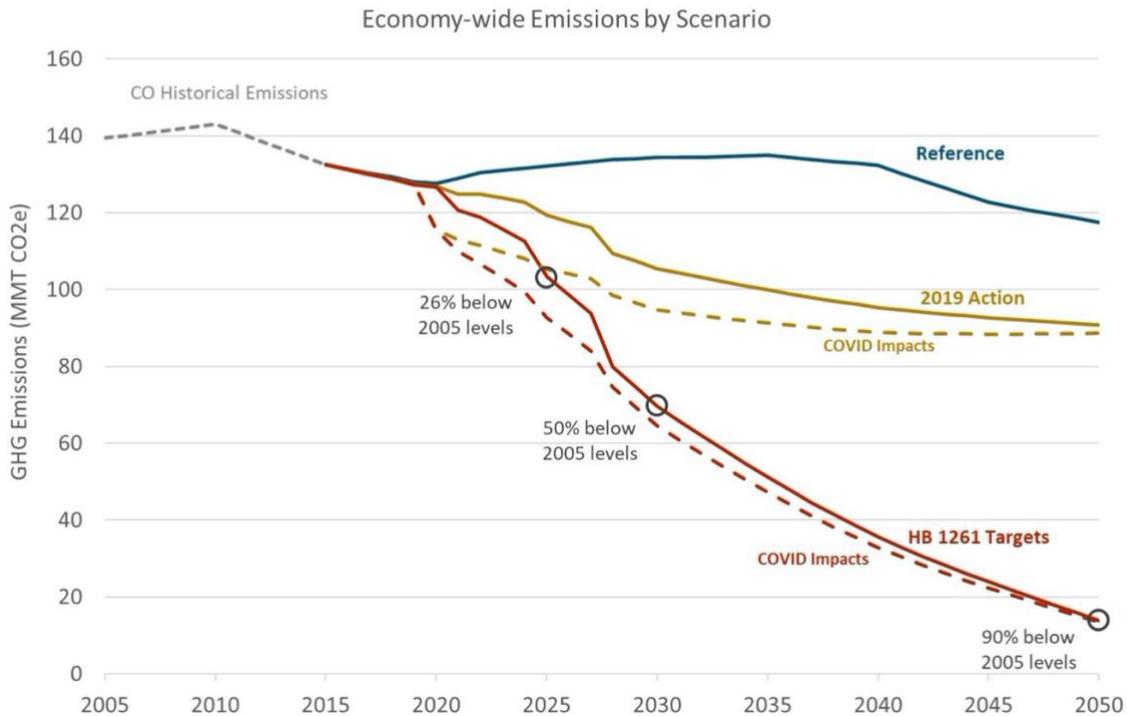
So says Jeremy Nichols of WildEarth Guardians.

"Under his watch, Colorado continues to approve massive amounts of new fossil fuel production, which will only lead to more fossil fuel consumption and more climate pollution," wrote Nichols in a column published in the Pueblo Chieftain.

The State Land Board plans to auction more than 100,000 acres of lands of oil and gas extraction, mostly in southeastern Colorado. And the Colorado Oil and Gas Conservation Commission "continues to rubberstamp more oil and gas drilling permits with no consideration of climate consequences."

Please recommend Big Pivots to those interested in Colorado's great transitions in climate, energy and more.

Subscribe at [BigPivots.com](https://www.BigPivots.com)



Can Colorado really descend this steep, steep CO₂ slope?

by Allen Best

Curtis Reuter works for Noble Energy, one of Colorado’s major oil and gas producers, and is a Republican. That makes him a political minority among the members of the Colorado Air Quality Control Commission, of which he is chairman.

In his voting, Reuter, who lives in Westminster, tends a bit more conservative than his fellow commission members from Boulder County. But on the issue of whether to move forward with a process that could have yielded carbon pricing in Colorado, he expressed some sympathy.

“I am generally in favor of market-based mechanisms, so it’s a little hard to walk away from that,” he said. at the commission’s meeting on Feb. 19. But like

nearly all the others on the commission, Reuter said he was persuaded that there were just too many fundamental questions about cap-and-trade system for the AQCC to embrace at this time. Only Boulder County’s Jana Milford dissented in the 7-1 vote. Even Elise Jones, until recently a Boulder County commissioner, voted no.

Just as important as the final vote may have been the advance testimony. It broke down largely along environmental vs. business lines.

Western Resource Advocates, Boulder County, and Colorado Communities for a Climate Action testified in favor of the cap-and-trade proposal.

From the business side came opposition from Xcel Energy, The Denver Metro Chamber of Commerce and allied chambers from Grand Junction to Fort Collins to Aurora, and, in a 7-page letter, the Colorado Oil and Gas Association.

Most businesses echoed what Gov. Jared Polis said in a letter: “While a carbon pricing program may be one of many tools that should be considered in the future as part of state efforts to achieve our goals, our

assessment of state level cap and trade programs implemented in other jurisdictions is that they are costly to administer, exceptionally complicated, risk shifting more pollution to communities that already bear the brunt of poor environmental quality, have high risk for unintended consequences, and are not as effective at driving actual emissions reductions as more targeted, sector-specific efforts,” Polis wrote.

The cap-and-trade proposal came from the Environmental Defense Fund. EDF has been saying for a year that Colorado has been moving too slowly to decarbonize following the 2019 passage of the landmark SB-1261. The law requires 50% decarbonization by 2030 and 90% by 2050.

What does a 50% reduction look like over the course of the next 9 years? Think in terms of ski slopes, and not the dark blue of intermediates or even the ego-boosting single-black-diamond runs at Vail or Snowmass. Not even the mogul-laden Outhouse at Winter Park or Senior’s at Telluride.

Instead, think of the serious steepers of Silverton Mountain, where an avalanche beacon is de rigueur.

Can Colorado, a novice at carbon reduction, navigate down this Silverton Mountain-type carbon reduction slope by 2030?

Colorado, says EDF and Western Resource Advocates, needs a backstop, a more sweeping mechanism to ensure the state hits these carbon reduction goals.

California has had cap-and-trade for years, and a similar device has been used among New England states to nudge reductions from the power sector. The European Union also has cap-and-trade.

Following the May 2019 signing of Colorado’s carbon-reduction law, H.B. 19-1261, the Polis administration set out to create an emissions inventory, then began structuring a sector-by-sector approach. For example, the Air Quality Control Commission

has conducted lengthy rule-making processes leading up to adoption of regulations in several areas.

Hydrofluorocarbons, a potent greenhouse gas used in refrigeration, are being tamped down. Emissions from the oil- and gas-sector are being squeezed. The commission this year will direct its attention to proposed rules that result in fewer emissions from transportation.

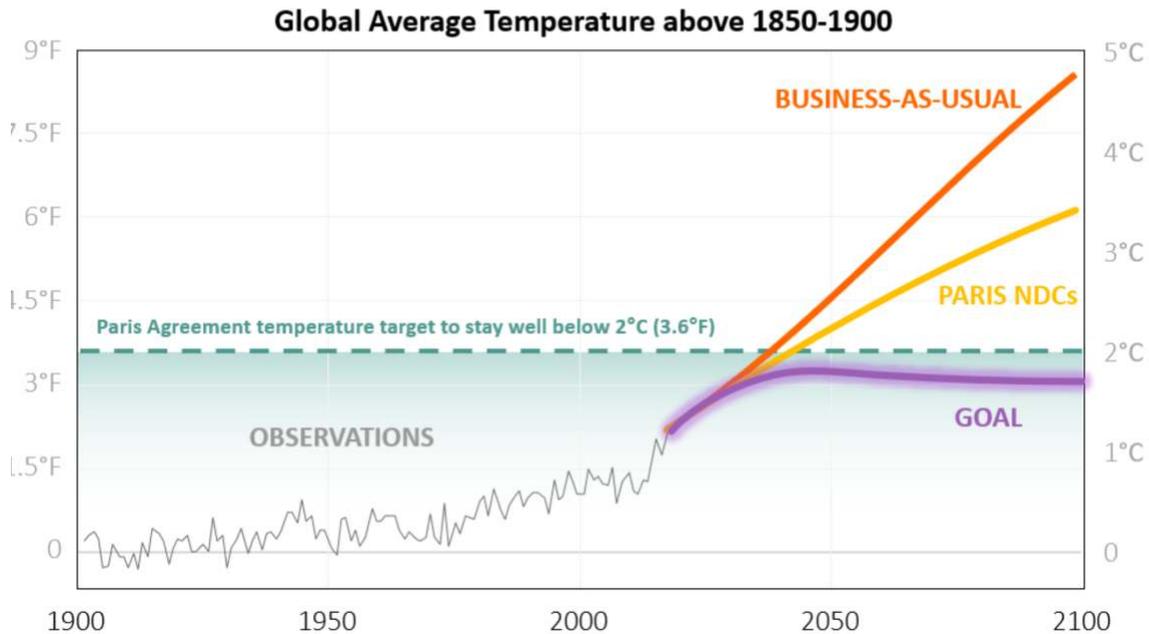
Meanwhile, the state has set out to hurry along the state’s electrical utilities from their coal-based foundations to renewables and a small amount of new gas. The utilities representing 99% of the state’s electrical sales have agreed to reduce emissions 80% by 2030 as compared to 2005 levels. Only one of those commitments, that of Xcel Energy, has the force of law. Others fall under the heading of clean energy plans. But state officials think that utilities likely will decarbonize electricity even more rapidly than their current commitments. That 80% is a bottom, not a top.

Will Toor, director of the Colorado Energy Office, presented to the Air Quality Control Commission an update on the state’s roadmap. The document released in mid-January runs 276 pages, but Toor boiled it down to 19 slides, which nonetheless took him 60 minutes to explain. It was a rich explanation.

Toor explained that Colorado needs to reduce emissions by 70 million tons annually. The Polis administration thinks it can achieve close to half of the reductions it needs to meet its 2030 target by 2030 through the retirement of coal plants and associated coal mines. Those reductions alone will yield 32.3 million tons annually.

The oil and gas sector should yield a reduction of 13 million tons, according to the state’s roadmap. That process had taken a step forward the previous day when the Air Quality Control Commission adopted regulations that tighten the requirements to minimize emissions from pneumatic

Where we want to be



controllers. Later this year, the AQCC will take up more proposed regulations.

Replacement of internal-combustion technology in transportation will yield 13 million tons. The Polis administration foresees deep reductions in transportation, partly through an incentives-based approach, even if it's not clear what all the components of the strategy look like.

Near-term actions in buildings, both residential and commercial, and in industrial fuel use can yield another 5 million tons annual reduction.

Waste reduction—methane from coal mines, landfills, sewage treatment plants, and improved recycling—will nick another 7.5 million tons annually. More speculative are the strategies designed to reduce emission from natural and working lands by 1 million tons.

Add it all up and the state still doesn't know how it will get all of the way to the 2030 target, let alone its 2050 goal of 90% reduction. Toor and other state officials, however, have expressed confidence that the roadmap can get Colorado far down the road to the decarbonization destination and is skeptical that cap-and-trade will.

"I would agree with the characterization that cap-and-trade guarantees emissions reductions," said Toor. In the real world, he explains, those regimes struggle to achieve reductions particularly in sectors such as transportation where there are many decisions. The more demonstrable achievement has been in producing revenue to be used for reduction strategies.

"I don't know that the record supports that they guarantee a true pathway toward reductions of emissions."

In contrast, the roadmap has identified "highly enforceable strategies" to achieve reduction of 58 to 59 million of the 70 million tons needed by 2030, he said.

Some actions depend upon new legislation, perhaps this year and in succeeding years.

In the building sector, for example, the Polis administration sees "very interesting opportunities" with a bill being introduced into the legislature this year that would give gas-distribution companies targets in carbon reduction while working with their customers. See, ["Colorado's legislative climate & energy landscape."](#)

“This isn’t something that we are going to solve through just this year’s legislative session and this and next year’s regulatory actions,” said Toor. He cited many potential pathways, including hydrogen, but also, beyond 2030, the potential for cost-effective carbon capture and sequestration.

Later in the day, Pam Kiely and Thomas Bloomfield made the Environmental Defense Fund’s case for cap and trade. They described a more significant gap between known actions and the targets, a greater uncertainty about hitting the targets that they argued would best be addressed by giving power and other economic sectors allocation of allowances, which can then best be moved around to achieve reductions in cost-effective ways.

One example of cap-and-trade actually involves Colorado. The project is at Somerset, where several funding sources were pooled to pay for harnessing of methane emissions from the Elk Creek Mine to produce electricity. The Aspen Skiing Co. paid a premium for the electricity, and Holy Cross Energy added financial incentives. But a portion of the money that has gone to the developer, Vessels Coal Gas Co., is money from California’s cap-and-trade market

Kiely said Colorado’s 2019 law directed the Air Quality Control Commission to consider the greatest and most cost-effective emissions reductions available through program design. That, she said, was explicit authority for creating a cap-and-trade program.

“We think it’s a relatively light (legal) lift,” said Bloomfield. “You have authority to charge for those emissions.”

Further, Kiely said, cap-and-trade will most effectively achieve reductions in emissions and will do so faster than the state’s current approach. It will deliver a consistent economic signal and be the most adaptable. “The program does not have to predict where the optimal reduction opportunities will be a year from now

without information about the relative cost of pollution control technologies, turnover rates in vehicles and other key uncertainties,” she said.

Then the questions came in. Kiely rebutted Toor’s charge of ineffectiveness. The most telling criticism of the California program was that the price was too low, she said.

What defeated the proposal—at least for now—were questions about its legality. Colorado’s Tabor limits revenues, and commission members were mostly of the opinion that their authority revenue-raising authority needed to be explored in depth.

Garry Kaufman, director of the Air Pollution Control Division, said that doing the work to rev up for a cap-and-trade program would require a “massive increase in the division’s staff,” north of 40 to 50 new employees, and the division does not have state funding.

He and others also contended that pursuing cap-and-trade would siphon work from the existing roadmap.

Then there was the sentiment that for a program of this size, the commission really did need direct legislative authority.

Commissioner Martha Rudolph said that in her prior position as director of environmental programs at the Colorado Department of Public Health & Environment, she had favored cap-and-trade. Not now, because of the legal, resource, and timing issues.

Elise Jones, the former Boulder County commissioner, voted no, but not without stressing the need to keep the conversation going, which is what will happen in a subcommittee meeting within the next few years.

“This is not now, not never,” said Reuter of the vote. This is conversation that will come up again, maybe at the federal level or maybe in Colorado a few years down the road.”

Xcel cuts emissions 12% last year—and made a tidy profit

Xcel Energy during 2020 reduced carbon emissions across its eight-state service territory by 12% as compared to 2019 levels. This comes after a 10% reduction in 2019 as compared to 2018 levels.

Since 2005, Xcel has reduced carbon emissions by 51%.

“Even after factoring in the effect of the global pandemic on our operations, we are well on our way to achieving our goal of reducing carbon emissions 80% by 2030 and are more than halfway to delivering 100% carbon-free electricity to our customers, all while keeping their service reliable and energy bills low,” said Ben Fowke, chief executive of Xcel Energy.

A release from Xcel pointed out that the U.S. electric power sector has reduced carbon emissions 40% by the end of 2020 as compared to 2005. It cited data from the U.S. Energy Information Administration.

“We’re making tremendous progress toward delivering on our clean energy goals,” said Fowke.

Xcel has been expanding in wind and using natural gas generation as a backup, reducing use of its coal plants.

In Colorado, Xcel subsidiary Public Service Co. was 36% non-carbon electric generation in 2020, with 26% coal and 38% natural gas.

Combing the Public Service Co. filing with the U.S. Securities and Exchange Commission, energy activist Leslie Glustrom of Clean Energy Action points out that the company had \$588 million in after-tax net income in 2020, up \$10 million from the year before, despite the pandemic.

Residential revenue per kilowatt-hour was 11.46 cents. For large commercial customers, revenue was 6.51 cents a kilowatt-hour.

In Boulder, where Glustrom lives, she estimated that Xcel had after-tax profits of \$23.5 million.

“Nice business if you can get it... but of course you can’t,” she added, an allusion to the vote by Boulder voters in November to approve a franchise agreement with Xcel after a decade of exploring municipalization of the power supply.

Xcel Energy depends upon coal from Wyoming’s Powder River mines for the Comanche and Pawnee plants, which are located at Pueblo and Brush. Those Wyoming mines have been much in the news this year.

The Eagle Butte and Belle Ayr mines used to be sole suppliers to Xcel’s two coal plants in eastern Colorado. The operator of those mines, Blackjewel, went belly-up, leaving a lot of unpaid debts. The Powder River Resource Council reported that a legal filing disclosed that over \$32 million in royalties on the federal coal leases at the Belle Ayr Mine remained unpaid and that \$27.8 million on royalties were unpaid at the Eagle Butte Mine. There are also debts to Wyoming’s state government.

Meanwhile, mining behemoth Peabody Coal lost \$1.9 billion in 2020, while Arch is looking to reduce operations in the Power River Basin.

“This all raises questions about how long Xcel will have a reasonably priced coal supply for the Brush and Pueblo coal plants—and this is, of course, going to be a key question in their 2021 electric source plan,” says Glustrom.

And continued troubles in Wyoming coal fields from which several Colorado plants get fuel

What will be role of Tri-State G&T in helping co-ops?

A master's thesis by two students at the University of Colorado-Boulder explores the relationship between electrical co-operatives and the generation and transmission organizations, or G&Ts, that supply most, but not all, of them.

What, ask Kayla Carey and Nathan Stottler, is the best way for the co-ops that serve most of rural American to further engage in the clean energy transition?

Co-ops serve 56% of the geographic area of the country, serve 42 million people and sell 13% of electricity consumed.

In particular, they explore the relationship of the G&Ts and what they call the culture of coal. Coal-fired generation contributes to roughly 23.5% of the nation's electricity mix but 40% of the electricity consumed by members of co-ops.

How can co-ops best move forward?

Their paper explains the challenges of the co-ops from their founding to those of today. One constant has been that of density of customers. Investor-owned utilities deliver power to about 35 customers per mile of power line, municipal utilities 47 customers per mile, but co-ops 7. That sometimes gets overlooked in the comparison between investor-owned utilities such as Xcel Energy, Colorado's largest, and Tri-State, its second largest.

Tri-State is only mentioned once in the first 60 pages of the thesis, but then comes up frequently in two case studies, one about the 2016 departure of Kit Carson Electrical Cooperative and then a second case study that is focused on efforts by United Power to exit and Tri-State's

appeal for jurisdiction by the Federal Energy Regulatory Commission.

They conducted 42 interviews, 31 of them from Colorado and other Tri-State states.

The interviews yielded conversations about the difficulty of stranded assets for the G&Ts and questions of the debt. That would be a more narrow but worthy research study. It's a common discussion topic among those who follow Tri-State, if one rarely talked about in public.

Another idea briefly mentioned is that the time has come and gone for G&Ts, at least for the generation component of that mission. Kit Carson provides an argument that this is true, and Holy Cross Energy another. But these are unusual co-ops.

They uncovered the complaints familiar in the scuffles between the dissident members of Tri-State that reform in the governance model is needed. One complaint is that each member co-op gets one vote, whether United Power with its 97,000 members or the smallest co-op with its 1,700 members. Most smaller coops, without staff expertise, tend to defer to management.

They concluded that G&Ts likely provide the fastest route to co-op decarbonization, but the co-ops need to work with the G&Ts to create a more flexible approach to meet the needs. "Not accommodating the merging needs of their fellow member co-ops may lead to the collapse of the G&T model," they conclude.

Many ideas would be a worthy research topic for these grad students should they elect to continue their environmental studies in the realm of energy at the Ph.D. level. While knowing little about environmental programs, I wonder if an intertwining with business and economics studies would be crucial.

Meanwhile, the non-academic world of energy moves along briskly. The narratives of 2017 or even 2018 already seem like medieval history.

Colorado's 2nd largest electrical cooperative hires WAPA executive

by Allen Best

Well, this adds a new and perplexing dimension to the dispute between United Power, Colorado's second largest electrical cooperative, and its wholesale power supplier, Tri-State Generation and Transmission.

United Power has hired Mark Gabriel as its chief executive. Gabriel has spent the past eight years as chief executive of the Western Area Power Administration. WAPA delivers electricity generated at the federal dams in Colorado and beyond to municipal utilities and cooperatives and the G&Ts that supply many of the cooperatives.

Just three weeks ago, Gabriel was on a press conference with Duane Highley, chief executive of Tri-State, to announce the launch of an energy imbalance market. Tri-State and WAPA, both based in metropolitan Denver, have a close relationship.

United Power, meanwhile, has been trying to get out of its contract with Tri-State. The contract expires in 2050. United Power had sought to follow in the steps of Taos, N.M.-based Kit Carson Electrical Cooperative, which left Tri-State in 2016, and Montrose, Colo.,-based Delta-Montrose Electric, which left in 2020. Both paid exit fees, in the case of Delta-Montrose after a

protracted dispute about what constituted a fair and reasonable fee for breaking the contract.

Based in Brighton, on Denver's northern side, United Power is the largest of Tri-State's 42 remaining electrical cooperative members, with roughly 97,000 meters. It has service territory from exurban homes in the foothills around Rollinsville sweeping eastward onto the Great Plains, including a substantial portion of the Wattenberg oil-producing field.

United believes it can get better deals for its wholesale power independent of Tri-State. It has rejected Tri-State's exit fee, which has not been disclosed publicly but which has been said to be in excess of \$1 billion. United and Durango-based La Plata Electric Association appealed to the Colorado Public Utilities Commission to adjudicate, and a week of hearings were held last summer before an administrative law judge. The judge recommended exit fees in line with what the cooperatives had been thinking. However, the PUC commissioners later said they could not accept the case—at least not now, pending resolution of whether they have jurisdiction.

This is where it gets really interesting. Under Highley, who arrived as chief executive in April 2019, Tri-State has sought



Mark Gabriel

Does your organization want to support Big Pivots through an advertisement or just a box, like this, that says: We support this kind of hard-working journalism?

BIG  **PIVOTS**

I hope so! Please call or e-mail me: 720.415.9308 or allen.best@comcast.net

to get review by the Federal Energy Regulatory Commission, bypassing the PUC on the matter of rates—and hence also the matter of exit fees. FERC has partly accepted Tri-State’s filing, but the devilishly details are yet to come.

United Power, in the meantime, last year filed a lawsuit in Adams County District Court, the jurisdiction in which the headquarters of both Tri-State and United are located. The lawsuit alleges that Tri-State violated state law in the mechanism it used to get FERC jurisdiction. It added several non-utility members, including a greenhouse in Fort Lupton and a ranch near Craig, to qualify.

Durango-based La Plata Electric, which also has an interest in exploring its options, recently joined the lawsuit, but under the terms that it is not responsible for legal costs.

Highley is not shy about public appearances. “Watch our feet,” he told the Colorado PUC shortly after he arrived as CEO, promising the utility would decarbonize. If details remain to be worked out, he has launched Tri-State on a big pivot. Speaking recently by video-conference with about 160 Sierra Club members and others, he sketched a powerful case for seeing Tri-State as a utility on the move. He also took on many hard questions, including one about the route to Washington D.C. offices through the greenhouse in Fort Lupton.

Now, Highley will be seeing his former partner in creating the imbalance market in the courtroom. Or perhaps Gabriel will help Highley figure out a way for Tri-State to remain relevant in the fast-shifting energy world of the 21st century.

In 2008, Gabriel completed a book, *“Visions for a Sustainable Energy Future,”* which won the Indie Award for Environmental Writing.



That was before the disruptions in the old business models were only being talked about. Now, they’re occurring. Far beyond Colorado and the Rocky Mountains, electrical co-operatives are trying to break free from their wholesale suppliers to find better deals for electricity.

Some see the G&TS and other more traditional utilities to the Baby Bell monopolies of the 20th century. Time will, as they say, say.

Gabriel brings 25 years of industry experience, including more than eight years as a management consultant and acting president at the Electric Power Research Institute where he led the nationwide effort known as the [Electricity Sector Framework for the Future](#).

When he was much younger, though, Gabriel was a ski writer, covering the racing circuit.

You can see more about his views on [this video](#) from October 2020 sponsored by the Smart Electric Power Alliance.

For more on Tri-State and its disputes with members, see:

[Two small victories for Tri-State](#) from Dec. 18, 2020

[Tri-State’s big win at PUC](#) from Oct. 24, 2020

[The cost of leaving Tri-State G&T](#) from July 11, 2020

[United Power alleges Tri-State crossed legal line](#) from May 5, 2020

Please recommend Big Pivots to those interested in Colorado’s great transitions in climate, energy and more.

Subscribe at BigPivots.com