

# Cooperative Connections



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## Working during the "Dog Days" of Summer



**Walker Witt**

CEO and General Manager  
wwitt@bhec.coop

***I can assure you that  
the "Dog Days" of  
summer are very  
productive...***

By the time you are reading this, we are in the midst of the "dog days" of summer – whatever that means. For me, it is that time of year when it gets so hot, that many of us become a bit lethargic, and maybe not as productive as we should be. And although, that may be somewhat true for me, I can assure you that the "dog days" of summer are very productive for the operations and engineering crews at your co-op.

Summer is when our engineering crews are busy staking new services for homes, businesses, wells, and outbuildings. Last year your co-op added 147 new services, and to date this year we are significantly ahead of that. Once those services are staked, our operations crews do the work to ensure that the service has adequate power by building the infrastructure either overhead or underground.

While staking and building new services keeps our crews busy during the summer months, much of the efforts in operations is improving reliability by upgrading and adding lines, substations and equipment to the system to meet load growth needs, code, and safety requirements.

The Provo Substation was decommissioned by our crews in June, and in place of that substation, our crews built a regulator site.

Currently, our engineering department is working with the contractors that are doing the site prep work on the future Pringle Substation. Now that the Provo substation is no more, the Pringle Substation, constructed in 1946 is currently the oldest substation on our system, and it is showing its age. Larger equipment and current code requirements necessitate a significantly larger footprint for the new Pringle Substation. The new substation will also meet the current load challenges as well as the anticipated load growth in the central part of our system. Our plans are to begin construction prior to the fourth quarter of this year.

The much anticipated and very expensive Dry Creek Substation is nearly complete as I write this column, and will hopefully be energized by the time you are reading this. This substation is critical in that it adds an additional transmission source to our system, which provides additional transmission reliability for all of our members served off of the Moon Meadows, Rockerville, Hermosa, Spring Creek and Fairburn Substations. This new substation increases reliability for over 4,500 members.

While new construction increases during the summer months, for our line patrol and tree cutting crews, every month is busy. Your co-op has two crews continuously patrolling our lines and cutting underbrush and danger trees within and adjacent to our rights of ways. These crews dedicate each day to increasing reliability and mitigating wildland fire hazards due to danger trees. If you see something involving one of our power lines that may be a hazard, please contact us immediately. We have crews continuously patrolling and looking at our power lines. But with almost 2,400 miles of distribution and transmission line, we cannot be everywhere, all of the time, so you can help with those efforts.

This time of the year is a busy and productive time for our engineering and operations crews and I am thankful for all of their work this summer.

I hope you are enjoying the "dog days" of summer.

If you believe the Internet, and who doesn't, the "dog days" are actually defined as the period from July 3 through Aug. 11 when the Dog Star, Sirius, rises in conjunction with the sun.

# Black Hills Electric

## Cooperative Connections

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## Brian Hartmann Retires

After 30 years of service to Black Hills Electric Cooperative members, Brian Hartmann has decided to retire.

Hartmann started at the co-op in May of 1988 as an equipment operator. He earned his journeyman lineman certification and went on to become the co-op's metering specialist. He was instrumental in developing the co-op's automatic metering infrastructure, which allows the office to communicate with all cooperative meters.

He came to Custer to work for South Dakota Cable TV as a lineman/technician before joining the cooperative.

He plans to remain active with his many hobbies, including ham radio, model trains, and spending time with his two sons and daughter-in-law.

He and his wife, Nancy, plan to remain in Custer.



Brian Hartmann at his retirement party.

## A Smart Way to Pay

SmartHub<sup>®</sup>, Black Hills Electric Cooperative's innovative tool for account management is available online for smartphones and tablets in both Apple<sup>®</sup> and Android<sup>™</sup> platforms.

SmartHub can help you take control of your BHEC account like never before.

SmartHub has several features that make managing your account simple.

Whether using the Web, your smartphone or your tablet, you will be able to pay your bill, view your previous and current months' electric bills, contact customer service and more.

As soon as you log in, you will be able to view your billing history and make a payment with just a couple of clicks or taps. Current e-bill users may log in using your current user name and password. Download the free app and you will be able to see your current bill, along with bills from previous months. Seeing your monthly billing statements allows you to

compare previous years' months with the same months this year, which may help you take steps to reduce your consumption and lower your bill.

Making payments through SmartHub is fast, easy and secure. The first time you make a payment, either through the Web

or through your mobile device, you will be able to securely store your payment information for future transactions. The next time you pay your bill, it will only take a few seconds.

You can manage how you want to be notified about your bill, including e-mail and text messaging.

Stay connected with your cooperative and get the latest news, updates and more with SmartHub's news feed.

Access SmartHub by visiting [www.bhec.coop](http://www.bhec.coop) or by downloading the app on your mobile device through the Apple App Store or Google Play Marketplace.

For more information, please contact the office at 673-4461.



# Home Project Safety

More people are doing their own remodeling, repairs, maintenance, landscaping, and construction projects inside and outside the home. Safe Electricity urges all do-it-yourselfers to take precautions, especially when working around electrical equipment and overhead power lines.



Make sure outdoor outlets have a ground fault circuit interrupter (GFCI). Use a portable GFCI if your outdoor outlets don't have them. It's also a good idea to have GFCIs professionally installed in wet areas of the home, such as the kitchen, bath and laundry.

### Safety tips to remember include:

- Look up and around you. Always know of the location of power lines, particularly when using long metal tools, like ladders, pool skimmers, and pruning poles, or when installing rooftop antennas and satellite dishes or doing roof repair work.
- Be especially careful when working near power lines attached to your house. Keep equipment and yourself at least 10 feet from lines. Never trim trees near power lines — leave that to the professionals. Never use water or blower extensions to clean gutters near electric lines. Contact a professional maintenance contractor.
- If your projects include digging, like building a deck or planting a tree, call the national underground utility locator at 8-1-1 before you begin. Never assume the location or depth of underground utility lines. This service is free, prevents the inconvenience of having utilities interrupted, and can help you avoid serious injury.
- Always check the condition of cords and power tools before using them. Repair or replace worn or damaged cords and tools.
- Electricity + water = danger. If it's raining or the ground is wet, don't use electric power or yard tools. Never use electrical appliances or touch circuit breakers or fuses when you're wet or standing in water. Keep electric equipment at least 10 feet from wet areas.

Make certain home electrical systems and wiring are adequate to support increased electric demands of new electric appliances, home additions, or remodeling projects. An older home may be inadequately wired for today's electricity consumption, putting your family at risk for fire and electrical shock. Have a professional replace worn and outdated circuitry and add outlets for appliances and electronics – this is not a job for casual do-it-yourselfers!



**It took years to make it a farm...  
It takes one call to keep it safe.**

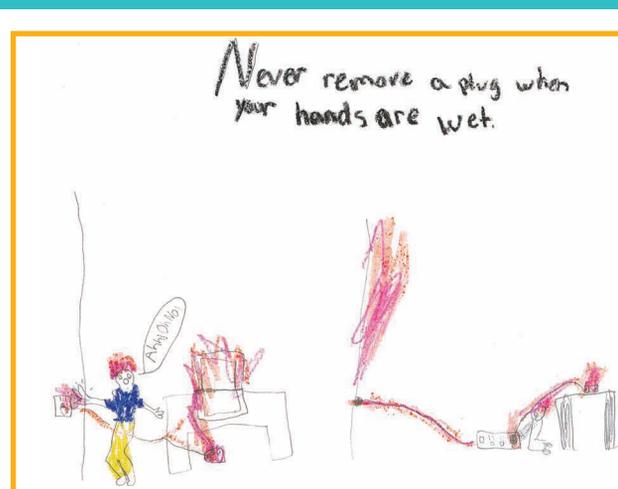
The soil on your farm or ranch is rich with nutrients and minerals... AND underground gas, oil and water pipelines.

Excavations, terracing projects, fence post installation, tiling or subsoiling can create safety hazards due to the depth of the excavations.

CALL BEFORE YOU DIG in order to notify utility companies who will be affected by the excavation. This service is FREE.

No one digs more dirt than America's farmers and ranchers. Understanding what is below ground will help you DIG SAFELY above ground. Call before you dig!

## KIDS CORNER SAFETY POSTER



**"Never remove a plug when your hands are wet."**

**Aida Mikkonen, 10 years old**

Aida is the daughter of Patrick and Carrie Mikkonen, Mt. Vernon, S.D. They are members of Central Electric Cooperative, Mitchell, 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.



# Sensational Salads

## Tzatziki Potato Salad

2 lbs. unpeeled Yukon Gold potatoes, cut into 1-inch cubes (about 6 cups)	2 tsp. McCormick® Garlic Powder
3/4 cup (6 oz.) plain Greek-style yogurt	1-1/2 tsp. McCormick® Oregano Leaves
1/4 cup reduced fat sour cream	1/2 tsp. McCormick® Black Pepper, Coarse Ground
2 T. milk	1/2 tsp. Sea Salt from McCormick® Sea Salt Grinder
1 T. lemon juice	1 cup diced unpeeled, seeded cucumber
2 tsp. honey	1/4 cup chopped red onion

Place potatoes in water to cover in large saucepan. Bring to boil on high heat. Reduce heat to low; simmer 10 to 12 minutes or until potatoes are fork-tender. Drain well. Cool completely. Mix yogurt, sour cream and milk in small bowl with wire whisk until well blended. Add lemon juice, honey and seasonings; mix until well blended. Place potatoes, cucumber and onion in large bowl. Add yogurt dressing; toss gently to coat well. Garnish with crumbled feta cheese, if desired. Cover. Refrigerate until ready to serve. Makes 10 (2/3 cup) servings.

*Nutritional Information Per Serving: Calories 97, Total Fat 1g, Sodium 109mg, Cholesterol 3mg, Carbohydrates 18g, Protein 4g, Dietary Fiber 2g*

Pictured, Cooperative Connections

## Pineapple Pretzel Salad

1 stick butter	1 (12 oz.) container whipped topping
1 cup crushed pretzels	1 (20 oz.) can crushed pineapple, drained
1 cup sugar, divided	
1 (8 oz.) pkg. cream cheese	

Melt butter. Stir in pretzels and 1/2 cup sugar. Spread on 9x13-inch baking sheet. Bake at 350°F. for 7 minutes. Cool. Break into pieces and set aside. Beat together softened cream cheese and remaining 1/2 cup sugar. Stir in whipped topping and pineapple. Add pretzel mixture just before serving.

Beth Eickman, Salem, S.D.

## Chicken Salad

1 chicken, roasted, deboned and diced	2 cups diced celery
2 lbs. red grapes, washed and halved	1 to 1-1/2 cups real mayonnaise
2 cups diced carrots	1 (9 oz.) can Pik-Nik Shoestring Potatoes

Mix together first 5 ingredients. Add shoestring potatoes just before serving. This looks lovely on a large leaf of lettuce.

Judy Mendel, Doland, S.D.

## Make Ahead Rhubarb Salad

2 cups diced rhubarb	1 cup chopped celery
1/2 cup sugar	3/4 cup chopped nuts
1 (3 oz.) pkg. strawberry gelatin	1 (8 oz.) container whipped topping
1 (3 oz.) pkg. cream cheese	

In a saucepan, cook rhubarb and sugar for 10 minutes; remove from heat. Stir in gelatin and cream cheese; cool. Add celery and nuts. Fold in whipped topping. Refrigerate overnight.

Elaine Rowett, Sturgis, S.D.

## Fruit Salad

1 can peach pie mix	1 pint fresh strawberries, sliced or diced
1 small can chunk pineapple, drained	1 (16 oz.) container whipped topping
2 bananas, sliced or diced	

In a large bowl, fold together all ingredients.

Shirley Thedorff, Centerville, S.D.

Please send your favorite salad, garden produce and pasta 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 2018. All entries must include your name, mailing address, telephone number and cooperative name.

# Understanding Appliance Energy Use



**Pat Keegan**

Collaborative Efficiency

This column was co-written by Pat Keegan and Brad Thiessen of Collaborative Efficiency. For more information, please visit: [www.collaborativeefficiency.com/energytips](http://www.collaborativeefficiency.com/energytips).

## Footnotes

aSource <https://www.consumerreports.org/refrigerators/best-energy-efficient-refrigerators/>

bSource: [https://www.energystar.gov/index.cfm?c=products.pr\\_save\\_energy\\_at\\_home](https://www.energystar.gov/index.cfm?c=products.pr_save_energy_at_home)

cSource: <http://www.energy.gov/eere/buildings/appliance-and-equipment-standards-program>

dSource: <http://www.siliconvalleypower.com/for-residents/save-energy/appliance-energy-use-chart>

eSource: <https://www.energystar.gov/index.cfm?fuseaction=refrig.calculator>

fSource: [https://www.energystar.gov/productfinder/most-efficient/me-certified-refrigerators?me\\_type\\_filter=Bottom%20Freezer](https://www.energystar.gov/productfinder/most-efficient/me-certified-refrigerators?me_type_filter=Bottom%20Freezer)

gSource: <https://www.energystar.gov/most-efficient/me-certified-clothes-washers/>

hSource: <https://www.energy.gov/energysaver/appliances-and-electronics/kitchen-appliances>

iSource: <https://www.c2es.org/content/home-energy-use/>

**Dear Pat:** Several of my appliances are getting old and will need to be replaced soon. Will the appliance choices I make have much impact on my energy bill? – Chelsea

**Dear Chelsea:** Your energy use varies month to month, so it can be difficult to see how much difference an appliance purchase makes. It's best to view the purchase over the lifetime of the equipment. Think about the up-front cost and the lifetime energy cost. In a *Consumer Reports* test, the most efficient refrigerator used \$68 per year less electricity than the least efficient model.<sup>a</sup> Multiply that difference over a decade or two, and the lifetime energy savings could be greater than the up-front cost. All it takes to get the best appliance for your needs is some initial research.

Appliance energy use is usually less, on average, than home heating and cooling bills, but can be several hundred dollars each year<sup>b</sup>. Your appliance use depends on factors like the model, how often you use it, the settings you use for its particular function and even the time of day it is most used.

Over the last few decades, new appliances became more energy efficient, driven partly by minimum government standards. These standards, created by the U.S. Department of Energy, save consumers over \$60 billion each year.<sup>c</sup> Appliances are required to include an Energy Guide label that shows estimated energy use and operating cost per year. These labels help you compare different models and calculate the initial cost against the long-term savings.

Some appliances will also have an ENERGY STAR® label. This indicates the appliance is substantially more efficient than the minimum standard. Your greatest energy savings opportunities can come from replacing an old appliance with an ENERGY STAR-rated appliance. Removing a refrigerator that's 20 years old and replacing it with a new ENERGY STAR model can lower the monthly electricity cost by 75 percent, from \$16.50 to less than \$4.<sup>d</sup>

In some cases, the configuration of the appliance can also make a substantial difference. For example, a side-by-side refrigerator/freezer uses about 70 percent more energy than other configurations,<sup>e</sup> with all the most efficient models having the refrigerator stacked on top of the freezer.<sup>f</sup> All 36 of the most efficient clothes washers of 2018 were front-loading models.<sup>g</sup>

Consider how much you use the appliance. The more you use the appliance the greater your savings will be from choosing a more efficient model. If you use the appliance less or have a small household, you may get by with a smaller refrigerator or freezer, which will save you money.

How you operate appliances can also make a difference. Here are some easy ways to save<sup>h,i</sup>:

## Refrigerator/Freezer:

- Set your refrigerator at 35 to 38 degrees and your freezer at 0 degrees.
- Make sure there is adequate air flow between the wall and the back of the unit.
- Keep the refrigerator relatively full when possible.
- Replace the seals around the doors if they appear to be leaking air.
- Defrost the refrigerator and freezer regularly.

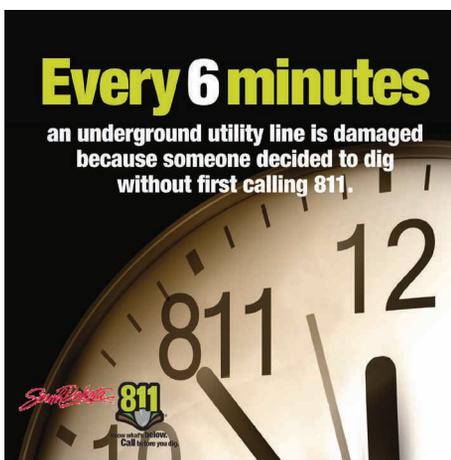
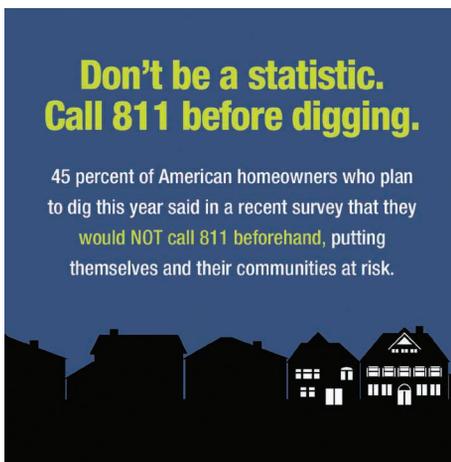
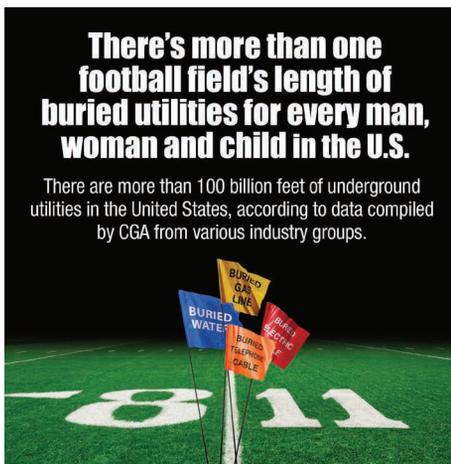
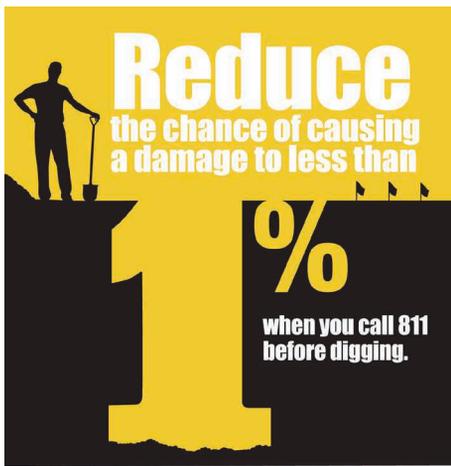
## Stove/Oven

- Use the correct size of burner to fit the pan.
- Use smaller appliances like a microwave or slow cooker instead of the oven when possible.

## Dishwasher

- Use the most energy-efficient and shortest setting that gets your dishes clean.
- Air dry rather than using the heated dry function.
- Wait to run a load until the dishwasher is full.

Make the most out of your appliance energy use with a little research before buying a new model and a few easy adjustments to the way you use them.



South Dakota teachers sponsored by Basin Electric Power Cooperative this year included, from left, Maureen Beer who lives in Timber Lake, and teaches in Little Eagle; Shannon Bergan who lives and teaches in Aberdeen; Ja Lynn and Jason Burma who both teach and live in Miller; Robert Dunwoody who lives and teaches in Corsica; and Mike Sees who lives and teaches in Irene.

## Teachers Head to N.D. For Lignite Energy Seminar

More than 100 elementary and secondary teachers switched roles in mid-June, as they became the students at an educational seminar conducted by the Lignite Energy Council. The seminar, held June 11–14 at the National Energy Center of Excellence on the Bismarck (N.D.) State College campus, included educators from Minnesota, Montana, South Dakota and North Dakota.

The seminar, titled “2018 Lignite Education Seminar: Energy, Economics and Environment,” provided teachers with the information and educational materials they need to teach their students how lignite is mined and used to produce energy for homes, farms and businesses in the Upper Midwest. The seminar covered lignite’s economic impact on the region, as well as important environmental issues affecting the lignite industry.

As part of the seminar, the teachers toured the Center Mine, Milton R. Young Station, Falkirk Mine, Coal Creek Station, the Freedom Mine, Antelope Valley Station, and the Great Plains Synfuels Plant.

Teachers who attend the seminar and complete a lesson plan can choose from three North Dakota universities from which to receive two graduate professional development credits: University of North Dakota, North Dakota State University and Minot State University.

Over the years, the Lignite Energy Council’s Teacher Seminar has received two prestigious awards. It was the 2012 winner of the Interstate Mining Compact Commission’s mineral education award in the public outreach category. In 2007, the Lignite Energy Council’s Teacher Seminar was also recognized by the American Coal Council for “excellence in the advancement of energy education.”

Since 1986, more than 3,600 teachers have attended the Lignite Energy Council’s Teacher Education Seminar.



On a previous visit to the Rushmore State, the Touchstone Energy® Cooperatives balloon made a stop near the Crazy Horse Memorial, pictured in the background.

# UP, UP AND AWAY

## Cooperative Brand takes to Southern Hills Skies

**Brenda Kleinjan**

[editor@sdrea.coop](mailto:editor@sdrea.coop)

Look to the skies above Hot Springs in late August and you'll likely see a familiar sight, albeit in a slightly unfamiliar location.

The Touchstone Energy® Cooperatives brand will be wafting above the Southern Hills when it takes part in the Fall River Hot Air Balloon Festival Aug. 25 and 26 in Hot Springs.

The Touchstone Energy® Cooperatives balloon is one of five operated by the Illinois-based Cooperative Balloon Associates. CBA was organized in 1999 to help promote the newly launched brand of America's electric cooperatives. Two decades later, the brand ambassador continues its journey.

The Touchstone Energy Cooperative balloon is just one of about 20 hot air balloons scheduled to appear at the third annual Fall River Balloon Festival.

Weather-permitting, balloons will launch at 6 a.m. both Saturday and Sunday mornings at the Hot Springs Municipal Airport. A night glow – where the balloons inflate their envelopes and illuminate their craft with their burners – is set for 8:30 p.m. Saturday at the airport.

Throughout the day, visitors to Hot Springs can



Between 15 and 20 balloons are expected for the 2018 Fall River Hot Air Balloon Festival in Hot Springs, S.D.

take part in ballooning inspired activities.

A Plein Air arts event is scheduled for downtown and organizers are seeking 15 artists to participate. Those registering prior to Aug. 15 have a chance to win a hot air balloon ride.

On Saturday morning, visitors can walk on the inside of a balloon envelope from 9 a.m. to 11 a.m. at the Mammoth site.

A vintage car show and an art walk and chalk are also planned.

For more information about the festival, visit their Facebook page at [facebook.com/FallRiverHotAirBalloonFestival](https://www.facebook.com/FallRiverHotAirBalloonFestival) or go to the Hot Springs Chamber of Commerce site at [HotSprings-SD.com](http://HotSprings-SD.com).

## About the Touchstone Energy Balloon

The Touchstone Energy® Hot Air Balloon serves as a goodwill ambassador for Touchstone Energy® Cooperatives and its member cooperatives. The fleet's two newest balloons are 77,000 cubic foot hot air balloons that stand over 77 feet tall and are 60 feet wide when fully inflated. Each are built of hyperlife fabric panels and boast a 14 cubic foot ascot basket. They carry a pilot and two average size passengers. The balloons are fired by dual propane burners and fueled by two 15-gallon propane tanks. The balloons

were built by Lindstrand Balloons of Hanover, Ill., in 1999, 2002, 2005, 2007, 2009 and 2014. The first two balloons have been retired.

The balloons have the Touchstone Energy® Cooperatives logo in bold letters on three sides. Everywhere the balloons go,

**Everywhere the balloons go, they promote the brand and the values of Touchstone Energy Cooperatives.**

they promote the brand and the values of Touchstone Energy Cooperatives... providing service with integrity, accountability, innovation, and commitment to community. These values are demonstrated through the presence of the balloons at national competitions and special events, and the team's interactions with spectators. These values are also conveyed in local philanthropic fundraising activities which the Touchstone Energy Hot Air Balloon program supports whenever and wherever the balloons are flying.



Mount Rushmore was another stop on a previous visit of the Touchstone Energy® Cooperatives Balloon. The 2018 Fall River Balloon Festival will make the balloon visible in the southern foot hills.



## Great Plains Balloon Race

Look to the skies over Sioux Falls Aug. 10-12 and you will likely see a colorful display.

The Great Plains Balloon Race is set to launch from Kenny Anderson Park near Sioux Falls Washington High School in the city's northeast corner. About 10 or 11 balloons are expected for this year's race.

Among the balloons scheduled for the race is the Call811.com balloon which will be promoting the importance of calling before you dig. The balloon's appearance coincides with national 8-1-1 Day on Aug. 11.

### Schedule

All launches at Kenny Anderson Park

**Aug. 10** - Founders Cup Challenge Balloon Launches at 7 p.m.

**Aug. 11** - Launches at 6:30 a.m. and 7 p.m.

Balloon Glow at 8:30 p.m.

### Aug. 12

Balloon Launches at 6:30 a.m.

All activities are weather-permitting.

### Also on the Calendar

Balloons over DTSF on Aug. 3. and Sept. 7 at 7 p.m. - Downtown Sioux Falls

Sept. 1 - Balloons and Beer at A Homestead Brew at Valley Springs.

For more information, contact the Sioux Falls Ballooning Association.

# Extra Refrigerator Adds Extra Cost

After purchasing that new refrigerator, many Black Hills Electric Cooperative members keep their old refrigerator to keep beer and soda pop cold. And why not? The old workhorse continues to do its job and that extra refrigeration space is handy to have, especially around the holidays. More than one in four South Dakotans maintain two or more refrigerators according to the U.S. Census Bureau. But is the price of maintaining that extra refrigeration space worth it?



Depending on the age of that old “ice box”, the cost of keeping that 12-pack cold could significantly increase your electric bill.

The old unit in the accompanying photo could still be in operation

in some homes. The model is a 1970 General Electric refrigerator. It uses about 1,700 kilowatt-hours a year at a cost of almost \$200.

As refrigerator manufacturers increased the sizes and capacities of their models, the electricity use per cubic foot also

increased until the energy crisis of the mid-1970s. After that, refrigerators became more energy efficient, a trend that has continued.

A typical Energy Star® refrigerator manufactured in 2018 consumes over 30% less electricity than a similar-sized unit made in 1996. That same Energy Star refrigerator uses two thirds less energy than one made in 1986 and 75% less energy than a unit made in 1976.

With the electricity consumed by refrigerators made between the mid-1960s and

the mid-1980s costing over \$200 per year, are your cold drinks worth it? The choice is up to you.

An easy guide to determine the energy efficiency of your refrigerator can be found at <http://michaelbluejay.com/electricity/refrigerators.html> or <http://www.kouba-cavallo.com/refmods.htm>.

If you do decide to get rid of your old refrigerator, please do so properly. Take it to a business that safely removes and recycles the freon.

## Use Generators Safely

Downed utility lines, caused by winter or summer storms, can lead to extended power outages. Many people turn to a portable generator for a temporary solution without knowing the risks.

When using a generator, you must use a double throw switch to disconnect your home from the power line. Back feeding a generator through the co-op’s transformer can electrocute someone.

Generators should be operated in well ventilated locations outdoors away from all doors, windows and vent openings.

Never use a generator in an attached garage, even with the door open.

Place generators so that exhaust fumes can’t enter the home through windows, doors or other openings in the building.

Make sure to install carbon monoxide alarms in your home. Follow manufacturer’s instructions for correct placement and mounting height.

Turn off generators and let them cool down before refueling. Never refuel a generator while it is running.

Store fuel for the generator in a container that is intended for the purpose and is correctly labeled as such. Store the containers outside of living areas.

Contact us about the different double throw devices available.



**Join us for dinner at the fair**

**Fall River County Fair  
Thursday, August 2, 5 p.m.  
Fall River  
County Fairgrounds**

**Custer County Fair  
Thurs., Aug. 9, 5-6:30 p.m.  
Custer County Fairgrounds**

Meals co-sponsored by  
Black Hills Electric Cooperative

## Stay Away From Downed Power Lines



**Downed power lines can still be energized and dangerous. Stay away and call the co-op to report the damage.**

# Cool Down With Ductless Heat Pumps

Air conditioning has not been a big concern for most people building homes in the Black Hills. Until recently, that is! The hot days beginning this summer have more and more people wishing they could come home to a cool house.

Air conditioning cannot easily be added to older homes with radiant cove, in-floor or baseboard heat. The lack of duct work makes the project difficult and expensive.

One possible solution is a ductless mini-split system. A split system has a compressor and condenser unit located outdoors and from one to four cooling coils and air handlers indoors.

A small, two-inch hole is cut in the wall to run the refrigerant lines and electric wires from the outside unit to the indoor unit or units.

With the compressor outdoors and the indoor cooling unit mounted high on a wall or ceiling, the mini-split system is



very quiet.

The efficiency rating of a ductless system is as high as a top-of-the-line central heat pump system and is much more efficient than window, wall and some central units.

Since mini-split systems do not have ducts, they avoid the energy losses associated with central forced air systems. Duct losses can account for more than 30 percent of

energy consumed in central heating and cooling systems, especially if the ducts are in an unconditioned space, such as an attic or crawl space.

Mini-split heat pump systems provide low-cost heating and cooling.

As with any heating and cooling system, the installer must correctly size each indoor unit and judge the best location for its installation. Oversized or incorrectly located air-handlers often result in short-cycling, which wastes energy and does not provide proper temperature or humidity control. A system that is too large is also more expensive to buy and operate.

Mini-split systems are available from several manufacturers. For more information, contact your heating and air contractor or search the Internet for “ductless mini-split heat pumps.”

## Lightning Safety

Lightning strikes are fatal in 10 percent of victims, and 70 percent suffer serious long-term effects, according to the National Weather Service. Because lightning can travel sideways for up to 10 miles, blue skies are not a sign of safety. If you hear thunder, take cover.

- If weather conditions indicate a storm, stay inside—away from doors and windows—or seek shelter in a low-lying area away from trees and any metal, including sheds, clotheslines, poles, and fences. If you're near water, stay as far away as possible.
- If you're in a group, spread out—don't stand close together.
- Indoors, unplug electronics before the storm arrives, and don't use corded phones.
- Avoid plumbing—sinks, bathtubs, faucets.
- Don't forget about your pets. Dog houses are not safe from lightning, and chained animals are easy targets.

Find more safety tips at [esfi.org](http://esfi.org).

### CHOOSING THE RIGHT COLOR



When replacing your incandescent lamps with LED lamps, there are several options that should be considered. LEDs are the best choice for energy efficiency, but they do come with a higher price tag. The good news is that they can last for several years longer, save you 75 percent or more in energy costs and the price has been coming down. Choosing a lamp based on wattage is not the best way to purchase a LED. Look for the amount of light the lamp produces—measured in lumens. A 60-watt incandescent lamp produces 800 lumens of light. A LED that produces 800 lumens only uses about nine watts, an 85 percent savings in energy use. Color of light is also important, as shown by the graphic above. Light color is measured in Kelvin, named after William Lord Kelvin. If you like the color of light from a standard incandescent lamp, look for a LED with a Kelvin of less than 3,000K. If you would like a LED that is good for reading, look for a LED lamp that is in the 5,000K range. LEDs provide good light at big savings.



Basin Electric Cooperative's Dry Fork Station is home to the Wyoming Integrated Test Center, where conversion methods turning carbon dioxide waste into useful materials are tested. (Photo By: Ryan Hall/Rural Montana)

# INNOVATIVE

## Carbon Test Center Opens at Basin Electric's Dry Fork Station

**Derrill Holly**

NRECA

Research getting under way at an electric co-op power plant in Wyoming could lead to game-changing breakthroughs diverting carbon dioxide from the power generation waste stream to manufacturing processes for use in new products.

"This is not a lab; it's a facility where testing will take place in 'real world' conditions," Gov. Matt Mead told an audience of about 150 attendees during a dedication ceremony for the Wyoming Integrated Test Center on May 16.

Mead's comments topped a nearly decade-long quest for creation and development of a facility designed to advance technologies that expand the use of CO<sub>2</sub> as a marketable byproduct with commercial value.

### Bulk Waste to Useful Products

The facility, which takes on its first tenants this summer, is located at Basin Electric Power Cooperative's Dry Fork Station. The 385-megawatt power plant commissioned in 2011 is one of the most modern coal-based generation facili-

ties in the electric cooperative fleet.

Bismarck, North Dakota-based Basin Electric is majority owner and operator of the plant, which is co-owned by the Wyoming Municipal Power Agency.

With the encouragement of electric cooperative officials, including representatives of Basin Electric, Tri-State Generation and Transmission Association and NRECA, Wyoming legislators approved \$15 million for the project. The investment is seen as a way to preserve and support coal production as the state's top industry by reducing or eliminating concerns about CO<sub>2</sub> emitted through fossil fuel use.

"This is about saving coal and making coal viable for America," says Paul Sukut, CEO of Basin Electric, adding that even as renewable energy and natural gas use expands, coal remains an abundant and reliable resource. "We need in America an 'all of the above' energy solution."

Emissions from up to 20 MW of energy production will be diverted to a ported vent system feeding five small test bays and one larger working facility at the ITC. Researchers will be able to draw CO<sub>2</sub> from that waste stream for industri-

al-scale production use.

The nonprofit XPRIZE Foundation, headquartered in Culver City, California, is using the Dry Fork Generation Station as one of two test sites for the NRG COSIA Carbon XPRIZE. Participants have been competing for a total of \$20 million in prize money since 2015.

Westminster, Colorado-based Tri-State G&T began developing the concept for a carbon inducement prize and test center eight years ago and has contributed \$5 million to the ITC project.

“Early on, we identified promising activity in the nascent field of carbon utilization and the need to provide venues for innovators to bring new technology forward,” said Ellen Connor, Tri-State senior vice president and chief technology officer.

“The technology acceleration from the XPRIZE and creation of a test center at an operating coal plant will make an impact on both the speed and scale of development and demonstration of these important technologies,” Connor said.

NRECA has also contributed \$1 million to development of the ITC in support of the association’s commitment to a national energy policy recognizing electric generation diversity that includes fossil fuels and renewables.

“If there is a carbon constraint in the future, it’s going to hit natural gas as well,” says Jim Spiers, senior vice president of NRECA’s Business and Technology Services department.

Spiers, formerly Tri-State’s senior vice president of business strategies and chief technology officer, worked to identify institutions, companies and individuals committed to the carbon waste issue and found 135 entities worldwide are studying the issue.

According to the Energy Information Administration, coal-based electricity generation produced more than 1.2 billion metric tons of CO<sub>2</sub> in 2016. That number accounts for 68 percent of the total CO<sub>2</sub> emissions from the energy sector.

Forty-one percent of the power used by electric cooperative members is produced through coal-based generation. Co-ops also rely heavily upon natural gas to operate peaking plants, run primarily

## This project is poised to crack the carbon code and create a new future for managing carbon dioxide emissions.

during periods of high demand.

“As co-ops across the nation work to meet tomorrow’s energy needs, this project is poised to crack the carbon code and create a new future for managing carbon dioxide emissions,” Spiers added. “The Wyoming ITC is proof that public-private partnerships spur innovation.”

Facilities related to the ITC project now occupy 226,000 square feet of space at the Dry Fork site. While the five test bays used by the Carbon XPRIZE finalists will share access to flue gas produced by 1.5 MW of generation capacity, a separate large test center can use up to 18.5 MW of flue gas flow.

### Promising Paths

The 10 teams in the juried research competition designed to advance clean energy technologies are divided equally between the coal-based ITC test site and Canada’s Shepard Energy Centre in Calgary, Alberta, where the Alberta Carbon Conversion Technology Centre is fueled by natural gas.

The five teams conducting research at ITC include:

- **Breathe:** Based in Bangalore, India, they will combine hydrogen compounds, extracted from water, with CO<sub>2</sub> to produce methanol. Researchers will use a variety of catalysts, including copper, nitrogen and iron to gauge the economic viability of commercial scale production.
- **C4X:** The Suzhou, China-based team will use CO<sub>2</sub> extracted from flue gas to develop new foam-based bio composite plastics for potential use as insulating and building materials.
- **Carbon Capture Machine:** The team, headquartered in Aberdeen, Scotland, will dissolve CO<sub>2</sub> in a mixture of brine, calcium and magnesium to produce

carbonate solids as an additive for building materials, replacing other carbon-based feedstocks in the manufacture of concrete.

- **CarbonCure:** The team, led by researchers from Dartmouth, Canada, will use CO<sub>2</sub> to produce materials described as “greener concrete” using current manufacturing processes and modified chemistry to reduce water and CO<sub>2</sub> use in concrete fabrication.
- **Carbon Upcycling UCLA:** The Los Angeles-based team will attempt to scale up production of a concrete material that absorbs CO<sub>2</sub> during the production process, bonding with limestone for use in construction.

Researchers working the natural gas track in Alberta will conduct production scale testing on plastics, concrete alternatives, new building compounds and nanoparticles for use in bioplastics and other products. The 10 semifinalists shared \$5 million awarded in April.

### Beyond Research

After 10 months of production, XPRIZE judges will consider factors including operational costs, total production and net reduction of CO<sub>2</sub> waste as factors in awarding \$20 million in prize money. Winners from the two test sites will split the proceeds.

Kawasaki Heavy Industries, working with the Japan Coal Energy Center on a solid sorbent-based carbon capture technology, is the first tenant for the larger space at the ITC. Up to \$9 million will be spent on the project, which will use sorbent as a low-cost carrier to absorb CO<sub>2</sub> for later use as manufacturing feedstocks.

“The work of JCOAL and Kawasaki, along with the other Carbon XPRIZE teams, positions the Wyoming ITC as a world-class facility for testing carbon management technologies,” said Mead.

“We continue to move the needle forward on advanced carbon technologies and find real-world solutions to capturing carbon emissions,” said Jason Begger, executive director of the Wyoming Infrastructure Authority. While Basin continues to operate Dry Fork Station, the authority is serving as the managing entity for the ITC.

*Derrill Holly is a staff writer for NRECA.*

SEE YOU THERE!

# Heading to the Fair or Fest?

Stop by and see your co-op!

**Brenda Kleinjan**

editor@sdrea.coop

**Those attending county and state fairs in the region will likely find their local electric cooperative there as well!**

Whether your August plans take you to Minnesota's FarmFest, South Dakota's DakotaFest, the Sioux Empire Fair, Brown County Fair, South Dakota State Fair or any of several other gatherings this month, be sure to check in with your local electric cooperative.

Those heading to FarmFest Aug. 7-9 near Morgan, Minn., will find Touchstone Energy® Cooperatives in the large ag tent. At DakotaFest, visitors can stop in for the air-conditioned comfort of the Touchstone Energy® Cooperatives building on festival's second street. DakotaFest is held near Mitchell, S.D., each August. This year, the event is set for Aug. 21-23.

If you're in western South Dakota on Aug. 2, you will find Butte Electric Cooperative in Newell partnering with West River Cooperative Telephone of Bison to serve barbecued beef during the Butte County Fair in Nisland.

And, Black Hills Electric is making the rounds at area fairs when it serves dinner at the Fall River County Fair on Aug. 2 and then the Custer County Fair on Aug. 9.

Those heading to the Sioux Empire Fair in Sioux Falls in August will want to be sure to check out Ag Appreciation Day Aug. 8. Several cooperatives in the southeastern part of the state have tickets available for free admission and a free meal that day.

And, if experiencing the magic of the South Dakota State Fair is on your agenda for Aug. 30 to Sept. 3, be sure to visit the Touchstone Energy Cooperatives of South Dakota booth in the Expo Building throughout the week. Sign up for a drawing and visit co-op employees from across the state to learn about electrical safety, energy efficiency and more!



Visitors to DakotaFest in 2017 were reminded to look out for overhead power lines when moving equipment.



**Find your local electric cooperative in the Expo Building on the fairgrounds all week!**

We'll see you there!

**Location:**  
1060 3rd St. SW,  
Huron, SD 57350

# WHAT TO DO: IF YOUR CAR CRASHES INTO A UTILITY POLE

**Accidents happen.** Would you know what to do if your car crashed into an electric utility pole? Knowing what to do could be the difference between life and death.

**Always consider power lines and other electrical equipment to be live and dangerous!**

## IF A POWER LINE FALLS ON YOUR VEHICLE AND THERE IS **NO** FIRE:

Your safest option is to stay inside your vehicle until help arrives. The vehicle acts as a path for the electrical current to travel to reach the ground. You are safe inside the vehicle, but if you get out, you could be electrocuted.

**Call 911 or your local electric utility for help.**

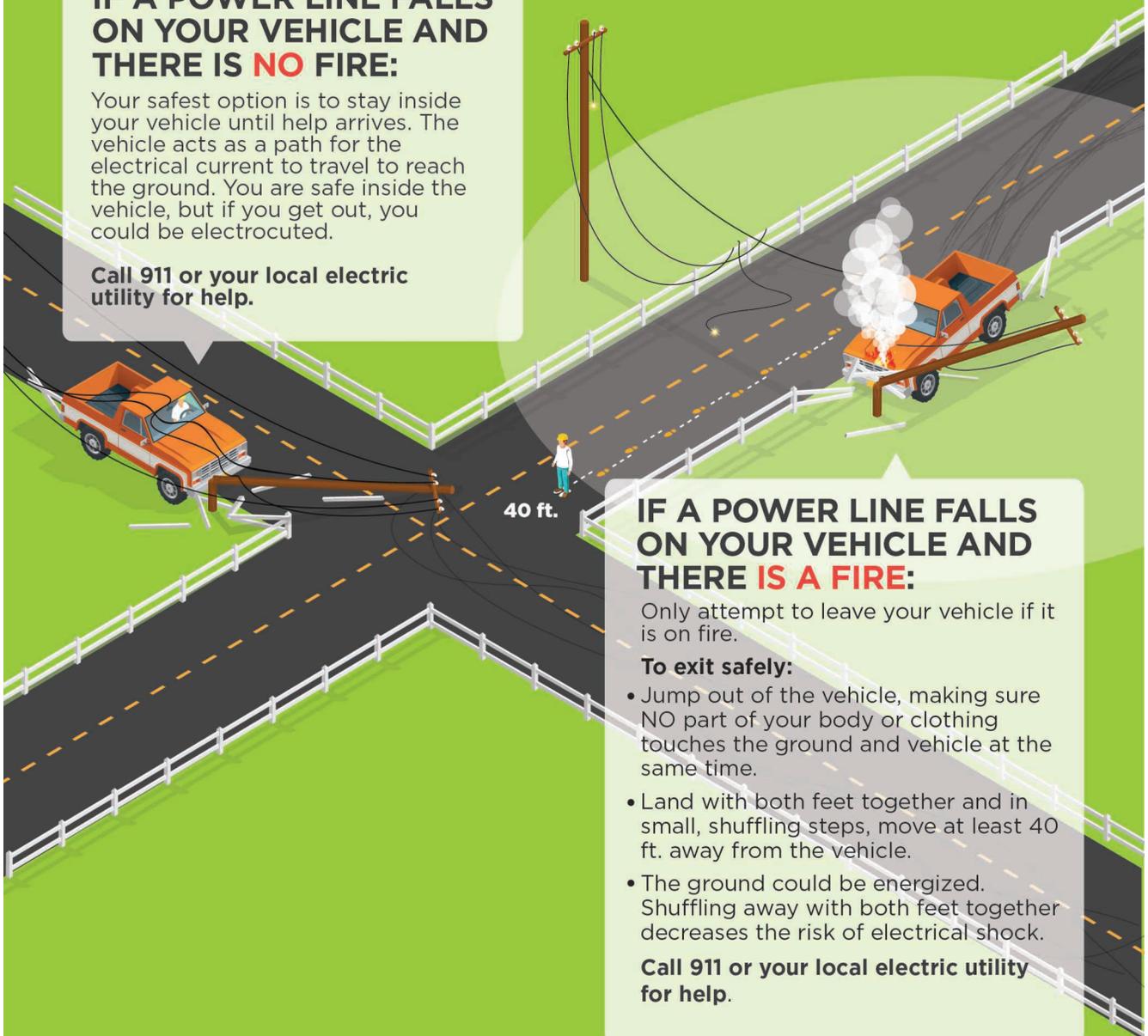
## IF A POWER LINE FALLS ON YOUR VEHICLE AND THERE IS **A** FIRE:

Only attempt to leave your vehicle if it is on fire.

### To exit safely:

- Jump out of the vehicle, making sure **NO** part of your body or clothing touches the ground and vehicle at the same time.
- Land with both feet together and in small, shuffling steps, move at least 40 ft. away from the vehicle.
- The ground could be energized. Shuffling away with both feet together decreases the risk of electrical shock.

**Call 911 or your local electric utility for help.**



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**July 20-21**

Gumbo Ridge Bronc Ride and Ranch Rodeo, Murdo, SD, 605-669-3031

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**July 20-21**

JazzFest, Sioux Falls, SD, 605-335-6101

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**July 20-21**

Storybook Land Festival, Aberdeen, SD, 605-626-7015

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**July 20-22**

Gold Discovery Days, Various locations and times, Custer, SD, 605-673-2244

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**July 20-22**

Laura Ingalls Wilder Pageant, 8 p.m., Pageant Site, De Smet, SD, 800-880-3383

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**July 20-22**

Annual Gem & Mineral Show, Rushmore Plaza Civic Center, Rapid City, SD, 605-269-2015

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**July 20-22**

Stampede Rodeo, Burke, SD, 605-830-0304

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**July 21**

Annual Heritage Music Fest, Elk Point, SD, 605-366-9466

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**July 21-22**

41st Annual Festival in the Park, Spearfish, SD, 605-642-7973

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**July 25**

Nature Day Camp - Track Detectives, 9:30 a.m. to noon, Age 7-12, Game Lodge Campground playground area, Custer State Park, SD, 605-255-4515

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**July 28**

Growing Ancient Grains and Greenhouse Tomato Tours, Local Foods Potluck, 1 to 5 p.m., Free, Bring a dish to share, Newell, SD, 605-681-6793



**August 2-5: 33rd Annual Oglala Lakota Nation Wacipi Rodeo Fair, Pow Wow Grounds, Pine Ridge, SD, 605-867-8420**

Photo courtesy: travelsd.com

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**August 1-5**

Fall River County Fair, Fairgrounds, Edgemont, SD, <http://fallrivercountyfair.org/>

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**August 2-11**

Custer Crusin', Various locations and times, Custer, SD, 605-673-2244

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**August 2**

Fall River County Fair Chuckwagon feed, 5 to 6:30 p.m., Fairgrounds, co-sponsored by Black Hills Electric Cooperative, Edgemont, SD, [fallrivercountyfair.org](http://fallrivercountyfair.org)

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**August 4-11**

Biker Breakfast, 7:30 to 11 a.m., Senior Center, Hill City, SD, 605-574-2368

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**August 5**

Legion Riders Freedom Ride Poker Run and Dinner, 10 a.m. State Veterans Home, Hot Springs, SD, 605-745-4140

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**August 9**

Custer County Fair Kickoff Dinner, 5 to 6:30 p.m., Fairgrounds, co-sponsored by Black Hills Electric Cooperative, Hermosa, SD, 605-673-4461

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**August 9-12**

Custer County Fair, Various times and locations, Hermosa, SD, [www.custercofair@aol.com](http://www.custercofair@aol.com)

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**August 15**

Nature Day Camp - All about buffalo, 9:30 a.m. to noon, Ages 7-12, Game Lodge Campground Playground area, Custer State Park, SD, 605-255-4515

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**August 17-18**

Southern Hills Music and Arts Festival, Pageant Hill, Custer, SD, 605-673-2244

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**August 18**

Lean Horse 100 Ultra Marathon, 6 a.m., Football Field, Custer, SD, 605-673-2244

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**August 18**

Wildcat Classic Mountain Bike Race, 8 a.m. to 4 p.m., Chautauqua Park, Hot Springs, SD, 605-745-4140

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**August 25-26**

Fall River Hot Air Balloon Festival, Sunrise, Airport, Hot Springs, SD, 605-745-4140

To have your event listed on this page, send complete information, including date, event, place and contact to your local electric cooperative. Include your name, address and daytime telephone number. Information must be submitted at least eight weeks prior to your event. Please call ahead to confirm date, time and location of event.