

BIG PIVOTS

ENERGY and WATER transitions in Colorado and beyond

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Golden council blesses all-electric buildings policy draft, but first asks for fine-tuning

by Allen Best

Golden could require all-electric in new construction by as early as January 2024.

The city council Tuesday evening gave staff members direction to continue working on a roadmap but with additional research and public meetings to resolve concerns about a proposed requirement for on-site renewable generation that some community members see as problematic.

Crested Butte was the first jurisdiction in Colorado to ban natural gas. The regulations it adopted last August allow natural gas only within special cases, such as for restaurants and other commercial uses, in the 100-plus lots remaining to be developed.

As Colorado jurisdictions go about updating their building codes, several are still undecided about whether to ban natural gas or other fossil fuels for space and water heating. Some have decided to lay the ground-work for all electric without actually raising that bar. Many, perhaps most,

have given no thought to the day of all-electric buildings.

Towns, cities, and counties have until July 1 to update their building codes to recent iterations of the national standard or accept a code being drawn up by a state committee identified in 2022 legislation.

Golden is not facing that deadline as it has already adopted the 2021 national building codes. Instead, it is being pushed by its own climate action goals, which correspond with the Paris Accord of 2017. To hit its targets, Golden will have to achieve 100% renewables for heating by 2050.

As was observed at the council meeting, the first step in achieving that ambitious goal will be to stop digging a deeper hole. Building new houses that burn natural gas digs the hole deeper because they will ultimately have to be retrofitted. The city has 9,459 buildings.

“Every new building that is constructed and every existing building that is retrofitted



Golden resident Ken Jacobs told city council members that all-electric buildings will prevent spikes in utility bills such as those for natural gas this winter. Photo/Allen Best

without efficiency and electrification as a primary objective works directly against the City’s Goals,” says a report given to the city council members.

In raw numbers, this all-electric requirement will have marginal impact in that Golden is land-locked. That limits new construction to infill or to replacement of existing buildings. In the last five years, Golden has had no more than 17 new single-family houses in any given year. The maximum for one year was 8 commercial buildings.

If modest in numbers by itself, Golden’s work can best be understood in the broader context of local communities looking to reinvent our energy systems. Golden studied what others are doing in Colorado and beyond and expects that others will in turn study what Golden has done.

The efforts to crowd out natural gas from buildings constitutes the most easily identified story. Theresa Worsham, the sustainability director for Golden, emphasizes that each community’s needs are likely to be different, and its decarbonization plans need to be similarly different.

What works for Denver is entirely appropriate there, “but it does not suit Golden,” she says. “That is why we are coming up with a lot of solutions across many communities. Golden’s plan works for our scale and size and might also work for other jurisdictions similar to Golden.”

After adopting a resolution aligning the city’s goals with those of the Paris Accord in 2017, Golden in 2019 adopted its climate action goals and then, in 2020, began assembling the document that more narrowly addresses emissions from buildings. Two city-appointed commissions—the Community Sustainability Advisory Board and the Planning Commission—were principally responsible for creation of the recommendations, called “A Roadmap to Net-Zero Buildings.”

In addition, 12 community members with a diversity of interests and backgrounds were enlisted to participate in the Energy Code Stakeholder Group.

Others from the city’s affordable housing, building and planning staffs were also engaged, and several dozen public meetings were held, some with the specific intent of inviting comment from builders and others.

The report to the city council identified four strategies. One would require owners of commercial buildings of 5,000 square feet or more to track their emissions. The state now has a similar requirement for buildings 50,000 square feet or more. The idea is to get building owners and managers to understand their emissions with the potential for instituting programs in the future that may seek to reduce emissions. Among the city’s goals, adopted with the Paris agreement, is to squeeze energy use in all buildings by 15% through efficiency measures.

Another strategy—given virtually no attention at the city council meeting—would commit the city to further research during 2023 about how to convert existing buildings toward net-zero all-electric in coming years.

Still to be worked out is how the policy will address building retrofits. Ken Jacobs, a member of the sustainability committee for six years who remains involved, suggests the most effective policy would trigger the net-zero requirement if the remodeling is extensive enough to require new heating systems. Building professionals may have other and better ideas, he says. But in any case, retrofits will be more complicated than new builds.

Where Golden’s work stands most prominently is the proposed requirement for on-site renewable generation. This proposed requirement comes from core assumptions by the Golden groups who worked on these

Big Pivots has been deeply researching the status of building code updates in Colorado and will have an issue devoted to this very soon.

recommendations. While it might easily be possible to import all of Golden’s electricity from distant wind and solar farms, the groups concluded that the city has a moral responsibility to generate electricity locally. This also has the advantage of furthering the city’s interests in resilience.

The proposed regulation would require that on-site energy storage be deployed or off-site solar via solar gardens located in Golden. The last resort would be purchase of renewable energy credits for renewable energy systems located in Colorado.

This on-site requirement provoked nearly the only red flag. Articulating that concern was Angela Schwab, principal architect at AB Studio.

She said she supports sustainability goals, including the 100% net-zero goal. However, it may not work well in the case of some commercial properties and other special properties, such as those with view and other considerations, she said.

To illustrate her concerns, she cited her work on the Astor House, a stone hotel built in 1867, when Colorado was a territory and Golden was its capital.

The building has been expanded to accommodate an art gallery but also improve accessibility as required for buildings on the National Register of Historic Places. Regulations for such buildings preclude solar on the roofs.

Solar panels could be located on the ground, but that would have conflicted with the planting of trees and the planned open space.

Golden’s city staff and advisory board will be working over concerns centered around the on-site renewables requirement in coming weeks and months.

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Tri-State plans to keep burning coal in Craig until 2030. Why so?

by Allen Best

Tri-State Generation and Transmission wants to stay the course on operating its last coal-fired unit in Colorado through 2029, as it had previously announced. It says it needs to do so to ensure reliability and it also cites concerns about supply chains needed for new renewable energy.

Some environmental watchdogs question the assumptions upon which that planning is based, including the modeling of weather extremes for both winter and summer lasting two weeks.

In a report to the Colorado Public Utilities Commission on Monday, the wholesale supplier explained that it prefers to add 200 megawatts of wind in 2026, even though it will have 596 megawatts of “long capacity.”

It has committed to closing the first two units at Craig before 2026 and 2029 but wants to continue to keep operating the 448-megawatt coal unit at Craig through 2029. It also owns coal-burning units in Wyoming and Arizona. It specifies plans for the latter unit to continue until 2040.

Tri-State, which provides power for 17 of Colorado’s 22 electrical cooperatives, calls its revised preferred plan an “aggressive, yet incremental, approach.” Just a few paragraphs later in the filing, however, it describes itself as “cautious.”

Tri-State says it expects to cut emissions associated with generation of electricity for its Colorado members 81% in 2030 as compared to a 2005 baseline. That will put it at 70% “clean” electricity.

This compares with 80% clean energy for Xcel Energy by 2030 (and an 85% reduction

from 2005. Two other power providers in Colorado, Holy Cross Energy and Platte River Power Authority, both aim for 100%, although the latter’s stated goal comes with many conditions about what will be necessary for it to succeed.

Crucial to Tri-State’s needs will be the demand from its members in coming years. Three of the 42 members in its four-state operating area have given notice they will be gone. Brighton-based United Power expects to be independent by May 2024 and Granby-based Mountain Parks Electric in January 2025. This assumes that the Federal Energy

Regulatory Commission approves a formula for determining how much they must pay on their way out the door to leave remaining Tri-State members “whole.” A recommendation from an administrative law judge last year that generally favors the

departing members. Whatever the outcome, however, that decision can be appealed.

What matters entirely is that the two cooperatives in Colorado alone constitute more than 20% of the demand for electricity supplied by Tri-State. A third member, in Nebraska, accounts for another sliver.

Tri-State’s preferred alternative assumes that these three co-ops remain members but also acknowledges they may be gone. “Tri-State must be cautious about pursuing new resources based on a load forecast that includes these members,” says the filing.

Big Pivots sought an interview with Duane Highley, the chief executive of Tri-State, proximate to the posting of this 150-day filing with the PUC. That offer was not accepted. However, he was interviewed in December by Llewellyn King, a contributor to Forbes. For the excerpts of that interview, see the next page.

The Sierra Club’s Matthew Gerhart, an attorney, and Eric Frankowski, program director for the Western Clean Energy

The preferred portfolio is premised on assumptions about membership and threat of extreme weather

Campaign, shared their observations about the filings with Big Pivots.

Gerhart points to the assumption about retaining members that is a premise for the need to continue operations at Craig until 2030.

He also points to another major assumption that he believes helps Tri-State conclude it needs to continue operating Craig. The modeling incorporates extreme weather events lasting two weeks each in winter and in summer.

Extreme weather has become a greater concern in electric planning in the wake of the Pacific Northwest heat dome in June 2021 that caused temperatures in Portland to rise to 118. Climate change scientists predict more weather extremes as the atmosphere warms.

There is also the precedent of winter Storm Uri in February 2021. Temperatures plunged and the winds ceased.

Gerhart, however, challenges modeling that plans for two-week-long weather events. The modeling required by the PUC of Xcel Energy was for extreme heat for only one day. The windless portion of the winter storm in 2021 lasted only three days.

"I have not seen Tri-State provide any historic weather data or any climate forecasts

that correspond to the specific weather events that they modeled here," says Gerhart.

Frankowski, at the Western Clean Energy Campaign, accuses Tri-State of using these and other assumptions he contends are unfounded in arriving at a conclusion that justifies continued operation of Craig's final unit beyond 2027.

"When you add up all the ways Tri-State is massaging and manipulating the data it puts into its modeling, it kind of amounts to putting their thumb on the scales and tilting the outcome in favor of keeping their coal assets running as long as possible," he said. "Coal is expensive, and in the end, the people paying for Tri-State's skewed results are rural Coloradans who get their power from member co-ops. That seems hugely unfair."

Frankowski points to a January 2023 study by Energy Innovation Policy and Technology, the think tank headed by Colorado native Hal Harvey. That study, "[Coal Cost Crossover 3.0 Report](#)," found that electricity from the Craig Generating Station (all three units) is 62% more expensive than power from solar projects in the region. He believes that Tri-State also underestimated the benefits of using battery storage as a source of energy.

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A huge question mark is how technology may evolve in the next few years that can diminish concerns about reliability of renewables. Lithium-ion batteries are limited in duration, but 100-hour storage technology will be tested in a pilot project at Pueblo beginning in 2025. Breakthroughs in long-duration storage would seem to be a game-changer. Tri-State acknowledges technological innovation but makes no bets.

Another major change that should cushion the intermittency of renewables is creation of a new market or annexation into an existing market knitted together across a broad geographic region.

Highley, the chief executive, has spoken often and enthusiastically about the prospects of joining the Southwest Power Pool, the Arkansas-based regional transmission organization. A Colorado law requires Colorado utilities to join a regional transmission or organization by 2030.

In his December interview, Highley stressed his concerns about reliability. He said he worries about the inability of utilities to keep up with growing demands for electricity.

“The day of reckoning is coming, when the weather is going to catch up to us and we will have another of those Uri-type events, and there will be loss of life if the lights go out,” he said. “I sincerely hope that won’t happen, but I don’t think we will get serious about the realities of the energy transition.”

In the interview, which was also on PBS, Highley described the energy transition being directed by many state regulatory bodies but at a pace faster than the industry can cost-effectively adjust and also faster than the supply chain can catch up. “The supply chain can’t absorb more money,” he said.

“‘Electrify everything’ means, eventually, you have to rebuild the transmission system to higher capacities, and we don’t have grids that can carry 40% more than we are now serving.”

In May 2022, Tri-State announced it would accept proposals for new generation. That RFP yielded 274 eligible proposals, which were filtered through various considerations, including transmission connections, community stewardship, and the bidder’s prior development experience.

This left 11 bids that were then integrated into models. They included 5 bids for a total of 630 megawatts, 2 for wind (with the total megawatts redacted from the public filing), plus several bids for solar-plus battery and for standalone battery.

All this, in Tri-State’s preferred alternative, yielded 200 megawatts of wind.

Tri-State also examined four other alternatives, which it calls models, that in the eyes of the wholesaler, fall short. Standing out was the model that would have closed Craig 3 by the end of 2026.

This portfolio, says Tri-State, “results in the addition of an unrealistic and costly amount of new hybrid renewable-storage resources to meet reliability metrics,” says the PUC filing. “Further, the availability of such resources from experienced bidders at the size and locations needed, at a competitive cost, is uncertain and likely to come with significant curtailment costs and a need for additional third-party transmission capacity reservations.”

Stakeholders have until March 30 to file comments, after which Tri-Sate will have several week to respond. Then it will be up to the PUC to make a decision.

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James Gaspard, chief executive of Biochar Now, explains the process.

be used to manufacture the biochar such as is now underway at Biochar Now, an operation located in Northern Colorado near the community of Berthoud.

Nearly all the testimony before the committee was in support. Jan Rose, of the Colorado Coalition for a Livable Climate, said that biochar would address fire issues in the wildland-urban interface while stanching emissions from wells. She pointed to a University of Colorado study that concluded that 24.6% of Colorado's wells have high rates of

Can biochar plug Colorado's 49,000 inactive & abandoned oil and gas wells? Proposed study gets committee nod

A bill that proposes a \$112,000 study that could lead to a pilot biochar project was approved by the Colorado House Energy and Environment Committee. The intent of the study will be to examine whether biochar can be used to plug oil and gas wells and sequester carbon.

Colorado has 49,000 wells that are sometimes called orphaned, meaning they are not being used for active production. The intent would be to sequester carbon into the well bores and block emissions from the wells.

Biochar is defined in the proposed legislation as the solid carbon-rich product made when woody biomass undergoes pyrolysis in an oxygen-depleted atmosphere at approximately 800 degrees C.

Rep. Karen McCormick, a bill sponsor, told committee members that the study would assess the costs associated with plugging the wells and determine the amount of biochar available for use in the state. The presumption is that beetle-killed trees would

leaking.

"Everyone wins with this bill," she said. "That's not that common in the Legislature."

Representatives of the Sierra Club, 350.org, and Boulder County also testified in support.

Julie Murphy, administrator of the Colorado Oil and Gas Conservation Commission, said she has the same questions that others have about whether biochar can provide a better answer to plugging orphaned wells. "And that underpins why I think this study is necessary."

The bill sailed through the committee with an 8-2 vote. The two nays both came from Republicans who represent oil and natural gas producing areas of Colorado. Rep. Gabe Evans, from Weld County, said he had no problem with biochar but he was bothered by the bill's legislative declaration. That declaration talks about mitigating the impacts of climate change and declared it important to create opportunities for the oil and gas industry to permanently sequester carbon from the atmosphere.

Rep. Ty Winter, from Las Animas County, echo those concerns.

"I come from a district where we do produce, and there are some issues to take with the language," he said.

Two ‘statement’ bills fail in the Legislature

by Allen Best

Two bills tossed into the hopper that are best described as “statements” were quickly dispatched by Colorado legislative committees. Both were on party-line votes.

One bill killed by the Colorado House and Energy and Environment Committee would have preempted local jurisdictions from prohibiting fossil fuels in homes and other buildings.

Another bill, which was killed by the Senate Transportation and Energy Committee, proposed to define nuclear energy as “clean energy.”

The nuclear bill, SB23-079, was sponsored by Sen. Larry Liston, a Republican from Colorado Springs. He called the bill “symbiotic” and drew attention to the federal Inflation Reduction Act of 2022. That law delivers tax benefits both for existing nuclear power plants but also for a new generation of technology called small modular reactors.

Liston and the witnesses in support of the bill described nuclear energy as safe. “It has a very admirable safety record in the United States,” he said.

In producing nearly 19% of all electricity in the United States, the technology produces only 2,900 metric tons of spent fuel a year, an amount that comprises less than half the volume of a regular-sized swimming pool, he said. The spent fuel is encased in concrete and steel.

In his statements, though, Liston did not mention the enormous cost overruns making new nuclear power plants uncompetitive. At some point, backers have pulled the plug.

Now comes the idea of small modular reactors. In going smaller but in bulk, components can be created factory like, reducing costs and making the electricity competitive.

Plans have been laid for one reactor in Wyoming at the site of a soon-to-be-closed coal plant at Kemmerer. The hope remains of that project coming on line by 2030. Another project is proposed nearby in Idaho.

“I believe if a small modular reactor in Wyoming proves to be successful, Colorado will take a very keen interest in developing small modular reactors in several locations, especially in northwest Colorado at the town of Craig,” said Liston.

Others suggested that the coal plants at Hayden and Pueblo could be turned into nuclear plants.

Why was this bill needed?

“It will never be built if we do not allow nuclear energy to be considered a form of clean energy in the state,” said Liston.

Liston also pointed to the need for dispatchable energy, electricity that can be

generated without relying upon either local renewable generation or the transmission system capable of moving renewable energy around different parts of the country.

The committee produced a “design” of engineers (yes, that’s what a group of engineers is called—look it up). Most testified in support. One called nuclear the “biggest bang for the buck.”

Lynn Burning, of Denver, (those testifying are not required to spell their names, so this is just a guess) pointed out that the Bighorn Solar Project adjacent to the steel mill in Pueblo has a generating capacity of 300 megawatts, weather permitting, enough to power 60,500 homes. The panels cover 1,800 acres. Only 2,050 acres are needed in New York state for three nuclear plants that supply electricity for 3.8 million homes.

“We may not want nuclear power, but we need it,” she said.



Larry Liston

Former state senator Greg Brophy suggested that nuclear will be needed to avoid times in the future such as occurred early one morning in late January. It got to 10 below, power demands rose—and the wind stopped blowing and, of course, the sun was not shining.

“If the goal is to be completely carbon-free by 2050, I don’t think you can do it without adding nuclear to our fleet of electrical generation,” said Brophy.

One or two engineers, however, did testify against. Richard Andrews, who said he had worked in the nuclear industry, pointed out that nuclear power plants were a first target of the 9/11 terrorists who then chose more symbolic targets about which we are all too well acquainted. Had they gone with their first plan, “an entire region of the country would have been made uninhabitable,” he said.

The bill failed on a party line vote. Sen. Cleave Simpson, who represents the San Luis Valley and southwestern Colorado, pointed out that renewable energy once was also out of the money. A professional engineer, Simpson also suggested some delight in having a proceeding with a prodigious presence of engineers.

Even among the five Democrats who voted no there were suggestions that the discussion was not entirely over. “The technology is getting better and will be part of net-zero,” said Kevin Priola. However, he cut to the quick with his observation that even if the bill was passed, it wouldn’t change anything.

In other words, this was a statement bill.

For the record, the Colorado Senate actually has a nuclear engineer among its ranks. Chris Hansen received his bachelor’s degree from Kansas State while tripping through academia on his way to a Ph.D. in resource economics from Oxford. See his observations in this piece from August 2022: [“Hope for a nuclear future.”](#)

Also see what Hal Harvey, a co-author of *The Big Fix*,” had to say in an interview with

Big Pivots in December: [“Can turning the corner on global warming really be this simple?”](#)

My takeaway: We may need nuclear and the cost and disposal issues may be resolved appropriate to the risk, but this bill—as Sen. Priola said in explaining his no-vote—accomplished nothing. There’s a good argument to be made for nuclear, but the arguments haven’t been very sophisticated.

The previous week, the House committee heard what its sponsor described as a “preemptive bill.” [HB23-1127](#), “Customer’s Right to Use Energy” would have barred local governments from enacting regulations that prohibit use of natural gas.

If legislators come and go, these bills now make annual appearance in the Legislature, always with the same result: They get defeated by a Democratic majority.

Many states have adopted such prohibitions. The actual local prohibitions on natural gas have largely been limited to California and Massachusetts, although recently joined by Eugene, Ore. And, in Colorado, by Crested Butte (although other towns and cities are talking about it).





Methane is extracted in the Raton Basin around Trinidad. Photo/Allen Best

This year's sponsor was a freshman legislator, Rep. Ty Winter, a fourth-generation rancher from the Trinidad area. He represents seven counties and parts of two others in southeastern Colorado. He tried to make the argument that the Front Range was imposing its values on rural Colorado and, in the process, imposing higher costs.

Winter suggested that rural residents who rely upon propane were being threatened by all-electric mandates. He also described electrical delivery to rural Colorado as iffy. He asserted that all-electric homes cost \$10,500 to \$11,800 more to build. And he also suggested that burning natural gas was an environmental good because methane, the core constituent, seeps from coal seams and into the atmosphere.

"If the gas isn't pumped, it comes through coal seams and will go to the atmosphere," he said. "I do think it needs to be talked about."

He said he was "trying to meet in the middle about some of the climate goals that have come out of the state capitol."

For backup, he had testimony from Nathan Nichols, president of the Colorado Propane Gas Association Board of Directors. "Propane in rural areas is cost effective," he said, and "gets us near to the net-zero goal."

Dan Haley, president of the Colorado Oil and Association, the industry group, talked about "clean burning gas" and talked about gains in reducing fugitive emissions and toxins associated with methane.

He also made the economic argument, asserting that it is "far more efficient to heat with natural gas than with electricity." And homeowners, he said, might prefer to use a gas stove.

Committee members also heard from Corey Gains, who teaches physics, math and other subjects at Northeastern Junior College in Sterling. He said he drives a hybrid car and has solar panels on his house but also insisted that climate change is not an "immediate existential threat." The more immediate threat he sees is the state "chipping away at our ability to have choices beyond what the Front Range essentially decides it wants us to

have. If people want to have electricity in their homes, that's fine. People should have the option of having other things in their homes."

The most compelling testimony against the bill was that it takes away choice while professing to foster choice.

"When government interference is necessary, it must benefit the greater good," said John Branham, of Golden, who has a bachelor's degree in biochemistry and a master's degree, the latter from the Colorado School of Mines and has taught school for 22 years. "This bill confuses me. It takes away local choice but does not contribute to the greater good of Colorado."

The Colorado Municipal League's Meghan MacKillop also testified against the bill. The CML consistently opposes pre-emption over municipal authority.

The most spirited clash of arguments was between two state representatives, both from Colorado Springs, but with a Grand Canyon-sized gulf between their viewpoints. Rep. Ken DeGraaf dismissed all-electrification goals as the stuff of "rainbows and unicorns" and said that Colorado is "chasing a goal that gets us nowhere." That is a theme of those testifying on behalf of the bill, who pointed to Colorado's very slender role in global greenhouse gas emissions.



Mike Weissman

Rep. Stephanie Vigil is also from Colorado Springs, but across the political aisle from DeGraaf. She said she had no problem if people in rural Colorado wanted to have energy choices, but she did not like this bill that would tell Colorado Springs what it must do. "We don't have one-size-fits-all in Colorado," she said.

Most touching may have been the comments of Rep. Mike Weissman, who represents Aurora and has been on the

committee long enough to see some committee members come and go – including one rancher, who died while still relatively young, who was from the canyon country east of Trinidad. She represented that part of Colorado that this bill's sponsor, Winter, now represents

Weissman said the bill painted with "too broad of a brush." He said the fears articulated by the sponsor are not "going to happen in your counties anytime soon."

He further talked about his travels around rural Colorado, his understanding of the value of propane, and that rural Colorado had different needs from urban Colorado. "I do think it's incumbent on us who do not represent rural areas to listen, to get outside of our zone, and travel the state and educate ourselves," he said.

Aside from the legislator from Colorado Springs, who argues that water vapor—which is a greenhouse gas—explains global warming, most of the arguments on these bills is couched in language that acknowledges climate change and human complicity.

Elements of this perceived rural-urban divide will get hashed out again on February 23 when the House Energy & Environmental Committee is scheduled to hear:

- [HB 23-01163](#), "Revoke Carbon Dioxide Status as a Pollutant," a bill brought by DeGraaf;

- [HB23-1080](#), "Reliable Alternative Energy Sources," which would require a feasibility study for use of small modular reactors. More interesting, it proposes to elevate the maximum nameplate capacity for "pumped hydroelectricity" as 400 megawatts to qualify as "recycled energy." It's currently 15 megawatts, according to the bill.

- * [HB23-1085](#), "Rural County and Municipality Energy Efficient Building Codes," which would give rural communities a longer time to achieve energy efficient standards. This bill has bipartisan sponsors from the San Luis Valley.

“Setting ‘climate-neutral’ goals (‘I promise to quit smoking by 2030!’) and then buying offsets to get there has become such the norm in the sustainable business world that if you’re not doing it, you seem corrupt. In fact, it’s just the opposite. ‘Net-zero’ or ‘climate-neutral’ as a concept is so hard to pin down, let alone achieve any version of, that it’s flimflammy by definition.”

— **Auden Schendler**, Aspen Skiing Co. senior vice president of sustainability, writing in the Stanford Social Innovation Review in an essay titled [“The False Promise of Corporate Neutrality.”](#)

Schendler has long been skeptical of carbon offsets, instead wanting companies with high-minded goals to do “something that is actually impactful.” He outlines two broad categories.

One is actual work in reducing carbon emissions, such as replacing windows to save energy or replacing gas and diesel vehicles in company fleets with electrified versions.

The second is “very publicly wielding power to support policies that drive large-scale change.”

He cites Walmart’s lobbying to support the Inflation Reduction Act, “the most important piece of climate legislation in history.” Op/eds in the Wall Street Journal could also be advocacy.

“From an environmental perspective, buying offs—credits for carbon reduction elsewhere—is highly questionable,” he says. “Why? Take tree-planting as just one example: It has proven devilishly hard to



Auden Schendler

demonstrate that the trees you protect will stay alive over the long term, that they weren’t already legally protected but sold as offsets anyway, or that their preservation didn’t ensure that nearby trees would be cut instead.”

Readers on the Stanford website (their affiliations unidentified) mostly agreed:

“Schendler nails it here—offsets are at best distracting and at worst counter-productive,” wrote Andrew Jones.

“What’s notable about this piece is not the newness of the message – Auden and I have been delivering this message in a variety of forms and venues for well over a decade. What’s actually most notable is how little discussion and change has resulted, including with respect to corporate policy advocacy,” wrote Mark Trexler.

Others thought Schendler overstated his case.

“Offsets are the right first steps” in eliminating fossil fuels from their business models,” said Hal Hamilton.

Net-zero and carbon neutrality are often used interchangeably, pointed out Aspen’s Matthew Hamilton. “Very different strategies.”

The difference?

In an article titled [“What is the difference between Carbon Neutral and Net Zero?”](#), Greenly defines **carbon neutral** as an activity or a company which offsets the same amount of carbon or greenhouse gases that they emit. Carbon neutral means that emissions produced and [offset](#) are equivalent. On its own, it won’t keep the world under the 1.5°C target, set by the 2015 [Paris Agreement](#).

Net zero (with reference to net zero commitment) is defined as reducing all greenhouse gas emissions as much as humanly possible, offsetting only the essential emissions that remain. Net-zero greenhouse-gas emissions is designed to keep us on track for a global temperature rise of less than 1.5°C.

“I think that what’s coming can be jarring. Some of the people in my community have not fully accepted the change that’s coming.”

— Tom Kleinschnitz, Craig City Council member, in a Jan. 15 [story by the Grand Junction Sentinel](#) about the coming transition of Craig from a coal-based community to something still to be determined.

The story covered now-familiar ground: first one of its three coal-burning units is scheduled to close by 2025 with the following two by 2030 (along with two coal-burning units in Hayden, located about 15 miles away, by 2028).

Tri-State Generation and Transmission, the primary owner and operator of the Craig Generating Station, alone accounted for a nearly a quarter of the assessed valuation of Moffat County, where Craig is located. That power plant along with coal operations account for more than half of the property tax.

“We need some innovative thinking, out of the box, trying to find the best solutions for our community,” said Kleinschnitz.

This walk away from coal has already begun. The Trapper Mine’s employment has dropped by nearly half, from 185 people when the coal plant closure was announced three years ago, to 99 at the end of September. The exclusive market for the mine is the plant.

Employment at another mine, Colowyo, has dropped from 219 to 176 in the last three years. And at the power plant itself, employment has dropped from 250 to 150.

What will fill the void? Tri-State at a recent gathering of stakeholders in the early stages of the next electric resource plan outlined a great variety of options, from small nuclear-modular reactors to molten salt storage to green hydrogen and a new generation of batteries.



In Craig, there is some focus on potential for development of the tourism economy, with an emphasis on water recreation involving the Yampa River as well as mountain bike and motorized trails.

See also these Big Pivots stories from August 2020:

[Colorado aims for Just Transition](#)

And, [“When the coal plants finally close.”](#)

“In 2021, researchers at Yale University found that Americans associate natural gas with ‘clean’ and methane gas with ‘pollution’— even though natural gas is almost entirely methane.”

— Susan Joy Hassoll, a former Colorado resident, writing in the [Feb. 1 issue of Scientific American](#) in a story titled “The Right Words are Crucial to Solving Climate Change.”

Joy Hassoll contends that the transition to clean energy is happening too slowly to avoid the worst effects of climate change – and that the language and messages should be altered. In some cases, the words themselves matter. For example, she recommends using the phrase “heat-trapping pollution” instead of “greenhouse gases” when communicating with the general public.

She also describes challenges: disinformation, misconceptions, and the pigeonholing of climate change as an

environmental issue. One misconception is that “it’s too late to act.” As for the pigeonholing, she points out that “everyone cares about something affected by the climate emergency.”

Why does this matter?

“Research published in 2018 in Science suggests large-scale social changes require the active engagement of about 25% of the population. Surveys suggest that in the U.S. we are rapidly approaching that point on climate... Addressing climate communication challenges could help us build enough political will in time to blunt the worst climate change effects.”

“Starting in 2023, we will advocate at the federal, state, and local levels for policies that curtail greenhouse gas emissions, accelerate a shift to renewable energy sources, and establish a clean energy economy.”

— **Kate Wilson, Raj Basi, Jay Scambio,** and **Darcie Renn**, representatives of ski companies Vail Resorts, Powdr, Boyne Resorts, and Alterra, writing in The Colorado Sun on Dec. 31 in an op/ed title [“Climate](#)

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[Change is the most critical business issue ski resorts face.”](#)

The four ski companies, who have created something called Mountain Collab, declared a “focus on energy by championing the accelerated use, development, and availability of renewable energy resources across our resorts and communities.” Their most demonstrable program will be in Summit County, where they will focus on recycling of plastic drink bottles.

“I believe you can name any goal in either energy or in climate, and it’s being blocked by permitting right now.”

— **John Curtis**, U.S. congressman from Utah, in The Economist, Feb. 4 issue under a headline of [“America needs a new environmentalism.”](#)

The article in which Curtis was quoted used the proposed TransWest Express, the Anschutz Corporation’s proposed line from Wyoming to the Nevada-California border, as an example of how U.S. environmental laws needed overhaul. The same case was made by “The Bix Fix” authors Hal Harvey and Justin Gillis in a [December interview with Big Pivots](#).

The story was part of a package in the magazine under the headline of “Big, Green and Mean: Joe Biden’s plan to remark America’s economy.”

The lead story includes a quote from Brian Deese, the head of the National Economic Council, who points out that the Inflation Reduction Act and other bold laws are not the first time the federal government has made big investments in strategic industries or infrastructure. Other outlays in the 20th century included rural electrification, interstate highways and the space race. It invested roughly 6-8% of GDP a year in such things at the time. The Biden subsidies for favored industries amount to around 0.5% of GDP.

Guzman Energy gets solar power near Colorado Springs

Denver-based Guzman Energy has entered into a power-purchase agreement for 100 megawatts of solar power capacity in Colorado's El Paso County. The Sonnedix Solar Fountain project is expected to be operating in early 2025 and will help satisfy demand to the City of Fountain when Guzman starts serving that customer in 2026.

In addition to buying power off the market to distribute to its customers in Colorado and New Mexico, Guzman has set out to develop its own dedicated power generation through power-purchase agreements.

Last summer, Guzman gained access to the new 145t megawatt Panorama wind farm located near Pawnee Buttes, in northeastern Colorado. It is also pursuing 800-megawatts of solar generation on Garnet Mesa near Delta to supply the Delta-Montrose Electric Association.

Eagle County joins carbon offset program for air travel

Eagle County had bought into the Good Traveler program, which in theory allows people who travel in and out of the Eagle County Regional Airport at Gypsum to offset the greenhouse gas emissions created by the travel.

Receiving the offset money will be the sustainability programs at the Avon-based Walking Mountains Science School.

Founded in 2015 by San Diego International Airport, the program now has 20 participating airlines and airports, including Aspen/Pitkin County.

For a deeper Big Pivot dive, see: [The moral and technological quandary of aviation emissions](#), March 19, 2020.

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