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<http://mountaintownnews.net>

## What it will take to achieve 100% renewable energy

Expanded markets, better storage, and finessed demand all crucial

by Allen Best

To get to 100% renewables for electrical production won't be as simple as going to the wind and solar shelf and stocking up. That can get utilities to 50% easily enough, perhaps even 70% or 80%, conceivably even 90%.

Chief executives at several Colorado utilities say the last 10 to 30% will also require sharing of electricity across broad areas, possibly from the West Coast to the Great Plains, to balance supplies with demands. They also see need for new and cost-effective bulk storage, technology that is neither affordable nor achievable yet at the scale needed. A third challenge will be to finess supplies and demands at the very local, even neighborhood level.

Emissions-free electricity may ultimately come at higher cost. But in the shorter

term—roughly the next decade—costs of electricity may well decline even as demand expands for electricity for transportation and home heating, both sectors now largely supplied by fossil fuels.

"It's really an exciting time," said Bryan Hannegan, of Holy Cross Energy, the electrical cooperative that serves the Vail, Aspen, and Glenwood Springs areas.

Hannegan spoke on a webinar sponsored by the Payne Institute of Public Policy at the Colorado School of Mines and the Colorado Energy Research Collaboratory along with representatives of two wholesale suppliers in Colorado.

The way to solve the first challenge, creating greater connectivity from the clustering of utilities, is basically understood. The arrival of renewables at scale made the need abundantly clear. And it is starting to happen. Last year, both Tri-State Generation and Transmission and Platte River Power Authority, along with partnering utilities,

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committed to two different energy imbalance markets, or EIMs.

Such markets, or EIMs, should best be understood as the first step toward broader regional transmission organizations, or RTOs. RTOs can advance the necessary transmission planning and coordinate services such as day-ahead markets. Both are needed to move electrons around the grid to accommodate the greater variability of renewables.

Duane Highley, chief executive of Tri-State, was asked whether utilities really wanted the centralized planning that comes with an RTO. “Yes, and we shouldn’t view it as a problem but as an enormous opportunity,” he replied.

He pointed to the example of the Southwest Power Pool, an Arkansas-based organization that manages the grid on behalf of 14 Midwestern states. It has been able to achieve 78% percent renewable penetration with a peak demand of 48 gigawatts.

“No single utility, no matter how big they are that I am aware of, can do that by themselves within just their balancing area. I don’t think any one state is big enough to do that. It takes multiple states and regions to coordinate that across many, many balancing areas and many megawatts of load,” he said, using the word used by utilities to describe demand or consumption.

When in Arkansas, his prior posting before taking the helm at Tri-State in April 2019, Highley was running a utility that joined an organized energy market. In doing

so, his utility was able to avoid operating its coal-fired power plants during winter because as a participant in the market, it could then draw electricity generated by wind farms in Iowa, a resource previously unavailable.

Massing the available renewable supplies to meet demand expands the benefits, he said. But that mass scale also reduces the need for what utilities call their reserve margins. Operating individually or even in small groups, utilities need large amounts of reserves because—well, you never know. With much greater diversity across a far larger geographic footprint, utilities need narrower margins.

“A lot of benefit will come if we are willing to give up a small amount of control and cede it to a centralized organization that can better coordinate across a region on behalf of everyone,” he said.

**A**t Holy Cross, Hannegan sees the same benefit. “Everybody from NREL to the Department of Energy and others have said that it’s an absolute key to getting clean energy on a regional basis,” he said.

Hannegan sees the need to bring together the wind of the Great Plains and the sunshine of Western states. “You really do need that geographic diversity,” he said.

The two are on separate electrical grids, roughly in line with Colorado’s border with Kansas. Think of these grids as being like two big pastures divided by a tall fence. This fence between the Western and the Eastern interconnection grids has just a few, narrow gates.

Asked after the webinar how he sees this fence being penetrated, he said one way is high-voltage direct-current or DC lines from one side to the other. Another would be to upgrade and expand these gates, or DC interties.

NREL is conducting a study <https://www.nrel.gov/analysis/naris.html> about how to better integrate renewables

### **And Xcel Energy’s plans...**

Xcel Energy believe it knows how to get to 80% renewables by 2030. But emissions-free energy by 2050?

Alice Jackson, president of Xcel’s subsidiary in Colorado, said recently that the company has been tracking development of modular nuclear reactors as well as carbon capture and storage technology.

across America. An NREL spokesman said the study is being peer-reviewed and the results will be released later this year.

To completely shed coal and natural gas, though, utilities need improved storage.

“We need some kind of extremely large bulk storage system, to replace the equivalent reliability of the coal stockpile,” said Highley. “The value of the coal stockpile is that it can carry you through the week when the wind turbines are frozen up or the solar is producing at just partial capacity because of snow and ice.”

Lithium-ion batteries will unlikely be able to provide the answer, because of their limitations, combined with cost. Other battery technology might surface, he suggested, or hydrogen, even ammonia.

“We can convert energy to hydrogen, even ship it. If you take a further step, to convert hydrogen to ammonia, you can store it in conventional storage tanks and transport it and then actually burn the ammonia in internal-combustion engines and create electricity.

He suggested that Craig, the site of Tri-State’s largest generating resource at present, could be adapted for storage. Extensive high-voltage transmission lines emanate from that plant.

**F**ort Collins-based Platte River Power Authority also sees storage being crucial to achieving 100% non-carbon energy by 2030 for its four members: Estes Park, Fort Collins, Longmont, and Loveland. It is installing 2-megawatts of battery storage next to a 22-megawatt solar farm now being completed north of Fort Collins, adjacent to the Rawhide power station.

“We know battery prices are going to have to come down, and we are going to have to see some technology

improvements,” said Alyssa Clemens Roberts, the chief strategy officer.

Utilities also see the need to finesse demand and supplies at the micro level. One component in this will be the charging of electric vehicles, or EVs, during times when power is abundant.

“That’s an absolute must, particularly for the last 10% to 15% of that getting to a 100% challenge,” said Hannegan. He described the need for “fast twitch responses” of resources to the varying needs

of every node of the grid for every second of every day.”

Holy Cross has provided the charging stations in housing units at a new project called Basalt Vista. One reason for doing so “is to get some experience with that fast-twitch muscle, so that

when it comes time for us to go to 80, 90 or 100% we have the flexibility we need in our grid to continue to match that supply and demand and meet that reliability objective, which is our No. 1A objective, along with working safely and keeping electric power affordable for everyone.”

Basalt Vista provides a living laboratory for many components that Holy Cross sees as necessary. The affordable-housing project in the town of Basalt was designed to avoid need for any natural gas. Four of the units have five basic components of energy that can interplay and be managed remotely: rooftop solar photovoltaics, battery storage, the level-2 EV chargers, heat-pump water heaters, and air-source heat pumps. Taken together, the units can, if necessary, be operated as a microgrid, providing both power as well as posing demand.

“We manage these 20 devices, either collectively or one at a time, just as we would (the electricity) from a conventional power plant,” Hannegan explained.

**The experience at Basalt Vista has caused Holy Cross to talk about a potential business model of being a service provider, with a flat fee, and not a commodity seller.**



“The other thing that is really cool about this is that we could say, ‘Hey houses, for the next 4 or 5 hours we don’t want you to use any power from us, function as a microgrid and take care of your own needs, because we’ve got other needs for power somewhere else,’” he explained.

The houses could actually serve as mini powerhouses, their batteries delivering power to other uses beyond Basalt Vista.

**T**hat idea is not an academic exercise. Two years ago, Holy Cross came perilously close—one power pole—from being unable to supply power to Aspen during the Fourth of July weekend because of a wildfire – and that remaining power pole was on fire when firefighters arrived. The experience convinced Holy Cross of the need for microgrids to be built within the broader fabric. This design optimizes power flows to maximize reliability and also affordability.

“That is a huge tool in our arsenal as we go to a clean energy future,” said Hannegan. A dozen more projects in the service



territory of Holy Cross are now eager to follow down this same path.

This has caused Holy Cross to begin rethinking its business model, moving away from being a commodity seller to kilowatt-hours to maybe being one of a service provider with a flat monthly fee.

Beyond 70%, he added, some more costly technologies may be needed. “But as I like to say, before getting to 100% you first have to get to 70%, so let’s get that squared away as soon as possible.”

See also: [The future of energy illustrated by Basalt Vista](#)



## Plunging renewable costs strongest driver among several in energy shifts

The rapid shift to renewables has three, and perhaps powerful guiding forces. First were the legislative mandates to decarbonize electrical supplies. Colorado in 2019 set targets of 50% reduction economy wide by 2030 and 90% by 2040. New Mexico, a second state where Tri-State operates, has comparable goals.

A second and now more powerful driver pushing renewables have been plunging prices.

“It’s no longer just a green movement, it’s an economic movement,” said Duane Highley, chief executive of Tri-State Generation and Transmission, which delivers electricity to 43 member cooperatives in Colorado and three other states.

Tri-State recently signed contracts for 1,000 megawatts of wind and solar energy that will be coming online by 2024 at average price of 1.7 cents per kilowatt-hour.

“That’s an amazing price. That’s lower than anything we can generate with fossil fuels. It automatically gives us the head room, because of the savings just on energy, to accelerate the retirement of coal and do that affordably with no increases in rates,” said Highley. “We see downward rate pressure for the next 10 years, and beyond 2030, we see increases below the rate of inflation.”

The economics prevail in states that have not adopted mandates designed to reduce emissions.

“We see a green energy dividend that allows us to accelerate the closure of coal without raising rates. That’s a key and it’s a key for Tri-State to getting support from our board, which covers four states. Nebraska and Wyoming don’t have the same intensity of passion behind the renewable energy movement that New Mexico and Colorado do. But one thing all of our members can agree upon is low rates and low costs.”

At Holy Cross Energy, an electrical cooperative that is not supplied by Tri-State, chief executive Bryan Hannegan sees the same downward price pressures.

“The price of new power supply from the bulk grid is coming in below where we are today in the marketplace. That is actually putting downward pressure on rates,” he said. At Holy Cross, the cost of electricity accounts for half of what consumers pay, with the other half going to the poles, wires, trucks and overhead.

“We at Holy Cross are saying we will get to 70% clean energy by 2030 with no increase in our power supply costs. If we can do it—which is a big if—we will try to do it in a way that keeps our rates predictable and stable.”

A third driver of the move to renewables has been bottom-up pressure from customers. Both Vail Resorts and the Aspen Skiing Co. have pushed Holy Cross Energy to deliver energy untainted by carbon emissions. So have individual communities. Six of the member communities in Colorado Communities for Climate Action are served by Holy Cross. “That is driving us forward. We are hearing it from our customer base,” said Hannegan.

Yet a fourth driver may be choice, as consumers can demand to pick and choose their energy sources as is proposed in a bill



about community choice aggregation introduced in the Colorado Legislature this year. Holy Cross has to deliver that clean energy “frankly before somebody else does.”

All three utilities represented on the webinar retain ownership in coal plants. Holy Cross Energy, however, has consigned the production from its small ownership of Comanche 3, located in Pueblo, Colo., to Guzman Energy. Both Tri-State and Platte River have plans to be out of coal in Colorado by 2030, although Tri-State has no plans yet announced to end importing coal from a coal plant at Wheatland, Wyo.

— *Allen Best*

## The many ways in which covid-19 has impacted these electrical utilities

Covid-19 has impacted electrical utilities by cutting demand, slowing development of renewable energy, and causing executives to fret about revenue. Some changes will be temporary, others permanent.

“We went from full speed to full stop within 72 hours,” said Bryan Hannegan, chief executive of Holy Cross Energy, in the recent 21st Century Transition webinar.

At Holy Cross, which serves 43,000 members in the Vail, Aspen, and Glenwood Springs areas, some of the 160 employees are only now getting back into the field for tasks such as tree trimming, previous efforts being reduced to only the most essential operations such as power outages. “There was a very real liability issue that we took seriously,” said Hannegan.



**Bryan Hannegan**

Hannegan described the social distancing measures demanded by threat of

spreading covid-19 as a “interesting opportunity for innovation in the company culture.” The advantages of working remotely have been demonstrated, he said, and suggested it would be “the way we are going to be” in the future.

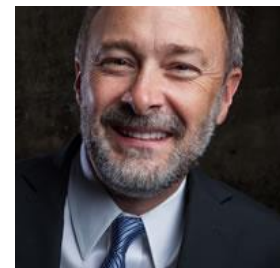
In the short term, Holy Cross saw a drop-off of 10% to 15% of its electrical sales in March and April, times when it would be supplying electricity to seven ski areas in the Aspen, Glenwood Springs, and Vail areas. That amounted to just a 3% to 5% drop in sales compared to what would have been otherwise expected. Those losses can be absorbed by Holy Cross, he said.

Loss of a full ski season would be more troublesome. and would require “more fundamental changes in our business mode, in our financial structures – and in fairly short order,” he said. “For a utility, that’s not easy.”

Unlike utilities serving cities along the Front Range, for example, demand for electricity Holy Cross customers peaks during winter months.

More worrisome, added Hannegan, has been a doubling of bill non-payments. The cooperative has made \$2 million available to help customers, who in cooperatives are also members, to bridge their way beyond the distress caused by lost jobs and reduced work.

Tri-State Generation and Transmission had plans for such exigencies on the shelf for years that nobody fully expected to be needed. “But the plans have performed admirably,” said chief executive Duane Highley on the same webinar sponsored by the Payne Institute of Public Policy and the Colorado Energy Research Collaboratory. “I don’t have to be concerned about the reliability of the grid today.”



**Duane Highley**

Demand has slackened for extraction of natural resources, which constitutes 40% of total demand among cooperatives in Colorado and three adjoining states who get their power from Tri-State. In individual member co-ops, natural resource extraction accounts for up to 80% of demand. “That means they will have a difficult time paying their wholesale electricity bills,” he said.

For Platte River Power Authority, which supplies Fort Collins and three other towns and cities along the northern Front Range, plans and reality were not entirely the same. “You can have every plan in the world, but until you actually have to enact that plan, and until things are happening in the real world and you’re getting different guidance from the federal, state and local levels...” said Alyssa Clemens Roberts, the chief strategy officer. “The first two weeks were a pretty wild ride for me.”

The wild times may not be over, of course. Platte River, for example has paused its planning for its integrated resource plan. It had held one public meeting, then canceled the next one. Some work continues, said Roberts, but most of the planning has been paused until it’s possible to have face-to-face meetings.

Slowed, but not paused, on a 22-megawatt solar farm and 2-megawatt battery being installed near the power provider’s Rawhide Power Plant.

In the future, she added, “economics may play a bigger role in northern Colorado than they have in the past.” It depends upon how quickly the market rebounds, how quickly people get back to work, and the impact on demand for electricity and revenue. — **Allen Best**



**Alyssa Clemens Roberts**

## United Power alleges Tri-State crossed line to ‘imprison’ it in contract

Trojan horses and de facto bribes. Secrecy with the intention of imprisonment.

And then a clandestine project, co-named Blue Sky II, which the electrical cooperative United Power claims was the project designed by its wholesale supplier, Tri-State Generation and Transmission, to explore ways to get jurisdiction by regulators in Washington D.C.

The goal?

To keep United Power, the largest among Tri-State’s 43 members that are spread across Colorado and three adjoining states, as a member—and contributing fistfuls of dollars for decades to come. And also to keep the Colorado Public Utilities Commission from exercising authority over determining what would constitute a fair and reasonable exit fee.

Or so goes the argument in the lawsuit filed by United Power against Tri-State and three of its new, associated members.

Tri-State dismisses the lawsuit as so much folderol.

See [rest of story posted May 5](#).

**What came out after the story was posted** were the precise figures that Tri-State had asked of Kit Carson and Delta-Montrose as compared to their final settlements: \$136 million at Kit Carson vs. \$37 million; and \$322 million at Delta-Montrose vs. \$62.5 million, according to a motion by La Plata Electric that was filed with the Federal Energy Regulatory Commission on May 11 by La Plata Electric. Docket: ER20-1559-000

An administrative law judge at the Colorado Public Utilities Commission is scheduled to hear the La Plata and United Power exit cases next Monday-Friday, May 18-22.





# Pitkin County takes aim at high-energy of mansions

by Allen Best

Aspen has long had a love-hate relationship with its big, fancy houses. On one hand, the houses there and in surrounding unincorporated Pitkin County keep real estate agents, builders, and remodelers gainfully employed.

Energy use by these big houses rankles local sensibilities. Some of it has to do with the sheer size: The largest—a 56,000-square-foot edifice built for a Saudi prince—

redefines the word “mansion.” Even newer and smaller houses, now capped at 14,000 square feet, use disproportionately more energy on a square-foot basis. Then there are the heated driveways, outdoor swimming pools, and patio hot tubs.

The first response of Aspen and Pitkin County in the late 1990s was the [Renewable Energy Mitigation Program \(REMP\)](#), which applied to both houses of more than 5,000 square feet and their outdoor spaces. Builders and homeowners had a choice. They could install on-site renewable energy to compensate for the energy extravagances, or they could pay into a fund used for energy efficiency or renewable energy elsewhere in the Roaring Fork Valley.

REMP was provoked by concerns about the pollution caused by burning coal, but growing climate change worries have now driven Pitkin County to embrace more aggressive efforts to reduce greenhouse gas emissions caused by buildings.

The county adopted a climate action plan in 2017. In September 2019 it adopted a resolution declaring a climate emergency.





It was at that time one of six such resolutions in Colorado and 50 nationally.

The requirements governing energy use in residential buildings now being considered by Pitkin County represent small, incremental efforts to back up those declarations.

The first hearing by the Pitkin County commissioners is expected in late May, followed by a second hearing a month later.

**B**uildings, both residential and commercial, are becoming a focal point of efforts as Colorado sets out to decarbonize its economy as directed by a 2019 state law. The law sets a 2050 goal of reducing emissions 90%.

A Colorado Department of Public Health and Environment report projects that transportation will become the leading source of carbon dioxide emissions in Colorado during 2020, followed closely by production of electrical power. (It's not clear how that report, produced in 2019, will be affected by the coronavirus economic slowdowns).

Whereas coal plants are being closed and electrified cars, buses and other vehicles are making inroads, buildings normally remain little changed for decades, even centuries. Getting them right the first time matters.

Pitkin County's proposed regulations—the county's two principal towns, Aspen and Snowmass Village, are not changing their regulations—would apply to all new and remodeled houses, regardless of size, as well as additions.

Regulations concerning exterior energy uses for heated swimming pools and the like will remain unchanged. The new program employs the Home Energy Rating System, or HERS, the homebuilding industry's standard for measuring energy efficiency.

HERS ratings provide a tool for comparing the energy efficiency of houses: The lower the number, the greater the efficiency of energy use. A house built to satisfy the energy efficiency requirements contained in the 2006 national building codes will achieve a score of 100. Older, drafty and uninsulated houses might score 150 or even 200. To achieve a house with a HERS rating of zero would require that it produces as much energy onsite as it consumes.

Pitkin County's program, called HERS30/NET 30, will require that HERS scores of 60 be the starting point. The county looks to get more ambitious yet, requiring net-zero by 2030.

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Why not now? Brian Pawl, the chief building official for Pitkin County, told county commissioners in November that building materials and markets by then will have caught up with net-zero goals.

Mona Newton, who directs the Aspen-based [Community Office of Resource Efficiency](#), a non-profit created to drive energy efficiency in buildings, says HERS is a valuable tool. “Everybody is struggling to achieve net-zero (emissions) buildings,” she says. “Even if you can’t meet that goal, HERS can tell you the opportunities for getting there.”

In Colorado, production builders along the Front Range have mostly been getting HERS scoring of 60 or a little better, reports Ryan Meres, a program director for [RESNET](#), a national standards-making body for building energy efficiency and certification systems. In other words, they deliver 40% more energy efficient homes than the 2006 code required.

Updated building codes explain some of this gain. Between 2006 and 2012, updates of the [International Energy Conservation Code](#) elevated requirements 38%. A new state law requires that jurisdictions that have adopted the codes update them to the most recent three iterations, currently 2018, 2015, or 2012. California’s more stringent requirements governing building energy have a secondary effect in Colorado, as most production builders operate in both states.

In Colorado, both Boulder and Boulder County already have HERS-based building requirements for new and remodeled homes. In one key respect, they’re stronger, not awaiting new materials and markets. Any new or rebuilt house of more than 5,000 square feet must achieve a HERS rating of net-zero in those two jurisdictions. Further, the houses must have designs and materials

## Tightening the energy belt in the Roaring Fork Valley

Most if not all jurisdictions in the Roaring Fork Valley have adopted climate action plans. Might some or even all of them adopt regulations that—like Pitkin County—elevate the requirements for buildings to tamp down use of fossil fuels?

Phi Filerman, community sustainability manager for the Community Office for Resource Efficiency, has already been having conversations with some building and other officials in the jurisdictions between Aspen and Glenwood Springs. The key question she is asking in those conversations is what barriers exist to adoption of building standards somewhat similar to, but not necessarily identical to, those adopted by Pitkin County. And then how can those barriers be overcome?

Existing codes vary in the valley, which has five towns—Aspen, Snowmass Village, Basalt, Carbondale and Glenwood Springs—as well as two counties. A significant portion of the valley is in Eagle County.

necessary to achieve a HERS rating of 40 or less. As house sizes decrease, the requirements recede. A house of 1,500 square feet or less need only hit a HERS score of 60.

“As the houses get bigger, they do consume disproportionately more energy, so that’s why we scale it up,” says Ron Flax, the chief building official for Boulder County. The county plans to increase requirements to require all new houses to achieve HERS scores of net-zero beginning in 2022.

The city and county tend to work in tandem, but the same regulations do not apply to Lafayette, Louisville, and other municipalities within the county.

But in one crucial way, Pitkin County’s new regulations will leapfrog past those of Boulder and Boulder County. Each new house must have 36 square feet dedicated for potential batteries. This matters in a place where real estate gets measured in square inches, not square feet, says Pawl,

the building official. The precise requirement for battery storage is 25% of installed kilowatts of photovoltaic production.

This requirement was triggered in part by the Lake Christine wildfire in 2018. Started by target shooters near Basalt, the fire soon engulfed the Roaring Fork Valley in smoke and nearly caused Aspen to be without electricity during the busy July Fourth weekend.

In 2019, the county issued permits for 25 houses. More than a third of the new houses were for between 5,000 and 14,000 square feet.

**S**tarwood in Aspen will be affected by the regulations. It may be the only subdivision to be a title for a popular song, John Denver's 1971 "Starwood in Aspen." Contrary to its name, though, it's actually outside the city limits and in unincorporated Pitkin County. It has superb views of the ski area and a string of 14,000-foot peaks. Its prices are just as lofty, most houses worth \$5 million to \$10 million, but some much more. Meg Haynes, executive director of the homeowners' association, says Starwood is very interested in working with Pitkin County to be a model in energy use. This interest, she confirms, reflects an evolved embrace of the challenge of energy.

The changes underway in Pitkin County echo another time of great transformation. Rich silver ores quickly transformed the mining camp called Ute City in 1879 into a city of wondrous buildings. By 1885, the rushing creeks had been harnessed to electrify street lights, said to be the first in the American West.

As with its founding, the Aspen area wants to be at the front of change, creating a resilient and zero-emissions grid.

## Meanwhile, Aspen has been working on benchmarking

The city of Aspen plans to target energy use in its commercial and multi-family building sector in a new program called Building IQ. Commercial and residential buildings in Aspen account for 58% percent of greenhouse gas emissions.

The benchmarking program will entail collecting information on the larger buildings. The city has 205 commercial buildings that account for just over 2.6 million square feet, while the 625 multi-family buildings account for more than 5.5 million square feet.

A proposed ordinance scheduled to be considered by elected officials this spring would require collection of energy use with the local utilities, Aspen Electric, Holy Cross Energy and, for natural gas consumption, Black Hills Energy. The thinking, explains Laura Armstrong from the city's climate action department, is that you cannot manage what you don't measure. Ultimately, the goal will be to take steps to ratchet down energy use through improvements in the buildings and their controls.

Aspen joins Denver, Boulder, and Fort Collins among the 31 jurisdictions across the United States that employ energy benchmarking as a tool for driving down building energy use.

Denver's benchmarking law requires owners and managers of all buildings of more than 25,000 square feet in the city to annually assess and report the energy performance of their buildings. The information is published on a website, which enables the market to better value energy efficiency.

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## Result of 2017 voter initiative starting to show up in greened roofs in Denver

In 2017, Denver residents approved a voter-initiated proposal to require green roofs on buildings of more than 25,000 square feet.

Now comes the first report since the initiative was folded into a broader Green Buildings Ordinance in November 2018. City officials say that nearly all the approximately 65 projects subject to the law have been able to include a cool roof.

The U.S. Department of Energy identifies a cool roof as one designed to reflect more sunlight and absorb less heat than a standard roof. Cool roofs can be made of a highly reflective type of paint, a sheet covering, or highly reflective tiles or shingles.

Nearly any type of building can benefit from a cool roof, but consider the climate and other factors before deciding to install one.

The voter initiative was amended to give developers and builders more options to meet the intent of the law, which was to more briskly take action to reduce energy use, in keeping with the city's bold climate-change goals, and tamp down the heat-island effect.

The green-building ordinance also gives builders and developers other options for complying with the intent of the law. Those options include on-site solar power production, purchase of off-site solar power, payment to the city's Green Building Fund, and other conservation methods, or some combination of them.

The initiative was passed over the opposition of Denver Mayor Michael Hancock, who said it went "too far," echoing what development and real estate lobbies said.

Ean Tafoya, who was deputy director of the 2017 campaign, said his side won handily despite being outspent 10 to 1. Now, he's



been to see the results of that on a hotel roof in RiNo, and he's proud of what he sees.

"We're excited that it is actually being implemented," he said. He also notes the benefit that the green rooftops will help with not only the long-term climate impact, but the short-term air quality.

The idea was first broached formally in Denver in 2008 by a task force. "But the overriding lesson is that citizens can use the initiative to effect change." Following the success of the cool roof law in 2017, others have used the same process to effect other changes in Denver.

Denver planning officials credit the green building ordinance with sparking conversations among developers and builders.

"Developers, property owners, and project teams are participating in important conversations around the value of higher-performing buildings, both to the environment and for the people who live and work in as well as visit these places," said Laura E. Aldrete, executive director, Denver Community Planning and Development.

"Continuing these conversations will be central to the development community's ability to meet mandatory building codes designed to help Denver achieve its broader climate action goals," she added.

"The Green Buildings Ordinance has accelerated the citywide conversation about the role of our built environment in combating climate change," said Grace Rink, executive director, Denver Office of Climate Action, Sustainability and Resiliency. "New codes and programs, including the Denver Green Code adopted in December 2019, will build upon this foundation to work toward our community's climate action goals."

Learn more about the Green Buildings Ordinance and read the full report at [denvergov.org/greenroofs](http://denvergov.org/greenroofs).

## Will Breckenridge forego gas lines for 80 units of housing?

Breckenridge plans to build an 80-unit affordable housing project along the Blue River a couple miles down-valley from the downtown. Still uncertain is whether gas lines will be installed to the units in Alta Verde.

The town is calling it a net-zero project. The Colorado Department of Local Affairs has awarded the project \$650,000 to install 500 kw of photovoltaic panels.

The state, through its Renewable/Clean Energy Challenge grant program, wants to fund large-scale demonstration projects that serve as models. The project is described as being net-zero ready, with the ultimate goal of being net zero.

Jessica Burley, the sustainability coordinator for the town, said that in constructing net-zero buildings, both the cost of construction will come down and the learning curve will flatten.

"This is still very much at the concept stage," reports Kimball Crangle, Colorado market president for Gorman & Co., the project developer.

Design of the project awaits decisions whether the project gets awarded low-income housing tax credits. Then the project gets into the full mechanical, electrical, and plumbing design. The exact technology will be identified for ensuring comfortable heat. All this is not expected until next fall and winter.

Project designers are confident that variable refrigerant flow (VRF) technology will allow comfort in the units.

"We have learned that in systems like the one we are proposing, once ambient temperatures around the condensing unit get to below 0, the heat pump heating capacity begins to drop," explained Crangle in an e-mail response to inquiries.



## The coronavirus & Pueblo's election

by Allen Best

Proponents of municipalized electric services in Colorado's rust-belt city of Pueblo weren't blaming the covid-19 pandemic for their lopsided defeat on Tuesday. They instead pointed to the infusion of \$1.5 million in dark money that produced what the mayor, Nick Gradisar, called the "dirtiest campaign I have witnessed in my career."

Fear and uncertainty were the themes of the anti-municipalization advertising. They're also sideboards of the pandemic. Perhaps the overlap is not coincidental. The messaging was mostly billboard type, a few words. Even the relatively wordy pieces pounded the same themes. One 750-word article—that's about the length of a newspaper column—used the word "risk" 13 times.

Another theme was mistrust of government, which also happens to be an

element in the campaigns of Donald Trump. That, too, was perhaps not just coincidental.

The reversal of public attitudes was stunning. In March, a municipal survey revealed 70% of city residents favoring a public power utility to replace Black Hills Energy, which levies among the highest rates in Colorado for its electricity. On Tuesday, 77% of voters went against the charter amendment that would have delegated authority to the Pueblo Board of Water Works, an institution parallel but independent from the city government, to negotiate purchase of the assets from Black Hills or, if necessary, take the steps to a court-mediated condemnation.

Municipalization supporters emphasized that the water utility, not the city government itself, would be in charge. The city has a less favorable reputation than the water utility. In the campaign against municipalization, though, it was simply a government takeover.

David Cockrell, a co-founder of Bring Power Home 2020, the advocacy group formed to support municipalization, agrees

that the anti-municipalization theme grabbed onto the pandemic coattails.

“For those who saw (the municipalization) as risky, the virus probably did enhance their perception of this being a brash and injudicious move,” he said.

Selling the arguments for municipalization was also harder to do, he believes, than attacking the plan.

“Until the bitter end, we did not bring down our campaign message to sound bites,” Cockrell says. “It really wasn’t possible to do so, because you had to take a little deeper look at the advantages of making this transition.”

The anti-municipalization campaign played to a political sensibility that turned Pueblo into a border-line Trump town in 2016. “They care about taxes, about government takeovers, about blank checks and about too much risk,” observed Cockrell in his morning-after post-mortem. The anti-municipalization effort then connected those broad worries to the debate about removing Black Hills.

“It was going to be a government takeover from the private sector, like universal health-care coverage. And it’s just wrong, opposite of what their message was.”

Cockrell, a former city planner and college administrator, became involved in the effort to corral the aggressive rates of Black Hills in 2014, six years after the utility purchased the Pueblo assets from the previous monopoly. Many saw Black Hills as holding Pueblo back even as other cities along the Front Range of Colorado boomed. They still do.

An hour after the vote results had been released, the effect of the vote’s decisive margin was evident on the faces of proponents in a press conference on Facebook. “We lost a great opportunity,” said Dr. Thomas Autobee, president of the board of directors of Pueblo Water Works, shock evident on his face and in his words.

“It wasn’t even close.” And then he added: “This was the sleaziest campaign I have ever seen.”

Some had thought municipalizing the electric supply, lowering rates, and keeping dollars at home would help Pueblo turn the corner on too-frequent dysfunction, even put it on the national map. Schools suffer such that some professionals commute 45 minutes to Colorado Springs to make their homes. Crime remains a problem in some areas.

For at least a decade, some in Pueblo have had a vision of Colorado’s most prominent blue-collar, lunch-bucket town becoming a green-collar town. Out beyond the carbon-soaked and rusting steel mill is the Vestas factory, which manufactures 90-meter wind towers. Beyond the trio of smokestacks at the Comanche Generating Station is a solar farm, at least at one time the largest east of the Rocky Mountains. And last September, Evraz, the Russian company that now owns the steel mill, committed to a solar farm on its own property that will allow recycled steel to be manufactured into pipelines and rail almost entirely from renewable energy.

Tuesday’s vote instead revealed a community averse to risk, even if the risk of making no change was greater. “The city is its own worst enemy,” one correspondent wrote to me. “I’ve never seen a place so hell bent on poverty.”

Municipal supporters were outspent 50-to-1 and were further hindered by covid-19 because they were unable to conduct the

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house-to-house, face-to-face interactions with voters they had planned.

The primary vehicle for opposition was a new organization called Pueblo CARES. [It reported](#) \$1.5 million in campaign donations, of which more than \$1 million was spent on television advertising. It refused to identify the bulk of its donations, arguing that as an educational committee, it was informational, and did not oppose the municipalization. A majority of the city council—the same majority that opposed municipalization—took no move to force transparency. Court action was an option, but of little value within just weeks remaining before the vote.

Steve Andrews, a co-founder of Bring Power Home 2020, studied documents filed by Black Hills with the Federal Energy Regulatory Commission on Thursday. He found allocations for advertising rose from \$14,000 in 2017 to \$803,000 last year.

“That was before (Black Hills) likely sent most of \$700,000 to their marketing arm – Pueblo CARES — in the current election campaign, he [wrote on Bring Home Power’s](#)

[website](#) on Friday. “Why do they need to advertise and to attack with misleading and false statements. Why don’t they just stand behind their product and their record the way most successful companies do?”

Gradisar, the mayor, pointed to the same campaign efforts when he was asked why the vote wasn’t closer.

“I think it was one-point-five-million bucks worth of money put into the campaign and the scare tactics. If you think about it, there wasn’t a positive thing said about Black Hills Energy. It was all a negative campaign” against municipalization.

The campaign, he went on to say, “was obviously effective. That is unfortunate, but the voters have spoken at this point and we have to live with that. whether we agree with them or not.

“I think we had a good message, I think we had a good plan, but we didn’t have a million and a half dollars to get it out here.”

Steve Welchert was the symphony conductor for the anti-municipalization campaign. The [website for](#)



[his company](#), The Welchert Company, describes a long career of successful political advocacy, almost exclusively on behalf of Democratic politicians, from Colorado Gov. Dick Lamm 40 years ago to Denver Mayor Federico Pena in the 1980s and 1990s to U.S. Senator Mark Udall and U.S. Rep. Ed Perlmutter in the 21st century. But consultants do have a way of being mercenary.

The irony is this architect of Democratic victories essentially took a page from Trump. The president promised that he would aid ordinary American with their grievances against the so-called elites and the effects of globalization. His most tangible success as president, though, was to give a giant tax break to the economic elites.

That's the same effect of the vote in Pueblo, and Gradisar, during the campaign, had hit on the point repeatedly. A continuation of the past, he said, would perpetuate a virtual conveyor belt of cash from Pueblo to the headquarters for the investor-owned utility in Rapid City, S.D., some \$130 million in profits before the franchise agreement ends in 2030.

After the vote, Gradisar vowed to work with Black Hills, whose local manager, Vance Crocker, remains popular, even with some who have been sharply critical of Black Hills. There is some hope that Black Hills will use a law passed two years ago to offer rate reductions for new businesses that might deliver jobs.

Another proponent of municipalization, Kevin Olsen, a retired minister, was more overt in his hope. "Remember the end is never the end," he said. "It's only a new beginning. We may have lost the vote, but we haven't lost the vision."

That's a cheerful note, but one that brings to mind Edgar Allan Poe's weary search for Eldorado. Cockrell, though, hopes to see a new generation of gallant knights and their female equivalents. The grassroots leaders of the push for municipalization are

all in their 70s or late 60s, he pointed out. Others will have to step up.

The more immediate worry may be whether the effect of coronavirus that caused such a somersault in Pueblo may also play out on the national stage. Will Trump overcome his considerable incompetence in responding to the pandemic by mining the fears and uncertainty it has produced to secure another four years in the spotlight that he so desperately craves?

It sounds strange, but no stranger than the landslide vote in Pueblo.

### **What others said:**

"You need a cliché filter on your computer. The steel mill isn't rusting. It operates every day. It just doesn't employ as many people as it once did. I had a flyer in my mailbox every day from Black Hills or its straw group, Pueblo Cares. The utility spent \$15 per city resident to turn the tide. The real shift, which Black Hills can't stop, is to residential and commercial solar and net metering. If anything, Black Hills just gave that movement a big boost. Also, city residents can break the franchise agreement in five years if they choose to. Round 2, so to speak. And who knows what Pueblo's economy will look like then."

Via [Mountain Town News website](#)

"NICE writing and I think you talked to the right people and characterized this properly. Too bad, the journalism in Pueblo is not as accurate as you are at this time."

Via e-mail

"It's very sad that Pueblo residents couldn't understand the utility municipalization opportunity better. BHE is now on notice, though; that's good. And lots of important movements take more than one attempt to achieve real change (think marriage equality, civil rights, recognition of women's right to vote, etc.)."

Via Facebook

“We are not municipalizing. That’s OK, and even, from our perspective, good. But if we are going forward with Black Hills Energy in that franchise, we need a partner on their end and community leaders that hold them accountable and push for an improving future. We think everyone can agree that changes are necessary ... maybe not changes that rise to the level of municipalization, but significant changes all the same.”

*Via [Pueblo Chieftain](#) op/ed by Karen Vigil*

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