A Touchstone Energy® Cooperative

DAKOTA ENERGY
AUGUST 2025 VOL. 26 NO. 4

COOPERATIVE CONNECTIONS

Mitchell Tech Expansion

Photo submitted by Mitchell Technical College

2025 Washington, D.C. Youth Tour

Daunte Glanzer and Jolie Palmer represented Dakota Energy on the 2025 Youth Tour.

Thirty-six teens representing twenty-two South Dakota electric cooperatives traveled to the Washington, D.C., area from June 15 to 21 for the 2025 South Dakota Youth Tour.

The program traces its roots to a 1957 speech by Lyndon B. Johnson, who urged electric cooperatives to send young people to the nation's capital so they "can actually see what the flag stands for and represents." Since South Dakota sent its first group in 1963, more than 1,300 students have represented the Rushmore State on this once-in-a-lifetime trip.

The 2025 group visited numerous historic and impactful sites in Washington, D.C., including Ford's Theater—the location of President Abraham Lincoln's assassination in 1865. Their visit added a layer of reflection on the nation's journey toward emancipation and equality. The group continued to explore themes of patriotism and American history throughout the week, viewing the Star-Spangled Banner at the Smithsonian's National Museum of American History, the Declaration of Independence at the National Archives, and the Bureau of Engraving and Printing, where a large portion of the nation's money is printed.

Students also met with South Dakota's congressional leaders, including U.S. Senators John Thune and Mike Rounds, and had the chance to connect with Youth Tour participants from 44 other states. Together, they toured many of the nation's most treasured landmarks, including the U.S. Supreme Court, the Smithsonian National Museum of the American Indian, and more.

At the Gaylord National Resort & Convention Center, students wrapped up their trip with National Rural Electric Cooperative Association-led events, where they heard an inspiring message about perseverance and leadership from Youth Day keynote speaker Mike Schlappi, a four-time Paralympic medalist in U.S. men's wheelchair basketball.

COOPERATIVE
CONNECTIONS

DAKOTA ENERGY

(USPS No. 018-949)

Dakota Energy Cooperative Connections is the monthly publication for the members of Dakota Energy Cooperative, PO Box 830, 40294 US Hwy 14, Huron, SD 57350. Members subscribe to Cooperative Connections as part of their electric cooperative membership. The purpose of Dakota Energy Cooperative Connections is to provide reliable, helpful information to electric cooperative members on electric cooperative matters and better rural living.
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DAKOTA ENERGY COOPERATIVE, INC.
HURON, SD 57350

SAVE THE DATE FOR THE DAKOTA ENERGY COOPERATIVE ANNUAL MEETING

THURSDAY, AUGUST 21, 2025
11:00 AM - 1:00 PM

Locations: Dakota Energy Offices
Huron & Miller

Highmore City Auditorium
Highmore

Format: In-Person and Drive-Thru

Question and Answer Session to be held at all three locations:
Time: 1:15 - 1:45 PM
Format: In-Person Connected via Zoom

DAKOTA ENERGY COOPERATIVE, INC.

Staying Alert With Kids in Hot Cars

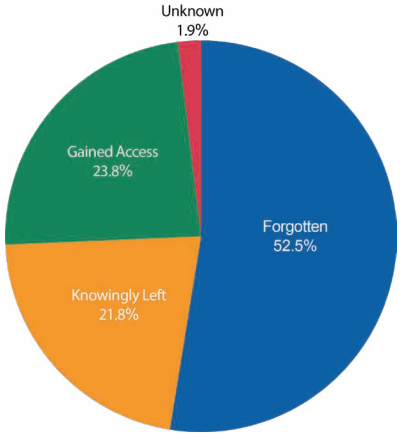
Source: National Safety Council

Since 1998, more than 1,010 children have died from vehicular heatstroke, an average of 37 per year. Parents and caregivers can act immediately to end these preventable deaths.

How Does It Happen?

Even on mild or cloudy days, temperatures inside vehicles can reach life-threatening levels. Leaving windows slightly open doesn't help. Children should never be left unattended or be able to get inside a vehicle. Three primary circumstances resulting in deaths of children in hot cars are:

- A caregiver forgets a child in a vehicle - 53%
- A child gains access to a vehicle - 24%
- Someone knowingly leaves a child in a vehicle - 22%



NSC advises parents and caregivers to stick to a routine and avoid distractions to reduce the risk of forgetting a child. Place a purse, briefcase or even a left shoe in the back seat to force you to take one last look before walking away. Keep car doors locked so children cannot gain access and teach them that cars are not play areas.

There is no safe amount of time to leave a child in a vehicle, even if you are just running a quick errand.

"Never fly a kite by a power line!"

Kasen Tikka, Age 9

Kasen warns readers about the dangers of flying a kite near power lines.Thank you for your picture, Kasen! Kasen's parents are Corey and Marcel Tikka from Lake Norden, S.D.

Kids, send your drawing with an electrical safety tip to your local electric cooperative (address found on Page 3). If your poster is published, you'll receive a prize. All entries must include your name, age, mailing address and the names of your parents. Colored drawings are encouraged.

Delicious DESSERTS

STRAWBERRY ANGEL FOOD DESSERT

Ingredients:

1 angel food cake (baked and cut in pieces)
3.9 oz vanilla pudding
1 3/4 cups milk
3 cups sliced strawberries
¼ cup sugar
8 oz. Cool Whip, thawed

Method

Put the angel food cake in a 9"x13" pan. In a separate bowl, combine vanilla pudding and milk; whisk together until thick; set aside. In another bowl, combine sliced strawberries and sugar; pour over the cake. Spread pudding over strawberries. Top with 8 oz. Cool Whip. Add more strawberries on top. Chill 1 hour before serving.

Gladys Bauer
Cam Wal Electric

MONSTER COOKIE BARS

Ingredients:

1 stick butter
1 1/2 cups peanut butter
1 cup sugar
1 cup brown sugar
1 tsp. vanilla
3 eggs
2 tsps. baking soda
4 1/2 cups oatmeal
12 oz. chocolate chips
12 oz. plain M&Ms

Method

Mix butter, peanut butter, sugar, brown sugar, vanilla and eggs. Add dry ingredients and mix in chocolate chips and M&Ms. Bake at 350°F for 15 minutes (no longer) in a large jelly roll pan. They may not look done but they are. Enjoy!

Rhonda Tuscherer
FEM Electric

BLUEBERRY TORTE

Ingredients:

1/2 cup butter
1 cup all-purpose flour
1 tbsp. sugar
8 oz. pkg. cream cheese
1 cup powdered sugar
8 oz. Cool Whip (reserve part for topping)
1qt. blueberries (fresh or frozen)
1 cup water
1 cup sugar
3 tbsps. cornstarch

Method

Cut butter into flour and sugar. Press into a 9"x13" pan and bake at 350°F for 20 minutes. Chill. Beat cream cheese and powdered sugar until light and fluffy. Fold in Cool Whip. Spread over crust. Simmer one cup blueberries and 2/3 cup water for five minutes. Blend sugar and cornstarch; add 1/3 cup water and mix until smooth. Combine with cooked berries and boil until thick and transparent. Cool and add remaining berries. Chill thoroughly and spoon over cream cheese mixture. Chill several hours or overnight. Top with Cool Whip.

Janet Lefers
Douglas Electric

Please send your favorite recipes to your local electric cooperative (address found on Page 3). Each recipe printed will be entered into a drawing for a prize in December 2025. All entries must include your name, mailing address, phone number and cooperative name.

Chad Felderman
CEO/General Manager

PRESSURE ON RATES

As you know, the Dakota Energy Board of Directors has been transparent about the reasons behind the 12% rate increase, which went into effect in January 2025. This increase resulted from higher costs for power supply, materials, and interest.

Our power costs make up 71% of our budget. The price increases from our power providers were 7.6% from East River Electric Power Cooperative (East River), 7.6% from Basin Electric Power Cooperative, and 7.5% from Western Area Power Authority. These increases are passed on to us through East River in our monthly power bill. As we start the budget process for 2026, we are anticipating more rate increases in our wholesale power and construction projects.

The Cooperative continues to actively manage day-to-day expenses, including right-of-way clearing, pole testing, cable locating, billing and postage, technology software, construction costs, and outside services. By closely monitoring these areas, we help reduce pressure on member rates and support long-term sustainability.

With just 1.44 members per mile, we have the third-lowest density among cooperatives in South Dakota. This means our operating costs are shared among fewer members, making every efficiency effort even more critical. We're committed to maximizing value while maintaining reliable service across our wide service area.

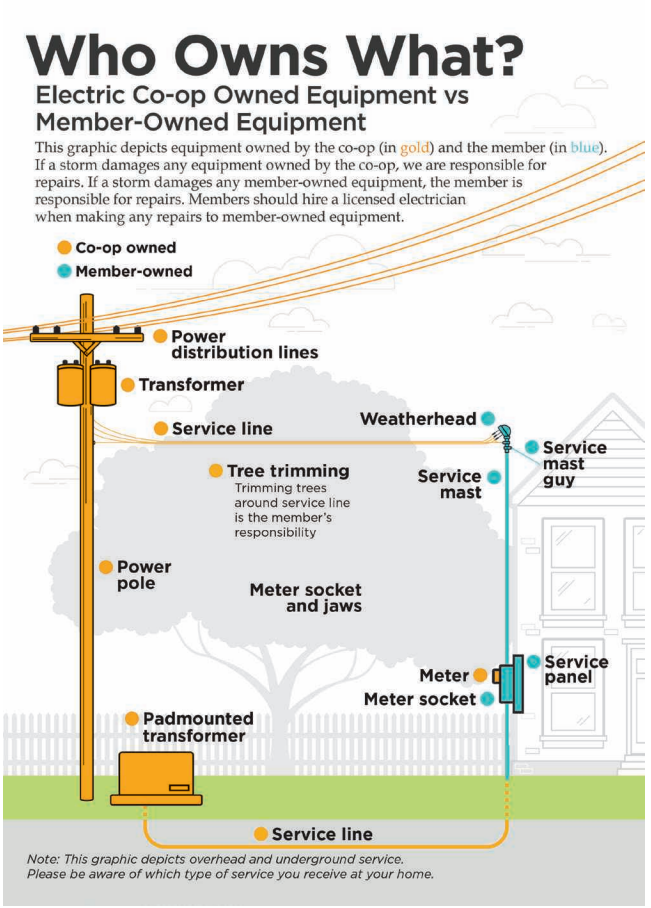
PLANNING A DIG? CALL 811 FIRST!

Before starting any project involving excavation 12 inches or deeper, South Dakota law requires you to call 811 or submit a request online at www.sd811.com at least 48 hours in advance. It's not just smart, it's required.

The South Dakota One Call Center alerts all utilities with underground infrastructure in your dig zone. That includes electrical, telephone, water, and sewer lines owned by utility providers.

Need to locate member-installed lines?

Dakota Energy offers underground line locating services for private lines, too. Many local electricians and professional locating companies can help identify these. To have Dakota Energy mark your private lines, give us a call at 605-352-8591.



SUMMER STORM SAFETY: KNOW WHAT YOU OWN AND WHAT WE DO

Summer storms can strike fast, so we're on standby to restore your power safely and swiftly. But did you know that understanding which parts of your electrical system belong to you can speed up repairs and keep everyone safer?

Cooperative-Maintained Equipment

- Utility poles
- Distribution power lines
- Pad-mounted transformers
- Electric meters

Your Equipment to Own and Protect

- Weatherhead and service mast outside your home
- Underground service lines pass the meter
- Service panel between your meter and your home/business

If severe weather damages your overhead or underground service line, coordinate those repairs with our licensed Dakota Energy electrician. They'll assess and fix what's yours by calling 605-352-8591. We'll help save time and get your lights back on faster.

MAY 2025

The Board of Directors met on Tuesday, May 27, 2025, with Directors Baruth, Baum, Bonebright, Langbehn, Morford, Nemec, Raschke, and Schaefers present. Manager Felderman and Employees Decker, Gerrits, Gilbert, Hasart, Picek, Rakness, and Zomer were present.

MANAGER'S REPORT

Manager Felderman reported on the following items:

- Monthly energy sales and revenue
- South Dakota Rural Electric Association
- East River
- Basin Electric
- Cooperative Response Center
- Greater Huron Development Corporation
- New substation request

OFFICE SERVICES REPORT

Manager of Finance and Administration Hasart reported on the following items:

- Financial reports for April
- 2023 Capital credit allocation
- Financial forecast update
- National Information Solutions Cooperative and new capital credit process

OPERATIONS REPORT

Manager of Operations Zomer reported on the following items:

- Construction, maintenance and retirement activities
- Sunshine Bible Academy Federal Emergency Management Administration Project is complete
- Dakota Provisions oil samples
- Completed underground west of Miller
- Replaced underground to Huron Colony
- Outage report

MEMBER SERVICES REPORT

Manager of Member Services Gilbert reported on the following items:

- Wiring department workload
- Potential hazards
- Load control savings
- Touchstone Energy scholar of the year banquet
- Interconnection policy meeting
- New load control system

HUMAN RESOURCES/ COMMUNICATIONS REPORT

Manager of HR/Communications Decker reported on the following items:

- Upcoming youth tour
- Electrician position filled
- Who Powers You contest
- Career fairs

INFORMATION TECHNOLOGY REPORT

Information Technology Administrator Rakness reported on the following items:

- Computers
- Payment Card Industry Compliance
- Information Technology Conference
- Website/Cybersecurity

BOARD ACTION

The following items were acted upon:

- Accepted the reports presented
- Approved new capital credit retirement formula
- Approved the capital credit estate retirements of $12,808.28
- Approved a $100 donation to Crow Creek Sioux Tribe Soup Kitchen
- Appointed Directors Nemec as the voting delegate and Raschke as the alternate voting delegate for the National Rural Electric Cooperative Association Director Election
- Accepted the resignation of Attorney Wheeler as corporate counsel
- Approved the 2025 Annual Meeting report insert in the monthly newsletter and 50 extra copies
- Approved membership survey by Survey and Ballot Systems
- Approved policies on harassment, retirement of capital credits, records management, and termination of employment

BOARD REPORTS

Director Raschke reported on East River's May 2025 regular board meeting.

Year-to-Date Financial Report

	May-25	Year-to-Date
Total Revenue	$1,873,570	$10,942,633
Cost of Power	$1,296,863	$7,523,817
Operating Expenses	$591,526	$3,202,110
Total Margins	$103,639	$788,565
KwH's Purchased	17,313,330	102,144,777
Services in Place		3,639
Miles of Line		2,533
Members per Mile		1.44

Wholesale power costs, taxes, interest, and depreciation account for 80.17% of DEC's total cost of service.

NOTICE:

MONTHLY BOARD MEETING DATES

10: 00 AM - HURON

TUESDAY, JULY 29

TUESDAY, AUGUST 26

A render showing Mitchell Technical College's new Power Line Underground Lab. MTC says students will practice underground utility work in this new facility, away from other courses' labs to reduce crowding. *Submitted Photo*

FUNDING FUTURES

Rural Electric Cooperatives Support New Training Facility

Jacob Boyko
jacob.boyko@sdrea.coop

Mitchell Technical College is well known among the region's rural electric cooperatives for its industry-leading lineworker training programs.

Now, that program is about to get even better, as MTC begins construction on a new, state-of-the-art underground cable equipment training facility.

The Power Line Underground Lab will allow students to learn how to trench, bore, and connect cables in an environment away from other labs and courses.

Additionally, being indoors and having a dirt floor, instructors have the added benefit of being able to plan courses without worry regarding outside weather and frozen ground during winter.

"The new facility allows us to be able to use our underground curriculum and teach it all throughout the school year, instead of just the beginning and the end when the ground is thawed out," MTC's president, Theresa Kriese said about the space.

"They get more equipment time because we're not trying to share a lab where we're also planting poles."

Construction of MTC's Power Line Underground Lab began this spring. MTC expects students beginning in the fall semester of 2026. *Submitted Photo*

Kriese hopes spreading out the curriculum over the semester will allow MTC's instructors to dive deeper into certain course topics with their students, making them overall better candidates for employment when they enter the workforce.

"We're seeing the energy industry making another transformation where underground is really gaining a larger presence than it had in the past", Kriese added, noting the Federal Emergency Management Agency's push to replace downed overhead lines with resilient underground cables after storms.

"We're finding that if we can have our students trained in both (overhead and underground), it opens some opportunities for them, because they may not be able to climb that pole their entire life," she continued. "It gives some flexibility to the employer, because I can hire somebody that can climb but they can also do that underground connection. So wherever I need them, I can have them work in my employment area."

Central Electric Cooperative General Manager Ken Schlimgen agrees, adding that with more and more electric co-ops working to replace their aging overhead infrastructure with underground line, MTC's new underground focus will help alleviate future workforce challenges.

"When we support Mitchell Tech programs, it's an investment into our most important asset: our workforce," Schlimgen said. "Workforce challenges will continue for decades, and having a competent, qualified team of lineworkers to serve our members and keep the lights on is vital to our success."

Central Electric is just one electric co-op providing financial support for the expansion.

At the time of writing, more than 20 electric co-ops in South Dakota have pledged over $460,000 to MTC in support of the facility.

"Power line personnel are the backbone of our cooperative family, keeping the lights on for our members and being leaders in our communities," said Steve Barnett, general manager for the South Dakota Rural Electric Association.

"Mitchell Technical College is a workforce pipeline for this profession and is vital to cooperatives across our region."

Kriese said staff and student excitement is growing ahead of the facility's expected 2026 completion and expressed appreciation to electric co-ops for their support.

"Mitchell Tech is making a statement and a commitment to the energy industry that we are your partner in developing and training employees for you," Kriese said.

"Without the partnership of the electric cooperatives, we really wouldn't be able to make this expansion."

The project is slated to celebrate its grand opening in the Fall of 2026, when students and Mitchell Tech faculty will begin using the facility to train tomorrow's electric cooperative workforce.

MTC's current plan for the Power Line Underground Lab shows a 34,000 square foot facility, made up of a 23,500 square foot underground lab, a 7,755 square foot vehicle and equipment storage area and a 1,000 square foot classroom. *Submitted Photo*

Theresa Kriese
President
MTC

Steve Barnett
General Manager
SDREA

Ken Schlimgen
General Manager
Central Electric

Board Approved New Capital Credit Retirement Options

Eric Hasart
Manager of Finance and Administration

Dakota Energy Cooperative is committed to providing flexible options for our members. To address the increasing time between when capital credits are earned and when they are paid out, the Board of Directors is introducing two early retirement options.

RETIREMENT OPTION #1 - GENERAL RETIREMENT

Current projections show that the capital credit retirement cycle may extend beyond our 20-year target. To help reduce this delay, the Board may offer members the opportunity to receive a discounted early payment of their capital credits based on present value.

At the time of general retirement, the Board can select a specific year of accrued capital credits and offer those credits back to the members at a discounted rate. If accepted, members receive their capital credits sooner, but less than full value. If declined, members remain on the standard 20-year retirement cycle and receive the full value of their credits. *Note:* Generation and Transmission (G&T) capital credits, representing ownership in East River Electric and Basin Electric, are not included in this early retirement option and will be retired separately.

RETIREMENT OPTION #2 - MEMBER DISCONTINUES ELECTRIC SERVICE RETIREMENT

When a member discontinues electric service and leaves Dakota Energy, they will be offered an early retirement option for their capital credits. At the time of final billing, Dakota Energy will provide an offer to retire the member's capital credits at their present value. If accepted, the member receives their capital credits sooner, but at a discounted amount. Accepting this offer also means the member will forfeit all G&T capital credits earned. If declined, the member remains on the standard 20-year retirement schedule and will receive the full value of their capital credits over time.

Call 605-352-8591 with questions.

SHIFTING TO DEMAND BASED BILLING

Dakota Energy is one of the many cooperatives exploring demand based rate models to distribute infrastructure costs more equitably among members.

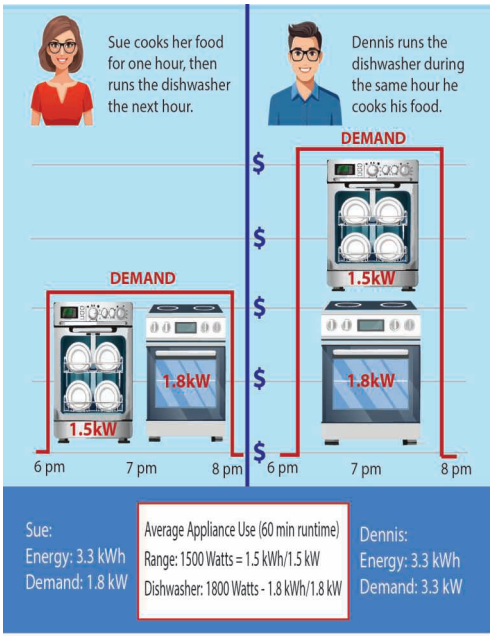
Traditionally, residential members pay for the total amount of electricity consumed over a billing period. But this traditional model doesn't account for the strain placed on the grid during peak usage times, which can drive up infrastructure and maintenance costs.

Demand charges shift part of the billing structure to reflect the maximum amount of power a customer uses at any one time, typically measured in 15-minute or 30-minute intervals. This approach has long been used for commercial and industrial customers, but now some cooperatives are implementing it for residential users as well.

A key reason for this shift is that when a household uses several appliances at once, such as a dishwasher, air conditioner, and a washer and dryer, it causes a spike in electricity demand. This spike places extra stress on the grid, prompting the utility to invest in stronger infrastructure to handle the load.

Under the demand-based model, that household would pay more for its peak usage, while members with flatter, more consistent usage patterns may see lower bills. This model is fairer, as it aligns costs with those who place the demand on the grid. It also encourages members to spread out their energy use, potentially reducing the need for infrastructure upgrades.

This shift is part of a trend toward modernizing utility pricing to reflect the ever-changing energy landscape. As utilities continue to adapt, demand-based pricing may become a key tool in balancing affordability, equity, and reliability.



STORM SEASON SAFETY STARTS HERE

At Dakota Energy, your safety is our highest priority—especially during severe weather events.

Storms can strike unexpectedly, bringing strong winds, heavy rain, and lightning, which can cause significant damage. Taking proactive steps to prepare and understand key safety measures can greatly improve the protection of your home and loved ones before, during, and after such events.

To begin your preparations, we recommend assembling an emergency kit. This kit should include essential supplies like water, non-perishable food, necessary medications, first-aid supplies, flashlights, batteries, and important documents. Keeping this kit accessible ensures quick evacuation if needed. Additionally, protect your property by trimming overhanging tree branches and securing loose items around your home, these precautions help prevent dangerous projectiles in high winds.

Creating a family emergency plan is a vital part of storm preparedness. Your plan should clearly outline evacuation routes and identify a meeting place. Make sure all family members understand the plan and review it regularly to reduce confusion during an emergency. Staying informed is equally important; regularly check weather alerts, as some storms can develop suddenly with little warning.

During the storm, remain indoors and avoid windows. Find shelter in a small, windowless room on the lowest level of your home, such as a basement or interior bathroom. While it may be tempting to watch the storm, doing so can be risky because of flying debris and potential structural damage.

Electrical safety is especially critical during and after a storm. To protect your devices and reduce the risk of fire or injury, avoid using electrical appliances and unplug non-essential electronics to prevent damage from lightning strikes or unstable power lines. After the storm, be extremely cautious of fallen power lines. Always assume they are energized, as touching them could cause electrocution or serious injury. Keep your distance and report fallen lines to local authorities and Dakota Energy immediately.

By taking these thoughtful and proactive steps, you can significantly improve the safety and security of your home and family during storm season.

Stay prepared. Stay safe.

Storm clouds gather near Nunda, S.D.
Photo by Jacob Boyko

WEATHER WARNINGS

Getting Ready for Severe Summer Storms

Jacob Boyko
jacob.boyko@sdrea.coop

Midwest summers have a certain notoriety for their extreme summer weather events.

South Dakota is no exception. Between May 2015 and June 2025, the National Oceanic and Atmospheric Administration (NOAA) reported more than 200 tornadic events in South Dakota.

The Recipe for Severe Weather

According to Peter Rogers, warning coordination meteorologist for the National Weather Service (NWS) Office in Sioux Falls, there are four foundational components for the specific type of thunderstorms that produce tornadoes called supercells.

The first component is moisture – it's needed to form clouds. The second component, lift, refers to an upward motion of the air. In places without mountains like eastern South Dakota and western Minnesota, that occurs when a cold or warm front moves into the area and the laws of physics force warm air upward.

The third component, instability, is the difference between the two air masses.

"If you have pockets of air that are hotter than the air around them, they'll continue to rise," Rogers explained. "And the instability is the extent to how far those parcels will rise."

The final component, wind shear, is how the wind speed and direction changes with altitude.

"Here, at the surface, we're normally only concerned about what the wind speed is doing at the surface," Rogers explained.

"But as meteorologists, we want to know what's happening at 5, 10, 15 … feet and so on. The more changes you have with wind speed and direction … with height increases your chances of going from just your garden-variety thunderstorm to a severe thunderstorm that's more capable of producing strong winds and tornadoes."

Over the last 10 years, South Dakota has seen tornadoes mostly ranking EF-0, EF-1 and EF-2 on the Enhanced Fujita scale.

The scale, named for its developer, meteorologist Ted Fujita, ranks tornados on a scale from 0 to 5 based on recorded wind speed and the damage observed that can be attributed to the tornado, with an EF-5 being the most severe.

An EF-0 tornado will leave behind damage indicators showing wind speeds between 65 and 85 mph, while an EF-1 tornado will show damage indicating wind speeds between 86 and 110 mph, an EF-2 111-135 mph, an EF-3 136-165 mph, an EF-4 166-200 mph and an EF-5 being anything over 200 mph.

But weak and strong tornadoes alike can be deadly without proper action.

Working at the National Weather Service, it's part of Roger's job to get severe weather alerts out to the public.

Weather radios are particularly helpful in severe weather scenarios, he explained, because you can set them to alert you any time the NWS sends out an alert for your area.

"Severe weather is not just an afternoon or evening phenomenon," Rogers said. "We often have some pretty big events in the middle of the night, so you want to have something that's going to wake you up in the middle of the night so you can get to shelter."

NOAA Weather Radios can tune to your local forecast 24 hours per day.

As any Midwest resident knows, there's far more summertime severe weather than just tornadoes.

Derechoes, which decimated much of eastern South Dakota and Western Minnesota in 2022, produces a wall of strong, fast gusts of wind that can be just as dangerous as a tornado.

According to the NWS, for a storm to be classified as a derecho, it must extend 250 miles with gusts of at least 58 mph and produce several gusts of at least 75 mph.

In western South Dakota, the Black Hills help create the optimal conditions needed for severe hail.

"What you need is a really strong thunderstorm that has a really strong updraft," explained Kelly Serr, warning coordination meteorologist for the National Weather Service Office in Aberdeen.

"When that updraft is really strong, it reaches the very coldest levels of the atmosphere where tiny droplets of rain start to freeze."

The stronger the draft, the longer the frozen rain drop will remain in the atmosphere. And the longer it's stuck in the updraft, the more water it collects, growing in size until finally the hail stone is too heavy to be suspended by the updraft anymore, and it plummets to the ground.

In western and central South Dakota, that process is exacerbated by the Black Hills, which help force the air up even higher and create fast-developing thunderstorms.

During severe weather events like thunderstorms, tornadoes and hail, the NWS encourages those in the pathway of the storm to seek shelter in a basement or a room without windows away from outside walls, as hail and other debris can shatter windows.

"Something we always tell people is to pay attention to the forecast," Serr said. "Know before you go: 'Are we expecting severe storms?' And then have a safety plan in plan for wherever you are."

Looking Back at Summer Storms

Delmont Tornado – May 5, 2015

At about 10:45 a.m. on Mother's Day, an EF-2 tornado struck Delmont. The tornado's path began in Charles Mix County, making its way north into Douglas County where it reached Delmont and damaged numerous homes, including Delmont's famous Onion House, and destroyed the Zion Lutheran Church and fire station. The NWS reported a peak wind speed of 130 mph, with the tornado covering 17.3 miles and reaching a width of 400 yards.

Derechos – May 12, July 5, 2022

In the afternoon, a wall of straight line wind known as a derecho moved northeastward through eastern S.D. and Western M.N., with wind speeds reaching over 100 mph. The storm brought with it numerous tornadoes, including an EF-2 tornado with wind speeds up to 120 mph in Castlewood. According to the NWS, the derecho was the "most extreme example on record in terms of the measured significant wind gusts." The National Centers for Environmental Information categorized the storm a billion-dollar disaster event. Less than two months after the May event, a derecho moving southeastward produced wind gusts reaching 99 mph in Howard and 96 mph in Huron. In Sioux Falls, the sky turned green – a rare phenomenon caused by refraction, or the bending of light when passing through and being warped by the water and ice contained within the storm system.

Black Hills Hail – June, 2, 2019

In the morning, a supercell thunderstorm moved through Rapid City, Hermosa and Fairburn, producing golf ball-sized hail that damaged vehicles, homes and crops.

Tripp Tornado – May 8, 1965

The strongest tornado ever recorded in S.D. was in Tripp County. The storm produced snow over the Black Hills, with Lead reporting 36 inches of snow. The Tornado touched down east of Wewela, with a maximum observed width of 1,760 yards, and moved northwest 30 miles. The tornado was classified an F-5.

Pierre Hail – July 18, 2023

An afternoon warm front heading east across central S.D. developed into a supercell. Around 6:20 p.m. in Pierre, there were reports of softball-sized and larger hail, with one setting a Hughes County record at 5 inches in diameter.

Dupree Tornado – June 16, 2010

In the afternoon and evening hours, a thunderstorm over Dupree produced damaging winds, torrential rainfall and flooding, and at least 16 tornadoes, with multiple tornadoes being simultaneous. The storm damaged roofs, mobile homes and grain bins. The damage observed incidcated an EF-2 tornado.

Vivian Hail – July 23, 2010

A S.D. and U.S. hailstone record was set in Vivian after an evening thunderstorm formed a supercell moving southeastward. The NWS reported numerous hailstones exceeding 6 inch diameters as well as a record-setting 8 inch diameter, 18.625 circumference and 1 pound, 15 ounce hailstone. NWS estimates the hail stone fell at about 100 mph.

Sioux Falls Tornado – Sept. 11, 2019

In the late evening hours of Sept. 10 into the early morning hours of Sept. 11, severe thunderstorms moved across southeast S.D. into M.N. and I.A., bringing 80 to 100 mph straight line winds and three brief EF-2 tornadoes in Sioux Falls. The Avera Health Complex, several commercial spaces, and a neighborhood were damaged.

Jerauld Tornadoes – June 18, 2014

In the evening, a thunderstorm over Jerauld County produced an EF-4 tornado that traveled over 11 miles from Lane to Alpena. The tornado measured 880 yards at its widest. The same storm produced several more tornadoes, including an EF-2 that ravaged Wessington Springs.

Bowdle Tornado – May 22, 2010

A supercell in north central S.D. produced multiple tornadoes, including an EF-4 and golf ball-sized hail near Bowdle. NWS reported nearly 100 downed utility poles.

Source: Event Summaries, Weather.gov

A West Central Electric Cooperative drone flies over distribution lines so employees can inspect.
Photo by Jessie Tucker

TAKING FLIGHT

Electric Co-ops Utilize Drones

Jacob Boyko
jacob.boyko@sdrea.coop

Across South Dakota, electric cooperatives are turning to unmanned aerial vehicles to improve safety, speed up outage responses and enhance day-to-day operations.

Better known as drones, these high-tech, lunchbox-sized robots offer co-ops a birds-eye view of infrastructure – no risky climb or airplane flight necessary.

"Our main goal is to use them (drones) during storm situations," explained Jessie Tucker, manager of member services at West Central Electric Cooperative and an advocate for electric co-ops' drone integrations.

"Typically, we have to charter a plane from Pierre, and they will pick up an employee from West Central and we have to fly the lines when we have severe damage. What we're hoping to be able to do is get the drone in the air and patrol the line to see what we have for damages and how extensive everything is."

Tucker is a certified remote pilot, having passed the Federal Aviation Administration's Part 107 exam on the rules and regulations for operating unmanned aircraft vehicles. While hobby drone operators don't need a license for recreational use, federal law requires commercial operators be licensed, meaning all electric co-op drone operators have studied for and passed the rigorous exam.

"It was surprisingly tough," said Moreau-Grand Electric's JJ Martin, who is also a licensed remote pilot. "There's a lot of stuff in there and understandably so. Flying a drone is like playing a video game – it's pretty easy. But when it comes to all of the safety, like knowing how to read a map, knowing what airspace you're in, what all of the codes mean, there's a lot to it."

Martin, who is the member services director, champions drones for the convenience they bring to the co-op's communication efforts. He says using the drone for aerial photography and videography helps him get "out of the way" of busy lineworkers and gives him a vantage point that highlights the beauty of the landscape.

There are also benefits for the co-op's substation workers, Martin continued. Hovering the drone over the equipment allows some inspections to be made more quickly and without cutting power.

"We're able to just fly the drone over the top, zoom in and take pictures," Martin explained. "The resolution is so high you can zoom in quite a ways and inspect a little bit without putting anybody in harm's way or shutting power off for anybody."

Back at West Central Electric, lineworkers use a thermal energy camera on a drone to fly over towns and other infrastructure to find "hot spots," or bad

connections on power lines where a component is beginning to fail.

"We check out substations at least once a year, usually on the coldest days or one of the heaviest loaded days," Tucker explained, noting each year they typically find at least several hot spots.

Basin Electric Power Cooperative, the member-owned generation and transmission utility powering South Dakota's electric co-ops, uses its fleet of drones to build fully three-dimensional renders of land sites and infrastructure.

According to Robert Kohler, a certified federal surveyor, licensed remote pilot, and geomatics supervisor at Basin Electric, the utility accomplishes this using drones equipped with cameras and LiDAR scanners.

LiDAR, which stands for light detection and ranging, is a focused array of laser pulses. The mounted sensor emits the lasers and the light travels until it meets a solid object. The lasers are then reflected by the object back into the LiDAR sensor, with the system measuring the length of time it took for the laser to return and using that to calculate the distance between the sensor and the object.

Kohler says the sensor he uses collects 400 data points per square meter at 190 feet of elevation while traveling 11 feet per second. Each of those points – billions of them, Kohler pointed out – are recorded and precisely mapped to a location on an XYZ coordinate plane.

"Imagine you have a flash light and you're walking along the ground. Anything the light touches, it illuminates," Kohler explained. "You can create a three-dimensional map and some of the features of those maps would be the conductors of the transmission line, the structure itself, the vegetation and plants growing along the sideline of the transmission corridor, or even a vehicle or person."

Moreau-Grand Electric Cooperative linemen in north central South Dakota.
Photo by JJ Martin

Back at the office, Kohler's computer processes the data – file sizes often reaching into the hundreds of gigabytes – into a fully three-dimensional model.

Basin Electric's fleet doesn't stop at aerial drones. When working beneath the surface of a body of water, hydro drones like the utility's TriDrone pontoon craft measure the surface at the bottom of a water body using sonar to capture points beneath the surface that LiDAR can't see.

Despite the noted conveniences, Kohler cautioned that using drones for high-intensity data-driven tasks isn't as hands-off as it seems. Sometimes it's a more practical option – sometimes it's not.

"I've got four to six hours of pre-flight planning to just program the software and drone for the specific area that I want it to map out," he explained. "Then I have potentially eight to 40 hours of processing time to reduce the data into what I need. In that regard, there's a lot of extra time involved."

Kohler also said important small measurements need to be double-checked by workers since the drone sensor's measurements are sometimes affected by a margin of error that varies with the craft's proximity to the site.

Even so, many electric cooperatives agree the advancements in unmanned aircrafts vehicles and sensing technologies offer an exciting path forward for utilities.

"Everytime I use it (the drone), I'm getting such a cool angle and I can travel such distances," Moreau-Grand Electric's Martin said. "I'm able to stay out of the guys' way. I'm safe, they're safe."

A TriDrone uses sonar to map terrain beneath the water's surface.
Photo by Robert Kohler

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AUG. 27-SEPT. 1
South Dakota State Fair
Huron, SD

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UNTIL AUG. 10
Annual Red Cloud Indian Art Show
Painting, photography, beadwork, quillwork
Red Cloud Indian School
100 Mission Dr.
Pine Ridge, SD 57770
(605) 867-8257

JULY 26
South Dakota Chislic Festival
10 a.m.-9 p.m.
Freeman, SD
www.sdchislicfestival.com

JULY 26
Richmond Lake Association's Annual Pontoon Poker Run
Aberdeen, SD
605-225-0609

JULY 26
3rd Annual Car Show
11 a.m.-4 p.m.
Alpena, SD
605-354-5248

JULY 31
SPURS Grand Classic Horse Show
9 a.m.-4 p.m.
SPURS Therapeutic Riding Center
1006 130th St.
Aberdeen, SD
605-226-1099

AUG. 1-2
Armour Prairie Festival
Armour, SD

AUG. 1-3
Fort Sisseton Escape Room
11907 434th Ave.
Lake City, SD
605-225-0609

AUG. 1-10
85th Sturgis Motorcycle Rally
Sturgis, SD

AUG. 7-10
South Dakota Senior Games
Huron, SD
605-295-2039
southdakotaseniorgames.org

AUG. 9
Day of Honor
End of WWII 80th Anniversary
10 a.m.
Battleship South Dakota Memorial
12th Street & Kiwanis Avenue
Sioux Falls, SD

AUG. 9
Raise 'Em Rank Bull Riding and Breakaway Roping
Geddes, SD
605-680-2763

AUG. 9
Day Cty Demolition Derby
Day Cty Fairgrounds
6:30 p.m.
Webster, SD
605-680-2763

AUG. 14-17
Watertown Senior Games
Watertown, SD
605-949-0028

AUG. 16
Black Hills Super 6 Mountain Bike Race
Big Hills Trails
bhsuper6.com

AUG. 16
Extreme Bull Riding Tour
7:30 a.m.
Yankton, SD
605-760-2153

AUG. 21-24
Steam Threshing Jamboree
Prairie Village
Madison, SD

AUG. 23
McCrossan Boys Ranch Xtreme Event Challenge Rodeo
4 p.m. Gates Open, 6 p.m. Rodeo
Sioux Falls, SD

Note: We publish contact information as provided. If no phone number is given, none will be listed. Please call ahead to verify the event is still being held.