

BASIN TODAY

BASIN ELECTRIC POWER COOPERATIVE

| 2020 SPRING

POWERING THROUGH

FROM SPRING CORN HARVESTS
TO A GLOBAL PANDEMIC,
WE #POWERON



A school bus delivers lunches to rural Montana students during the COVID-19 pandemic. Basin Electric Class C Member Sheridan Electric Cooperative in Medicine Lake, Montana, stepped in to help deliver food for the school lunch programs in this area. "Lunch programs are an important part of rural Montana schools. In some cases, it is the only meal a kid will get in our poverty areas. When the schools shut down, the food must still be served," says Sheridan Electric Member Service and Marketing Manager Scott Westlund. "Some of the schools are in our service territory

and some are not, but we are there for all of them. Whether we serve them electricity or not, we are here to serve them nonetheless." Basin Electric was proud to provide funds through its charitable giving member matching program to assist with these efforts. Learn more about what Basin Electric is doing to help its members and communities during the COVID-19 pandemic at



<https://bit.ly/CharitableGivingPandemic>



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| NUMBER 1

ON THE COVER

David Johnson, a farmer near Kensal, North Dakota, and a member of Basin Electric Class C member Northern Plains Electric Cooperative, spent much of his spring harvesting. Like many farmers across the Midwest, Johnson had to plow snow drifts from nearby highways to get to his muddy fields in an attempt to harvest the corn that was in his snowy fields since October. Read more and watch a video to see what keeps him farming in conditions like this at



<https://bit.ly/SpringCornHarvest>

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Use your smartphone barcode scanner to view stories online.



PAUL SUKUT

STEADY, PATIENT, PURPOSEFUL

For decades, we have been able to say one of Basin Electric's greatest strengths is the diversity of its membership.

Diverse ways of looking at things, diversity in types of electrical load, diverse factors affecting the local economy in places spanning nine states.

Today, we are facing a challenge that comes from a single source, and it is not only affecting our entire service area, it is affecting the entire world.

COVID-19 has brought uncertainty to almost every aspect of business, family life, and safety. Nobody can say with certainty where this sudden and drastic shake-up will leave us.

The world economy has been impacted in a big way. Natural gas prices dropped along with oil prices, but there is a chance natural gas prices will rebound as storage is drained while production is shut off. Oil went as low as negative \$35 per barrel for a day in April before coming back. But the rebound is nowhere near enough to keep production humming in the Bakken oil play of western North Dakota.

Employees are assembling a revised 2020 load forecast, as much of the load projected in the Bakken looks like it will not materialize as quickly as anticipated. Several timelines for projects may change. With changes in load projections, construction of another Basin Electric generating unit may be postponed, or may not happen entirely.

The price of gasoline is impacting the price of ethanol. Gasoline is now cheaper than ethanol, and higher ethanol

prices will discourage fuel vendors from blending more than the 10% that is necessary to meet government biofuel mandates. In Basin Electric's service area, three ethanol plants have temporarily shut down and most plants are operating at reduced output levels, which affects Basin Electric member load levels. In the United States, half of all corn consumption goes to ethanol. Interestingly, demand for fertilizer doesn't appear to be affected.

COVID-19 has more people working from home, which impacts hourly load patterns. Basin Electric is losing the evening demand peak, and the morning peak is elongated and shifts to a bit later in the morning and spreads into early afternoon.

For Dakota Gas, there is considerable deterioration in commodity prices. Demand is company specific: some customers are cancelling orders, some are pulling forward demand. Our employees in production and marketing are working diligently to make sure our members continue to gain the best value possible from our products.

We were very aggressive from the outset in cutting costs in preparation for revenue loss, and I am so proud of the response we received from all our employees. Some of our power plant outages were postponed to either fall or next year, and when you consider all the moving parts that make a change like that possible, you can imagine how pleased I am to say we have the best minds in the business working at Basin Electric. Much of our administrative staff adapted to working from home quickly, getting used to working with kids and pets in their midst, and conducting lots of meetings over the phone or video conference.

Concerning safety, I am proud to say our employees stepped up in many ways. Our generation, transmission, Great Plains Synfuels Plant, and Montana Limestone Company employees were impressive in their efficiency and resolve when things started changing quickly in mid-March.

We asked a lot of our workforce quickly in terms of adaptation and innovation, and they delivered. My main objective is to keep our workforce safe, and if we can continue to work safely in a cost-efficient manner, I consider that to be a win.

After the important work to keep power flowing and business moving, now we need to start relying on patience. Patience to get back to work. Patience for markets to rebound. Patience for work started and put on hold.

Basin Electric is weathering this storm quite well, especially compared to the rest of the world, and I am grateful for that. We remain financially strong, and while our patience might be running thin, our ability to get through this is steadfast.

Stay safe.

A handwritten signature in black ink, appearing to read 'Paul Sukut', written over a horizontal line.

Paul Sukut, CEO and general manager

Editor's note: This In Brief section is a special focus on COVID-19. Visit the news center on basinelectric.com for other timely Basin Electric news briefs.

Basin Electric committed to providing reliable power during pandemic

Basin Electric knows that during times of crisis, like the COVID-19 pandemic, reliable energy is essential. The cooperative has an important role to play, ensuring its members have electricity along with continuing operations at Dakota Gasification Company. Basin Electric is working closely with its members and has plans in place to continue providing sustainable, reliable, and affordable energy as well as quality natural gas, fertilizers, and other products.

"Electricity is more important now than ever. It is essential to keep homes powered and critical facilities open and functional so they can provide the vital services and supplies needed to combat this pandemic," said Paul Sukut, Basin Electric CEO and general manager. "We are committed to keeping the facilities that generate this power up and running, and we have made the necessary provisions to continue providing power for our members and communities."



<http://bit.ly/ReliabilityDuringCOVID>

Basin Electric postpones planned outages to mitigate risk

Basin Electric has made the decision to postpone scheduled outages at Antelope Valley Station in Beulah, North Dakota, and Laramie River Station in Wheatland, Wyoming.

"Safety has always been our top priority so it made sense to postpone these outages and attempt to reschedule once the COVID-19 pandemic clears," said Paul Sukut, Basin Electric CEO and general manager. "Bringing contractors from across the United States to our generating stations and communities for an outage that lasts several weeks is not prudent in the wake of this pandemic. It would bring risk to our workforce and the communities we live and work in." Basin Electric plans to continue with a scheduled two-week outage at Laramie River Station that doesn't require outside contractors.



<http://bit.ly/BEPCOutagesPostponed>



Michaela Eisenbeisz, left, senior chemist, and Amy Garman, chemical lab superintendent, with the disposable face shields Dakota Gas donated to Sakakawea Medical Center in Hazen, North Dakota.

Basin Electric charitable giving and sponsorships shifting

Basin Electric's charitable giving has shifted from supporting after-prom and post-graduation parties to helping combat the effects of COVID-19.

Jennifer Holen, Basin Electric charitable giving administrator, has been contacted for assistance by several organizations and members for necessities such as cleaning supplies, food, and equipment for healthcare workers such as disposable face shields. Basin Electric's member cooperatives are showing their concern for community, as well, donating necessities to area charities and schools.



<http://bit.ly/CharitableGivingPandemic>


Basin Electric directors vote to return money to members

Basin Electric directors authorized the retirement of nearly \$18.6 million in patronage capital credits during their April board meeting. This will help mitigate the financial effects some cooperative members may face during the COVID-19 pandemic.

"One of the benefits of being a member of a cooperative is that members own their cooperative, and therefore are entitled to the retirement of previously allocated margins that are undistributed," said Paul Sukut, Basin Electric CEO and general manager. The \$18.6 million retirement encompasses the remaining undistributed margin from the year 2003.

"Within our membership, some distribution members are mandated that they cannot disconnect for lack of payment, and others have decided they will not disconnect. We have heard some concern about liquidity and cash position, with some sectors affected more than others, and this is a step Basin Electric can take to help out," said Steve Johnson, Basin Electric chief financial officer and senior vice president.

Johnson said cooperatives will be receiving an official notice of their share of the patronage capital credit retirement, which is determined based on their power purchases during the year the patronage was originally allocated. The capital credits were distributed May 6, 2020.

 <https://bit.ly/April2020PatronageCredits>

Coal miners added as 'essential workers'

In collaboration with federal, state, and local agencies, the Department of Homeland Security (DHS) compiled an advisory list of essential critical infrastructure workers



to help government officials protect their communities and ensure the continued functions critical to public health and safety as well as

economic and national security. While the workers at electric generation and transmission facilities were included in the list of essential and critical personnel, workers at the nation's coal mines were not listed.

Noting that the employees of the nation's coal mines are vital to keeping the nation's baseload power plants running, the Lignite Energy Council and Wyoming Mining Association sent letters to the DHS asking that mine-workers be included. As a result, the DHS updated its

guidance to include coal mining, processing, and shipping to the list of essential workers.

 <http://bit.ly/CoalMinersEssential>

Basin Electric adjusts technology to accommodate restrictions

COVID-19 has pushed many organizations to rethink the way they do business. Basin Electric is no exception. Adjustments have been made by employees and members cooperative-wide to keep business going amidst COVID-19 restrictions.

Technology has allowed Basin Electric to continue functioning to provide members with reliable energy. In April, the co-op made history by holding its monthly board of directors meeting remotely for the first time. The board recognizes that even in challenging times, it's important to make adjustments so the cooperative can keep electricity, products, and services flowing.

"Whether it's meeting remotely, working from home, or being on the front line, everyone is stepping up to do their part in these difficult times," said Paul Sukut, Basin Electric CEO and general manager. "We have a solid workforce, have been taking steps to maintain good financial stead, and our work ethic is beyond reproach. I am confident we will get through this."

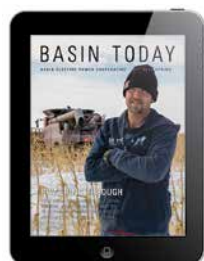
 <https://bit.ly/BEPCAdjustsToCOVID>

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WINDS OF CHANGE

NEW TECHNOLOGY WILL IMPROVE EFFICIENCY OF WILTON WIND PROJECTS

By Angela Magstadt

Wind is an integral piece of Basin Electric's all-of-the-above energy portfolio, and through the years the co-op has invested more than \$6 billion in renewable resources. In fact, by the end of last year, Basin Electric had more than 1,400 megawatts (MW) of green and renewable capability, including 1,360 MW of wind generation.

Work was recently done at Wilton Wind Energy Center 1 and 2 near Wilton, North Dakota, (two wind projects from which the co-op purchases power) in an effort to improve efficiency. New technology was integrated into the towers to help improve their performance. Additionally, the Baldwin (near Baldwin, North Dakota) and Day County (in Day County, South Dakota) wind projects are expected to go through similar upgrades later this year.

Since the Wilton Wind projects were built in 2006 and 2009, there have been significant enhancements in turbine technology, so NextEra Energy Resources (the company that owns the projects) is working to integrate the new technology, including longer blades and updated gear boxes, into the existing wind turbines to improve their performance.

"Think of it like taking an older car and installing a new, fuel-efficient engine in it so you can get better gas mileage and drive it more cost-effectively," says Conlan Kennedy, NextEra Energy communications specialist. "The capacity of the project won't change, but the efficiency will improve – meaning the turbines will be able to generate more energy during more hours of the day, even in lower wind speeds."

Kennedy says the renovation is being driven by extensive advancements in wind turbine technology the industry has experienced over the past decade. The upgrades make each turbine more cost-effective and efficient. With longer blades, the turbines are able to capture more wind.

"This work required that Basin Electric approve the upgrade, and sets a new, lower price for power from both projects," says Becky Kern, Basin Electric director of long-term utility planning. "It was an opportunity to take an older project and increase its capacity factor and therefore reduce the purchase price."

Performance upgrades on Wilton 2 were completed in late 2019 and Wilton 1 was completed in late April.

“Now that construction on this upgrade is completed, our project partners – both customers and landowners – will enjoy an improved wind project that is more efficient and produces cost-effective energy over a longer period of time,” Kennedy says.



FAST FACTS ABOUT TOWERS AND TURBINES

- Each turbine site requires excavating 302 cubic yards of dirt, adding 25,000 pounds of steel, and 188 yards of concrete to build a foundation.
- Each turbine has three blades. When the blades are spinning at top speed – about 20 to 25 revolutions a minute – the tips of the blades are moving at more than 150 miles per hour.
- Each blade is 121 feet long, nine feet wide at its widest point and weighs nearly 4,000 pounds.
- The rotor (combination of three blades) measures approximately 380 feet across.
- The turbine measures approximately 486 feet from the ground to the tip of the top blade.
- Fully erected, a turbine weighs approximately 613,000 pounds.
- The box on top of the tubular tower is called the nacelle. It is big enough to easily fit a full-sized pickup inside of it.
- The turbines can operate in wind speeds as low as 7.7 miles per hour and as high as 54 miles per hour.
- As wind speeds pick up or let down, the blades feather – or turn slightly – to capture as much wind energy as possible.
- Wind towers can operate in temperatures down to -22 degrees Fahrenheit. Anything lower than that compromises the tower's integrity.
- Each wind tower has its own separate weather station for accuracy, which measures the temperature at that exact spot. That's why sometimes you'll see one turbine running when the one right next to it isn't.
- The turbines have sensors that constantly detect wind speed and direction. If you want to know which way the wind is blowing, look at a wind turbine. The blades will always be facing right into the wind.



INITIATIVE STRENGTHENS, MODERNIZES COOPERATIVE'S INFRASTRUCTURE

By Lindsey Chumley

As Basin Electric moves on in years, so does its infrastructure.

The cooperative's infrastructure spreads out across its service territory throughout nine states and includes maintenance of 2,534 miles of high-voltage transmission lines and 89 substations. Most of the infrastructure was installed between the 1960s and 1980s.

"All equipment eventually does wear out, and we are approaching the upper end of the equipment's design life," says Derik Johnson, manager of Basin Electric Transmission System Maintenance (TSM).

The concern of aging infrastructure is not only an issue at Basin Electric, but for the electric utility industry as a whole across the country.

"We're up against a cliff event in the industry and if we don't start investing in our aging infrastructure, we are going to see higher failure rates, which means reduced bulk electric system reliability, and it just keeps snowballing down," Johnson says.

In the fall of 2018, Basin Electric's TSM and Headquarters engineering departments started developing a strategy to prioritize replacing the cooperative's aging substation equipment to stay ahead of the curve. The Aging Substation Infrastructure Replacement Initiative was unveiled in October 2018 as the cooperative's approach to strengthen and modernize its infrastructure.

The initiative was based off several evaluations that involved input from multiple departments and divisions

across Basin Electric. TSM engaged Headquarters engineering staff to assist in ranking TSM equipment replacements using a risk-based approach. The initial ranking included TSM field observations and input from TSM engineering, transmission planning, and cooperative planning and marketing. With the assistance of information systems and telecom and business system analysts, a software platform was created to enter in the ranking data.

In addition to evaluating equipment age and test data, TSM also looked at the availability of manufacturers who can support the aging substation equipment.

"The original manufacturers of most of this equipment are not in business anymore, or they've morphed into different companies that no longer support this equipment," Johnson says, "We don't have the luxury of buying parts for the equipment. We'd have to go to a third-party market, and it gets difficult or impossible to procure parts."

The initiative was used in the spring of 2019 when TSM, along with Headquarters engineering, populated the Long-Range Engineering Plan using the equipment ranking as a guide. Headquarters engineering and TSM spaced the projects far enough apart to ensure resources will be available to support them.

"Instead of doing this one project at a time, we thought it was important to develop the initiative to show the investment we're putting into these substations and to show this is what it's going to take to get this infrastructure replaced over the next several years," Johnson says.

The first project on the initiative's list was the Pahoja substation upgrade. At the January 2019 board meeting, the Basin Electric board of directors approved a \$2.1 million budget for upgrades to the Pahoja 230-kilo-volt substation, located in the northwest corner of Iowa. Most of the upgrades were completed by the end of 2019.

The project included:

- Replacing all transmission line surge arresters;
- Adding an additional AC station service to provide a redundant feed;
- Upgrades and replacements to the AC/DC systems, HVAC (Heating, Ventilation, and Air Conditioning), and control and protection systems; and
- Upgrades to substation security.

The upgrades gave the substation some new features not available in the old system:

- Human-Machine Interface software, which can show technicians what is in alarm at the substation; and
- The microprocessor-based relays, digital fault recorders, and remote terminal units on the new control and protection system, which will allow technicians to download fault records and other digital data to assess what happened.

A unique aspect of the project is that TSM acted as the general contractor for the project, which helped save money.

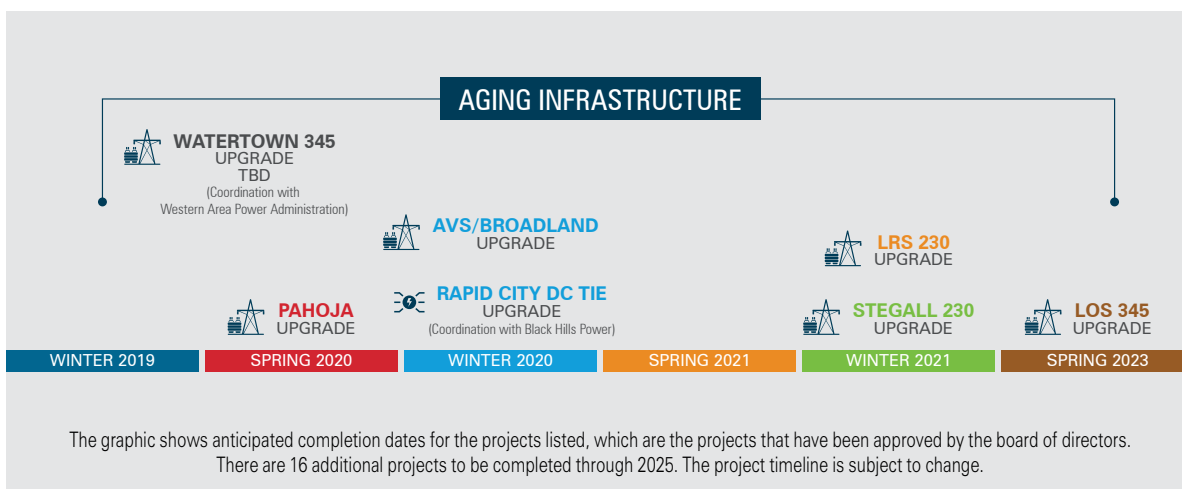
"TSM doesn't serve as a general contractor on all projects, but the scope and schedule of this project worked well for us," Johnson said. "Because we were able to do the project in-house, we saved the cooperative money."

The next project on the list is the Rapid City (South Dakota) DC tie upgrade. The project to upgrade the control system at the Rapid City DC tie kicked off December 2018. Basin Electric and Black Hills Energy, both owners of the tie facility, are working on this project together. The new control system will be installed and commissioned by the end of this year. Leading up to this, it will take two years for the contractor to develop the design and conduct simulations.

See the infographic below for other projects in the works.

The initiative is scheduled to span seven years. All projects are anticipated to be complete by 2025.

One project at a time, and with the Aging Substation Infrastructure Replacement Initiative serving as the guide, Basin Electric is ensuring reliability into the future for its members.



East River Electric

Christopher Anderson, a journeyman substation technician with East River Electric Power Cooperative in Madison, South Dakota, is helping alleviate the shortage of protective face masks for essential workers. Anderson says 3-D printing is a hobby he enjoys, so after reading an article about a face mask that was designed to be 3-D printed, he teamed up with a group of friends who have access to a 3-D printer and got to work. A single mask can take a 3-D printer five to six hours to produce.



Wright-Hennepin Electric

Wright-Hennepin Cooperative Electric Association, headquartered in Rockford, Minnesota, featured some of its employees' new "coworkers" on Facebook to brighten the days of its members. Like many co-ops across the country, Wright-Hennepin has closed its office lobby and implemented a work-from-home policy to protect the health of its employees and members.



SHOW THE LOVE

The best way to show our lineworkers **LOVE** and **APPRECIATION** is from afar.
Keep your distance so that they can stay healthy and safe to keep your lights on.

MWEC

#WeAreHere

#PowerOn

#NDSmart



CO-OPS THROUGH

For Basin Electric's member cooperatives, serving their communities is about much more than providing electricity. From finding ways to help their members keep their lights on, to producing face masks for essential workers, to simply

Slope Electric

The economic impacts of COVID-19 have caused many small businesses to reduce hours or close all together. Knowing that times are tough for some people in their community of Hettinger, North Dakota, ranchers Jordan and Jacki Christman, members of Slope Electric Cooperative, headquartered in New England, North Dakota, filled a cooler with packages of hamburger and left it at the local bank with a note telling those who need it to take what they need. They said it was a small gesture, but we think it shows their great big hearts.



Mountrail-Williams

April was Lineworker Appreciation Month. Mountrail-Williams Electric, headquartered in Williston, North Dakota, as well as many other electric co-ops, asked their members to appreciate their line workers from afar.



POWER COVID-19

sending someone a message of hope, Basin Electric's co-op family has been shining brightly through the COVID-19 pandemic. Here are just a few ways some of our members have shown the cooperative difference in their communities.



Northern Electric

Northern Electric Cooperative provides power to the 3M production facility in Aberdeen, South Dakota, a plant that produces N95 respirators. Northern Electric and its wholesale power supplier, East River Electric, have ensured the facility that there are plans in place to provide reliable power so the plant can continue the production of this life-saving equipment. Read more in the Live Wire blog post, "Millions of Masks" at

 <http://bit.ly/MillionsOfMasks>

Lower Yellowstone

"A World of Hearts" is a movement that spreads hope and solidarity by posting pictures of hearts, usually placed in windows, on social media to remind everyone that we're in this together. Lower Yellowstone Rural Electric Association went one step farther, spreading love on the lawn of its headquarters in Sidney, Montana. The heart in the top photo says #aworldofhearts to link it to the internet movement.



West River Electric

West River Electric Association in Wall, South Dakota, sent its members a heartfelt message on social media, "We may be apart but we will get through this together."



A DAY IN THE LIFE OF...

KATRINA

FINANCIAL REPORTING MANAGER

WALD

By Kalli Senske

By the time Katrina Wald was attending Dickinson (North Dakota) High School, she already knew that numbers were “her thing.” Being an avid sports fan, she regularly followed athletes’ statistics. Today Wald is still a sports enthusiast but uses her love of numbers for financial reporting, serving as Basin Electric’s manager of financial reporting and accounts receivable.

For her and the financial reporting team, the first week of February is lovingly joked about as “hell week.” That’s because they not only have to close the books for January 2020, but they are also still pulling together 2019 data as they prepare for external auditors from Deloitte & Touche and Baker Tilly to come to the co-op.

Wald says the most stressful part of the process isn’t having the external auditors on-site, but actually preparing for their visit in advance.

“Deloitte wants most of the information saved and ready before they get here, so it’s a big effort,” she says. “They may have follow-up requests when they’re here so we may need to supplement with further pulling of information or sitting and explaining things to them, but the bulk of the work is done upfront.”

Wald says the first three to four months of the year are the busiest. Month-end close is always busy, but her team now has additional work associated with the new Federal Energy Regulatory Commission (FERC) regulations.

“Now that Basin Electric is regulated by FERC, we have a requirement to prepare an annual financial report, the FERC Form 1, and also will be required to prepare quarterly financial reports for FERC,” she says. “The year-end report is quite comprehensive, whereas the quarterly report is a more abbreviated version.”

Wald says her team has a good review process to cut back on discrepancies.

"I look at each of the annual financial reports and verify each number before it goes to Deloitte," she says. "If there are numbers that don't agree, we get together to see why they're different or if something was missed. It's important to make sure we're all looking at the information the same way."

She adds that her team has great camaraderie, and that's one of her favorite parts of her job.

"Everyone is open to new ideas and is supportive and willing to learn. We're always asking, 'Is there a better, more efficient way to do this?'"

Wald says one of the best parts about working at Basin Electric is the many opportunities to be part of cross-functional working groups.

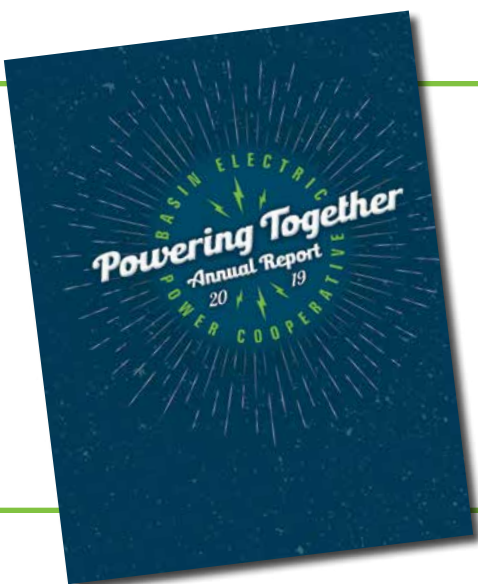
"By participating in cross-functional teams, I have been able to be a part of projects that are much broader than finance," she says. "There are a lot of opportunities to give your thoughts and collaborate, and it makes you

appreciate the work others are doing. As I've gotten more familiar with the information I work with at Basin Electric, I see how my work affects others down the road, and that motivates me to do exceptional work."

Before joining Basin Electric, Wald worked with WBI Energy for 12 years in financial reporting and planning. When she saw an opening at Basin Electric in budgeting, she knew it was an opportune time to make a change. Two years later, she moved into financial reporting.

"With the reduction in force, we lost three experienced people, but everyone stepped in and learned new duties. It was a good opportunity to try out new areas to see if you had an interest in an area you hadn't been involved with before."

In her free time, Wald likes to run and hike with her family in the Black Hills. She also still likes to watch sports and is the go-to person in her house for statistics. She particularly loves watching her three kids participate in sports and watching Phoenix Suns basketball.



Katrina Wald and the rest of Basin Electric's financial reporting team are instrumental in getting the financials ready for public consumption in the co-op's annual report. The 2019 annual report is now complete. Hard copies have been mailed and it is also available on basinelectric.com.



FINISHING WHAT BASIN ELECTRIC MOVING LONESOME CREEK

WE STARTED FORWARD WITH STATION UNIT 6

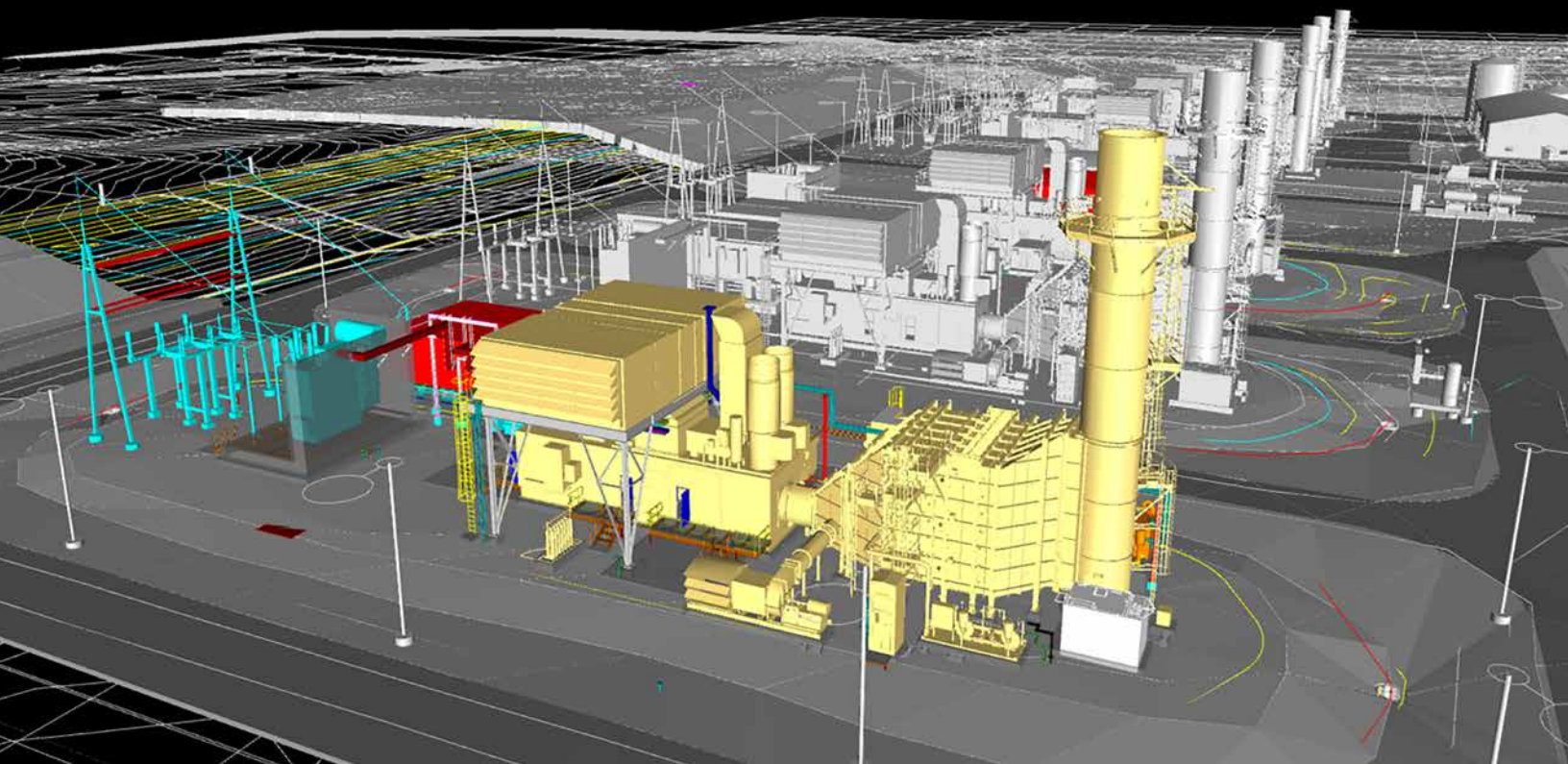
By Angela Magstadt

Lonesome Creek Station is about to get a little less lonesome.

At their January board meeting, Basin Electric directors authorized a sixth 45-megawatt natural gas generation unit to be added to the generation facility near Watford City, North Dakota, to help support members' load growth, which has grown at twice the rate of the rest of the United States for the past several years.

Trent Schwahn, Basin Electric electrical engineer III and Lonesome Creek Station Unit 6 project coordinator, says the project can come together relatively quickly, because when Units 4 and 5 were constructed in 2015 and 2016, provisions were put in place to easily add a sixth unit. "We have the land which has already been graded, the pipeline is already in place, and we know the approximate cost," Schwahn says.

In addition, the staff is already there and familiar with the facility, and there is an existing operations and maintenance building with spare parts on inventory. As



an added bonus, General Electric had the exact turbine and generator package as is being used on Units 1-5 in stock, which shaved three to six months off the project schedule.

A project of this size, while a pretty straightforward build for the most part, will still require collaboration with many other teams. Schwahn says engineering is working closely with the distributed generation team to coordinate with outages and market conditions to optimize the time the units will need to be offline during construction.

They are also currently working with procurement to order equipment that requires a long lead time (10-12 months) to ensure equipment is onsite when it is needed. In addition, they will need to work with right-of-way to keep the current renter of the land surrounding the area in the loop about what is happening, as well as environmental, resource planning, finance, and many others.

"There is a lot more to it than meets the eye," Schwahn says. "By the time it's all said and done, almost every team at Basin Electric will have worked on this project."

Construction was originally expected to begin in early August and take one year to complete; however, in light of the COVID-19 pandemic and the changes it brought about, the timeline is currently under review.

"While loads have been changing with the current situation, Lonesome Creek Units 1-5 have still been running relatively hard," says Becky Kern, director of long-term utility planning. "Adding the sixth unit would help to take some of the pressure off of the other five units and provide the reliability our members need."

Employees are currently assembling a revised 2020 load forecast, since much of the load growth projected in the Bakken may not materialize as quickly as previously anticipated.



The use of drones has allowed Basin Electric's communications team to shoot aerial photo and video content and has been used for aerial inspections at several Basin Electric facilities. Pictured here is Greg Wheeler, Basin Electric senior audio/visual producer, assisting with a recent critical roof inspection at the Great Plains Synfuels Plant.

THE SKY IS THE LIMIT

BASIN ELECTRIC'S USE OF DRONES IMPROVES EFFICIENCY AND SAFETY WHILE REDUCING COSTS

By Grady Blewett

Basin Electric's use of Unmanned Aircraft Systems, commonly referred to as "drones," is extensive. From maintaining transmission lines to measuring volumetric surveys for coal, ash landfills, limestone, and spoil piles, the use of drones not only makes lives easier but improves safety for many departments at Basin Electric, Dakota Gasification Company, and Montana Limestone Company.

Aerial photos without an airplane

For the past five years, Greg Wheeler, Basin Electric senior audio/visual producer, has been using drones to capture images and video at Basin Electric and Dakota Gasification Company facilities and nearby mines.

Prior to the use of drones, aerial photos could only be taken by going up in an airplane, which required the additional expenses of pilots, fuel, aircraft hours, and maintenance. Today, the use of drones has allowed the communications team to shoot aerial photo and video content for member cooperatives, as well and has been used for aerial inspections at several Basin Electric facilities.

Designing 'blasts' at the limestone quarry

Jacob Dow, engineer II with Basin Electric subsidiary Dakota Coal Company, says drones are the starting point of the drilling and blasting process at Basin Electric subsidiary Montana Limestone Company. "The drone I use is the same type of drone that anyone could purchase online or at a big box electronics store, but it plays an important role in mining," he says.

Dow says the process starts by setting up four targets (by hand) on the ground of the limestone quarry, then with a GPS rover, obtaining the coordinates of the targets before firing up the drone. The flight parameters are then selected on an app on an iPad and the drone takes to the air where it can go into an autopilot mode, flying autonomously and taking 200-plus images. The images are downloaded into a software program that creates and calibrates a 3-D model of the ground that is accurate to within a half-inch.

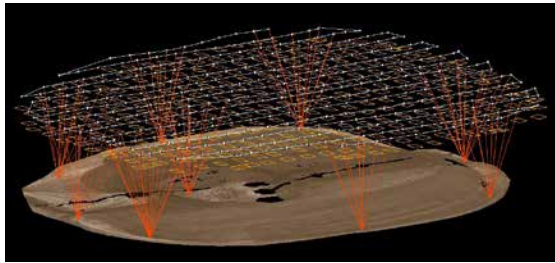
The model is used to design a blast for the drillers and blasters. "They need to know how heavy to fill the bore-holes with explosives on each specific hole that's drilled

based on how much overburden exists at any given point in the rock,” Dow says. “It’s important to know how much powder to use so we minimize the risk of flying rock during a blast, as well as maximizing fragmentation. The drone has been a huge help for safety.”

Dow says that before the use of drones, engineers had to use tape measures and could easily be off by 10 feet due to not being able to accurately measure off the face of rock. Surveyor-type tools were used to create models, as well. “The older technology that was used for blasting didn’t get nearly as much data, was significantly more expensive, and took much longer to obtain blast face measurements. With a drone, we can get massive amounts of data in one hour,” he says.

Coming soon: Drone surveying

Robert Kohler is Basin Electric’s only registered land surveyor and is certified in North Dakota, South Dakota, Nebraska, and Wyoming. While the engineering and construction team does not own or operate a drone at this time, Kohler says they have one budgeted in the next year or two.



This image was generated using drone technology. The upper squares are the location for which images were recorded and the red lines are where the images tie to a ground control point.

In the past, engineering and construction used subcontractors to capture and process raw aerial data into finished surfaces, then compared the data to surfaces created using conventional survey techniques. Kohler says the volume differences were noticeable.

Using a drone might seem like a good way to save time and make Kohler’s job easier, but that’s not always the case. “Would a drone make my job easier? Yes and no. Drones are a great tool to capture a lot of data, but processing that data takes two or three days, and we don’t always have that much time,” Kohler says.

But while processing data might take more time than Kohler would like, the actual time it takes to conduct

surveys in the field could be cut in half. Kohler currently uses all-terrain vehicles with GPS receivers to survey the coal stockpiles, and it takes his team members about five hours in the field to collect the measurements. With a drone, they could fly over Laramie River Station’s entire 40-acre plot in about an hour, if the weather cooperates.

And, a drone would have significant safety benefits as well. Not having to perform surveys of the coal piles while physically on the coal piles would be “fantastic” for safety, Kohler says. When at the Laramie River Station’s coal stockpile and ash landfill, for example, they have to drive around on uneven terrain alongside heavy equipment. “That can be a hassle,” he says. “Everyone has to be on the same page and keep an eye out for each other.”

The road, or flight, forward

“Drones can be very useful tools in many situations, but some see them as toys while the FAA [Federal Aviation Administration] views them as actual aircraft, just like the airplanes in Basin Electric’s hangar,” says Mark Scheele, Basin Electric’s chief pilot. “If people don’t take them seriously or take the time to learn the rules, it not only opens individuals and companies up to enforcement action by the FAA, but it puts the safety of the whole aviation system at risk. I’ve heard too many stories of people buying a drone online or at a local store and doing illegal and dangerous things with them because they don’t understand the national airspace system.”

Wheeler, Dow, Kohler, and Scheele are all licensed to fly drones for commercial use, which requires them to take an FAA exam every two years to help them stay up to date on new flight knowledge, safe spots to fly, and what areas they need to get permission from the FAA to fly drones.

With Basin Electric’s increasing use of drones, the cooperative is developing procedures so there are clear guidelines to follow. In order to do this, a task force led by the cooperative’s pilots has been created to develop these procedures.

“While drones have been used at Basin Electric for some time, until now it has been left up to individual departments to make sure they are operating correctly,” Scheele says. “We are now starting the process of creating an oversight program for the whole cooperative to make sure any department that wants to operate drones does so legally and safely.”

TROUBLE SAYING NO

LED TO 20 YEARS OF FOSTER CARE

By Grady Blewett

In 1988, President Ronald Reagan declared May National Foster Care Month, and it continues to be recognized and celebrated today. For Rhonda Chapman, Basin Electric account analyst II at Dry Fork Station, Foster Care Month hits close to home, as she and her husband, Bryan, have been foster parents for 20 years.

Chapman says they initially got into foster care when her mother-in-law and father-in-law were fostering children. "Back then, the rules stated that if one of their foster children wanted to spend time with our family, my husband and I needed to be licensed, so we did what we needed to get licensed," she says.

Not long after that, they began receiving calls for placements. "We had a hard time saying no, and here we are 20 years later," she says. While she says it's hard to say how many children they have fostered over the years, she estimates it is somewhere between 40 and 50.

The Chapmans have two grown biological children as well as two grown former foster children that they adopted. "They have all been a huge help caring for these kiddos," she says. "With my husband and I both working full time, they have helped us by driving the kids to activity practices, helping them with their homework, and many other things. I am so thankful to have the support of all my family."

In addition to the support of her family, Chapman says Basin Electric has been extremely supportive of her role as a foster parent. "With the many doctor appointments,



The Chapman kids: biological children Justin and Courtney, and Melisa, an adopted former foster child.

court hearings, counseling sessions, and activities we need to attend, I wouldn't be able to do this if I didn't have the support of my employer, and I have never felt anything but support from Basin Electric," she says.

Just as Basin Electric supports her role as a foster parent, Chapman says it is her job to be supportive of her foster children's biological parents. "Being a foster parent means giving our time and resources to help families through a difficult time. After so many years, we've realized that we don't just do it for the children, but for their parents, too," she says. "They need to know you support them – that you are not there to keep their children, rather you are there to keep them safe and love them until the family situation is corrected and it's time to go back to a home that's better than the one they left behind."

Chapman's biggest piece of advice for anybody thinking about becoming a foster parent is to have patience. "You have to understand that when you get a child in your home, you are there to care for the child. You fall in love, but ultimately these children already have parents, and even though they have made mistakes, they love their children – they just need help getting their lives back on track," she says. "Once they get the help they need, the court system may allow the children to go back home, and you have to trust that that's the right decision. It's the loving environment that makes it a home, and hopefully they can become a success story. Once it's all said and done, you have to believe you have had an impact on these children and they will have a better future because of it."



Rhonda Chapman and her husband, Bryan, have fostered 40-50 children over the past 20 years. They are pictured, center, with their two biological children.

New employees



Taylon Tweeten started as a process operations field technician at the Great Plains Synfuels Plant on Oct. 14. He was previously a laborer at Acrotech.



Nigel Schmitz began as a section engineer at the Great Plains Synfuels Plant on Oct. 21. He was previously employed at Baker Hughes as a site manager of North Dakota operations. He has a chemical engineering degree from the University of North Dakota in Grand Forks.



Logan Rietveld started as an apprentice substation electrician at Williston (North Dakota) TSM on Nov. 11. He previously worked at East River Electric in Madison, South Dakota, as a substation tech.



Paige Wallery started as a chemical laboratory field technician at the Great Plains Synfuels Plant on Dec. 2. She has a bachelor's degree in chemistry from the University of Michigan in Ann Arbor.



Brandon Janzen started work as a laborer at Laramie River Station on Dec. 2. He was previously a mechanic/operator at the University of Wyoming in Laramie.



Wesley Morales started at Laramie River Station as a laborer on Dec. 2. He has a bachelor's degree in business management and administration from the University of Montana-Western in Dillon. He previously worked as a regional distribution center supervisor at MRC Global in Cheyenne, Wyoming.



Margo Thompson started work at Headquarters on Jan. 13 as a market analyst. She previously worked at Starion Bank in Bismarck, North Dakota, as a learning and organization development partner. She has a bachelor's degree in marketing and management from Minot (North Dakota) State University.



Rezart Sina began as a real-time trader I at Headquarters on Jan. 13. He has a bachelor's degree in business administration from the University of Mary in Bismarck, North Dakota. He previously worked as a night relief pumper and roustabout at BOS Roustabout in New Town and Stanley, North Dakota.



Alayne Lawrence started at the Great Plains Synfuels Plant as a chemical laboratory field technician on Jan. 20. She was previously a laboratory technician at SGS in New Orleans, Louisiana. Lawrence has a bachelor's degree in chemistry from Xavier University of Louisiana in New Orleans.



Matthew Woehl started at Williston (North Dakota) TSM as a telecommunications apprentice on Feb. 3. He has an associate's degree in telecommunications from Bismarck (North Dakota) State College and an associate's degree in biomedical engineering from Southeast Technical Institute in Sioux Falls, South Dakota. He previously worked for CHI St. Alexius in Bismarck as a senior clinical engineer.



Allen Lindholm started as a food technician I at Headquarters on Feb. 3. He previously worked as a line cook at the Blarney Stone Pub in Bismarck, North Dakota.



Curtis Strandemo started as a service dispatcher at Headquarters on Feb. 10. He previously worked as an operations manager and dispatch consultant at Windy City Livery in Chicago, Illinois.



Damian Berger started as a process operations field technician at the Great Plains Synfuels Plant on March 16. He previously worked at Mobile Data in Dickinson, North Dakota, as a lease operator. He has a degree in Process Plant Technology from Bismarck (North Dakota) State College.

EMPLOYEE HIGHLIGHTS

Service awards



Doug Biffert
35 years
maintenance field technician
Dakota Gasification Company



Joan Dietz
35 years
communications manager
Headquarters



Tony Francis
35 years
control room operator
Laramie River Station



Ivar Frantsen
35 years
utilities shift supervisor
Dakota Gasification Company



Chuck Fritel
35 years
shift superintendent
Dakota Gasification Company



Stan Grad
35 years
operations field technician
Dakota Gasification Company



Kelly Hausauer
35 years
operations field technician
Dakota Gasification Company



Conrad Kostecky
35 years
operations field technician
Dakota Gasification Company



Donn Oakland
35 years
operations field technician
Dakota Gasification Company



Robin Richter
35 years
maintenance field technician
Dakota Gasification Company



Craig Wilhelm
35 years
operations field technician
Dakota Gasification Company



Jeffrey Hanson
30 years
maintenance planner/scheduler
Leland Olds Station



Daralyn Hausauer
30 years
administrative assistant III
Dakota Gasification Company



Christopher Locy
30 years
water treatment operator
Laramie River Station



Brenda Seibel
30 years
administrative assistant III
Dakota Gasification Company



Vickie Volk
30 years
human resources
administrator
Headquarters



Pete Grossman
20 years
maintenance field technician
Dakota Gasification Company



Lane Simpenderfer
20 years
instrument I
Antelope Valley Station



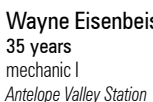
John Shields
20 years
water treatment operator
Laramie River Station



Tonya Unruh
20 years
hardware maintenance
technician
Headquarters



Cordell Eckroth
35 years
operations field technician
Dakota Gasification Company



Wayne Eisenbeis
35 years
mechanic I
Antelope Valley Station

Retirees



Lars Imhoff, a mechanic at Antelope Valley Station, retired on March 2 after 37 years of service.

"Lars was always eager to share his life experiences or what happened to him the previous day. Everyone enjoyed his companionship," says Casey Stern, mechanic supervisor at Antelope Valley Station. "When we needed a job done, we could count on Lars with his superb welding skills to bail us out."

"He told the guys that he was amphibious (ambidextrous), that he could weld with either hand," says Allan Frederick, mechanic supervisor at Antelope Valley Station. "We called phrases like this 'Larsisms.' He is a great guy and we already miss him."

In his retirement, Imhoff plans to do more hunting and fishing.

Retirees



Ed Mettler retired on March 6 after 11 years of service at Dakota Gas and Antelope Valley Station. He started working at Dakota Gas in 2009 as a senior controls engineer before moving to Antelope Valley Station to take an electrical supervisor position, which he held until retirement.

"Ed transferred over to AVS in 2018 right after the EVSP [employee voluntary separation program] and right before a major outage on Unit 2. He had a steep learning curve ahead of him but did a great job of adjusting to his new role during these challenging times," says Chad Edwards, plant manager at Antelope Valley Station. "Ed was eager to learn new things and was always willing to help out as needed during his time at AVS. I want to wish him all the best in retirement."

In his retirement, Mettler plans to golf, do woodworking, work in his metal shop, fish a bit, travel, and "most likely relocate permanently to a place where the weather isn't quite as harsh."



Mike Setterlund retired from Antelope Valley Station on March 2 after 34 years of service. He started as a laborer in 1986 and worked his way up to a control room operator, the position he held at retirement.

"Mike was an employee that took pride in sharing his knowledge with less experienced operators," says Ricky Mitzel, superintendent of operations at Antelope Valley Station. "Over the course of several years, he had taken many pictures of disassembled equipment that he used to help with part of an ongoing training process. Mike had that 'can-do' attitude, which made him very enjoyable to work with."

In his retirement, Setterlund plans to boat, camp, ride motorcycle, and "travel the good ole USA."

We will remember ...



Calvin Sprenger, 45, passed away on March 24. He was a process operations field technician in the chemical products section at the Great Plains Synfuels Plant. Sprenger began working at the Synfuels Plant in 2011.

Sprenger was raised and educated in Bismarck, North Dakota. He graduated from Century High School in Bismarck and from Bismarck State College with an associate's degree in electronics and later a degree in process plant technology.

"Cal was a dedicated employee who always wanted to please. Doing a good job is something he took great pride in," says Rick Volk, shift superintendent at Dakota Gas. "We are all going to miss him."

"It was important to Cal to put the time and effort into whatever job he had or task he was completing. He got along and worked well with others, which definitely helped him succeed," says Trinity Turnbow, Dakota Gas operations manager. "I wish everyone who was close to Cal comfort during this sad time and thank anyone who supported him or his family these past few months."



Maurice Ternes, 56, a control room operator at Antelope Valley Station, passed away on April 25. Ternes earned a degree in power plant technology and began working at Antelope Valley in 1984.

"Maurice always had a positive attitude toward work and truly enjoyed teaching and helping out his coworkers," says Mike Moos, shift supervisor at Antelope Valley Station. "Anyone who met 'Big Mo,' always commented on how calm, cool, and collected he was while at work. Over the last few years, I got to know Maurice as a coworker and as a friend. He always enjoyed having crew meals and trying out his new recipes. Maurice set the tone for the crew and will be greatly missed by me and the people who had the pleasure of working with him through the years."

"Maurice was a man of integrity and a genuinely nice guy," says Ricky Mitzel, Antelope Valley Station superintendent of operations. "Fellow operators reached out to him for advice because he had a strong understanding of how our facility operated. He dedicated 36 years to this company and definitely contributed to the overall success of the Antelope Valley Station. He will be greatly missed."



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“This is one of the best areas in the nation to raise bees.”

— Dusty Backer, Backer Bees

Environment isn't just a buzz word at Basin Electric.

Backer Bees has bees at Glenharold Mine, a reclaimed coal mine that used to supply coal to our first power plant. The reclaimed pasture has a variety of flowers—alfalfa, clover, sunflowers, wildflowers—making it one of the best areas in the nation to raise bees.

Environmental stewardship has always been a guiding principle for us. That's why we're committed to reclaiming and restoring land back to its natural state, like Glenharold Mine.



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