

Should Colorado tell counties how to review renewable projects?

by Allen Best

A bill creating statewide standards for local governments in Colorado evaluating renewable energy projects is likely to be introduced in coming days or weeks. Is this a solution in search of a problem?

Very few local governments in Colorado have adopted regulations seen as onerous by energy developers. Pueblo County several years ago rejected a solar farm based on neighborhood opposition. They feared loss of views. [Mesa County in January](#) adopted a six-month moratorium on new utility-scale solar projects with the active support of at least one local solar company. Delta County commissioners at first rejected a solar farm on Garnett Mesa but the proponents made changes more acceptable to neighbors.

Colorado's counties have not been hard-nosed about renewable energy. That point was made by State Sen. Byron Pelton, a former Logan County commissioner who represents much of northeastern Colorado and has a small cow-calf operation near Sterling.

In an op-ed published in the print edition of The Denver Post on Feb. 4 (not available online), he took a swing at the "Democrat majority and radical environmentalists" who

would usurp local control in regulating renewable energy siting.

"Most proposed renewable energy projects are approved, and when proposals are denied, it's for good reason," wrote Pelton. "Those reasons range from environmental impact concerns and impact on agriculture and wildlife to inadequate benefits for the host community."

Boulder County, he pointed out, led the way in using moratoriums to address local concerns.

"They imposed a five-year moratorium on oil and gas, giving them time to contemplate the best path forward for their community. None of the moratoriums imposed on renewable energy development have come anywhere close to approaching five years."

"Most proposed renewable energy projects are approved, and when proposals are denied, it's for good reason"

State Rep. Byron Pelton

On the same day Pelton's op/ed was in the Denver Post, USA Today published a story: ["US counties are blocking the future of renewable."](#)

"At least 15% of counties in the US have effectively halted new utility-scale wind, solar or both," the newspaper reported. The limits come in the form of outright bans, moratoriums, construction impediments and other conditions that make green energy difficult to build."

The newspaper reported that 375 counties blocked new wind developments in the past decade compared to 183 counties who got them. Many were in Tennessee, North Carolina, and Kentucky, but also in Vermont. Maps published with the story show a couple of counties with wind restrictions on Colorado's



eastern plains, and several on the Western Slope, which have far less wind value. The chart also shows solar restrictions in several Colorado counties but provides no detail.

One common requirement in zoning rules intended to block new wind farms specifies the height of a turbine relative to adjacent property lines. Most new wind turbines in the U.S. are 500 feet or taller. Some counties require setbacks of 1,320 feet, 1,500 feet, a mile or, in some cases, 3 miles.

[Colorado Public Radio in a Feb. 8 story](#) reported that State Sen. Chris Hansen, D-Denver, said he intended to introduce a bill that would create a standardized process for local governments considering renewable energy projects. CPR's Sam Brasch reported that an early draft of the bill also identified rules to restrict development of wind and solar farms and also transmission lines.

Hansen yesterday confirmed that he intends to introduce the bill in March.

A flashpoint for this lies in Washington County, which is in Pelton's district. While county commissioners in Akron have welcomed the Colorado Power Pathway that crosses the county's southern section, the county in 2021

also approved some of the state's toughest regulations on renewable energy projects. CPR says those regulations require one-mile spacing between structures and new wind turbines.

The CPR story also cites a study from the Sabin Center for Climate Change Law that found local governments across 34 states have approved at least 228 restrictions on renewable energy development.

New York, California, and Illinois adopted legislation similar to that being drafted by Hansen to limit local control over renewable energy projects.

Drilling down on geothermal

Will Toor, director of the Colorado Energy Office, was asked during a legislative committee meeting by Sen. Cleave Simpson what role does geothermal play going forward? He didn't offer an expansive answer, but did mention that important research is underway.

Occidental Petroleum has gotten Department of Energy funding that is focused on driving down the cost of drilling the same way that the oil and gas industry has been able to drive down costs, he answered.

A hard question for Fenberg about his committee choice for oil-and-gas bill

by Allen Best

State Sen. Steve Fenberg speaks succinctly and carefully and, for the most part, quickly. There's a reason he's the president of the Colorado Senate.

But when given a hard question about [SB24-159](#), which proposes to begin slow down and then, in 2030, stop permitting of new oil-and-gas drilling in Colorado, he answered with greater hesitation, circling around the question before answering it.

Why, asked Empower Hour's Steve Whitaker, had Fenberg assigned the bill to the Senate Agriculture and Natural Resources Committee, where it "faces near-certain death," as opposed to the Senate Transportation and Energy Committee, where it had a much stronger chance of passing? The same thing had occurred the prior year, he noted.

"The legislative process is messy," Fenberg finally replied, "and things are not always obvious." It was, he explained a "messaging bill," which he did not define except to say that bill sponsors never expected it to pass.

Depending upon what the sponsor says, it can make leadership look bad, he said. The sponsor, he added, did not make a request (that the bill get assigned to the Senate Transportation and Energy Committee).

"I am sure this is an explanation a lot of people don't want to hear," he added, "but I also think it's important to be honest."

The other legislators — all Democrats and state representatives with districts partly or entirely in Boulder County — also answered. Rep. Kyle Brown, whose district includes Broomfield County, said if the bill came before him, he would vote for it. So would Rep. Junie Joseph.

Rep. Judy Amabile gave a more nuanced answer: "I generally support us phasing out fossil fuel use. I think it's a worthwhile effort. The devil is always in the details. We also have to make sure we are covering all our bases when we do that."

Colorado still does not have enough renewables (or other technology) to generate the electricity we use, she said, implicitly referring to the natural gas plants that are part of the current mix — and almost sure to be part of the mix for several decades to come, even by the admission of some utility managers who have decarbonization goals.

Senate sponsors of the bill are Sen. Sonya Jaquez Lewis and Sen. Kevin Priola. The Agriculture and Natural Resources Committee has not yet scheduled a hearing.



A pumping jack amid a subdivision in Dacona, Colo., in 2021. Photo/Allen Best

Many bills in the legislative oven about the unsexy sides of energy transition

Empower Hour has a monthly video session with a revolving variety of guests, and this one was uncommonly lively.

The legislators gave an overview of their environmental agenda. Fenberg said conversations are occurring around land use and growth and water, including questions about transportation “and generally where we are in this moment in Colorado history where we have grown and projections of continued growth, and how do we do so in a way that’s responsible and is taking into account climate change and our environment, the potential dangers of things like wildfires and various climate-induced events.”

Fenberg said he had several bills planned around ozone and air quality, expansion of rail, and also bills that will modernize the grid and also to advance community solar.

See: [Rethinking electricity \(and energy\) at the very local level](#), Big Pivots Jan. 24, 2024

Brown said he will be sponsoring the modernizing-the-grid bill. He said it seeks to “help create a grid that is ready and able to handle all of the distributed sources of energy that will come with decarbonizing and making sure that our electric vehicles and solar panels have a grid that we can plug into and that we

have a workforce that is able to work on that grid.”

That bill, he conceded, “is not the sexiest bill, but it is essential to allow us to be sure we can transition to a climate friendly energy economy.”

Brown also plans a bill that will “encourage local governments to be in the business of taking climate action,” as Boulder, Louisville, Lafayette and other communities have been doing. He did not offer specifics.

Polis not to blame for why community choice energy isn’t going forward

Legislators, responding to questions, said they supported the idea of community choice for energy in principle but the details are more difficult. A state task force report said essentially the same thing.

Has Gov. Jared Polis and his energy office killed the idea because he wants to protect the monopoly of Xcel Energy? No, it’s not that simple, several said.

Brown said he and Amabile had worked on the issue over the summer. But they found that it wasn’t just Gov. Polis or the Colorado Energy Office that found problems with community choice energy – shortened hereafter to CCE. It was also the solar industry, labor unions, even environmental groups.



“We tried, but there was no reason to bring a bill that would die in its first committee,” Brown said. He promised to continue working on it. “The politics around this are hard, and it’s not just the governor.”

Polis, said Amabile, believed in competition, “The fear of the Colorado Energy Office and some environmental groups is that this policy – which is a very sweeping change – could actually cost us in our move to more renewables.”

A better goal, some stakeholders told the legislators, is to figure out a way to ensure that Xcel Energy is passing along the lower cost of renewables to ratepayers.

“I am not a statement bill person .I

understand what some people want to do with that. But I have maybe less time in life than some other people,” said Amabile, who has let her hair during the last year grow into its natural gray.

Fenberg agreed. “The opposition to this is not the governor. It’s not Xcel Energy. Of course Xcel opposes it. But that’s not the reason it’s not going forward. There are a lot of interests reliant upon the existing system, and it’s really hard to get those interests on board with the disruption to their interests, at least in the short term. That (includes) labor, and if labor is opposed to the bill, for a segment of the Democratic caucus there is no further conversation,” he said

“It’s a big, challenge, and incredibly frustrating, but that is the reality at the moment.”

Joseph was fully supportive and said Polis, because he believes in competition, likely supports it too. “There are a lot of things to work out in this bill.”



Steve Fenberg

Does Colorado need legislation that will move demand management forward?

Legislators were asked about their interest in supporting legislation that would enhance demand-management programs, presumably by investor-owned utilities.

The question showed just how conversant several of the Boulder County legislators are with the subtleties of energy policy.

Amabile recalled sharing a plane ride with a researcher from the National Renewable Energy Laboratory 20 years ago who had explained the concept to her. “It’s about time,” she said.

Brown — whose professional area of expertise is health care — talked about running his dishwasher in the middle of the night.

Fenberg – who was the prime sponsor of a bill in the 2023 session that shook the cage of Xcel at least in a minor way – explained the basic problem with the regulatory model of investor-owned utilities

“I would support it at a bare minimum,” and several steps beyond, he said.

The problem, he added is that utilities, especially the IOUs, have no real incentives to roll out energy efficiency in mass because, if the decision is whether to build more stuff or create more efficiency to the consumer, they will usually err on the idea of the former.

He didn’t cite Amory Lovins, who said you don’t care about what the electrons that keep your beer cool, only that it’s cool.

Fenberg said he and Brown are working on legislation that will provide statutory direction about virtual power plants. “We’re still basically using technology from a hundred years ago in the electric grid, even though it’s part of the existential crisis we are facing. A lot of the electrical grid could be improved if we used software better.”

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Keep this word in mind when reading about water: agronomics

by Allen Best

In January, when John Tracy began his lecture at the Colorado Farm Show in Greeley, he had a modest-sized audience.

Outside of the meeting room, in the central exhibition hall at Island Grove Regional Park, concessionaires hawked everything from paintings of wheat harvest and other flag-draped farm scenes to the latest in technology products.

John Deere had implements. I crawled inside the cabin of a chemical applicator. It was full of computer screens and, I surmised, air conditioned. I inquired as to the cost: \$900,000. This wasn't the John Deere my grandfather drove.

Thinking about water and agriculture has also changed dramatically since I tagged along in the early 1960s after my grandfather amid his fields of corn, sugar beets, and alfalfa in northeastern Colorado.

Tracy, who directs the Colorado Water Center, a small research enterprise affiliated with Colorado State University, characterized that shift as analogous to what happened in energy.

"Back in the '80s, there was this rhetoric that we need to produce more energy," he said. "We're going to need to mine more coal, get more hydropower online, you name it."

In the Columbia River Basin, where he was, the push for new energy generation resulted in heavy investment in nuclear plants. They, he said, were an economic disaster.

Finally, Bonneville Power Administration said just put in some simple conservation and energy efficiency programs.

That idea wasn't even novel then, of course. Amory Lovins in his 1976 Foreign Affairs essay, had described conservation as the soft path. It took utilities decades to embrace the idea. They kept wanting to build bigger and bigger coal but also natural gas plants.

Tracy described something similar happening in water. "The rhetoric out there



John Tracy

right now — that we need to find more water — just doesn't match reality," he said. "It's not only that we're using less water. Our gross domestic product keeps going up."

Since 2000, agricultural productivity — both irrigated and dryland — has grown 20%. "Even with a decline in irrigated agriculture, our agricultural productivity across the nation has been increasing."

That's water used for agriculture. How about urban use? Colorado's Front Range, metropolitan Phoenix, Southern California, the metroplexes in Texas — surely they're using more water.

"Well, their water use kind of increased until about 2005, and it's been on a decline since then," he said. "Municipal water use is actually declining."

Tracy described inertia as a problem in thinking about water. "It takes us a while to get out of the way we are thinking (that gets in the way of how we need to think) in order to address the coming challenges."

Colorado, he suggested, still remains mired in old ways of thinking about water. He cited Thornton's long-standing bid to export water from the Poudre River Valley. The city's water planning assumed a per-capita need of 170 gallons a day, when 120 to 130 gallons is possible.

"When you think of how efficient ag has become, it's decades ahead of where municipalities are," he said.

Tracy also faulted the Colorado Water Plan, which defines a water gap between supply and demand.

How did we get here? Tracy described several phases.

Physical interventions came first. Water was diverted from creeks and rivers, dams were built and, beginning in the 1930s, tunnels were bored to bring water across the Continental Divide. Massive amounts of infrastructure resulted, continuing through the 1960s.

"For the most part, the era of big dam building was done by the '60s."

Some want to link the end of that era to the 1976 collapse of the Teton Dam in Idaho. Had that dam not failed, that era had largely reached its limitations, he said. "We hit marginal returns on this approach."

Although Tracy did not mention it, the formal end to Colorado's era of big physical infrastructure is best described by the veto for Two Forks, Denver's plans for a massive import. There have been expansions of existing transmountain diversion projects since then, but not new ones.

Technology interventions came next, in Tracy's telling. The centrifugal pump was a major one. Developed in the 1940s, it came on strong in the '60s, '70s, '80s and even the '90s. These new pumps allowed drafting of groundwater in the Ogallala and elsewhere. "A lot of this water was used to support irrigated agriculture."

A twist on this was to improve efficiency of the technical interventions. Instead of using the groundwater for flood irrigation, it was spread with center-pivot sprinklers. Then the center-pivot sprinklers were modified to reduce evaporative losses.

That approach has now arrived at the stage of marginal returns.

Now comes what Tracy called agronomic interventions. It's a form of ag water management. "When you said you were working in ag water management, people assumed you work on irrigation systems, on canals or ditches and so forth."

Now when he talks about water management, he's talking about crop selection and evaporative and transpiration needs.

"Your decisions on managing under water stress are not related to the highest efficiency irrigation system," he explained. They're related to what crop are you selecting? What type of agrochemicals are you applying? What type of soil management are you doing?

This has led to predictive crop water-demand tools, development of drought and salt-tolerant crops and other pursuits of the

Colorado Water Center. “We’re not talking about pumps.”

What else falls under the heading of total water management?

Try cowpeas. The legume tolerates sandy soils and low water and can provide forage for cattle. Research is underway to answer whether this crop from Africa might be useful in Colorado in some areas reliant on declining groundwater supplies.

Crucial will be whether the crop can find a viable market. That includes, he added, whether cowpeas could be a replacement for beef in the so-called fake meat products.

As for the Ogallala, the efficiency of irrigation in some areas is “mind-blowingly ridiculous. I mean, they’re north of 90%. Whereas if you think of somebody watering their lawn, if they get anywhere near 50% it would be a miracle.”

Guided by water decisions should be a clear understanding of value derived. Agriculture, for the most part, has been doing so for the last two decades, if not longer.

“Do we have enough water? Yes, we have enough water. Do we have enough water to grow corn in areas where the productivity of the Ogallala Aquifer isn’t what it used to be? No, we do not.”

That, he said, requires agronomic decisions.

The Colorado Water Center has research underway at several locations in Colorado, including at Akron, on the edge of the Ogallala Aquifer, and at Fruita, along the Colorado River. The research attempts to get a better understanding of how much water crops are using. “There are a lot of areas on the West Slope that still use flood irrigation,” he said. The efficiency of that water use can be improved, but given the demand for the water, “sometimes the infrastructure investment isn’t worth it.”

Water Center staff has also been working with ranchers to better manage forage on pasture land in ways that may reduce water use. The Fruita station also did a winter crop of legumes that required no irrigation. “And they

brought in a crop, which just kind of amazed me,” said Tracy.

Tracy also talked about climate change, calling it a mixed bag. The warming climate allows growing of corn into Canada now. But this has been accompanied by greater variability. “It has expanded the growing season on average – great. But it means you have higher probability of a freeze in June – not good. As for weather, he sees improved forecasting that will help farmers. “I expect that in the next couple of years there will be some products that give a much better idea of when we expect deep freezes, high-precipitation events, droughts and what have you in the three-to six month timeframe. Those pieces of information will be incredibly useful in helping make beginning-of-season decisions.”

As for water policy, he argued that Western states in general, but Colorado in particular, has an over-reliance on technical interventions.

Building infrastructure will not solve the problems. These physical and technological interventions are reaching the point of marginal returns,” he said. “So how do you go about dealing with water challenges and growing populations? He cited emerging information technology that will aid in understanding exactly how much water is needed to bring a crop to market.

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Platte River wants 200 MW of dispatchable generation from request for proposals

Platte River Power Authority, the wholesale provider for four cities along the northern Front Range, wants to get a proposal for up to 200 megawatts of electrical generation that can perform and function at full capacity within 30 minutes.

That leaves open the theoretical option of something other than added natural gas. But community watchdogs are crying foul. They argue that the RFP is structured in a way that they believe Platte River already has somebody in mind.

"You don't know what is out there until you ask the question," said Sue McFaddin, a Fort Collins resident. "This is so restrictive, it's set up to be a natural gas plant. You can't even ask the question if you're only have 12 days."

Bid proposals in response to the all-sources RFP must be in by April 24. However, in the read of the RFP by McFaddin and others, the effective date will be March 6. They say that 60 to 90 days is the industry norm.

On Friday morning, after this article was first posted, Javier Camacho, the director of public and external affairs for Platte River, rejected the criticism as factually incorrect. "It's incredibly misleading," he said. The March 6 date in the RFP is when Platte River asks that those with ideas tell Platte River that they plan to submit proposals. "We have been very transparent about what we're doing," he said.

Critics of Platte River fear a new gas plant, if that is what the utility chooses, will cost \$200 million to \$300 million.

Bid proposals must be in by April 24.

Platte River has been adding renewables at a rapid rate. That is all it has added to its generating capacity since 2018, and it expects to add up to another 150 megawatts of solar energy and up to 250 megawatts of additional wind energy. The utility says it's close to finalizing negotiations for an additional 150 megawatts of solar and storage.

But with all this renewable capacity, says Jason Frisbie, the chief executive, the utility needs to manage for the intermittency of renewables.

"This RFP allows us to identify innovative tools and technologies that support the transition while maintaining the foundational pillars," he said in a press release.

Platte River famously adopted a policy in December 2018 that called for 100% carbon-free generation by 2030. But that policy also had eight or nine conditions.

"We are actively replacing coal generation with wind and solar resources as we continue to transition our energy portfolio," said Raj Singam Setti, the chief operating officer of innovation and sustainable resource integration.

"Our strategy emphasizes not only the expansion of intermittent renewable resources but also the importance of firming these resources with reliable, flexible, efficient and quick-start dispatchable power, to ensure a balanced and sustainable energy future."

Platte River has its own coal plant, Rawhide, and has an interest in a plant at Craig. In January, coal was responsible for 45.6% of its electricity, wind 23.6%, hydropower 12.5%, solar 1.1% and natural gas 0.5%. It purchased 16.7% of unspecified generation.



United Power CEO urges utilities to embrace the edge-of-grid technologies

Mark Gabriel, chief executive of United Power, makes a case that the future has arrived: edge-of-grid technologies.

As for transmission – yes, it’s important, he says. Just don’t count on it to solve problems any time soon.

“Thinking that the world will continue to operate in a linear fashion – central generation to transmission to distribution to the



Mark Gabriel

meter – is as dangerous as thinking all computers will be physically linked to mainframes or that calling someone requires connections via hard wire strung on ‘telephone poles,’” he writes in his latest essay published by Energy Central, an on-line journal for energy professionals.

Renewables and natural resources consultant Wood McKenzie defines grid edge as an umbrella term that covers all the distributed hardware, software, and business innovations that exist in proximity to the end users rather than at the center of a traditional generation network.

“The grid edge can be leveraged by both customers and utilities to help decarbonize the grid and unlock new value streams while maintaining and enhancing reliability,” [says Wood McKenzie](#). The name comes from the proximity of these elements to end users and away from centralized generation. Key examples include EV charging infrastructure, behind-the-meter resources, heat pumps, and grid modernization.

Think of the house in Brighton or Basalt or that has solar collectors, a Tesla wall battery and an F-150 Electric Lightning in the driveway.

Transmission? Gabriel points out that for eight years he ran the Western Area Power Administration network of wires, “one of the largest transmission systems in the world.” He adds: “I love big iron.”

The reality? The National Renewable Energy Laboratory estimates 91,000 miles of new transmission needs to be constructed by 2035 to meet current decarbonization goals. Just 670 miles went on line in 2022.

Gabriel urges the electrical industry to embrace edge-of-grid technologies. Not as efficient as electricity where utilities control much—and at scale. But that is the reality.

He cites experience at United Power’s service territory in northern Colorado to buttress his case.

“Electric vehicles and solar inverters are a prime example of technologies that may be vilified for the potential to create problems on the grid when they should be welcomed with open arms,” he writes. “The current narrative, especially for EV naysayers, is that circuits will be overloaded and transformers will burn up in a Ralph Breaks the Internet way.” The experience at United, he added, has been the opposite. “There has been a huge uptick in EVs (roughly 6,000 total in the United Power service territory) plus nearly 11% solar penetration, and yet, transformer failure due to overloading has dropped to near zero.”

Takeaways?

- The edge-of-grid technology is advancing far more rapidly than the transmission system and central generation can or will. Batteries, solar panels, electric vehicles and intelligent system management deploying computing and communications will occur regardless of the incumbent utility’s desire to slow down their advancement.

- Tried-and-true economic models will not hold up in a world of options.

- Electrification of everything cannot wait for new transmission, especially in the western United States.

Jessica Matlock leaving La Plata Electric to take reins of Pacific Northwest G&T

Jessica Matlock will become chief executive of PNGC Power, the sole operating generation and transmission cooperative in the Pacific Northwest. It serves power to 16 utilities in seven Western States.

She has had the same chief executive position at Durango-based La Plata Electric since the summer of 2019. It is the fifth largest among Colorado's 22 electrical cooperatives.



Jessica Matlock

The announcement of her move said that before she arrived at La Plata, it ranked near the bottom of financial performance for cooperatives. It is now in the top three in Colorado.

Under her leadership, La Plata also built the first cooperative-owned community solar project in the region, partnered to bring the first vehicle-to-grid (V2G) in Colorado, and implemented sophisticated grid-monitoring systems to increase La Plata's resiliency and response time.

During her time at La Plata, she also tried to steer La Plata into a position to take advantage of the evolving energy landscape. The utility is still restricted in its options by a long-term contract with Tri-State Generation and Transmission that requires La Plata to get 95% of its power from Tri-State. It had hoped to go to a 50-50 arrangement, but that fell through.

La Plata still does not know for sure how much it will have to pay to get a partial contract with Tri-State or a full divorce.

Before La Plata, Matlock was a member of the executive leadership team for 13 years at the nation's 11th largest public utility (Snohomish Public Utility District).

Prior to this, Jessica worked as an energy expert for the U.S. Senate and held numerous positions with the Bonneville Power Administration. She grew up on a ranch in Colorado, riding her horses in events and showing her turkeys at county fairs. She also served in the U.S. Coast Guard.

How exactly did Luis Reyes catch the bus for his coop in northern New Mexico?

by Allen Best

In Taos, evolution of Kit Carson Electric Cooperative continues to move along. And we'll get to that bus quote in a bit.

Kit Carson and its wholesale supplier, Guzman Energy, announced in February that they have another solar-plus-storage (8.76 megawatts of solar and 17.5 megawatts of battery storage) at Amalia, N.M.

This is north of Taos, near the Colorado border, at the foot of the Sangre de Cristo Range. The closest place on the map is Costilla. The array is on land of the Costilla Cooperative Livestock Association, which wants to be known as "caretakers of the land."

Luis Reyes Jr., the long-time chief executive of Kit Carson, said the siting was a "great example of renewable energy development planning starting with discussion and listening in the local community. Understanding the goals and concerns of the land keepers was critical in getting project planning agreement."

[Luminace](#), a national renewable energy developer, will build and maintain the facility.

Kit Carson has gotten ink lately from various publications, including one called Decentralized Grid Magazine.

["Think Community Energy can't Work? Tell that to Kit Carson Electric?"](#) tells the Kit Carson story competently: the refusal in 2006 to extend its all-requirements contract with Tri-State G&T to 2050, the departure from Tri-State in 2016 after paying \$37 million, the hookup with Guzman Energy and the triumph in 2022 of

being able to generate enough local generation (solar) in 2022 to be able to meet local needs.

Here is a delicious quote from that story by Reyes, talking about its uncertain future after getting its independence from Tri-State.

“Getting a power supplier that cared about our members and our missions to get more renewables – that was difficult. We were the dog that caught the bus, and now what do we do with it,” he said.

Astrid Atkinson, chief executive of Camus Energy, a software company that works with Kit Carson (and at least one utility in Colorado, too) had this to say:

“They are leading the charge on transitioning to a more local grid model and have been really innovative in their approach – how they think about everything from the economic model to the local system impacts of the resources that are being added.”

As of July 2022 it has 20 solar facilities and 44 MW of solar and 60 MW of energy storage to enable it to meet the daytime peaks of 25 to 40 MW.

Yale Climate further reports the work of Kit Carson to create microgrids, something that Reyes was talking about doing as long ago as 2019 (and likely before). With aid of the \$15 million in funding obtained from the federal 2021 law, the Infrastructure Investment and Jobs Act, Kit Carson now plans microgrids near the village of El Rito; at the Taos Ski Valley; and at Picuris Pueblo.

* A footnote on this. In 2019, while in Taos to do a story about the ski area for a ski industry magazine, this writer – then very much attuned to the Kit Carson story – poked around the Picuris Pueblo, thinking it would make for a remarkable story, this mix of the very, very old and the very, very new. It didn’t happen then, but it gave me an opportunity to meet the individual who was the role model for Herbie in John Nichols’ “Milagro Beanfield War.”



Luis Reyes

In case of pumped-storage hydro, FERC says applicants must work with the tribes!

Three different proposals for pumped-storage hydro projects on Navajo Nation lands in Arizona were shot down by the Federal Energy Regulatory Commission. In doing so, FERC commissioners announced a new policy.

“To avoid permit denials, potential applicants should work closely with Tribal stakeholders prior to filing applications to ensure that Tribes are fully informed about proposed projects on their lands and to determine whether they are willing to consider the project development. Here, because the proposed projects are sited entirely on Navajo Nation land and the Tribe has stated that it opposes issuance of the permits, we deny the three applications.”

A connection to Colorado? Possible, two separate pumped-storage hydro proposals are moving through the FERC process, one between Colorado Springs and Penrose. The second is in northwestern Colorado. But Big Pivots has heard of one potential project on Ute Mountain Ute lands in southwestern Colorado, but could not confirm that. So make of that what you will.

See previous stories in Big Pivots, including: [Pumped-storage hydro in Colorado](#)

And also: [A step forward for pumped-storage hydro](#)

In addition to the Navajo Nation, indigenous and conservation groups opposed the Black Mesa North, East, and South Pump Storage Project.

“Our sacred female mountain at Black Mesa has been protected,” said Robyn Jackson with [Diné C.A.R.E.](#) (Citizens Against Ruining Our Environment.) “We’re also relieved that the other pump storage proposals before FERC that would’ve desecrated our sacred Chuska male mountain were also denied, because those too would’ve devastated our biodiversity, Diné communities and culture.”

Altogether, these would have required eight new reservoirs across 38,000 acres, which

is about 60% of Lake Powell's surface area. Filling them would have required 450,000 acre-feet of water. The annual evaporative loss was established at 8,000 acre-feet annually.

At Wyoming Capitol, a denial of climate change — and continued support for carbon capture technology

WyoFile tells of a legislative hearing at the Wyoming Capitol in Cheyenne in which no dissenting testimony was permitted. The subject: climate change.

"If proponents of a different viewpoint wish to express that, they are free to have a hearing of their own," announced Sen. Cheri Steinmetz, referring to opinions about planetary warming due to emission of carbon dioxide and other greenhouse gases.

The news organization explains that the legislative hearing was part of a tour of the CO2 Coalition. The group proclaims that loading more carbon dioxide into the atmosphere will not tip the planet's climate into unlivable conditions. A co-founder, William Happer, a physicist, said that people who believe in climate change have been brainwashed. "I don't know how you deprogram people from a cult."

Fewer than half of Wyoming residents believe climate change is human induced, WyoFile reported in the story, ["Climate denial heats up at Wyoming Capitol."](#)

In the account, WyoFile tells about the places where Gov. Mark Gordon fits into this landscape. He proclaims that carbon capture and sequestration can help save the state's carbon-based economy.

Gordon is chair of the Western Governors Association and was recently in Denver to sponsor a conference on that topic. (Gov. Jared Polis, the official host, was there to kick off the event and

remained for a half-hour or so, while Gordon lingered for the first afternoon. Both legislative sessions were underway).

WyoFile interviewed one Laramie resident who attended the climate change denial event there. She said Gordon wouldn't give the coalition speakers the time of day — and she wasn't happy about it. She thinks carbon capture is a waste of money — and unneeded.

So far, Wyoming taxpayers are paying for \$3 million to study the feasibility of adding carbon capture at five coal-burning units in Wyoming. The study concluded that retrofitting the five units would cost \$500 million to \$1 billion each. Some of the units are 40 to 50 years old.

[In a Feb. 20 story](#), WyoFile's Dustin Bleizeffer reported that a bill that would allow utilities to adopt the technology beyond 2030 is moving through the legislative process. The delay is intended to allow carbon capture technologies to advance and to garner more interest from private investors.

Randall Luthi, the energy policy advisor to Gordon, told a committee that if Wyoming can demonstrate success of a single carbon-capture retrofit, it might convince other states to continue burning Wyoming coal and buying Wyoming coal-based power generation. "If we do that, there's no reason that the technology cannot be exported — to those 26 other states that currently rely on Wyoming coal, and to other countries as well." (Jan ended proofing here.)



Wyoming Gov. Mark Gordon at the Denver conference on Feb. 7

Why data center tax breaks in Colorado? They're coming with or without them.

by Allen Best

Data centers have been proliferating across the United States and world. With our Facebook accounts, Google searches, and perhaps dabbling in cryptocurrency, we're all consumers. But should Colorado dangle tax breaks to attract them?

On Feb. 29 a state legislative committee is scheduled to hear a proposal to do just that. [SB24-085](#) would waive state sales and use taxes for up to three data centers a year between 2026 and 2034. They would have to create a minimum of \$100 million in assessed valuation and generate at least 25 full-time jobs to be eligible. They would also have to create at least three megawatts of new demand for electricity.

Citing experiences of other states, critics see many downsides to data centers even without subsidies. They could cause rates of Xcel Energy or other electrical utilities to inflate even more rapidly. Water demands of data centers for cooling pose other questions.

Could this bill actually make it more difficult for Colorado to meet its economy-wide decarbonization goals? In New York and Montana, coal plants scheduled for retirement have been brought back to deliver electricity needed by data centers.

Colorado already has 10 to 20 data centers, most clustered along the Front Range.

The bill proposes to make the state's Office of Economic Development the judge of who gets tax breaks. Water use and energy efficiency would be criteria for evaluating candidates but the bill offers no specifics. It also suggests rural communities could benefit, but offers no mechanism to achieve that.

"Colorado is falling below the curve in terms of attracting more digital infrastructure assets," the bill says. "The state must incentivize the development of these projects."

Mark A. Gabriel, chief executive of United Power, an electrical cooperative serving 110,000 meters along the fast industrializing I-76 corridor, questions that contention.

"The state is NOT having problems attracting data centers," he said in an e-mail. "In the case of United Power we are working with several

who are attracted due to our rates, location and willingness to meet their deadlines. It could be valuable for rural and remote locations, but even then the attractiveness of Colorado is a determining factor."

In other words, why the free ride?

Colorado has abundant wind and solar to satisfy increased demand. But, as the [Economist](#)



Construction of the QTS Data Center in Aurora appears to be well along the way to completion. Photo/Allen Best

[noted in January](#) in a deeply reported story, “renewable energy and data centres are far from a perfect match.”

Data centers operated by Amazon, Microsoft, and other giant operators mostly need electricity on a 24/7 basis. Utilities with decarbonization goals more ambitious than the state-mandated levels already are working overtime to try to figure out new strategies such as through demand-side management programs.

Long-term storage remains the holy grail in decarbonization. Solutions may be innovated here in Colorado. Nothing is a sure bet.

Others argue for nuclear, but they have been awfully shy about acknowledging the consistent cost overruns in trial projects involving new nuclear technology. Plus, we still haven’t figured out what to do with the waste. It’s a can we just kick down the road.

Geothermal, the “heat beneath our feet” that Gov. Jared Polis promoted when chair of the Western Governors Association, has potential to produce around-the-clock electricity. A company has reported head-turning numbers from its deep drilling in Nevada. In Colorado, the heat is deeper beneath our feet.

Burning methane, also called natural gas, we do now. Xcel and other utilities plan more such plants to meet peak demands. We also have a handful of gas plants designed for baseload generation. But to build more gas plants will cause us to step back from our decarbonization goals. Carbon capture and sequestration? Maybe, but this provokes still other questions.

Virginia has the nation’s largest concentration of data centers, a place just west of Washington D.C. called “Data Center Alley.” Dominion, the utility serving much of this demand, has said it wants to back away from the state’s decarbonization goal because it can’t meet the growing demand for electricity if it doesn’t.

John Gavan spent 25 years in the software industry, working in both Colorado Springs and Washington D.C. and earning seven patents

along the way. He got to know data centers very well. In recent years, he helped formulate energy policies, first as a director of Delta-Montrose Electric Association, then during a four-year term on the Public Utilities Commission.

“This is absolutely the worst thing for Colorado,” says Gavan. “It could cause us to not only miss our 2030 grid decarbonization goals but also to negatively impact our already over-stressed ratepayers.”

At his office along I-76, United’s Gabriel says that instead of incentives, legislators could perhaps help by requiring data centers to work with utilities on load control and management.

Colorado needs to think about data centers, because they will come. This proposal to dangle subsidies should go into the trash can.

Colorado gets 2.6 times more energy from small-scale solar in 2017-2022

A new report, rooftop Solar on the Rise, finds that Colorado got 2.6 times more energy from small-scale solar in 2022 than it did 5 years prior. The state ranked 11th nationally in gain of rooftop solar during that time span, according to Environment Colorado Research & Policy Center.

Included in small-scale were:

- residential solar, which grew 217%;
- small-scale commercial, 62%

Altogether, small-scale solar in Colorado generated 1,372 gigawatt-hours of electricity in 2022.

Much more is possible. The report found that Colorado has tapped less than 1% of its rooftop solar generation potential.

CoPIRG, the public advocacy group, promotes the use of an online solar permitting platform called SolarAPP+, which was developed by the National Renewable Energy Laboratory. Use of that application can save time.

Top states for small-scale solar generation 2022 (in GWh)					
Commercial		Industrial		Residential	
California	5,320	California	2,889	California	15,912
Massachusetts	1,945	Georgia	212	Arizona	3,132
New York	1,920	New Jersey	208	Texas	2,575
New Jersey	1,413	Massachusetts	137	Florida	2,291
Arizona	848	Pennsylvania	76	New Jersey	1,551
Illinois	749	Nevada	50	New York	1,534
Hawaii	488	Connecticut	49	Massachusetts	1,337
Texas	420	South Carolina	41	Nevada	1,208
Rhode Island	393	Ohio	37	Colorado	1,006
Connecticut	376	Arkansas	33	Maryland	938

Photon Brothers, which has offices in Westminster, Centennial, and Colorado Springs, testified about the time-savings of the program.

“Nobody wants their project slowed down – not the customer and not the crew. In Denver, any minor change to the project used to require re-submitting the permit and restarting the whole review process,” said Mike Wagner, the permit coordinator for the company, which has 300 employees in Colorado. “With SolarAPP+, we are able to make some changes and get a new permit within 30 minutes.”

Denver was among 12 cities selected to pilot Solar APP+ during 2022. About 70% of the 3,738 solar applications were processed that year, saving more than 1,200 hours of review time, according to the City of Denver.

Now, the Colorado Energy Office is offering \$1 million in grant funding for local and tribal governments across Colorado to adopt SolarAPP+ or other automated permit processing technology.